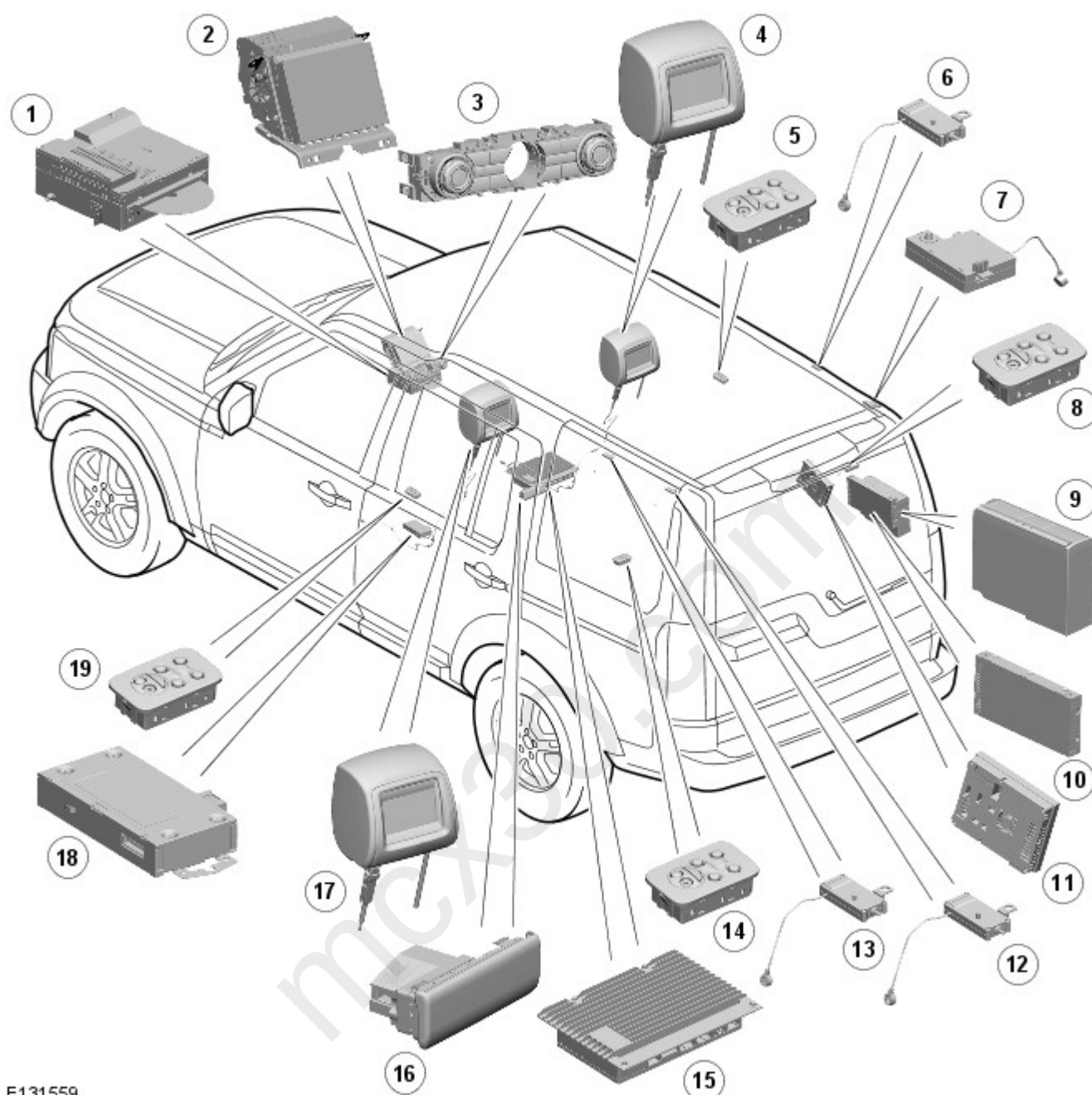


Video System - Video System

Description and Operation

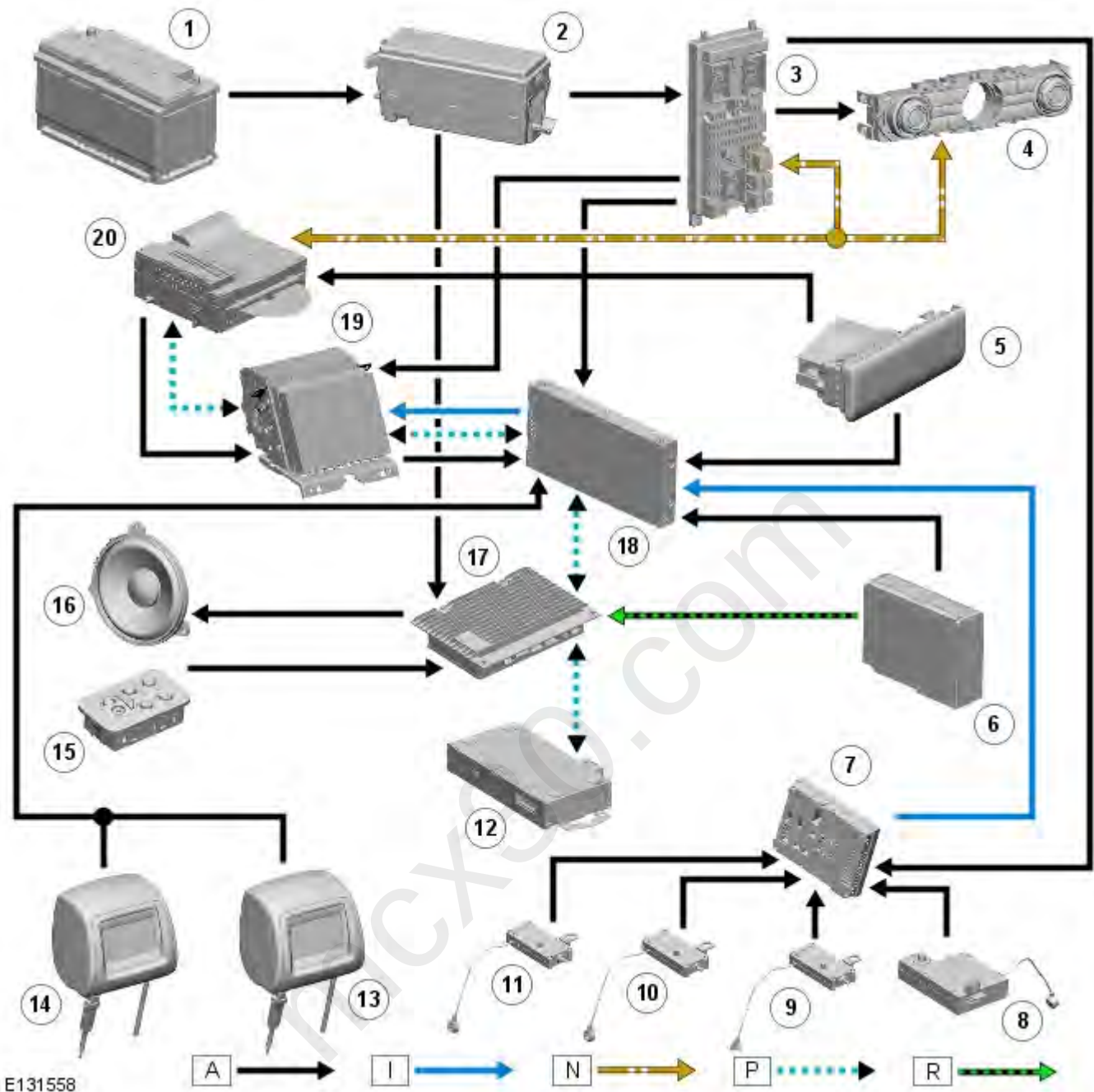


E131559

Item	Part Number	Description
1	-	IAM (integrated audio module)
2	-	Touch screen display
3	-	ICP (integrated control panel)
4	-	RH (right-hand) rear LCD screen
5	-	right-hand (RH) row two remote audio controls
6	-	TV Antenna
7	-	TV Antenna
8	-	RH row three remote audio controls
9	-	DVD Changer
10	-	Rear entertainment module
11	-	Television tuner module
12	-	TV Antenna
13	-	TV Antenna
14	-	left-hand (LH) row three remote audio controls
15	-	Audio amplifier
16	-	Audio/Video input/output panel
17	-	LH (left-hand) rear LCD screen
18	-	Portable audio module
19	-	LH row two remote audio controls

Video System Control Diagram

• NOTE: **A** = Hardwired; **N** = Medium Speed CAN Bus; **P** = MOST; **R** = SPDIF (Sony); **I** = CVBS



E131558

Item	Part Number	Description
1	-	Battery
2	-	EJB (engine junction box)
3	-	CJB (central junction box)
4	-	ICP (integrated control panel)
5	-	Audio/Video input/output panel
6	-	DVD changer
7	-	TV tuner
8	-	TV antenna
9	-	TV antenna
10	-	TV antenna
11	-	TV antenna
12	-	Portable audio module
13	-	RH rear LCD screen
14	-	LH rear LCD screen
15	-	Remote audio controls
16	-	Speakers
17	-	Amplifier
18	-	Rear entertainment module
19	-	Touch screen display (TSD)

The Video system comprises:

- Front screen (Navigation Touch screen Display TSD)
- Television tuner module
- Television antennas
- Rear remote control headphone modules

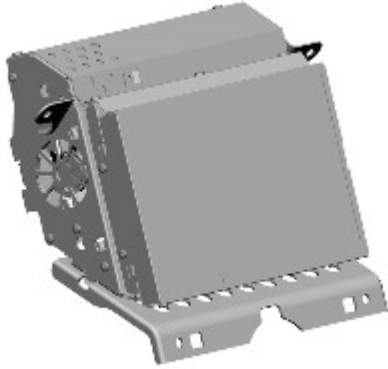
TELEVISION

The television system receives television signals from television antennas in the rear side screens. The antennas are connected to the television tuner via coaxial leads.

For additional information, refer to: [Antenna](#) (415-02 Antenna, Description and Operation).

COMPONENT DESCRIPTION

Touch Screen Display



E131562

The Touch Screen Display (TSD) is located in the center of the instrument panel and is the driver control interface for the infotainment system. The TSD is connected to the MOST ring and communicates with the other components in the audio/infotainment system.

The TSD communicates with the RSE module via a co-axial cable. The TSD processes its own video for system operation but receives the video image data from the RSE via the co-axial cable.

The TSD also provides driver display and control of the audio system, telephone, the rear view camera, proximity cameras, the Traffic Message Channel (TMC) and the navigation system.

The RSE and other systems are operated by 'virtual' buttons displayed on the touch screen.

Care should be taken with the TSD to ensure its correct operation

- The screen should be cleaned with a lightly, water moistened cloth. Do not use chemical agents or domestic products to clean the screen or any part of the surround.
- Only use your finger to operate the touch screen. Ensure you only use one finger to avoid incorrect entries.
- A short light press of the touch screen is sufficient. Excessive pressure can damage the screen.

IAM (Integrated Audio Module)

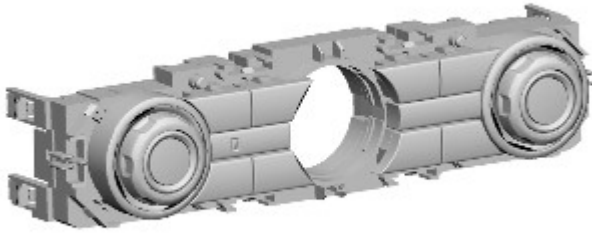


E121832

The IAM is located in the Instrument panel and incorporates the following systems:

- HD Radio (where fitted)
- Bluetooth® receiver (telephone and audio streaming)
- 40 Gb Hard drive
- USB controller (front)
- Audio AUX
- CD player

ICP (Integrated Control Panel)

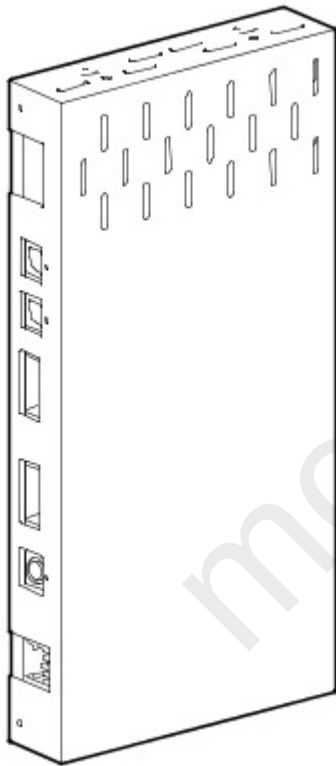


E131563

The ICP duplicates many of the touch-screen audio user control features. Any volume setting made whilst in audio, TV, phone, navigation or voice activation mode will be memorized for that system. The ICP communicates with the IAM on the medium speed CAN (controller area network) . The IAM converts control/command signals from the ICP and then distributes the information onto the MOST system to the audio system and other information and entertainment systems.

No configuration procedure is required if the ICP is replaced. There is no option to calibrate the ICP using the Land Rover approved diagnostic equipment.

Rear Seat Entertainment Module



M866142

The Rear Seat Entertainment (RSE) module is located in the rear RH side of the luggage compartment. The RSE module is an interface between the video and audio inputs from other system components and the video display and audio outputs.

The RSE module communicates with the audio systems via the MOST connection. Audio output from the DVD autochanger or the AVIO panel is processed by the RSE module and passed on the MOST ring to the audio amplifier to allow audio output to be played through the vehicle speakers or the headphones.

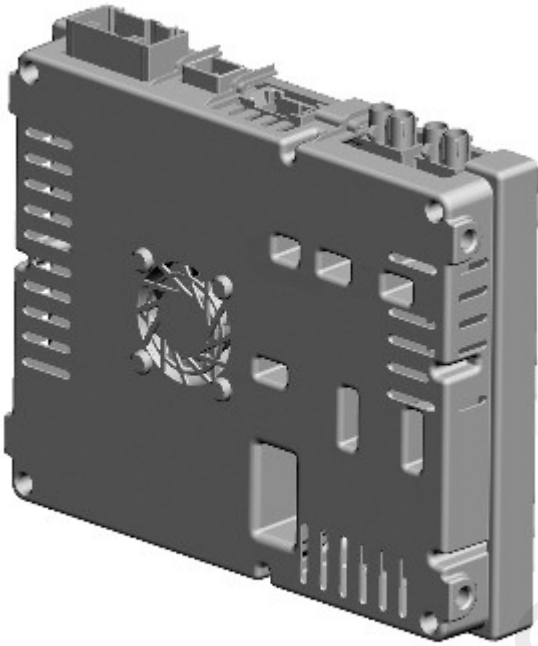
Video input from the TV tuner, DVD (digital versatile disc) autochanger and the Audio Video Input/Output (AVIO) panel is also processed by the module and passed to the two RSE LCD (liquid crystal display) screens and the TSD on separate video connections. The RSE module also controls the power supplies to the RSE LCD (liquid crystal display) screens and relays the infra-red remote control signals received by the RSE LCD (liquid crystal display) screen infra-red sensors to the DVD (digital versatile disc) autochanger. The infra-red signals are passed from the RSE LCD (liquid crystal display) screens to the RSE module on a bus system known as the IS bus.

The RSE module has two modes of operation; engine running mode and reduced operation mode. With the engine running the RSE module has full functionality. When the engine is not running the RSE module has reduced functionality to prevent excessive drain on the vehicle battery. The reduced functionality comprises a reduced audio volume and time limit on system operation.

The reduced audio volume is only active when the engine is not running. The audio volume is limited to reduce battery consumption. If the volume was set at a higher level than this when the engine was running, when the engine is subsequently started, the volume level will gradually increase to the previously selected setting. This prevents the user being distracted by a sudden increase in volume.

The time limit operation is active when the ignition is off and the system is manually switched on using the TSD. The system will operate for a maximum of one hour. The battery voltage is continually monitored by the IHU. If the IHU detects that the battery voltage has fallen to a predetermined level, the IHU will shut the infotainment system down to prevent further battery drain. Once the system has shut down due to low battery voltage, it can only be restarted when the engine is running and the battery voltage has risen above the threshold level for more than one minute.

Television Tuner



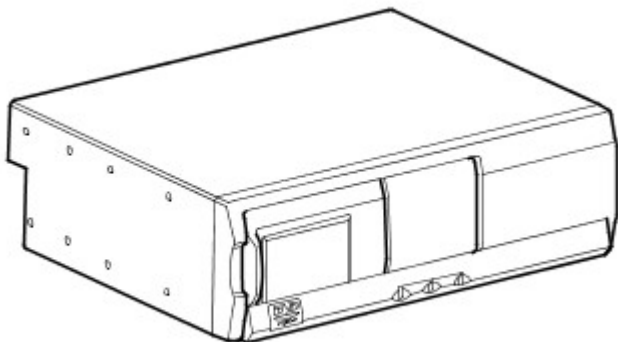
E128344

The television tuner module is located in the rear RH side of the luggage compartment. The television tuner is connected to the rest of the video system on the MOST bus. Audio and control signals are passed on the MOST bus while video is transmitted via a coaxial cable to the Touch Screen Display (TSD).

Television audio can be heard through the vehicle speakers and the remote control rear headphone modules. The audio will continue to be heard whilst the vehicle is moving, however the television picture will stop displaying once the vehicle starts to move.

- **NOTE:** The television tuner module is located beneath the RH front seat on Japanese specification vehicles.

DVD Autochanger



M866141

The DVD (digital versatile disc) autochanger is located in the rear RH side of the luggage compartment. The DVD (digital versatile disc) player is a six disc design which will accept DVD (digital versatile disc) movies, video CD (compact disc) (VCD) and music CD (compact disc) on CD-R or CD-RW. The discs are housed in a magazine to allow six discs to be stored in the unit. Additional magazines can be purchased to allow greater flexibility. The magazine is accessible via a sliding

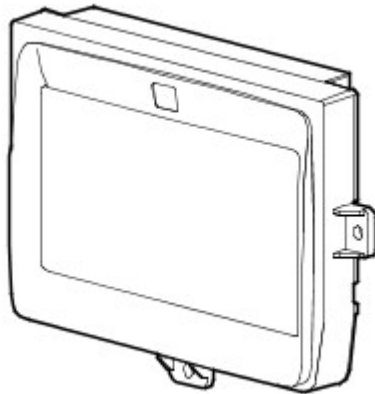
door on the front of the unit. An eject button, located behind the door automatically ejects the magazine from the unit when pressed.

The DVD (digital versatile disc) autochanger is operated using a remote control unit supplied with the vehicle. The remote control is an infra-red unit which transmits the infra-red signal to receivers located in each RSE LCD (liquid crystal display) screen.

The DVD (digital versatile disc) autochanger receives the remote control information from the RSE LCD (liquid crystal display) screens.

A Sony Philips Digital Interface Format (SPDIF) is used to output the audio from the DVD (digital versatile disc) autochanger to the audio amplifier. The SPDIF is an optical system connected between the DVD (digital versatile disc) autochanger and the audio amplifier. SPDIF is a standard audio file transfer format which allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format which maintains the viability of the digital audio signal.

LCD Screens



The RSE LCD screens are located in the rear of the front seat head restraints. The screen is secured in the head restraint with three screws which are covered by a removable surround. The screen is a 6.5 inch, auto dimming, high resolution LCD (liquid crystal display) monitor, manufactured by Alpine

An infra-red receiver sensor is located centrally in the upper screen surround. The receiver sensor receives infra-red transmissions from the DVD (digital versatile disc) remote control and passes them to the DVD (digital versatile disc) autochanger, via the RSE module on a bus system known as the IS bus. All screen settings can be changed using the RSE remote control.

The screen should be cleaned with a lightly, water moistened cloth. Do not use chemical agents or domestic products to clean the screen or any part of the surround.

Each RSE LCD (liquid crystal display) screen is connected to the infotainment system using a 20 pin harness connector.

Remote Control



M866143

The remote control for operation of the DVD autochanger is a universal type. A switch on the rear of the control selects either the LH (left-hand) or RH (right-hand) screens and allows the individual settings for each screen to be changed as required. The switch has a central position which disables the remote control and prevents battery drain.

The remote control transmits an infra-red signal in response to operation of a button. The infra-red signal is received by a receiver sensor located on each RSE LCD (liquid crystal display) screen and is passed, via an IS bus to the RSE module and from the RSE module on an Alpine proprietary bus known as the Ai Net, to the DVD (digital versatile disc) autochanger. The remote control also allows selection of an auxiliary input from the AVIO panel (video or games console) or selection of audio (radio or CD (compact disc)).

The remote control is powered by two 'AAA' batteries located in the rear of the control and are accessible by removing a sliding cover. When inserting the batteries it is important that the battery polarity is observed as marked in the battery compartment. LED (light emitting diode) at the top left and right hand corner of the control indicates that the remote control is operating when a button is pressed. Only one LED (light emitting diode) will illuminate depending on which screen is selected. If the LED (light emitting diode) fails to illuminate when a button is pressed, the battery voltage may be low or the switch on the rear of the control may be set in the central 'off' position.

Remote Audio Controls



E48224

The second and third row seat passenger can use standard headphones to listen to audio from any of the sources fitted to the vehicle. These include:

- Television
- compact disc (CD)
- Radio
- DVD
- AUX Input

There are four remote audio control modules, two in the rear doors incorporating the rear window switches and two in the

rear load space each side of the third row seats.

The remote audio control modules allow the user to select which source to listen to. The remote controls cannot override what the driver has selected to listen to. If the driver is listening to a CD the rear passenger cannot control the CD player.

The remote audio control modules allow the user to alter the volume in the head phones, change track/disc up/down or repeat on a CD, change pre-set radio stations or tune up/down on the radio and television.

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Video System - Video System

Diagnosis and Testing

Principle of Operation

For a detailed description of the video system and operation, refer to the relevant Diagnosis and Testing section of the workshop manual. REFER to: Video System (415-07 Video System, Description and Operation).

Inspection and Verification



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

• **NOTE:** Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

1. **1.** Verify the customer concern.
2. **2.** Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection

Mechanical	Electrical
● Front touch screen display (TSD) installation and condition ● Rear seat entertainment (RSE) screen installation and condition ● Digital versatile disc (DVD) multi-changer installation and condition ● Television antennae (two in each rear side window)	● Fuses ● Electrical harnesses ● Fibre optic cable harnesses ● Infotainment relay ● Display screens ● DVD multi-changer ● Television tuner module ● RSE module ● Television antenna amplifiers (4) ● Remote control and batteries

3. **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. **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 relevant DTC Index.

Symptom Chart

Symptom	Possible Causes	Action
The DVD does not operate	● DVD multi-changer fuse blown ● No power to display screens ● Condensation	Check the DVD circuits for a short circuit causing fuse failure and rectify as necessary. Refer to the electrical guides. Check for power to the display screens, rectify as necessary. Refer to the electrical guides. Wait at least one hour for the condensation to dry out.
Remote control operation is unstable	● Handset batteries low on power ● Remote control receiver sensor or transmitter is dirty	Check and renew the batteries as necessary. Check and clean the receiver and transmitter as necessary.
There is no picture	● The display screen is set to an incorrect mode	Use the switch on the back of the handset to select the correct mode.
Playback does not start	● Disc is loaded upside-down ● An incorrect format of disc is loaded ● Parental lock is set ● The setup menu is displayed	Check that the disc is correctly loaded. Check that the disc format is compatible. Cancel parental lock or check the rating of the disc. Press SET for at least 2 seconds to turn the setup menu off.
The picture is unclear or noisy	● The disc is being fast forwarded or rewind ● The vehicle battery power is low	The picture may be slightly distorted in fast forward or rewind modes. Check the vehicle battery condition and state of charge.
The image "freezes"	● The disc is scratched	Load an undamaged disc.
NO MAG is displayed	● There is no magazine loaded into the DVD multi-changer	Load a magazine.
NO DISC is displayed	● There is no disc loaded into the magazine ● The disc is dirty	Load a disc into the magazine. Clean the disc as necessary.

Symptom	Possible Causes	Action
REGIONAL CODE VIOLATION is displayed	The disc loaded does not match the regional code number	Load a disc which matches the regional code number.
VIDEO SIGNAL IS NOT CORRECT is displayed	An NTSC disc is loaded into a PAL system, or vice versa	Load a disc of the correct format.
HI TEMP is displayed	The system protective circuit is activated as it has detected a high temperature	Turn the power OFF on the unit and then back on again. If the display does not clear, leave the power off until the temperature decreases and turn the power ON again.

DTC Index

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

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Video System - Digital Versatile Disc (DVD) Player

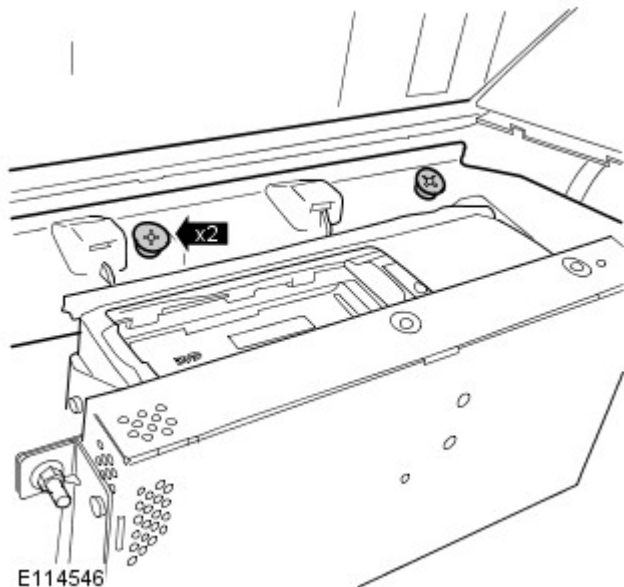
Removal and Installation

Removal

1. Remove the RH rear quarter trim panel.
For additional information, refer to: [Loadspace Trim Panel RH](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

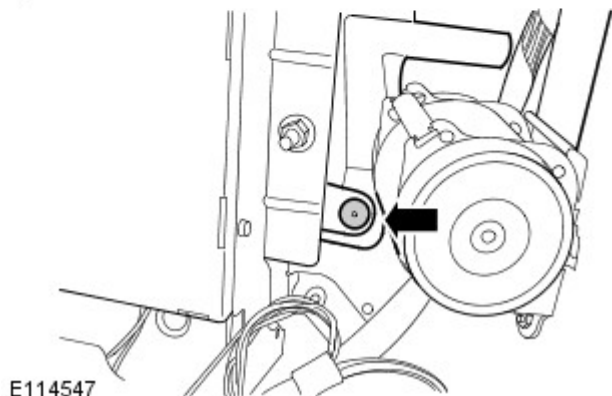
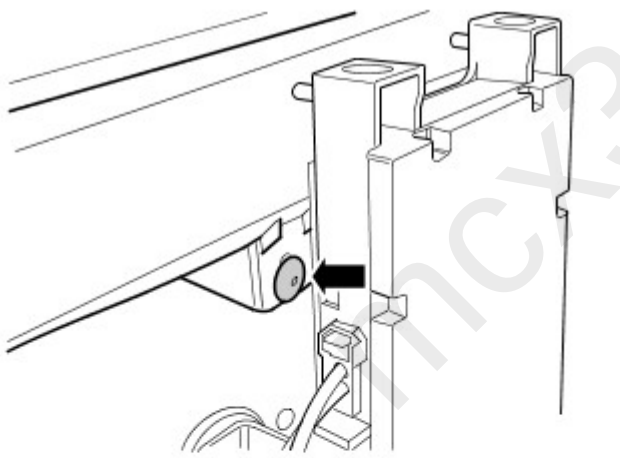
2. Release the rear quarter trim panel mounting bracket.

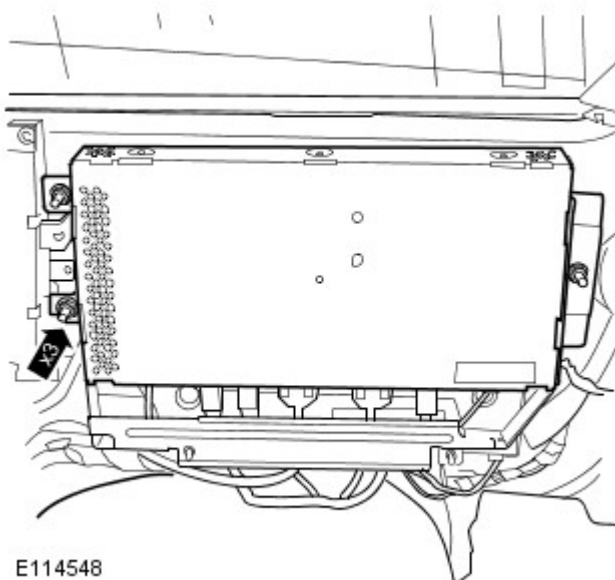
- Remove the 2 screws.



3. Remove the rear quarter trim panel mounting bracket.

- Release the 2 clips.



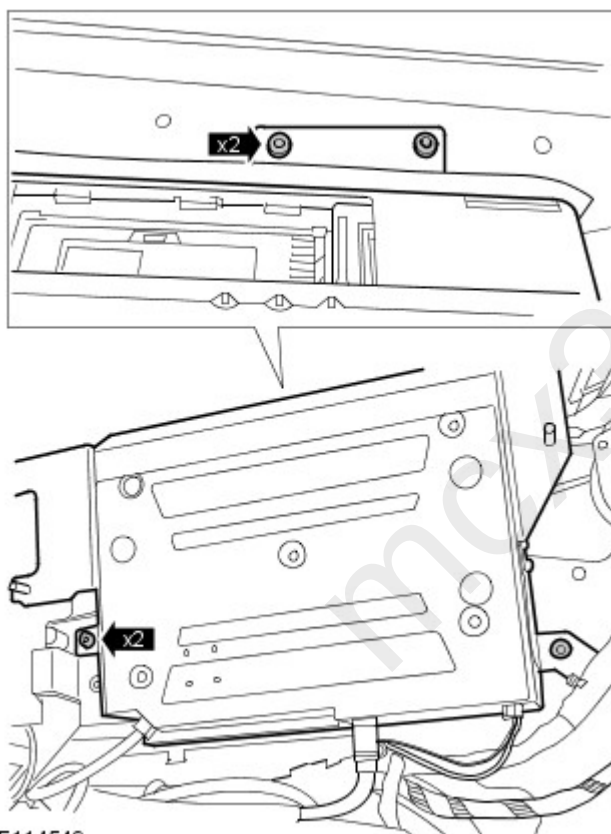


E114548

4.  **CAUTION:** Make sure that the fiber optic cables are not bent to a radius of less than 25 mm.

Release the rear seat entertainment module.

- Remove the 3 nuts. TORQUE: 10 Nm
- Position aside.



E114549

5. Release the DVD player from the body.

- Remove the 4 Torx bolts.

6. CAUTIONS:



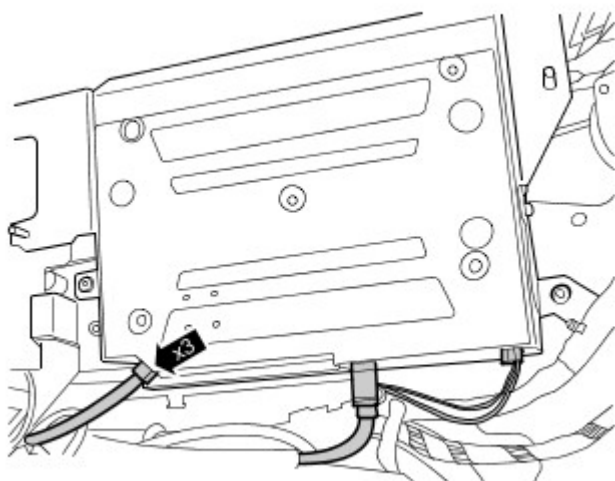
Make sure that the fiber optic cables are not bent to a radius of less than 25 mm.



Make sure that the optical connectors are clean and free of foreign material.

Remove the DVD player.

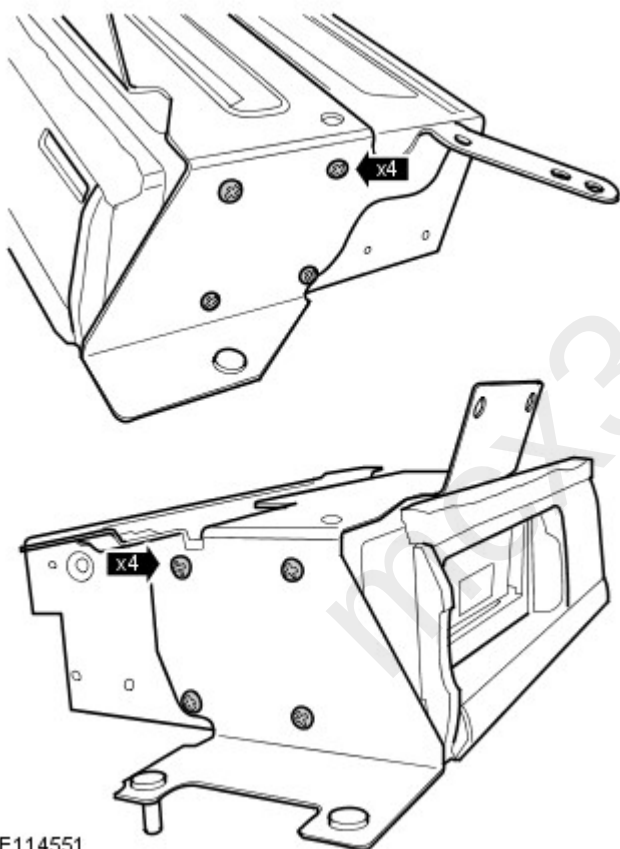
- Disconnect the 3 electrical connectors.



E114550

7. Remove the DVD player mounting bracket.

- Remove the 8 screws.



E114551

Installation

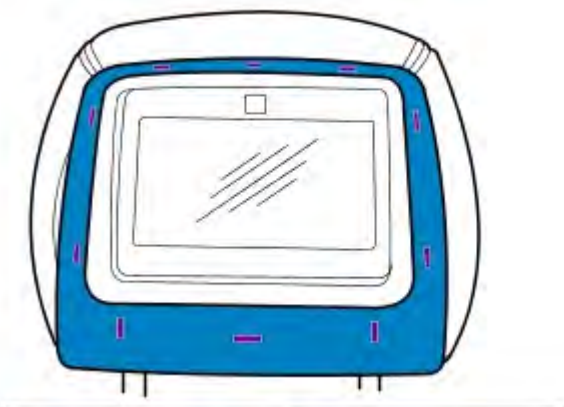
1. To install, reverse the removal procedure.

Video System - Video Display

Removal and Installation

Removal

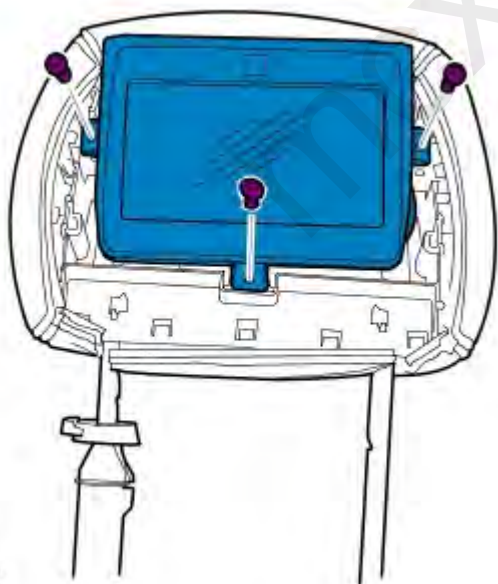
1. Remove the screen surround.



E93458

2. Release the video display.

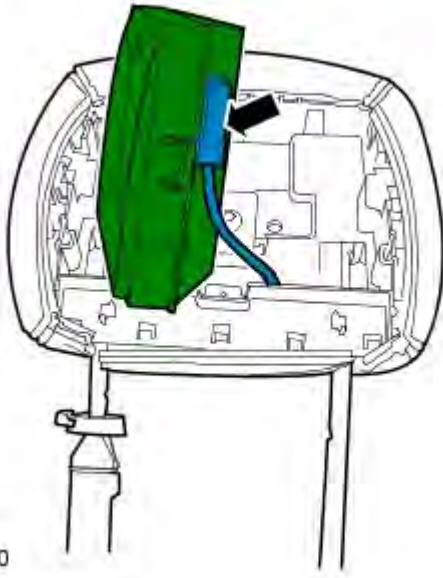
- Remove the 3 Torx screws.



E93459

3. Remove the video display.

- Disconnect the electrical connector.



E93460

Installation

- 1.** To install, reverse the removal procedure.

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