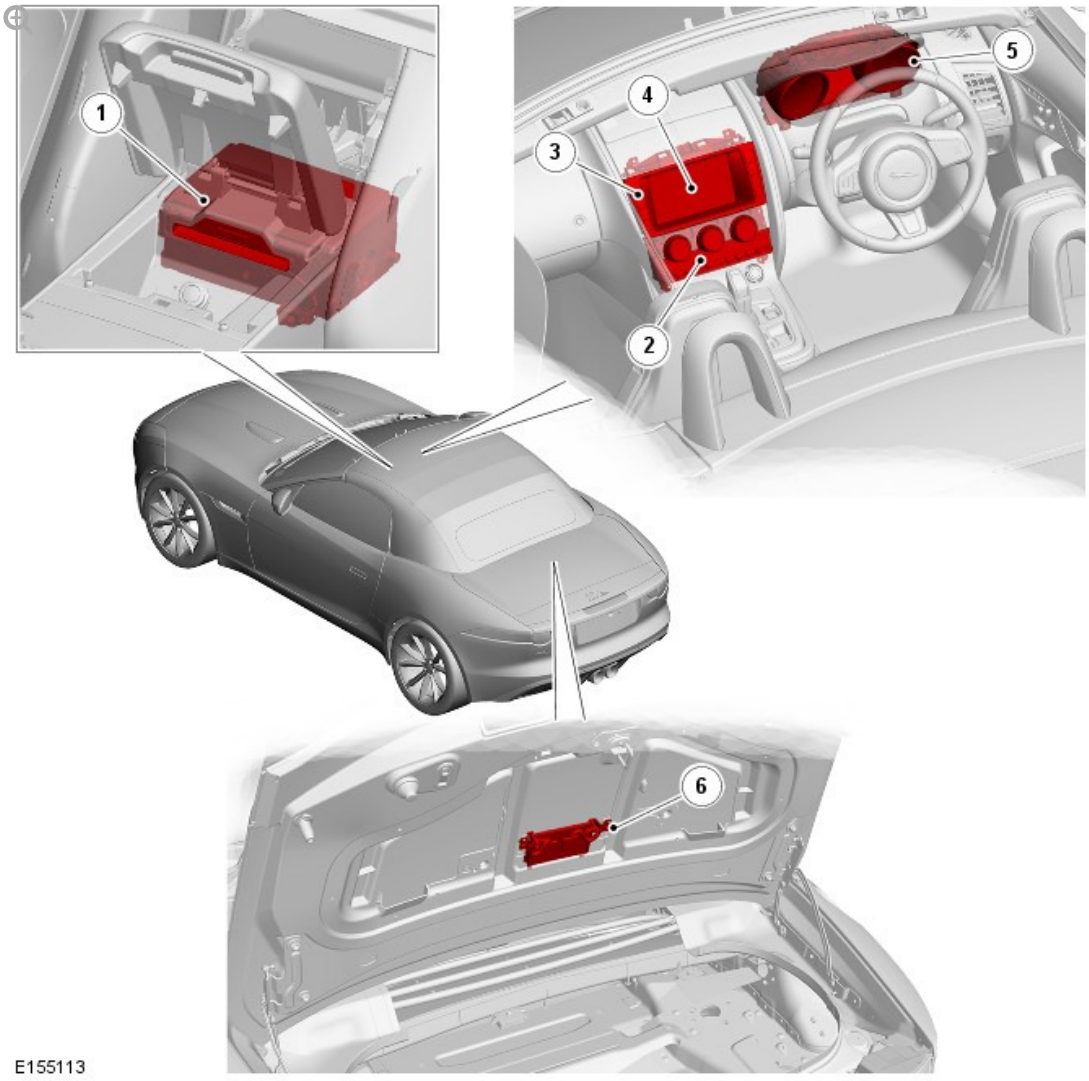
2015.0 F-TYPE (X152), 415-01

INFORMATION AND ENTERTAINMENT SYSTEM

DESCRIPTION AND OPERATION

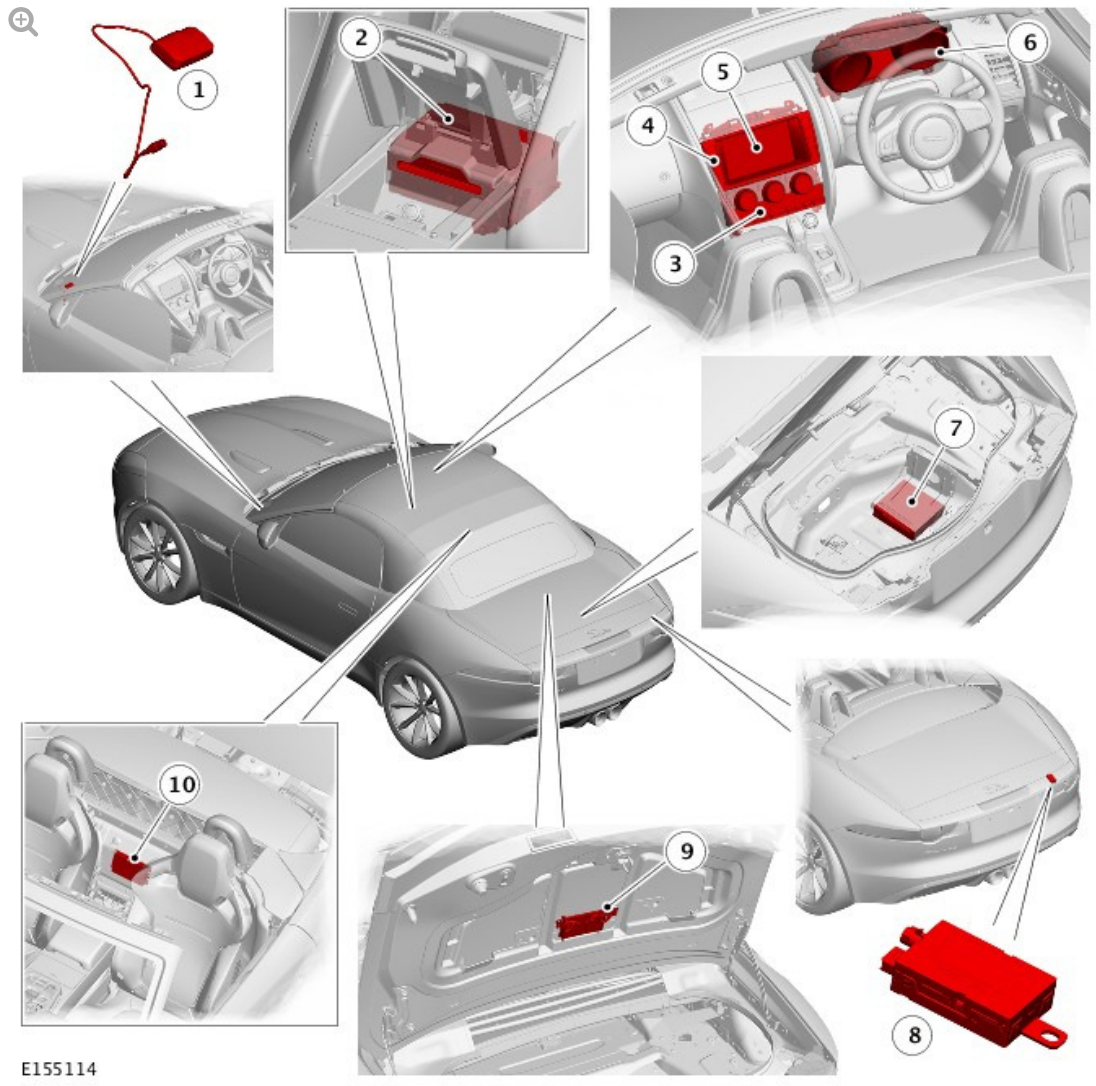
COMPONENT LOCATION - ROW



ITEM	DESCRIPTION
1	Integrated Audio Module (IAM)

ITEM	DESCRIPTION
2	Integrated Control Panel (ICP)
3	Touch screen switchpack
4	Touch Screen (TS)
5	Instrument cluster
6	Sigma pod (GPS antenna)

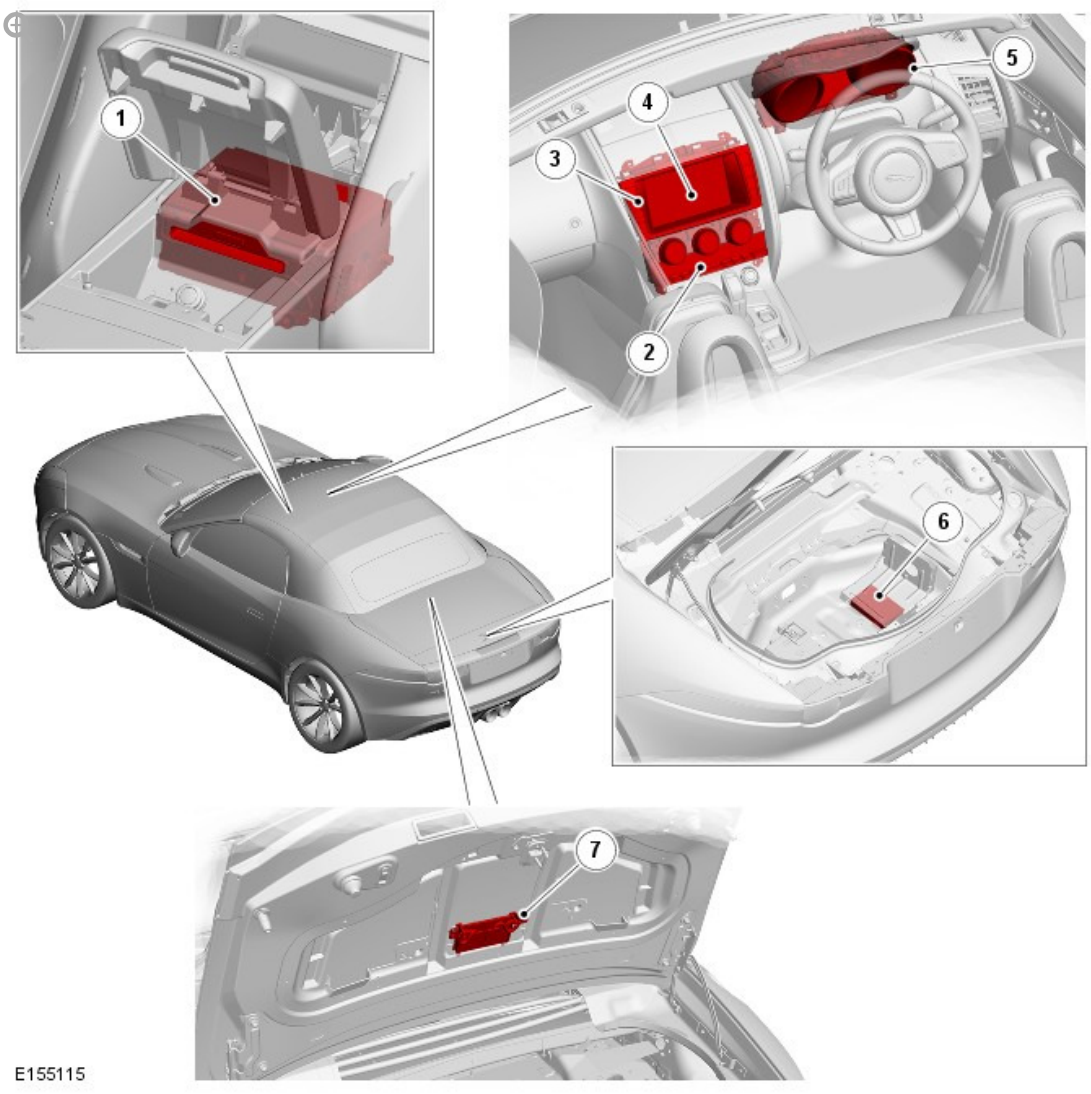
COMPONENT LOCATION - JAPAN



ITEM	DESCRIPTION
1	VICS beacon antenna
2	Integrated Audio Module (IAM)

ITEM	DESCRIPTION
3	Integrated Control Panel (ICP)
4	Touch screen switchpack
5	Touch Screen (TS)
6	Instrument cluster
7	Navigation Control Module (NCM)
8	VICS Antenna amplifier
9	Sigma pod (GPS antenna)
10	Navigation Interface Module (NIM)

COMPONENT LOCATION - ASIA



ITEM	DESCRIPTION
1	Integrated Audio Module (IAM)
2	Integrated Control Panel (ICP)
3	Touch screen switchpack
4	Touch Screen (TS)
5	Instrument cluster
6	Navigation Control Module (NCM)
7	Sigma pod (GPS Antenna)

OVERVIEW

The navigation system provides audible and visual route guidance information to enable the driver to reach a desired destination. The system allows the driver to choose the route using minor or major roads or highways with the option of three routes. Directions to hospitals, museums, monuments and hotels are also available.

The navigation system is integrated with the audio/video system and shares a number of components common to all systems. Map information is stored on a hard disk drive located in the Integrated Audio Module (IAM). Map upgrades to the hard drive can be uploaded by the customer from a Universal Serial Bus (USB) memory stick (not applicable to Japan/Asia specification vehicles).

On all systems the GPS (global positioning system) signal is received by the GPS antenna located in the Sigma pod antenna module.

The European navigation system includes the Traffic Messaging Channel (TMC) function, which receives traffic information from an FM (frequency modulation) antenna in the Sigma pod. On a pre-selected route, the system will offer re-routing options depending on traffic conditions.

All North America Specification (NAS) vehicles are configured to receive TMC. TMC is transmitted in the USA and is available in areas of other NAS markets.

The navigation system is primarily controlled from the Touch Screen (TS) which is located in the center of the instrument panel. Control signals from the TS are

sent on the Media Oriented System Transport (MOST) ring to the navigation software within the IAM.

The navigation system uses the following components:

- Integrated Audio Module (IAM)
- Touch Screen (TS)
- Sigma pod GPS antenna
- Instrument Cluster
- Integrated Control Panel (ICP).

Japan and Asia market vehicles have a modified system from other markets.

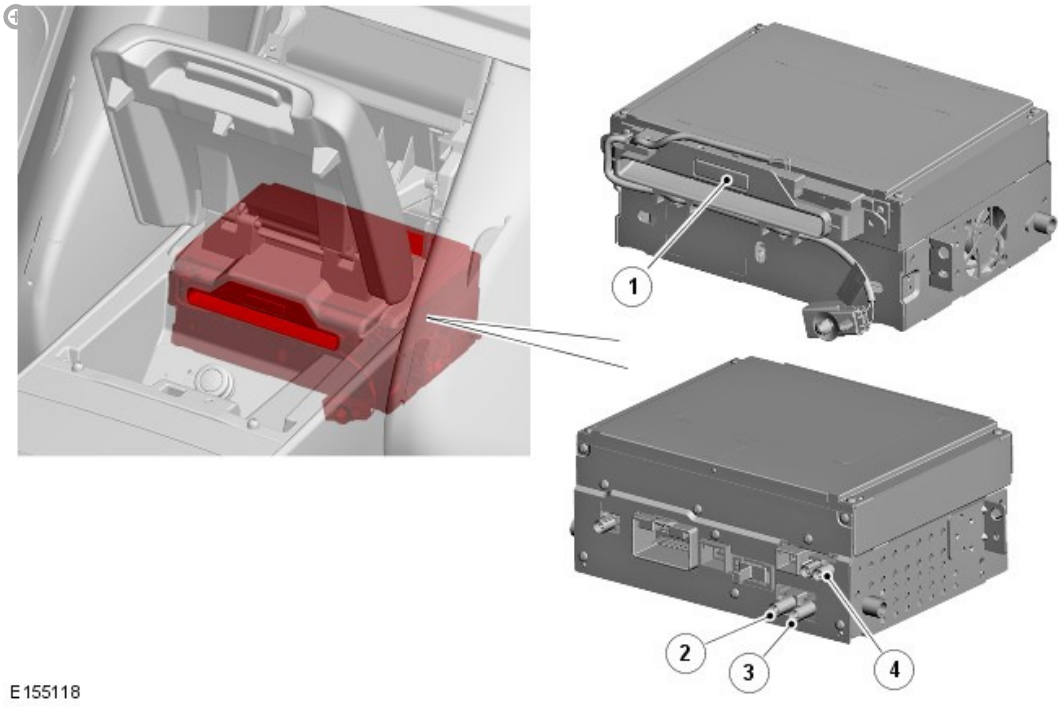
Japan market vehicles have an additional Navigation Computer Module (NCM) and a Navigation Interface Module (NIM) located in the luggage compartment. Japan specification vehicles are also fitted with Vehicle Information and Communication System (VICS) beacon antenna, which is located on the top of the instrument panel and a VICS FM antenna amplifier located in the luggage compartment.

The Japan market navigation system includes the Vehicle Information and Communication System (VICS) function. The VICS supplies information to enable the NCM to re-route the navigation guidance or to inform the vehicle driver of traffic conditions in the vehicles vicinity. VICS information is provided to the system through an FM antenna integrated into the luggage compartment lid and a VICS beacon located on the left side of the instrument panel.

Asia market vehicles have an additional Navigation Computer Module (NCM) located in the luggage compartment.

DESCRIPTION

INTEGRATED AUDIO MODULE [IAM]



ITEM	DESCRIPTION
1	CD/DVD eject switch
2	Connector - VICS beacon antenna input (Japan only)
3	Connector - GPS antenna input from sigma pod
4	Connector - FM2/TMC/VICS (Japan only) antenna amplifier input

NOTE:

The Japan and Asia market satellite navigation system does not store map data on the IAM. All other functions of the IAM are applicable to these markets. Refer to the sections that follow for details of the Japan and Asia market navigation systems.

The IAM is located in the rear of the floor console. The IAM is attached to a bracket which is turn is secured to the floor console structure. The IAM has a remote CD/DVD eject switch which is located in front of the IAM CD/DVD slot. The switch is accessible in the floor console stowage compartment.

The IAM is a multi functional unit which has the following systems and features:

- 40 GB Hard drive (Navigation and audio)
- DVD player (audio and video)
- Compact Disc (CD) player (single slot)
- Radio tuner
- Hybrid Digital (HD)
- Bluetooth® receiver (telephone and audio streaming)
- Radio (where fitted)
- USB controller (front)
- Audio auxiliary 'AUX' input.

For additional information, refer to: Audio System (415-01 Information and Entertainment System, Description and Operation).

The IAM is connected on the MOST ring to the other audio system components. The driver can control navigation functions by using soft keys on the Touch Screen (TS), steering wheel mounted control switches or by voice commands.

If the IAM is replaced it must be configured as a new module using an approved Jaguar diagnostic system.

Calibration of the IAM using an approved Jaguar diagnostic system enables updates to be downloaded as new technology becomes available or if any fault concerns require software updates.

The 40 GB hard drive is used for storing the information for satellite navigation. A 10GB partition is provided for storing music files, the remaining 30GB is used for map data storage.

The map images are transmitted from the IAM to the TS via a Low Voltage Differential Signal (LVDS) link cable. Turn by turn instructions are also available, these are displayed in the instrument cluster via a medium speed CAN (controller area network) bus connection from the TS.

Hard Disc Drive

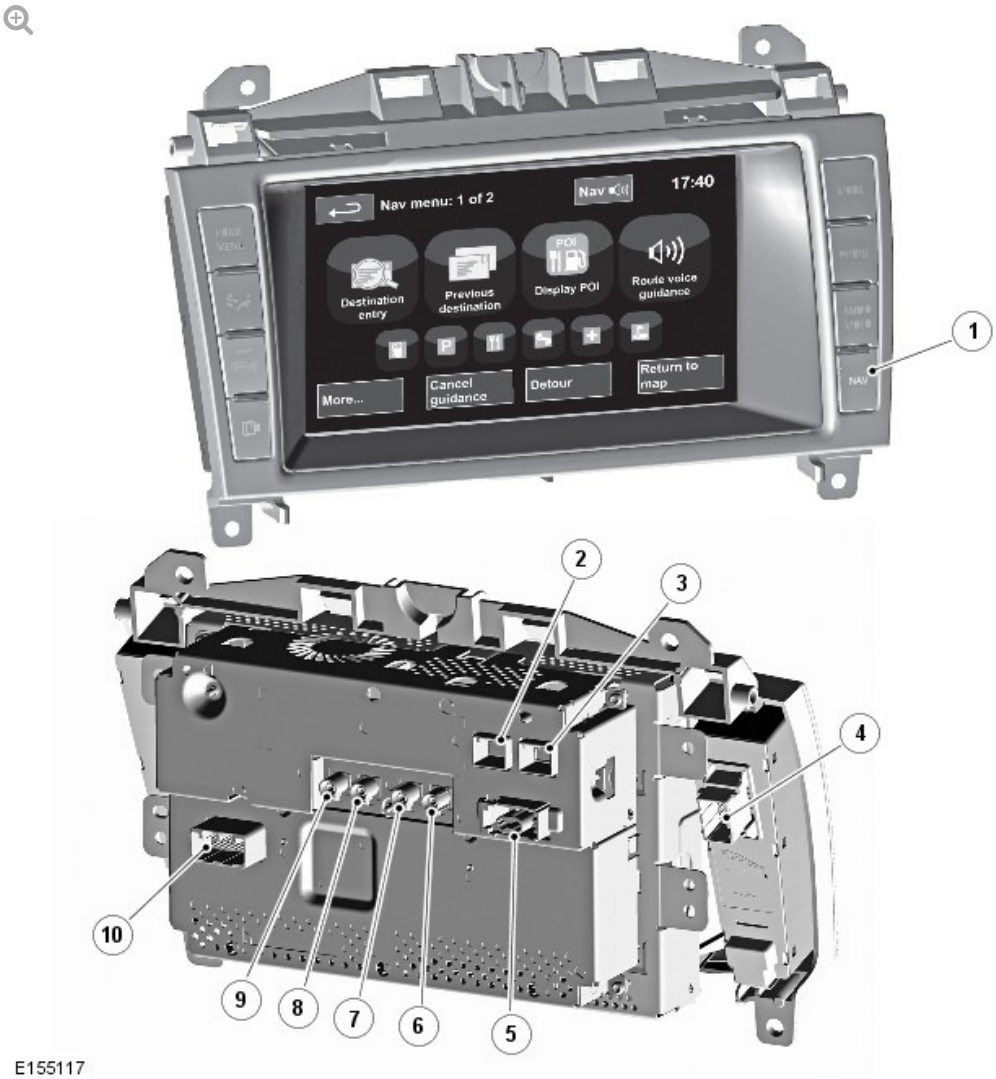
The integral hard drive for the navigation system removes the requirement of a separate navigation computer usually found in the rear luggage compartment. The IAM stores the navigation map data locally within the 30GB hard drive partition. By storing the information in this way and processing it within the IAM, navigation display, route calculation speeds and accuracy are vastly improved. Map upgrades and software now have to be loaded directly into the IAM from a DVD (digital versatile disc).

The map images are transmitted from the IAM to the TS via a Low Voltage Differential Signal (LVDS) link cable.

The IAM communicates on the MOST ring with the rest of the audio system. If the IAM is replaced it must be configured as a new module using an approved Jaguar diagnostic system.

Calibration of the IAM using an approved Jaguar diagnostic system enables updates to be downloaded as new technology becomes available or any fault concerns require software updates.

TOUCH SCREEN (TS)



ITEM	DESCRIPTION
1	Navigation soft key
2	Connecter - LVDS input from Integrated Audio Module (IAM) or Navigation Control Module (NCM) (China/Korea only) or Navigation Interface Module (NIM) (Japan only)
3	Connector - LVDS output to instrument cluster
4	Touch Screen (TS) switchpack connector
5	Connector - MOST
6	Connector - CVBS video input from rear view camera
7	Connector - CVBS video input from Television (TV) control module
8	Connector - CVBS input from IAM
9	Not used
10	Connector - power, ground, medium speed CAN bus, steering wheel switchpack input

The Touch Screen (TS) is located in the center of the instrument panel. The TS comprises an 8 inch color, touch sensitive display, with a separate touch sensitive TS switchpack located on either side.

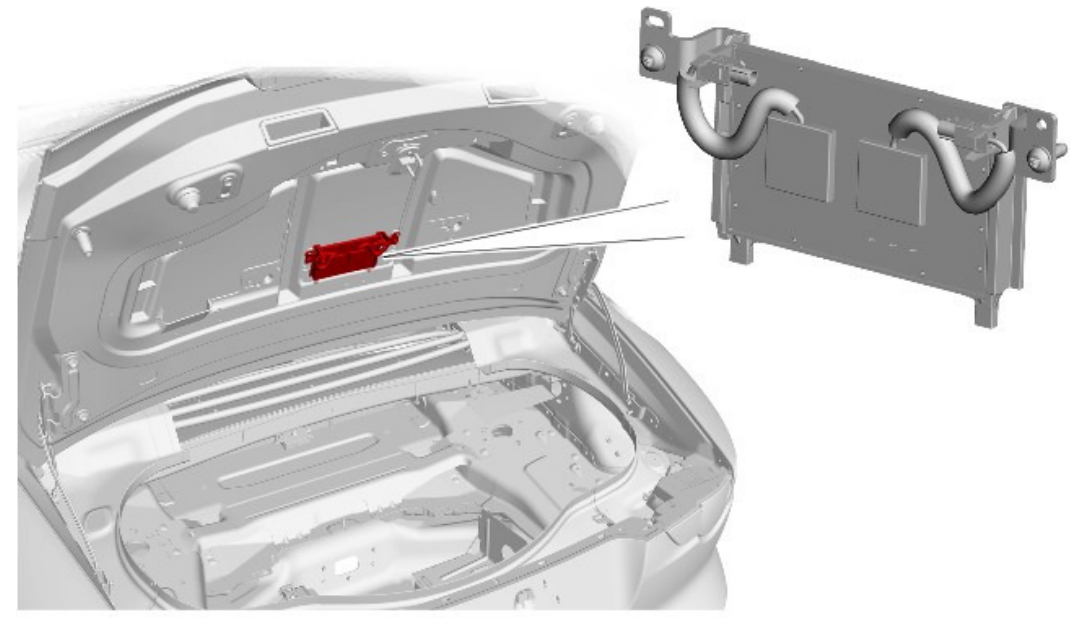
TS switchpacks differ depending on system specification; for example, if Park Assist, or rear view camera is specified on the vehicle, these soft keys will replace Setup, and display on/off respectively. The functions can still be accessed via the home menu using the screen on the TS.

The TS switchpack is connected to the Integrated Control Panel (ICP). Selections made on the TS switchpack soft keys are passed via the ICP to the IAM via the TS on the medium speed CAN bus and the MOST ring.

Calibration of the TS using approved Jaguar diagnostic equipment enables updates to be downloaded as new technology becomes available or any fault concerns require software updates.

For additional information, refer to: Audio System (415-01 Information and Entertainment System, Description and Operation).

SIGMA POD



E155116

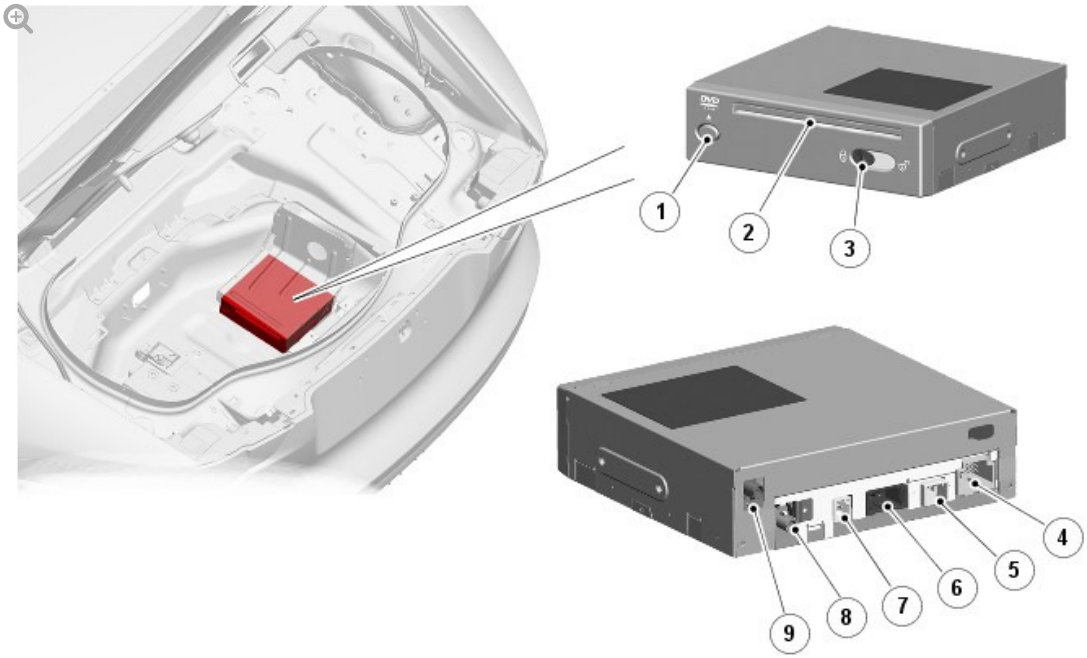
The navigation system GPS antenna is located in the Sigma Pod and is shared with the audio DAB L-band antenna where fitted. The sigma pod is located in a central position on the underside of the luggage compartment lid.

Depending on market and vehicle specification, the Sigma Pod can also contain, in addition to the GPS antenna, the antennas for Digital Audio Broadcast - L (DAB-L Band) and Satellite Digital Audio Radio Service (SDARS) (NAS only).

JAPAN MARKET NAVIGATION SYSTEM

The Japan market satellite navigation system uses the standard system components, with the exception that the map data is not stored on the IAM hard disc drive. Additional components are: a Navigation Computer Module (NCM)and a Navigation Interface Module (NIM) are used to read the map data and output audio and video signals to the TS, IAM and audio amplifier.

Navigation Computer Module (NCM)



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ITEM	DESCRIPTION
1	DVD eject button
2	DVD loading slot
3	DVD eject lock
4	Power and ground connections
5	GVIF video output connector
6	MOST connector
7	VICS beacon antenna connector

ITEM	DESCRIPTION
8	GPS antenna connector
9	VICS FM antenna connector

A separate NCM is located on a bracket on the floor of the luggage compartment.

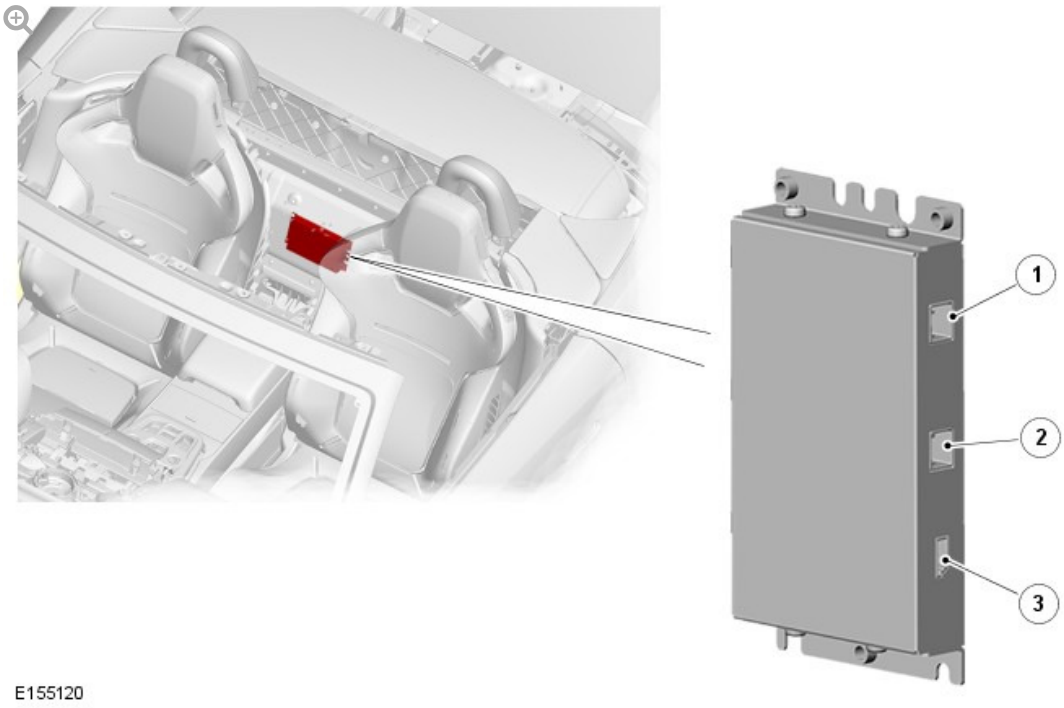
The NCM receives a fused supply from the Quiescent Current Control Module (QCCM). The QCCM receives a permanent power supply via a fused connection with the BJB (battery junction box).

The NCM is a DVD drive which reads map data direct from a DVD. The NCM is connected on the MOST ring and communicates with the TS to initiate navigation video and audio output. The Sigma Pod GPS antenna is connected directly to the NCM.

The NCM outputs the video signals in a Gigabyte Video InterFace (GVIF) format to a Navigation Interface Module (NIM) which converts the GVIF input to a Low-Voltage Differential Signalling (LVDS) video signal output which is then passed to the TS. Audio output is on the MOST ring to the Audio Amplifier Module (AAM). VICS FM transmission signals are received by the NCM via an FM antenna and a VICS antenna amplifier.
For additional information, refer to: Antenna (415-01 Information and Entertainment System, Description and Operation).

Infra-red and FM VICS transmissions are also received by the VICS beacon antenna, located on the top of the instrument panel, and are passed directly to the NCM.

Navigation Interface Module (NIM)



ITEM	DESCRIPTION
1	Power and ground connector
2	LVDS video output to TS connector
3	GVIF video input from Navigation Control Module (NCM) connector

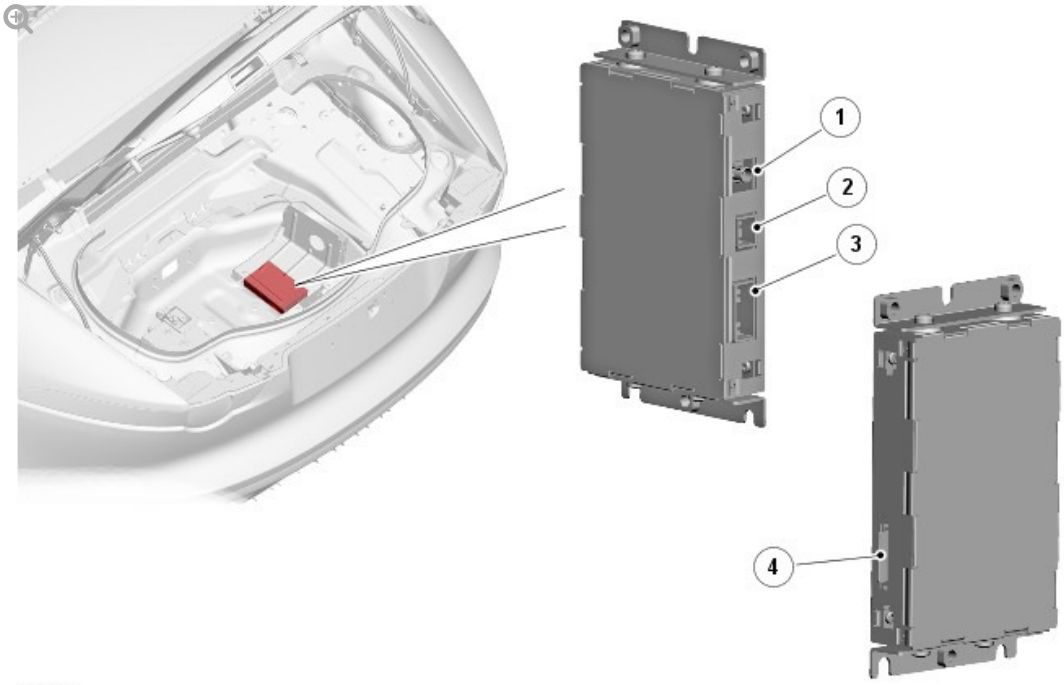
The NIM is located in a central position, behind the driver and passenger seats, behind a trim panel. The NIM is attached to the fuel tank access panel. The NIM is required to convert the GVIF video output from the NCM to a LVDS video signal which is compatible with the TS.

The NIM receives a fused supply from the Quiescent Current Control Module (QCCM). The QCCM receives a permanent power supply via a fused connection with the BJB.

ASIA MARKET NAVIGATION SYSTEM

In Asia markets, a medium speed CAN (controller area network) based Navigation Computer Module (NCM) is located on a bracket on the floor of the luggage compartment..

Navigation Control Module (NCM)



E155121

ITEM	DESCRIPTION
1	GPS antenna connector
2	LVDS video output to TS
3	Power, CAN and audio connector
4	SD storage card

The NCM outputs the video signals in a LVDS format direct to the Touch Screen (TS). Audio output is passed to the Integrated Audio Module (IAM) which converts the signals and passes them to the Audio Amplifier Module (AAM) on the MOST ring. When audio is required, such as a voice guidance instruction, the NCM communicates to the vehicle audio system using a hard wire connection between the TS and the NCM. Touch screen co-ordinates and vehicle power mode status are obtained through the medium speed CAN. Map data is stored via a multimedia Secure Digital (SD) card accessible through an access port on the module.

The NCM receives a fused supply from the Quiescent Current Control Module (QCCM). The QCCM receives a permanent power supply via a fused connection with the BJB.

TRAFFIC MESSAGE CHANNEL (TMC)

NOTE:

TMC is not available in all markets.

The TMC is a specific application of the FM Radio Data System (RDS) used for broadcasting real-time traffic and weather information. Data messages are received and decoded by the Integrated Audio Module (IAM). The IAM processes the received information and alerts the driver and offers alternative route guidance to avoid the incident.

Each traffic incident is sent as a TMC message. One message consists of an event code and a location code in addition to time details. The message is coded and can be translated by the IAM into the market language. Location code tables assign numbers to locations on the road network. The location tables are integrated in the maps stored on the IAM hard disk drive. The source of traffic information is typically police, traffic cameras and local network stations.

The TMC system uses the existing FM antenna and audio system antenna amplifiers to pass the signals to the IAM.

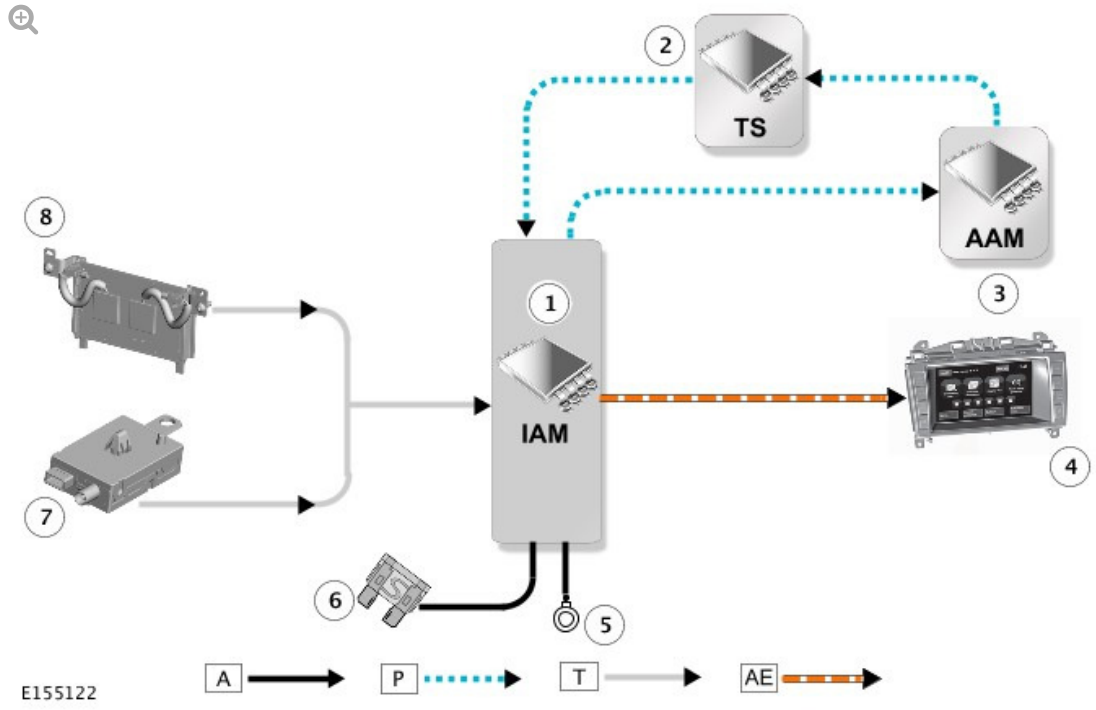
VEHICLE INFORMATION AND COMMUNICATION SYSTEM (VICS)

The VICS is a similar system to the TMC used outside of Japan. VICS is unique to Japan and give countrywide coverage and broadcasts of real-time traffic and weather information. The VICS has two methods of transmitting the traffic data to the vehicle's navigation system, depending on the type of road. In certain areas the information is transmitted using an infra-red signal or alternatively an RF microwave signal, both of which are received by a VICS beacon antenna located on the top of the instrument panel. Additional information is also transmitted on a FM wavelength and is received by the FM antenna. The received FM signal is then passed to the Navigation Control module (NCM), via an RF antenna amplifier.

CONTROL DIAGRAM - ROW

NOTE:

A = Hardwired; **P** = MOST; **T** = Co-axial; **AE** = LVDS

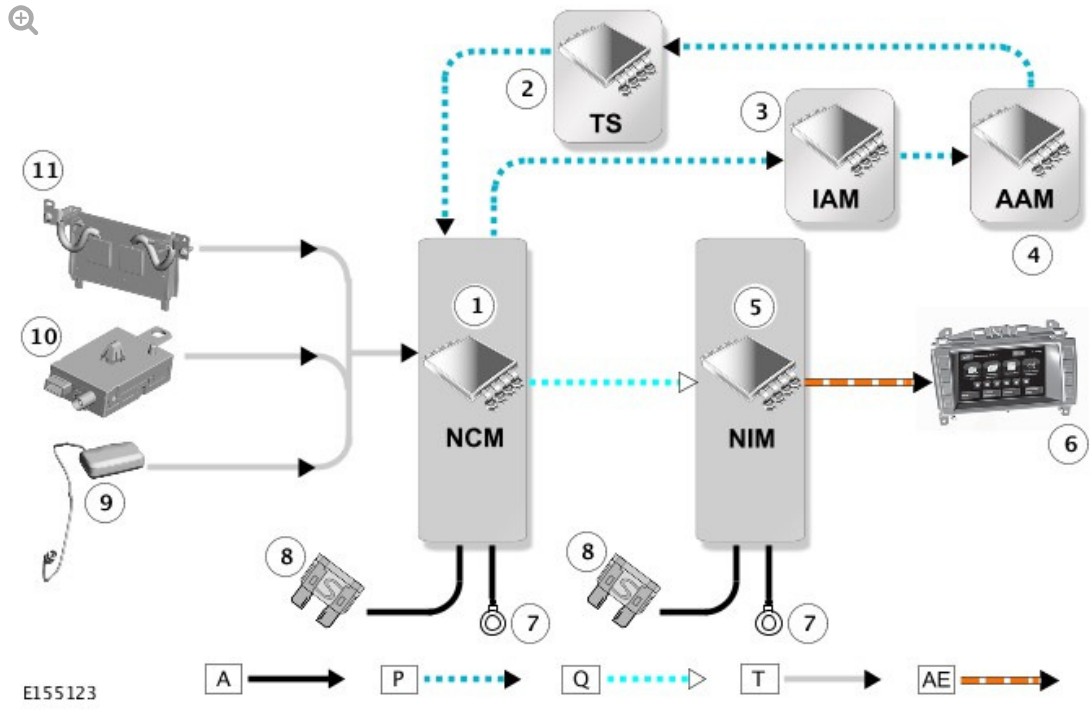


ITEM	DESCRIPTION
1	Integrated Audio Module (IAM)
2	Touch Screen (TS)
3	Audio Amplifier Module (AAM)
4	Touch Screen (TS)
5	Ground
6	Fused power supply from Quiescent Current Control Module (QCCM)
7	AM/FM antenna amplifier
8	Sigma pod

CONTROL DIAGRAM - JAPAN

NOTE:

A = Hardwired; **P** = MOST; **Q** = GVIF; **T** = Co-axial; **AE** = LVDS

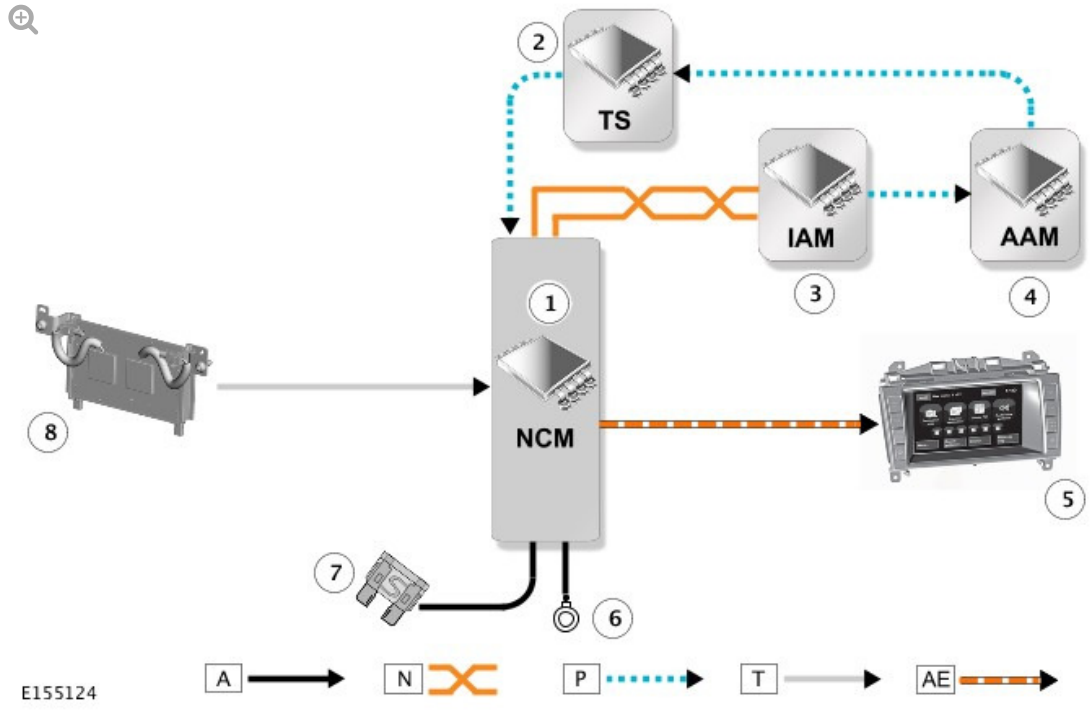


ITEM	DESCRIPTION
1	Navigation Computer Module (NCM)
2	Touch Screen (TS)
3	Integrated Audio Module (IAM)
4	Audio amplifier Module (AAM)
5	Navigation Interface Module (NIM)
6	Touch Screen (TS)
7	Ground
8	Fused power supply from Quiescent Current Control Module (QCCM)
9	VICS beacon antenna
10	AM/FM antenna amplifier
11	Sigma pod

CONTROL DIAGRAM - ASIA

NOTE:

A = Hardwired; **N** = Medium speed CAN bus; **P** = MOST; **T** = Co-axial; **AE** = LVDS



ITEM	DESCRIPTION
1	Navigation Computer Module (NCM)
2	Touch Screen (TS)
3	Integrated Audio Module (IAM)
4	Audio Amplifier Module (AAM)
5	Touch Screen (TS)
6	Ground
7	Fused power supply from Quiescent Current Control Module (QCCM)
8	Sigma pod