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2020.0 DEFENDER (LE), 415-01

INFORMATION AND ENTERTAINMENT SYSTEM

MOBILE PHONE (G2401467)

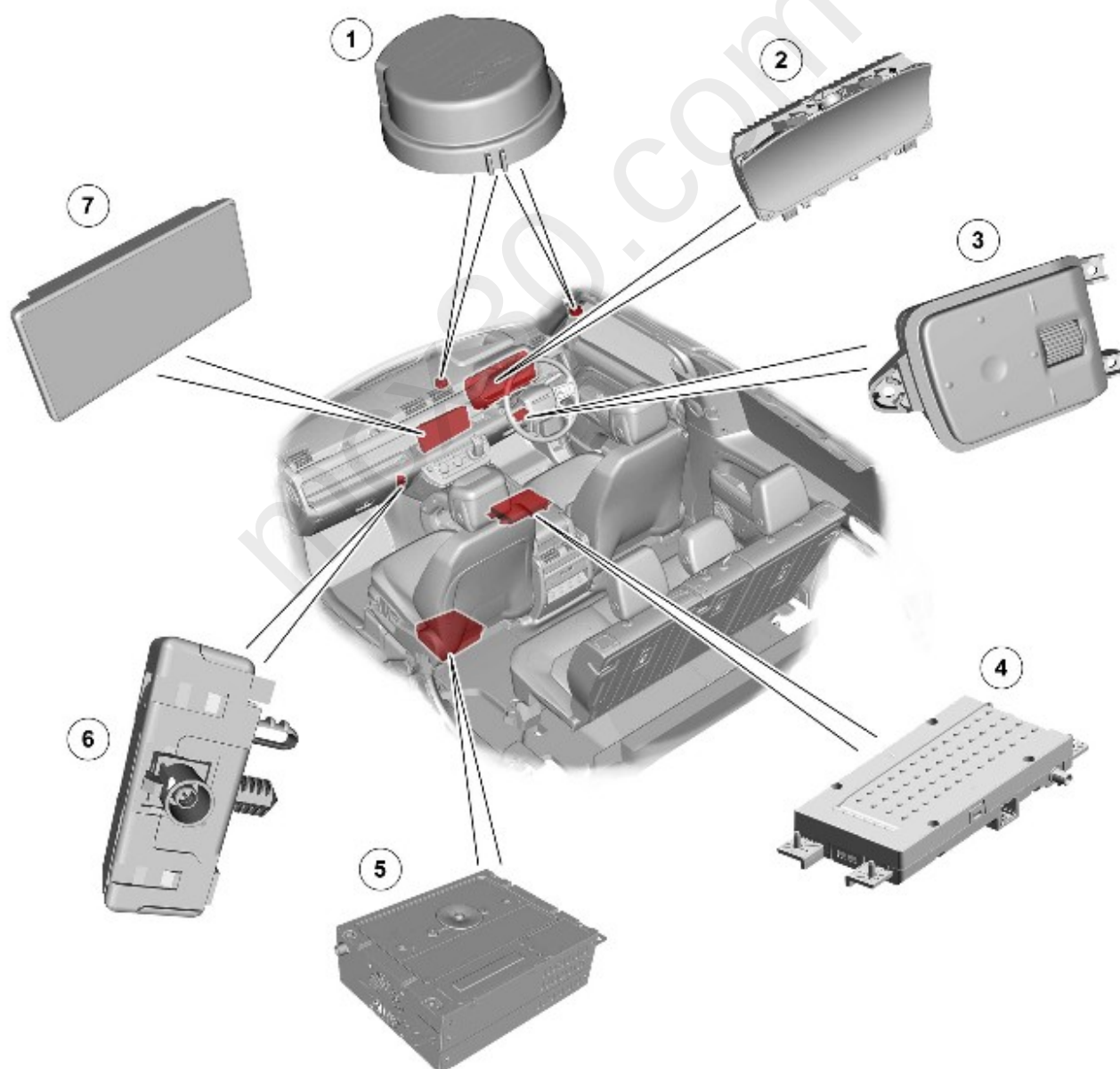
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COMPONENT LOCATION

COMPONENT LOCATION - 1 OF 2

 NOTES:

- Right Hand Drive (RHD) vehicle is shown, Left Hand Drive (LHD) vehicle is similar.
- Vehicle with 5 doors is shown, vehicle with 3 doors is similar.

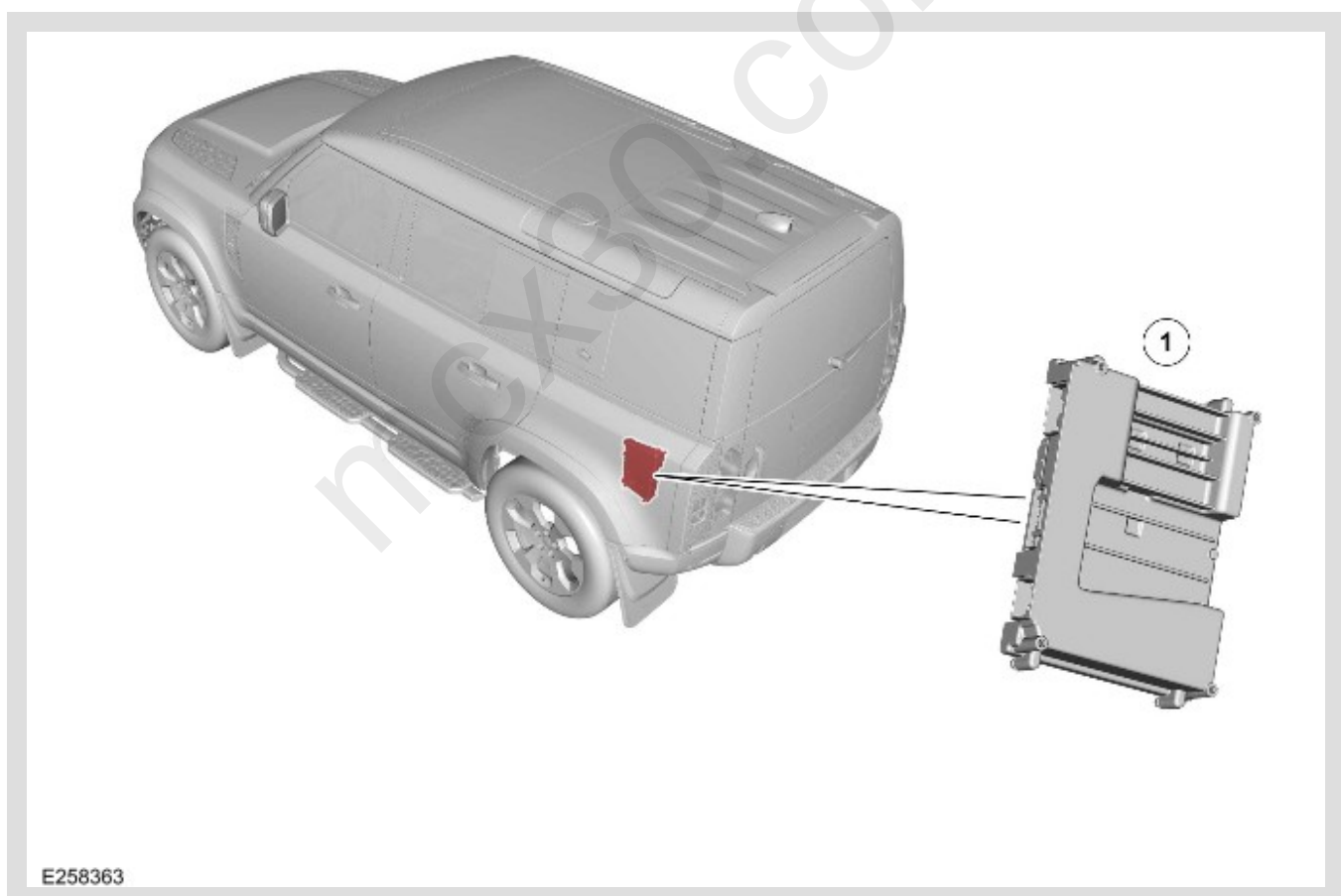


ITEM	DESCRIPTION
1	Microphone (quantity 2)
2	Instrument Panel Cluster (IPC)
3	Left steering wheel switch
4	Wireless device charger (if equipped)
5	Front Infotainment Control Module (IGM / ICCM)
6	Bluetooth®/WiFi antenna
7	Touch Screen (FCDIM)

COMPONENT LOCATION - 2 OF 2

NOTE:

Vehicle with 5 doors is shown, vehicle with 3 doors is similar.



ITEM	DESCRIPTION
1	Audio Amplifier Control Module (AAM)

OVERVIEW

The mobile phone system uses the customer own Bluetooth® capable mobile phone in conjunction with the vehicle information and entertainment system. The system is controlled by the IGM / ICCM.

The IGM / ICCM is connected to an external Bluetooth®/WiFi antenna located behind the center of the instrument panel. Mobile phones must be paired with the IGM / ICCM.

The mobile phone system allows the driver to make, receive and end phone calls using the FCDIM or the left steering wheel switch. Mobile phone information is also displayed in the IPC message center.

When a mobile phone has been paired with the vehicle, the phone can be connected to the vehicle without entering the Personal Identification Number (PIN). The last connected mobile phone connects automatically next time it is present in the vehicle.

The mobile phone system incorporates a feature which enables the driver to access their mobile phone applications (Apps) through the FCDIM. When driving, the driver can access phone, navigation, music and voice functions. When stationary, all applications can be operated. The FCDIM enables functions, as found on the latest mobile phones.

Check the Land Rover phone compatibility website for details.

DESCRIPTION

MOBILE PHONE SYSTEM

The mobile phone system uses:

- IGM / ICCM
- FCDIM
 - For additional information, refer to: [Audio System](#) (415-01 Information and Entertainment System, Description and Operation).
- Microphone
 - For additional information, refer to: [Voice Control](#) (415-01 Information and Entertainment System, Description and Operation).
- Left steering wheel switch
- AAM
 - For additional information, refer to: [Speakers](#) (415-01 Information and Entertainment System, Description and Operation).
- Bluetooth®/WiFi antenna.
 - For additional information, refer to: [Antenna](#) (415-01 Information and Entertainment System, Description and Operation).

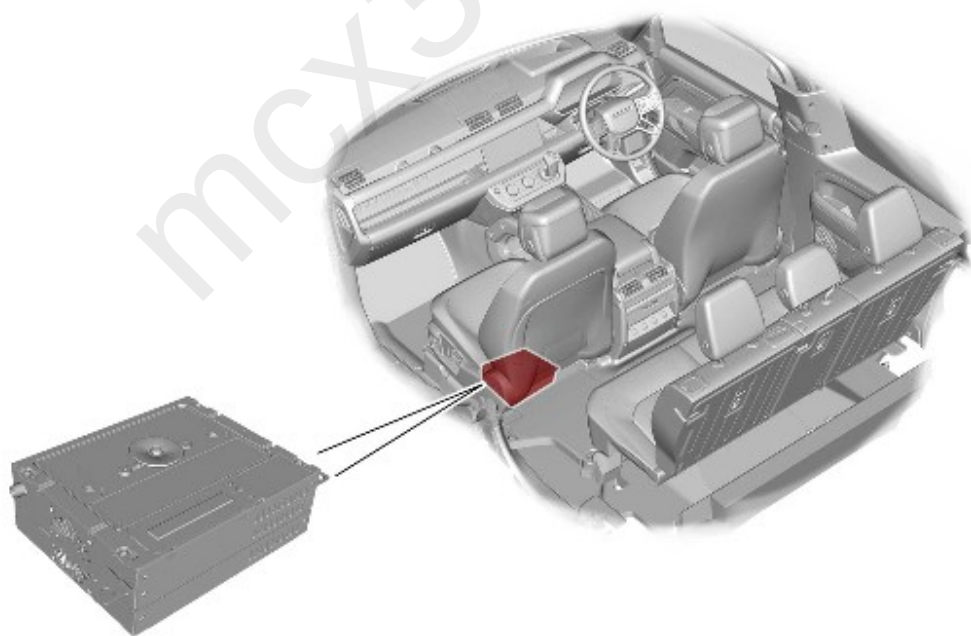
The mobile phone system has a number of features:

- Conference calling.
- Usability and information online with mobile phones.
- Sort numbers from a range of popular choices, for example, contacts and recent calls.
- Settings to personalize mobile phone handling.
- Home screen integration, for example, missed call, text messages.
- Direct access to voice mail.
- Short Message Service (SMS) (if equipped) (see owners handbook or Land Rover phone compatibility website for details).
- SMS messages shall be read out as an audio message.

FRONT INFOTAINMENT CONTROL MODULE

NOTES:

- RHD vehicle is shown, LHD vehicle is similar.
- Vehicle with 5 doors is shown, vehicle with 3 doors is similar.



E252202

The IGM / ICCM is located below the front row seat - Left.

The IGM / ICCM is connected to the FCDIM with an Automotive Pixel Link2 (APIX2) connection. The IGM / ICCM is also connected to the AAM with a BroadR-Reach® ethernet connection.

The IGM / ICCM supports the Bluetooth® mobile phone functionality and audio streaming. Bluetooth® mobile phone software is located within the IGM / ICCM. The software within the IGM / ICCM processes the Bluetooth® wireless signals from the users Bluetooth® mobile phone. The software allows audio output, voice input and data display on the FCDIM.

A Bluetooth®/WiFi antenna is located behind the center of the instrument panel. The Bluetooth® antenna is connected directly to the IGM / ICCM.



NOTE:

The Bluetooth®/WiFi antenna functions as a Bluetooth® or WiFi antenna depending upon system usage at the time.

For additional information, refer to: [Antenna](#) (415-01 Information and Entertainment System, Description and Operation).

BLUETOOTH® SYSTEM

Bluetooth® wireless technology allows electronic devices to communicate wirelessly through a short-range Radio Frequency (RF) network. Bluetooth® wireless technology can simultaneously handle data and voice transmissions. The purpose is to allow the vehicle Bluetooth® mobile phone system to provide hands-free operation of the users Bluetooth® mobile phone.

The Bluetooth® system supports:

- Bluetooth® Hands-Free Profile (HFP)
- Advanced Audio Distribution Profile (A2DP)
- Audio Video Remote Control Profile (AVRCP)
- Phone Book Access Profile (PBAP)
- Message Access Profile (MAP).

Up to 2 mobile phones or a media device can be connected simultaneously for different uses. When 2 mobile phones are connected, both can be used for the mobile phone system. Only 1 can be used for the media system at any time. Only 1 can be used while in a call at any time, when using the vehicle mobile phone system.

MICROPHONE

The directional type microphones are located in the headliner. The purpose is to make sure that the microphones are directed towards the driver and the passengers.

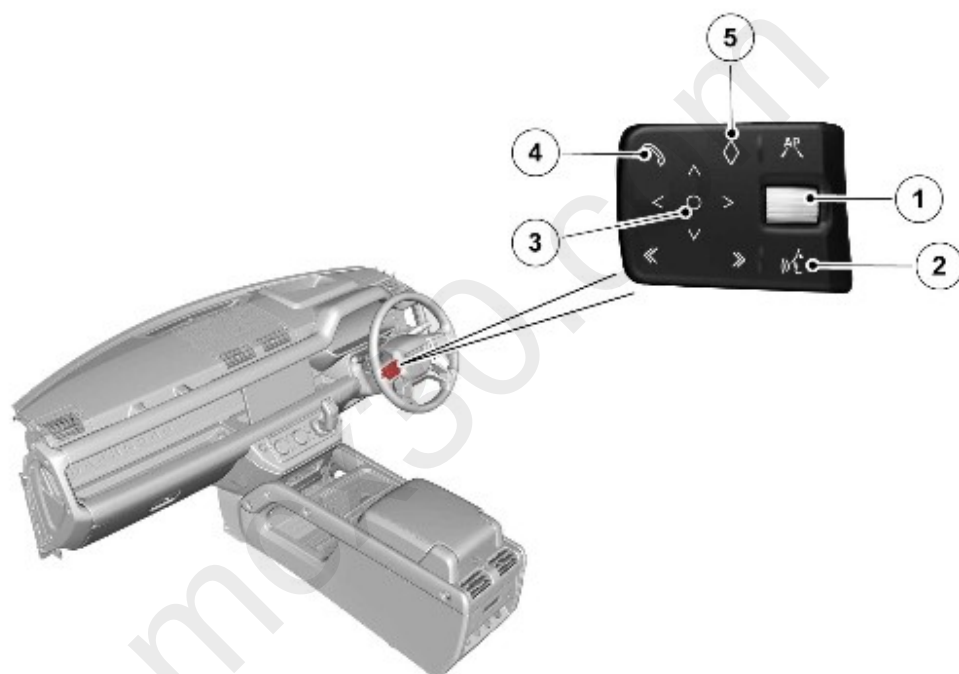
The microphones are connected to the AAM for hands-free telephony and voice control systems. The audio is then passed to the IGM / ICCM which passes the audio to the mobile phone through the Bluetooth®. The AAM has an integrated noise suppression and echo cancellation system for hands-free mobile phone use.

For additional information, refer to: [Voice Control](#) (415-01 Information and Entertainment System, Description and Operation).

LEFT STEERING WHEEL SWITCH

NOTES:

- Some variation in the illustrations may occur, but the essential information is always correct.
- RHD vehicle is shown, LHD vehicle is similar.



E252203

ITEM	DESCRIPTION
1	Volume control switch
2	Voice control switch
3	'O' switch (IPC menu control)
4	Mobile phone operation switch
5	Favourites switch

The left steering wheel switch is located on the left of the steering wheel. The switches are capacitive touch switches which apply a different voltage to the left steering wheel switch in response to different switches being pressed. The left steering wheel switch sends the Local Interconnect Network (LIN) messages to the IGM / ICCM through the Steering Wheel Module (SWM).



NOTE:

The selections with the left steering wheel switch control are displayed in the IPC message center.

The left steering wheel switch comprises:

- Volume control switch
 - Volume increase or decrease for any audio source.
- Mobile phone operation switch
- 'O' switch
 - For additional information, refer to: Instrument Cluster (413-01, Description and Operation).
- Voice control switch
 - For additional information, refer to: [Voice Control](#) (415-01 Information and Entertainment System, Description and Operation).
- Favourites switch.

The mobile phone operation switch controls the following functions:

- While being notified of an incoming call.
 - Press to answer or end an incoming call.
 - Long press to decline an incoming call.
- While a call is active.
 - End the active call.
- While not in a call and not in 'Recents' view.
 - Shortcut to 'Recents' screen. Second press to dial the most recent item in the 'Recents' list.

The favourites switch is a configurable button, which can be configured for short press and long press actions (2 separate actions). The controls for the mobile phone system and the media system are:

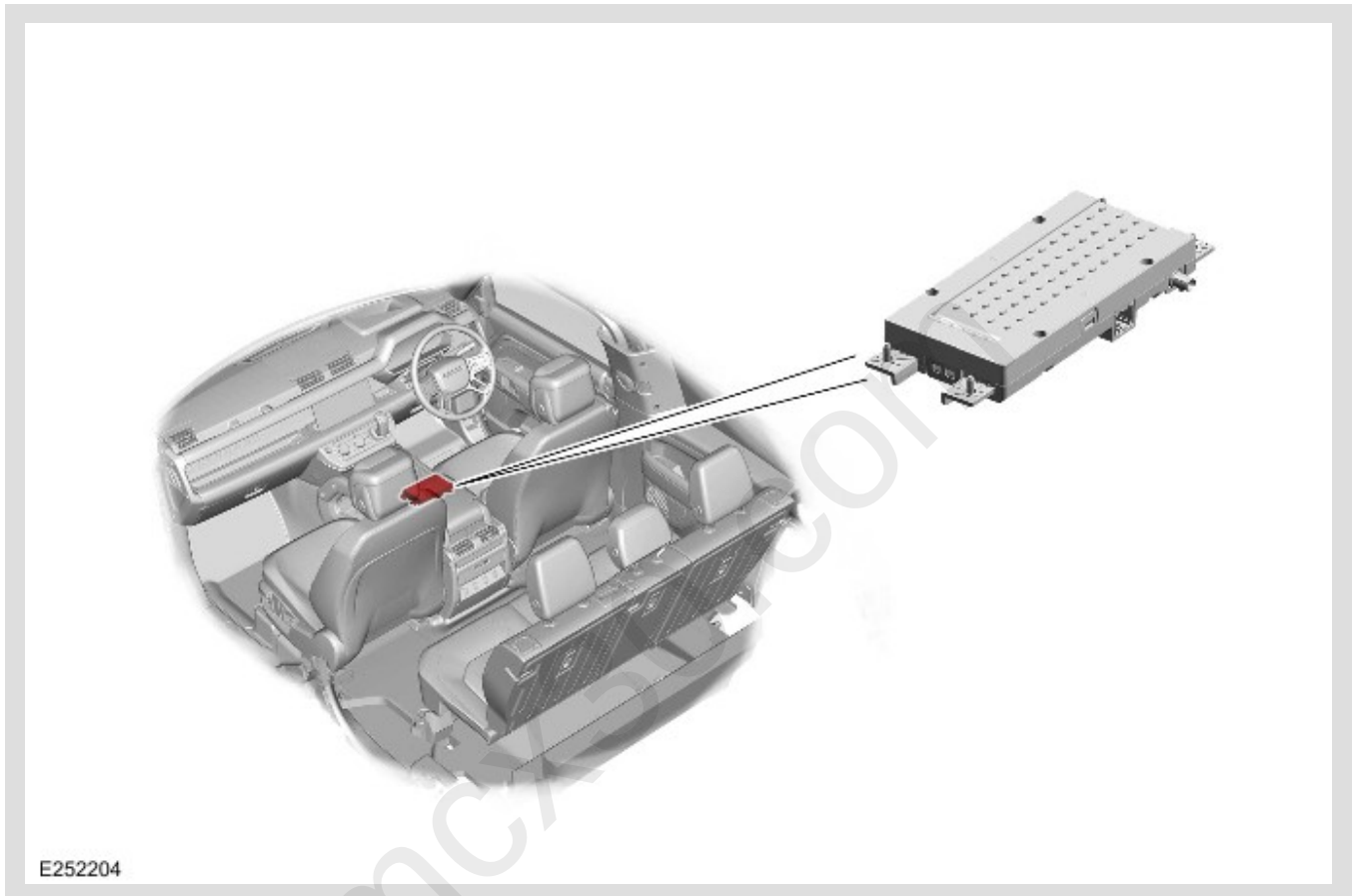
- Mute phone
- Play/pause
- Redial
- Voice mail

- Place call on hold.

WIRELESS DEVICE CHARGER (IF EQUIPPED)

NOTES:

- RHD vehicle is shown, LHD vehicle is similar.
- Vehicle with 5 doors is shown, vehicle with 3 doors is similar.



The wireless device charger is located in the center of the floor console.

The wireless device charger has the following connections:

- A High Speed (HS) Controller Area Network (CAN) body systems bus connection.
- A power supply and 2 ground connections.
- A connection for the signal compensator.

The wireless device charger receives a power supply from the Passenger Junction Box (PJB). The power supply is available in Power Mode 4 (accessory (vehicle unlocked and Smart Key present)) and above.

The wireless device charger is connected to the HS CAN body systems bus for diagnostic checks and communication messages.

During a Passive Entry Passive Start (PEPS) system scan the wireless device charger turns OFF to prevent interference.

For additional information, refer to: [Anti-Theft - Passive](#) (419-01B Anti-Theft - Passive, Description and Operation).

OPERATION

The mobile phone system enables the customer to make and receive phone calls through the left steering wheel switch, FCDIM and voice command. The following features are available:

- Digital keypad.
- Redial function.
- Call lists.
- Swap calls.
- Phone book presented in vehicle.
- SMS readout/pre-defined response.

The system allows 2 mobile phones to be connected at the same time. Both can be used for the mobile phone system, but only 1 can be used for the media system through the Bluetooth®.

When using a device for the media system, and not for the mobile phone system, the user is asked which connected device to disconnect. This only occurs when there are currently 2 devices already connected to the infotainment system.

BLUETOOTH® PAIRING



NOTE:

The process of pairing and connecting a Bluetooth® media device with the vehicle using the media device varies depending on the type of media device.

Mobile phones must be paired with the IGM / ICCM. Mobile phones supporting 'Secure Simple Pairing' automatically generates a 6 digit PIN. The PIN is generated on the infotainment system and on the mobile phone. When the request is accepted, the mobile phone is paired to the system. The user needs to accept the pairing on the mobile phone along with any data authorisation options before accepting on the FCDIM. The user selects 'Yes' to store setting as appropriate on the mobile phone.



NOTES:

- For some devices the authorisation of SMS is on the Bluetooth® device menu. The authorisation of SMS is not always presented to the user until the phone has been connected. This requires the user to enable the setting and disconnect/connect the device following initial pairing. After then all connections are automatic.

- Some devices only present messages which have arrived since the device is connected to the vehicle and not a complete history of all messages. This is a Bluetooth® device limitation/choice. The user should accept pairing and subsequent prompts on the mobile phone before accepting the pairing on the infotainment system.

Some mobile phones require the input of a 4 digit PIN (1, 2, 3, 4). The PIN must be entered before the mobile phone can be used with the vehicle system. When a mobile phone has been paired with the vehicle, the mobile phone can be connected to the vehicle without entering the PIN. The last connected mobile phone connects automatically next time it is present in the vehicle and the infotainment system is operational.

**NOTE:**

The last connected device used for the mobile phone system is connected automatically next time unless the user nominates a primary device. The primary device is always the first to be connected, followed by attempts to connect other previously connected devices.

Bluetooth® pairing of new mobile phones is achieved by selection of 'Add Device' from the 'HOME' screen of the FCDIM. Select 'Bluetooth' to make sure that the vehicle name is discoverable using the mobile phone. Up to 10 Bluetooth® devices can be paired to the vehicle.

When the infotainment system is turned ON, the IGM / ICCM automatically tries to connect to a previously paired Bluetooth® mobile phone or media device. The mobile phone or media device must be within range of the Bluetooth® /WiFi antenna.

WIRELESS DEVICE CHARGER

When the wireless device charger is not charging a device, the wireless device charger is in sleep mode. It constantly checks for an object on the wireless device charger. When a device is placed on the mat, there is communication from the device to the wireless device charger by 'back scatter modulation'. The purpose is to inform the wireless device charger that the device is capable of wireless charging and is ready to receive a charge.

Wireless charging is not available until in Power Mode 6 (ignition ON) or Power Mode 7 (engine running).

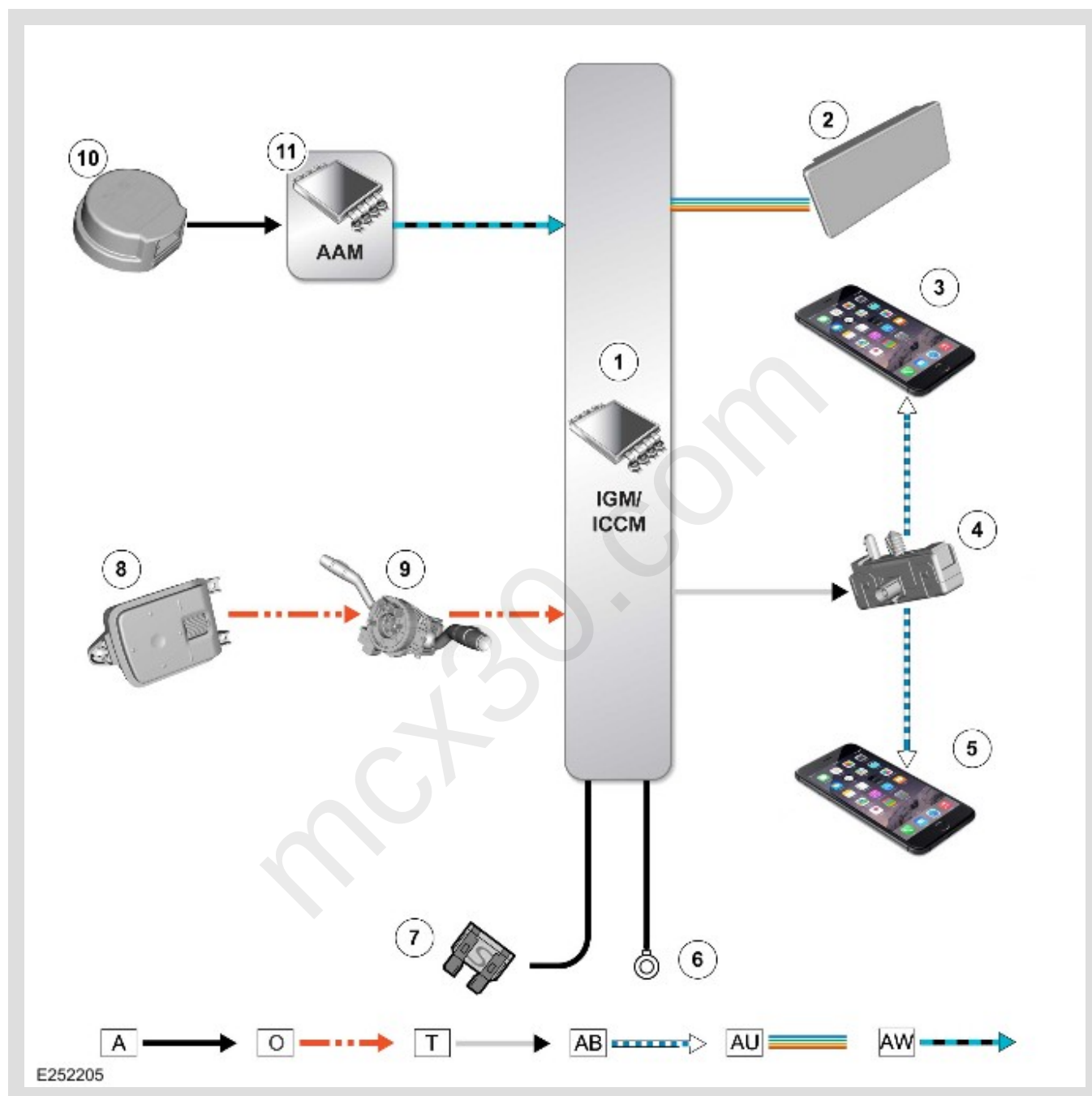
DIAGNOSTICS

The IGM / ICCM records any Diagnostic Trouble Code(s) (DTC)s and related data. Read the DTCs and related data with the Jaguar Land Rover (JLR) approved diagnostic equipment.

The JLR approved diagnostic equipment can read live data and activate certain components.

CONTROL DIAGRAM

CONTROL DIAGRAM - 1 OF 2 - MOBILE PHONE SYSTEM

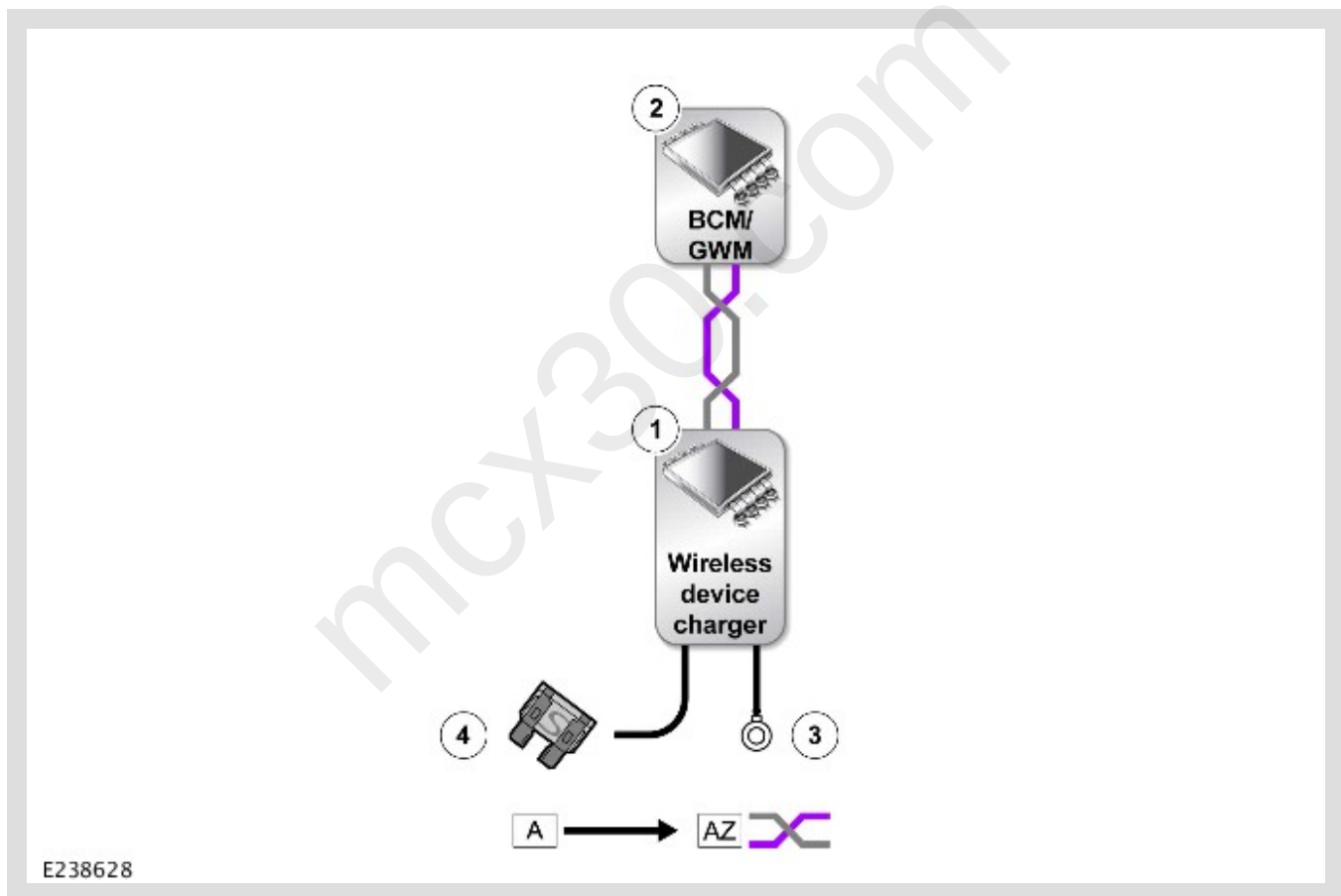


A = HARDWIRED: O = LIN: T = COAXIAL: AB = BLUETOOTH®: AU = APIX2: AW = BROADR-REACH® ETHERNET.

ITEM	DESCRIPTION
1	IGM / ICCM
2	FCDIM
3	Mobile phone - For making and receiving calls

ITEM	DESCRIPTION
4	Bluetooth®/WiFi antenna
5	Mobile phone - For making calls and audio streaming
6	Ground
7	Power supply
8	Left steering wheel switch
9	SWM
10	Microphone (quantity 2)
11	AAM

CONTROL DIAGRAM - 2 OF 2 - WIRELESS DEVICE CHARGER



A = HARDWIRED: AZ = HS CAN BODY SYSTEMS BUS.

ITEM	DESCRIPTION
1	Wireless device charger
2	Body Control Module (BCM)/ Gateway Control Module (GWM)
3	Ground

ITEM	DESCRIPTION
4	Power supply

cmjjaGFyZG1vcnRvbjsyMDIwLTA5LTE4VDEwOjAzOQyLJXMFo7OTluNDAuMTg5LjUzOw==

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