



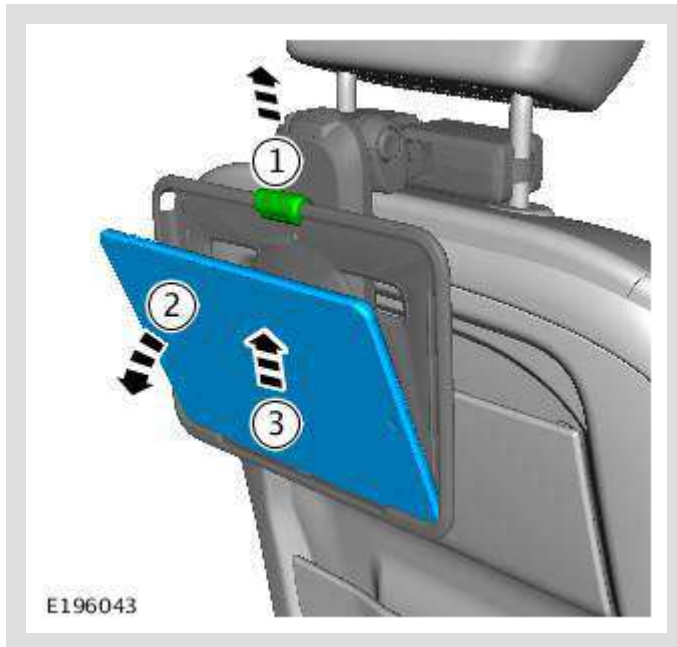
ITEM	DESCRIPTION
1	front
2	right
3	rear
4	left

HOW TO USE REPAIR PROCEDURES

This manual has been written in a format that is designed to meet the needs of technicians worldwide. It provides general descriptions for accomplishing repair work with tested and effective techniques.

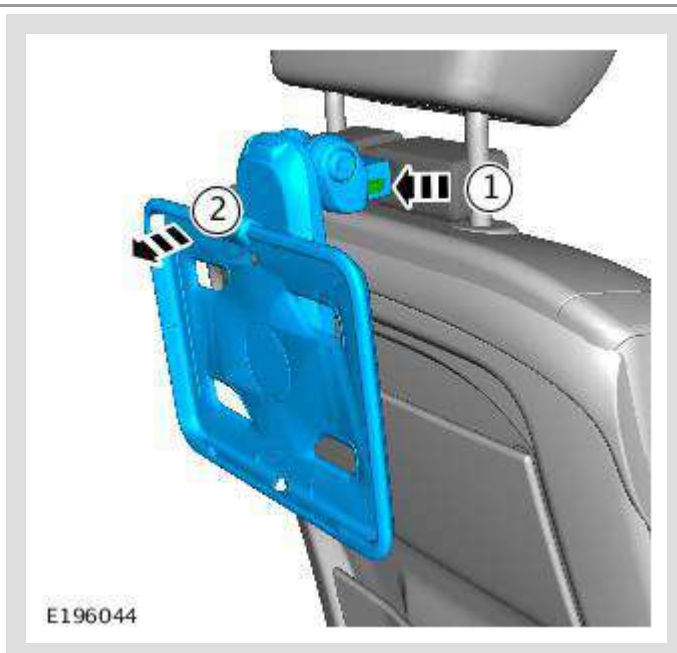
IMPORTANT SAFETY INSTRUCTIONS

Appropriate service methods and correct repair procedures are essential for the safe, reliable operation of all motor vehicles as well as the personal safety of the individual carrying out the work.



1. Raise the retaining clip.
2. Move the tablet as illustrated.
3. Remove the tablet.

2.




1. Depress the buttons.

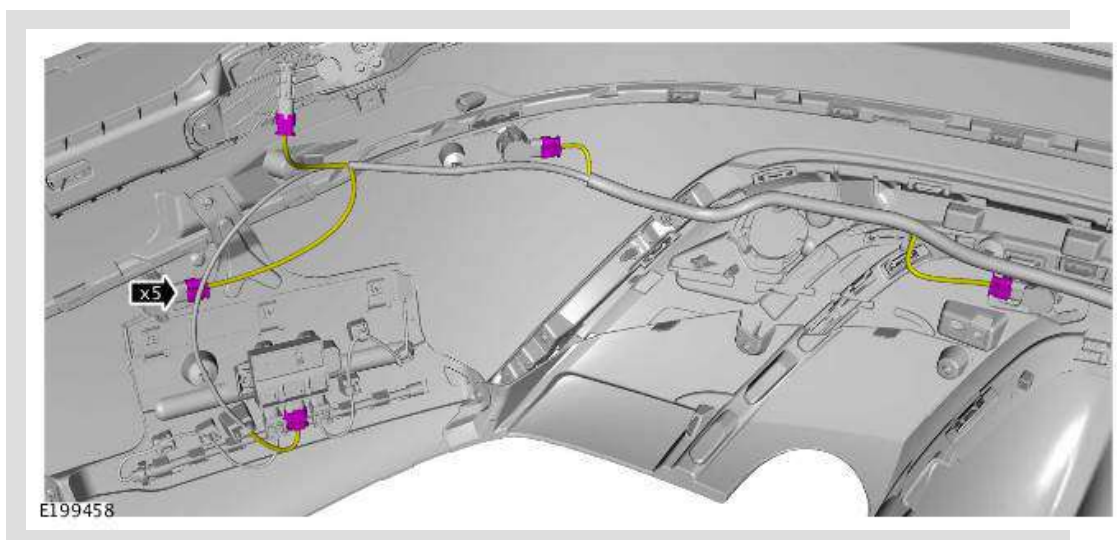


With assistance, remove the rear bumper.

16.

 **NOTE:**

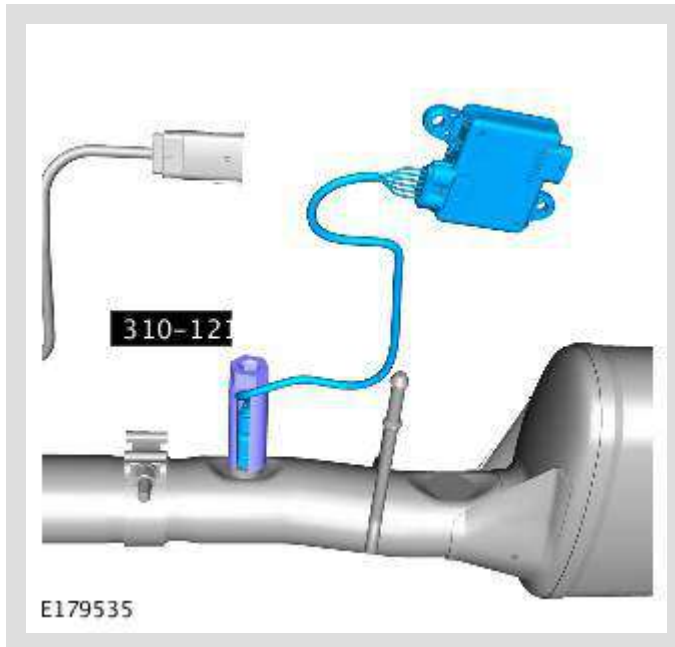
Only carry out the following step(s) if a new component is to be installed.



Disconnect the 5 electrical connectors.


17.

22.

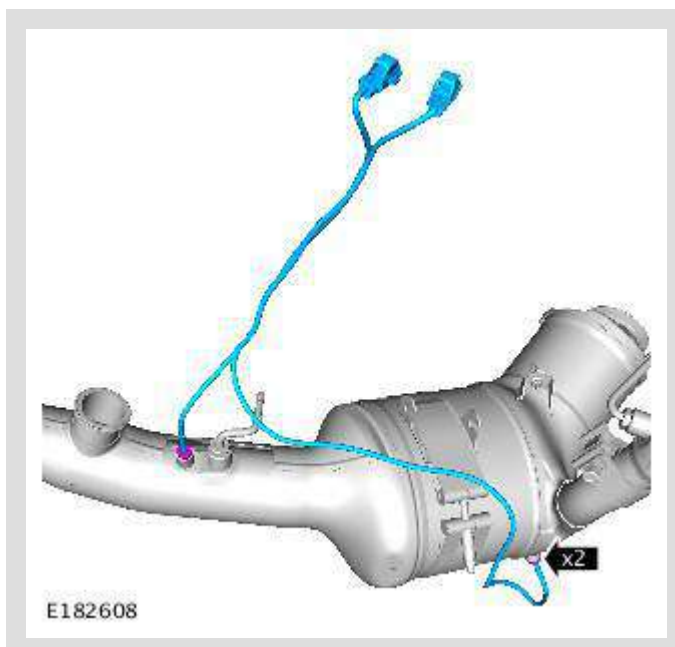


Remove the DEF sensor and control unit from the exhaust assembly.

23.

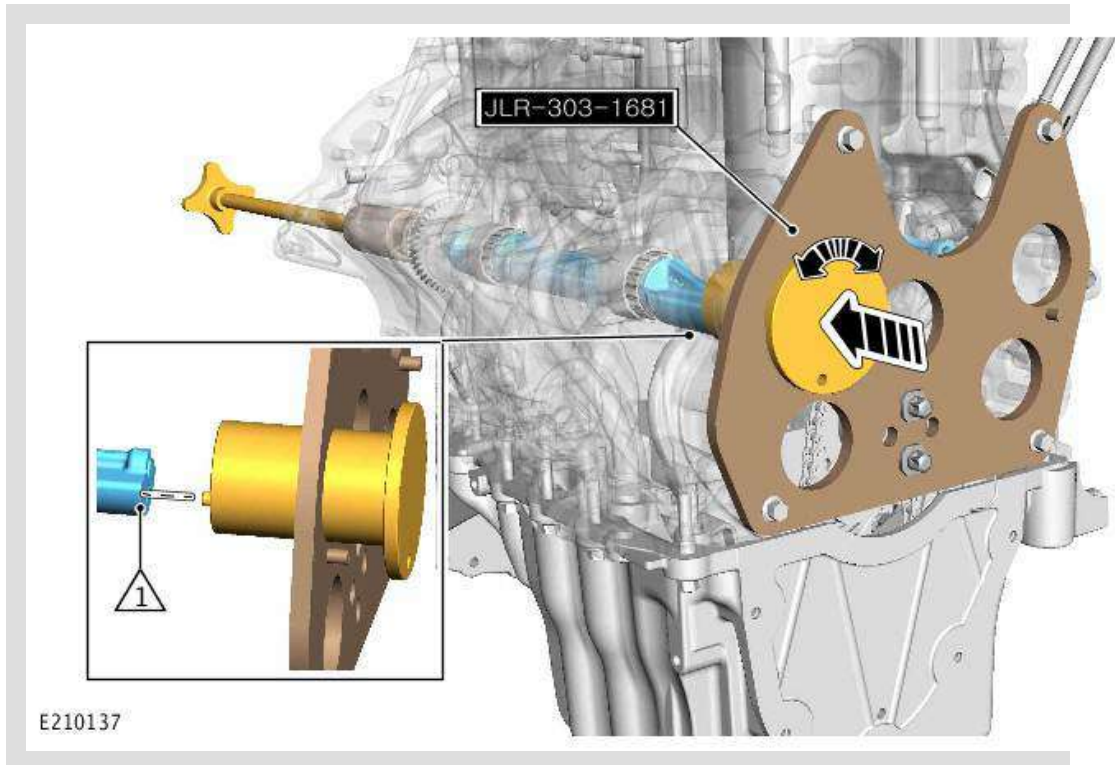
 **NOTE:**

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



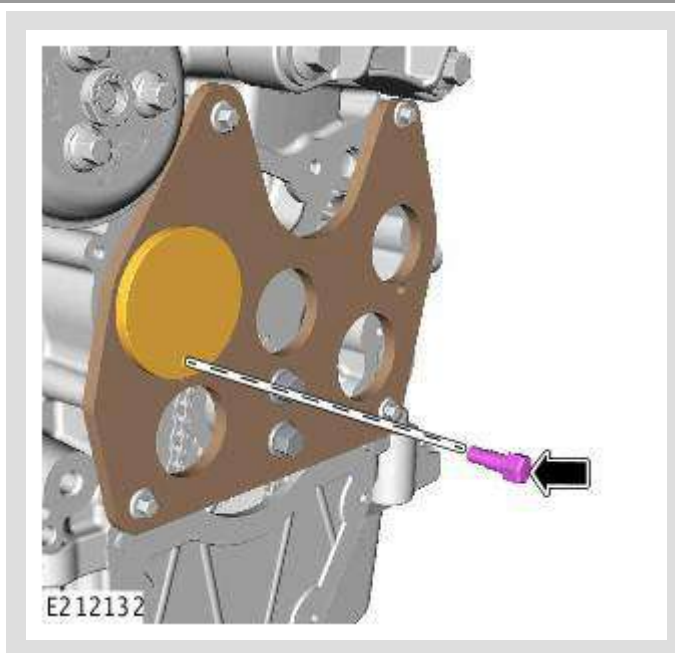
Remove the DPF pressure sensors.

4.



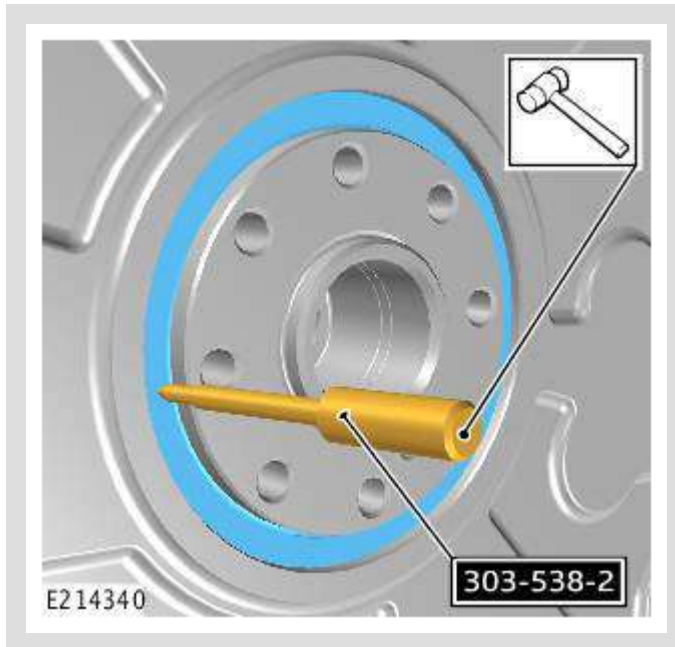
Install the balance shaft alignment tool through the support plate, make sure the tool is installed correctly into the balance shaft holes (1).

5.



Install the alignment tool bolt finger tight.

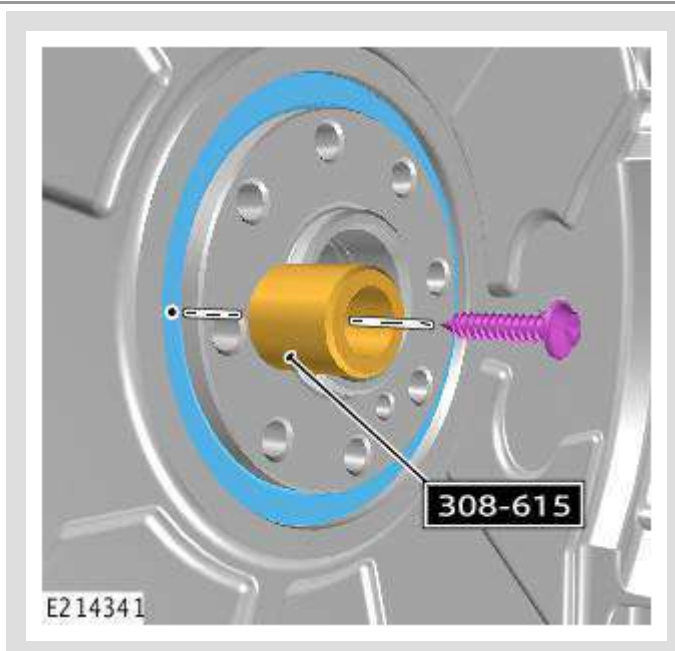
4.



Using the special tool, center punch the crankshaft rear oil seal.

Special Tool(s): [303-538-2](#)

5.



Install the special tool to the crankshaft rear oil seal.

Special Tool(s): [308-615](#)

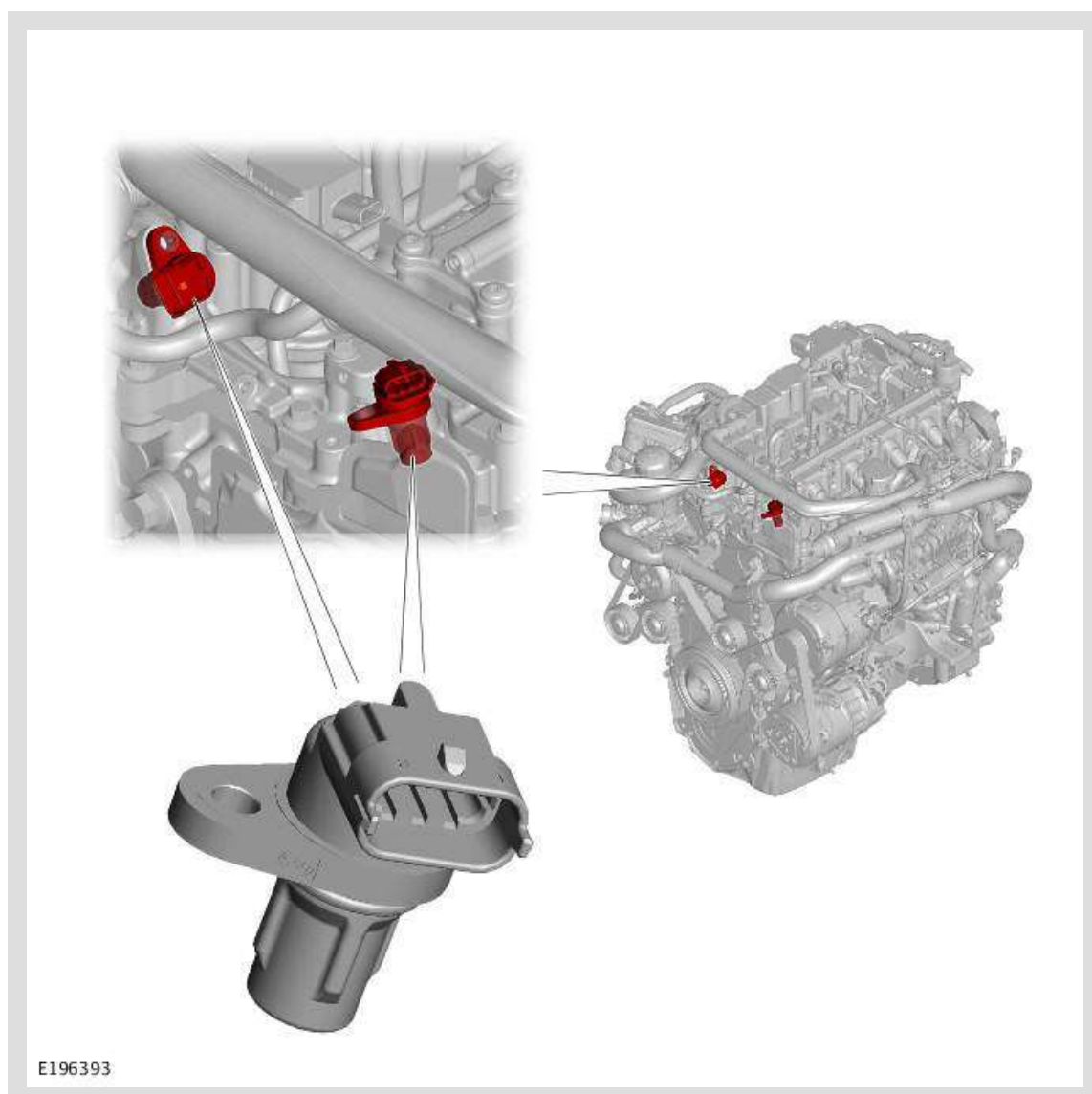
missing. The CKP sensor is a Hall effect sensor which uses the missing teeth on the trigger wheel to determine the crankshaft position and rotational speed.

If a fault occurs with the CKP sensor, a Diagnostic Trouble Code (DTC) is registered in the PCM. The engine will continue to operate using data from the Camshaft Position (CMP) sensor until the fault has been corrected.

The PCM uses the signal from the CKP sensor for the following functions:

- Synchronization
- Determine fuel injection timing
- Produce an engine speed signal which is broadcast on the FlexRay bus for use by other systems.

CAMSHAFT POSITION SENSOR

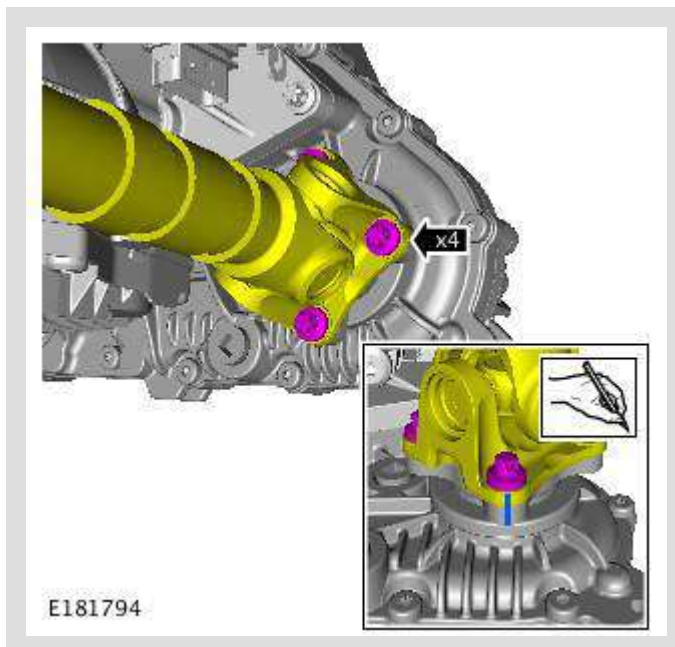


The Camshaft Position (CMP) sensors are located in the camshaft carriers and are secured with a screw. Both CMP sensors extend into the camshaft carriers and are sealed with O-ring seals. When the reluctor ring is repeatedly moved over the CMP

1.

! CAUTION:

- Mark the position of the driveshaft flange in relation to the drive pinion flange.
- To avoid damage to the joint or gaiter, do not allow the driveshaft to hang.
- Discard the bolts.



Remove and discard the driveshaft bolts.

PUBLISHED: 17-JAN-2017
2018.0 RANGE ROVER VELAR (LY), 412-01

CLIMATE CONTROL

THERMOSTATIC EXPANSION VALVE

(G2049226)

REMOVAL AND INSTALLATION

82.25.01	VALVE - THERMOSTATIC EXPANSION - RENEW	2000 CC, INGENIUM DIESEL	10.3	USED WITHINS
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PART(S)

STEP	PART NAME	QUANTITY
Removal Step 5	Air conditioning pipes O-ring seal	1
Removal Step 6	Thermostatic expansion valve O-ring seal(s)	1

REMOVAL

1. Disconnect the startup battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
2. Remove the climate control assembly.
Refer to: Heater Core and Evaporator Housing (412-01 Climate Control, Removal and Installation).

Memory (RAM) combined with a fast access 60 GB Solid State Drive (SSD). Vehicles fitted with Rear Seat Entertainment (RSE) have an IMC with a 160GB SSD.

 **NOTE:**

The Solid State Drive (SSD) capacity for North America Specification (NAS) vehicles, equipped with Rear Seat Entertainment (RSE), remains at 60 Gigabyte (GB). There is no Television (TV) option for NAS markets.

The IMC has the following integrated features:

- Amplitude Modulation (AM)/Frequency Modulation (FM) diversity
- Digital Audio Broadcast (DAB) radio (Rest Of World (ROW))
- Satellite Digital Audio Radio Service (SDARS)/HD radio™ (North America Specification (NAS) only)
- Digital Television (TV) (Not North America Specification (NAS) or Hong Kong)
- Bluetooth® mobile phone and audio streaming
- InControl Apps
- Voice recognition
- WiFi receiver
- Solid State Drive (SSD) navigation
- 1x High Definition Multimedia Interface (HDMI)/Mobile High-Definition Link (MHL) input port
- Portable media interface panel input port for SIM card input and Universal Serial Bus (USB) 3.0
- Without Rear Seat Entertainment (RSE) - 60GB SSD storage (up to 10GB user media storage)
- With RSE - 160GB Solid State Drive (SSD) storage (up to 110GB user media storage). NAS only vehicles with RSE have 60GB SSD storage (up to 10GB user media storage).

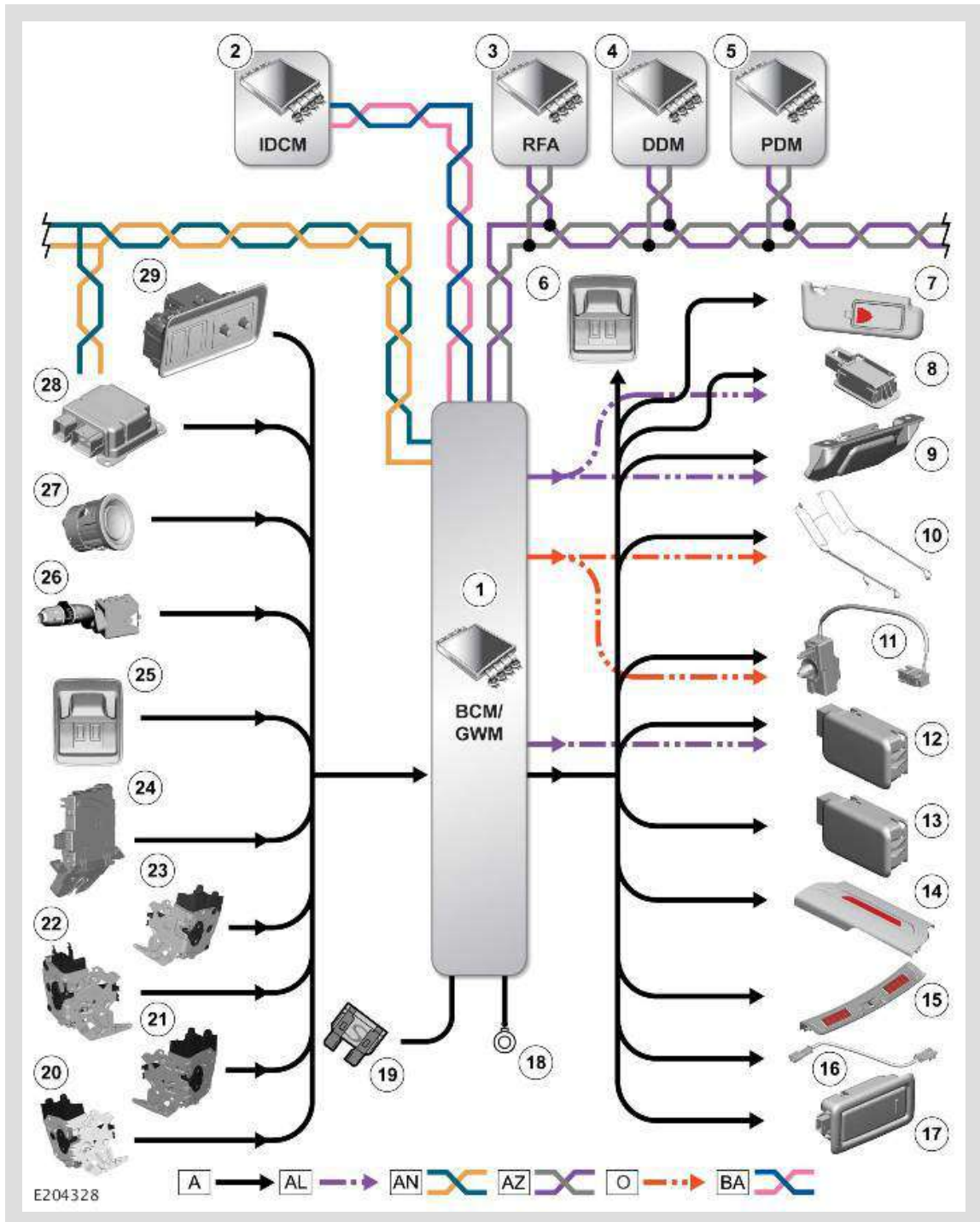
When the vehicle systems become active, the IMC is woken up by Controller Area Network (CAN) bus activity on the High Speed (HS) CAN Human Machine Interface (HMI) systems bus. The IMC then turns on the Interactive Control Display Module (ICDM).

The IMC incorporates an Amplitude Modulation (AM)/Frequency Modulation (FM) tuner. The following market dependent systems are available:

The Body Control Module/GateWay Module (BCM/GWM) assembly can be interrogated using an approved diagnostic system to establish the correct operation of:

- The front interior lamp switch.
- The door ajar switches.
- the tailgate ajar switch.

CONTROL DIAGRAM



Carry out diagnosis of electrical failure as advised in Action column of DTC Index.

No

Contact your local in market support for assistance.

PINPOINT TEST D : NO AUDIO FROM THIRD PARTY

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
D1: 'IN CALL' DISPLAY	
Prior to continuing with any diagnosis, ensure that the customer telephone and level of software is included on the JLR approved list, the telephone battery is fully charged and in a serviceable condition, the telephone is placed within the vehicle cabin area and is connected to the vehicle via Bluetooth®.	
	1 Carry out checks to determine if 'In Call' is shown on the vehicle display.
	Is vehicle display showing 'In Call'? Yes Contact your local in market support for assistance. No Call has ended. No further action is required for this symptom.

PINPOINT TEST E : NO AUDIO

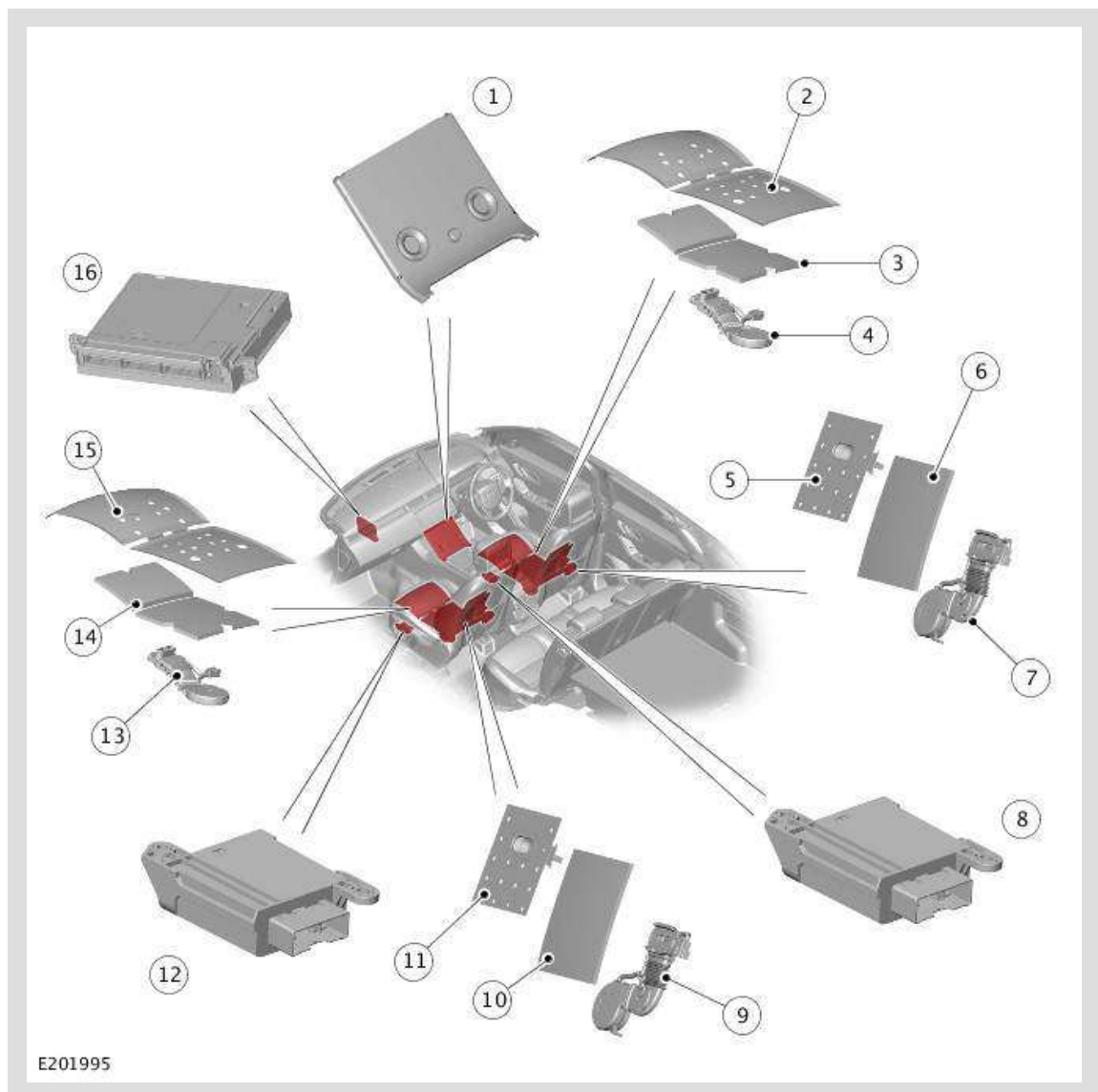
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
E1: AUDIO FROM THIRD PARTY	
Prior to continuing with any diagnosis, ensure that the customer telephone and level of software is included on the JLR approved list, the telephone battery is fully charged and in a serviceable condition, the telephone is placed within the vehicle cabin area and is connected to the vehicle via Bluetooth®.	
	1 Establish from customer feedback/symptom if there is audio from the Third Party.
	Is there audio from the Third Party? Yes GO to E2 . No Refer to the 'No Audio From Third Party' Pinpoint test.
E2: AUDIO TO THIRD PARTY	
	1 Establish from customer feedback/symptom if there is audio to the Third Party.
	Is there audio to the Third Party? Yes GO to E3 . No Refer to the 'No Audio To Third Party' Pinpoint test.
E3: CD OR RADIO AUDIO	
	1 Establish from customer feedback/symptom if there is audio from the CD or Radio.
	Is there audio from the CD or Radio? Yes GO to E4 . No

5	Rear right seat backrest heater element
6	Rear left seat backrest heater element
7	Rear left seat cushion heater element with integrated Seat Heater Control Module (SHCM)
8	Rear Integrated Control Panel (RICP)
9	Passenger seat backrest heater element
10	Passenger seat cushion heater element with integrated Seat Heater Control Module (SHCM)
11	Automatic Temperature Control Module (ATCM)

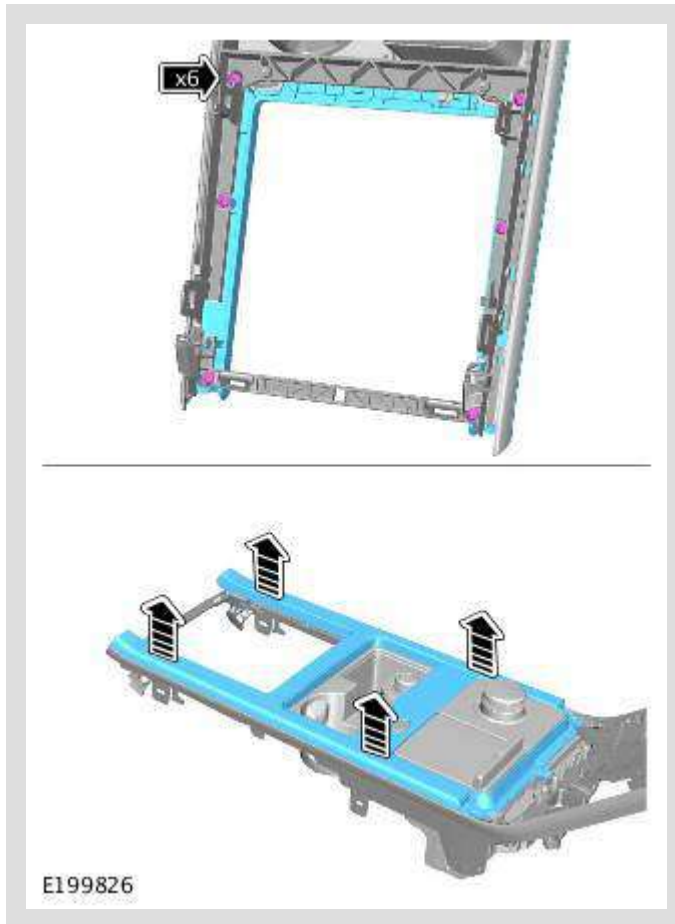
COMPONENT LOCATION - CLIMATE SEATS - IF EQUIPPED

NOTE:

Right Hand Drive (RHD) variant shown, Left Hand Drive (LHD) variant is similar.

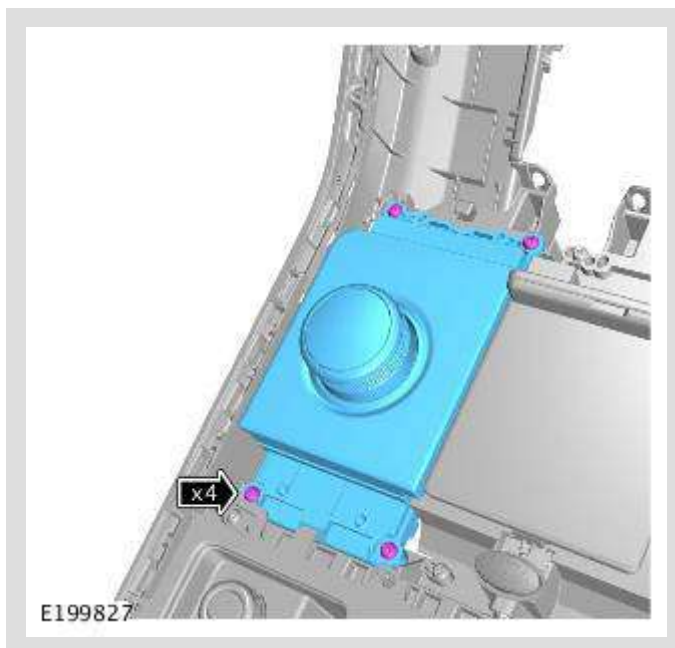


13.

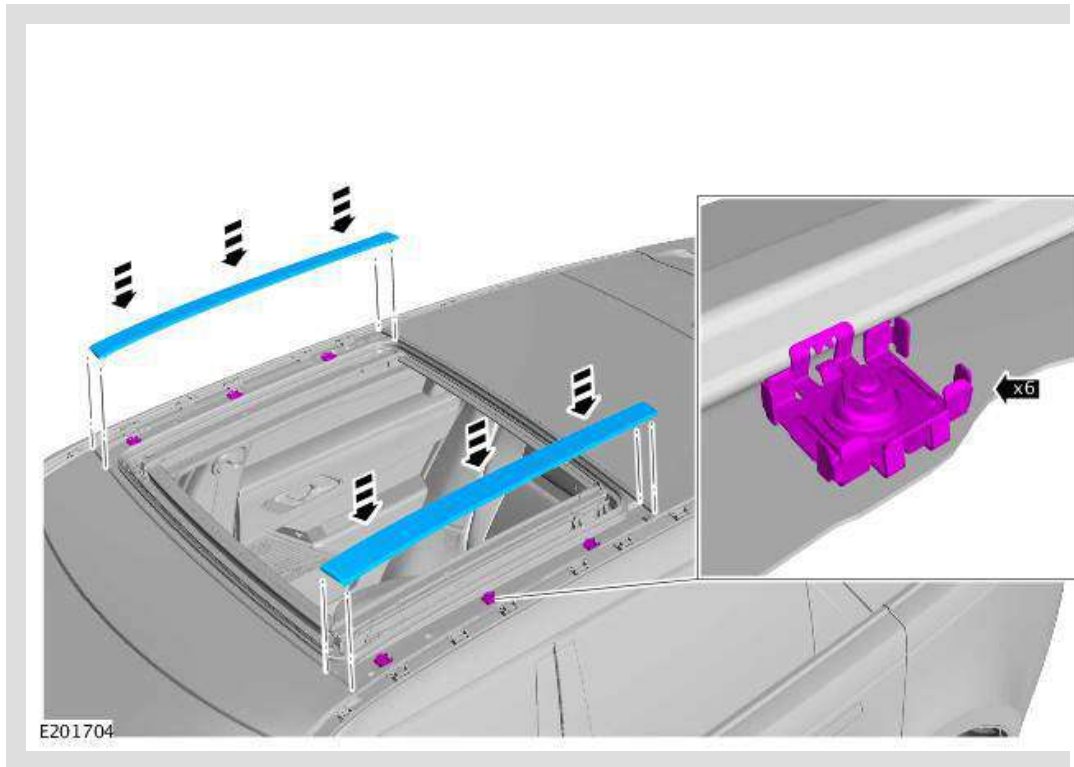


- Remove the 6 screws.
- Remove the floor console upper surrounding trim.

14.




- Remove the 4 screws.
- Remove the Transmission Control Switch (TCS).



Install both roof opening panel side finishers.

6.


 **NOTE:**

The procedure must be carried out on both sides.

Install the roof mouldings.

Refer to: [Roof Moulding](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

7.

 **NOTE:**

If equipped.

Install the roof rails.