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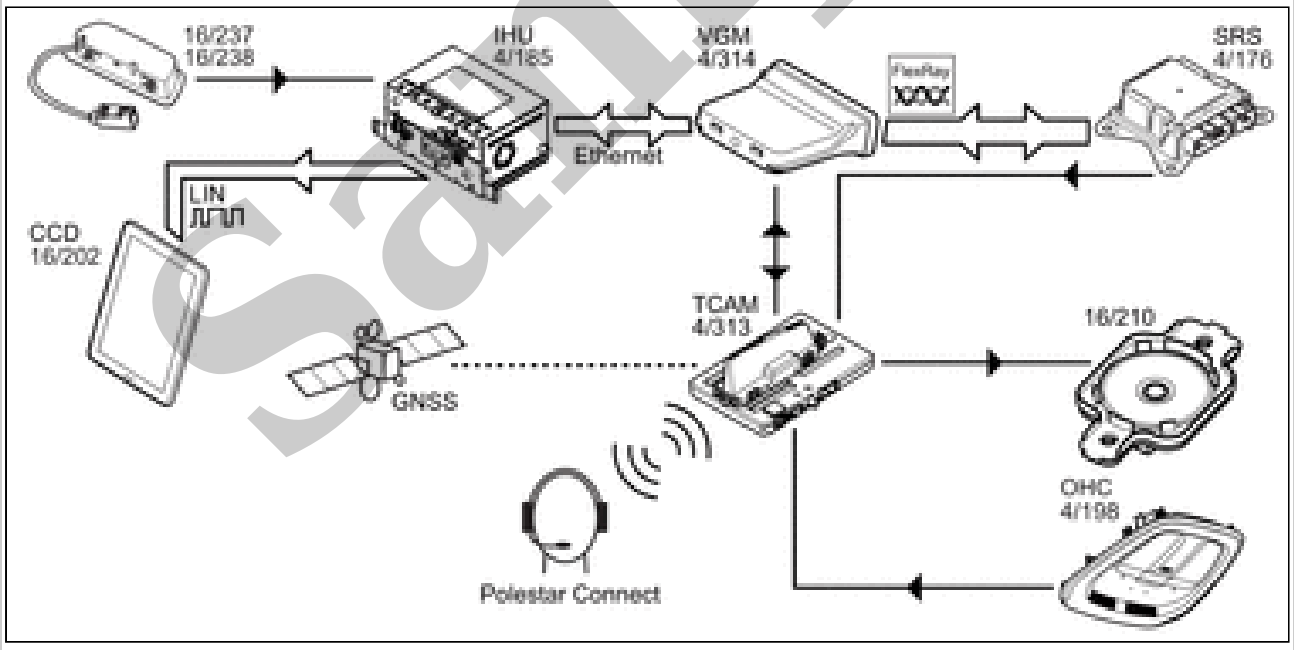
1999 VOLVO S70 R OEM Service and Repair Workshop Manual

Go to manual page

Ethernet **MY -2019** Audio signal for voice control: • Microphone handsfree / active noise control ANC (16/199, 16/201)	**Ethernet** Information Audio mute signal: • Infotainment Head Unit (IHU) (4/185) to - Center Console Display (CCD) (16/202)
Ethernet **MY 2019-** Audio signal for voice control: • Digital microphone handsfree/ANC, dual (16/237) • Digital microphone handsfree/ANC, dual endpoint (16/238)	
FlexRay Collision signal used as backup if communications malfunction via CEM (4/176): • Supplemental Restraint System Module (SRS) (4/176)	**FlexRay**

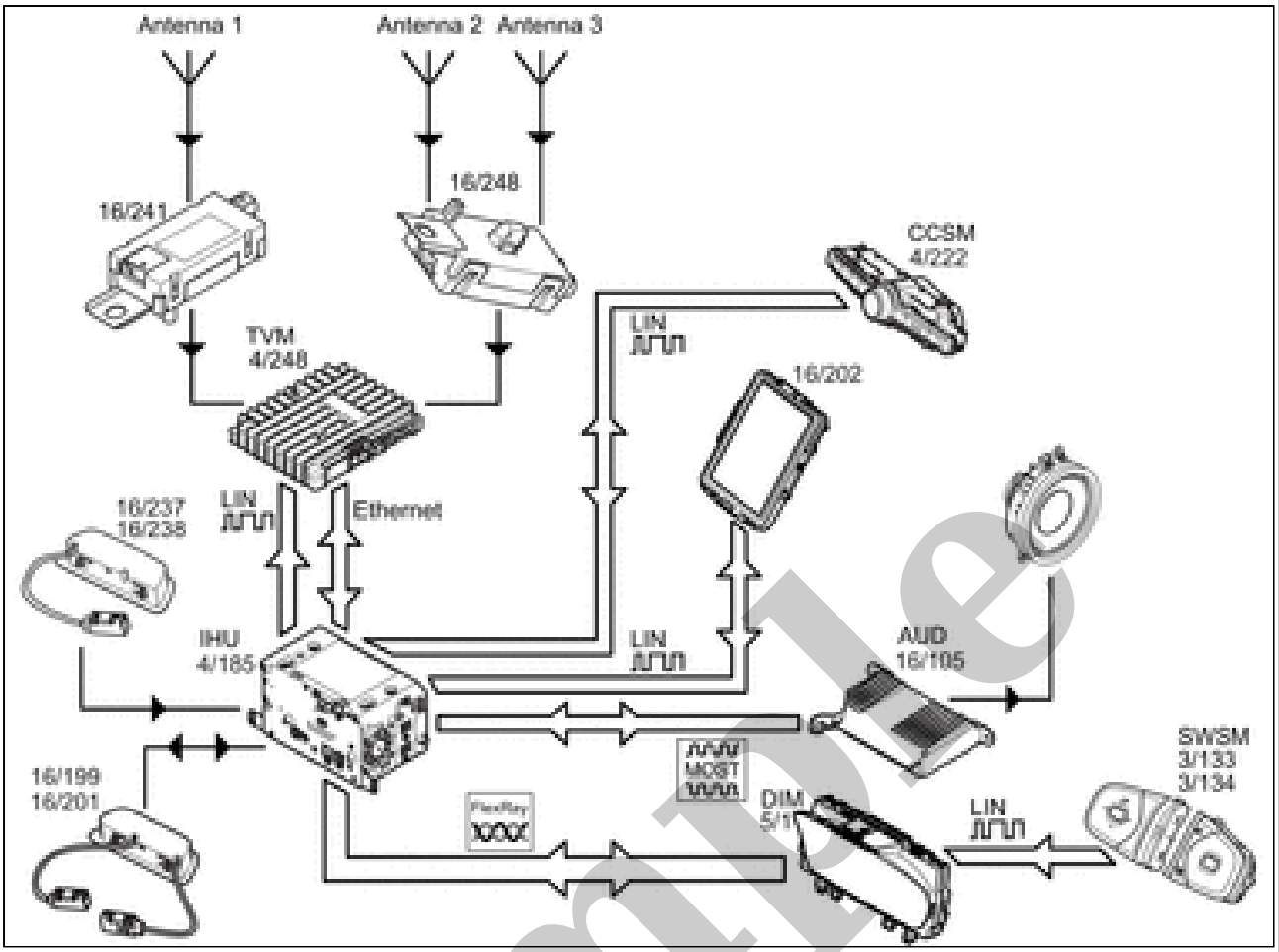
Polestar 2 and pure electric vehicles
The figure below shows the components used for the function.



Courtesy of VOLVO CARS CORPORATION

The table below summarizes input and output signals to and from the Telematics and Connectivity Antenna Module (TCAM).

Input signals	Output signals



Courtesy of VOLVO CARS CORPORATION

The table below summarizes input and output signals to and from the Infotainment Head Unit (IHU).

Input signals	Output signals
Directly connected **MY -2019** Speech input: • Microphone, handsfree / Active noise control ANC (16/199, 16/201) **MY 2019-** Speech input: • Digital microphone handsfree/ANC, dual (16/237) • Digital microphone handsfree/ANC, dual endpoint (16/238)	**Directly connected**
LIN Control of television:	**LIN** Operating modes:

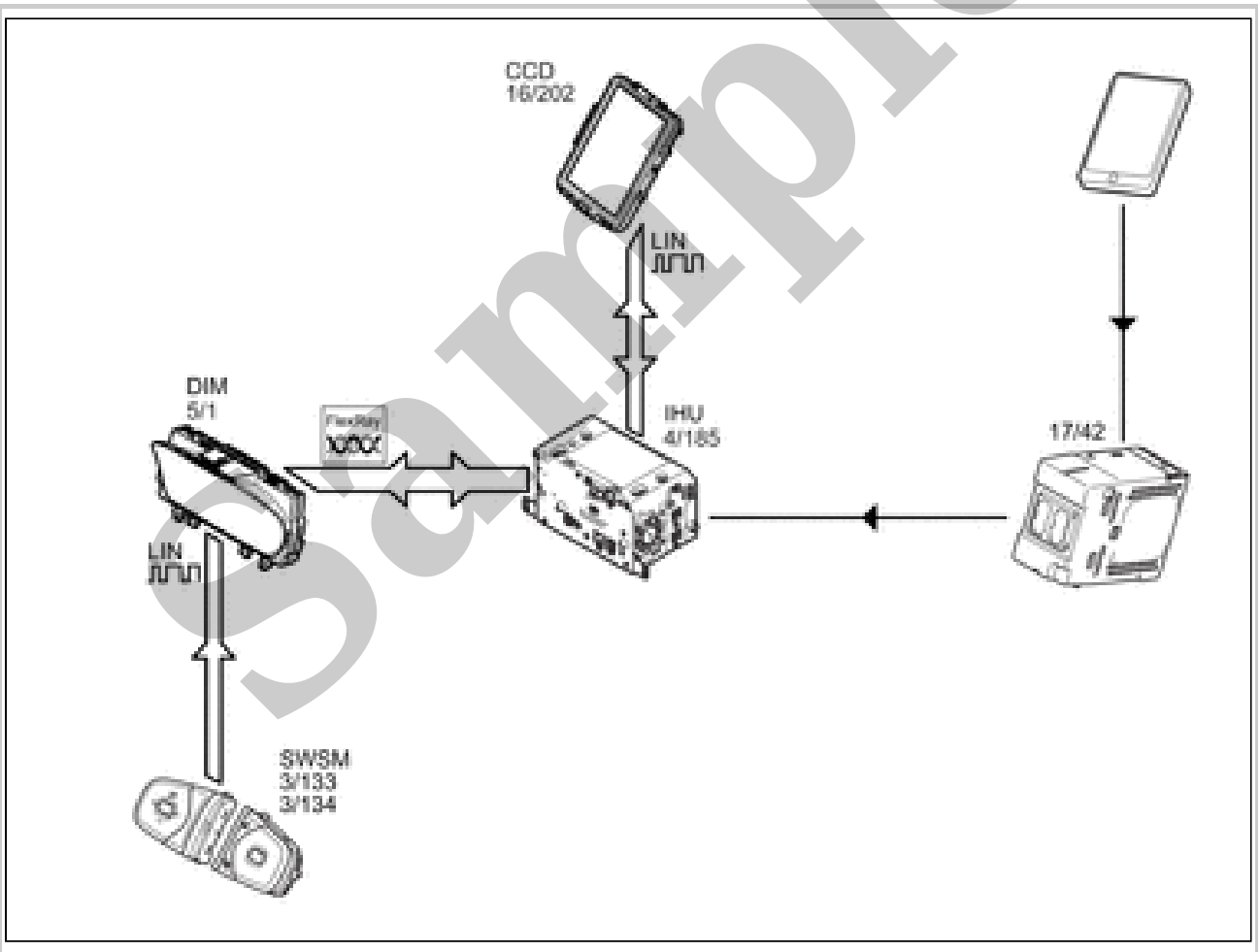
steering wheel keypad (3/134), the control signals from the right steering wheel keypad are sent via the Driver Information Module (DIM) to the Infotainment Head Unit (IHU).

NOTE: *Not all applications in the smartphone are available through device mirroring.*

NOTE: *If a cell phone or a media player is connected via Bluetooth, it will not be accessible while Apple CarPlay is active because Bluetooth will be disabled. To connect the vehicle to the Internet, use Wi-Fi or the vehicle's integrated modem.*

Signals

The figure below shows the components used for the function.



Courtesy of VOLVO CARS CORPORATION

The table below summarizes input and output signals to and from the Infotainment Head Unit (IHU).

Most settings as well as the driver profiles are managed in the Center Console Display (CCD) and saved in the Infotainment Head Unit (IHU). A backup of the data is saved in the Central Electronic Module (CEM). If the Infotainment Head Unit (IHU) is exchanged or the data is lost for other reasons, the backup data is used instead.
The driver profiles and settings can be exported to another vehicle by using a USB memory.
Driver profiles (Polestar 2 and pure electric vehicles)
The vehicle is delivered with a pre-created profile called Owner. It is possible to use the vehicle without logging in to a profile but with limited app functions, this temporary user will be reset after each use.

SENSUS: ENTERTAINMENT AND MEDIA > SENSUS: ENTERTAINMENT AND MEDIA [2018-2022] > VOICE CONTROL

VARIANTS

Component or function	Market, customer option, vehicle model
Analog microphones: • Microphone, handsfree / Active noise control ANC	MY -2019
Digital microphones: • Digital microphone handsfree/ANC, dual • Digital microphone handsfree/ANC, dual endpoint	MY 2019-

Operation
The voice control function allows the driver to use speech recognition to control certain features, such as:

- Climate - increase and decrease temperature
- Media - play an artist, a specific song or a radio channel
- Navigation - search for directions to an address or point of interest (POI)
- Phone - make a call
- SMS - recite an SMS

For each feature (except climate) there is a word or phrase, a so called "gate command" that is used to initiate a search in the correct database. For example, when looking up directions to a specific address, the phrase "Go to" followed by the address initiates the search. For example, "Go to 123 Main Street, Hometown". Other gate commands are "Call" and "Play".
All climate features except zone handling are accessible via voice control. When adjusting the temperature using voice control, the temperature in the passenger compartment is affected. When controlling the seat settings, only the driver's seat is affected. It is not possible to change the temperature only for the rear passengers via voice.
In order to initiate a voice-controlled request, a button is pressed on the steering wheel switch module SWSM or by saying the phrase "OK Google". With the initiation, a feedback request signal is sent from the SWSM via the Infotainment Head Unit (IHU) to the Audio Control Module (AUD). The Audio Control Module (AUD) temporarily mutes or pauses (depending on the audio source) all sound currently playing, and activates audio feedback through the door speakers.

• Digital microphone handsfree/ANC, dual (16/237) • Digital microphone handsfree/ANC, dual endpoint (16/238)	
LIN Input information: • Center Console Display (CCD) (16/202)	**LIN** Incoming call: • Center Console Display (CCD) (16/202)
APIX	**APIX** Incoming call message: • Driver Information Module (DIM) (5/1) to - Combined instrument display
MOST Canceling echo sound: • Audio Control Module (AUD) (16/105)	**MOST** Audio signals: • Audio Control Module (AUD) (16/105)
FlexRay Signal transfers: • Steering Wheel Switch Module (SWSM) (3/133, 3/134) via - Driver Information Module (DIM) (5/1)	**FlexRay**

Activation and deactivation
The Bluetooth device must be paired with the vehicle before activation of the telephony. The smartphone will automatically connect to the vehicle after the first pairing. If the smartphone is not automatically paired, manual pairing must be done using the Center Console Display (CCD). The vehicle will only try to automatically connect to Bluetooth for approximately five minutes once the vehicle is started and only to the latest two smartphones.
Related function
The Bluetooth telephony function is related to the following function:

- Sounds and speakers

SENSUS: ENTERTAINMENT AND MEDIA > SENSUS: ENTERTAINMENT AND MEDIA [2018-2022] > WI-FI HOTSPOT

The Wi-Fi hotspot function allows the passengers to connect to the internet.
Variants

Component or function	Market, customer option, vehicle model
Vehicle Connectivity Module (VCM)	All vehicles **except**

• Bluetooth antenna (16/220)	• Bluetooth antenna (16/220)
LIN over LVDS Input selection: • Center Console Display (CCD) (16/202)	**LIN over LVDS** Connection status: • Center Console Display (CCD) (16/202)

Activation and deactivation
The Bluetooth device must be paired with the vehicle before activation of the internet connection. The device will automatically connect to the vehicle after first paring. If the device is not found, pairing must be done through the Center Console Display (CCD).
If Bluetooth is turned off on the Bluetooth device, the device will not automatically connect. The vehicle tries to automatically connect to a Bluetooth device for approximately five minutes once the vehicle is started and only to the latest two devices.

SENSUS: ENTERTAINMENT AND MEDIA > SENSUS: ENTERTAINMENT AND MEDIA [2018-2022] > USB TETHERING

USB tethering provides the vehicle with a connection to Sensus Cloud by tethering to a USB connected mobile device.
Operation
The Infotainment Head Unit (IHU) handles the USB connection, which can also be used by other control modules and functions.
The following scenario describes the function:

1. A mobile device is connected to the USB port.
2. The USB port sends a signal to the Infotainment Head Unit (IHU) that a mobile device is connected.
3. The Infotainment Head Unit (IHU) presents the USB tethering connection in the Center Console Display (CCD). If a different type of connection was used previously, the USB tethering connection must be confirmed.
4. The Infotainment Head Unit (IHU) connects to Sensus Cloud using the mobile device as a modem.

NOTE: *Polestar 2 and pure electric vehicles do not support USB tethering.*

Signals
The figure below shows the components used for the function.

Activation and deactivation
The Bluetooth device must be paired with the vehicle before activation. The Bluetooth device will automatically connect to the vehicle after first pairing. If the device is not found, pairing must be done through the Center Console Display (CCD).
Related function
The Bluetooth audio function is related to the following function:

- Sounds and speakers

SENSUS: ENTERTAINMENT AND MEDIA > SENSUS: ENTERTAINMENT AND MEDIA [2018-2022] > USB MEDIA

The USB media function provides support for audio and video playback from a USB connected media player.
Operation
The USB port transmits audio and video signals from the connected mobile device to the Infotainment Head Unit (IHU), which controls the playback based on the settings in the Center Console Display (CCD) Media Player. The Infotainment Head Unit (IHU) shows the video images in the Center Console Display (CCD) and requests the Audio Control Module (AUD) to play the audio in the sound speakers. The playback information signals is sent from the Infotainment Head Unit (IHU) to the Driver information Module (DIM) to be displayed in the combined instrument display.
Some playback functions can also be controlled by:

- Voice control.
- The steering wheel switch module SWSM, where the control signals are sent to the Driver Information Module (DIM), and further to the Infotainment Head Unit (IHU).
- The center console switch module CCSM, which sends control signals to the Infotainment Head Unit (IHU).

The following audio formats are supported:

- MP3, AAC, WMA, WAV, FLAC

The following video formats are supported:

- MP4, MPEG-PS, AVI, AVI (DivX), ASF, MKV

Signals
The figure below shows the components used for the function.

- Parts of the function can also be controlled by the voice control function as playing a specific radio channel or choosing between radio channels.

Satellite radio
The multiband antenna module MAM amplifies the received satellite signal and sends it to the Infotainment Head Unit (IHU). The Infotainment Head Unit (IHU) handles the channel-selecting (tuning and decoding) and sends audio signals to the Audio Control Module (AUD), which amplifies the audio signals and sends them to the loudspeakers. The Infotainment Head Unit (IHU) also creates the channel list of existing stations and a continuously updated genre list. The multiband antenna module MAM receives position, date and time from the Global Navigation Satellite System GNSS signal and sends it to the Infotainment Head Unit (IHU).
The user mainly controls the function from an application in the Center Console Display (CCD). Play, channel selection, and volume can also be controlled from:

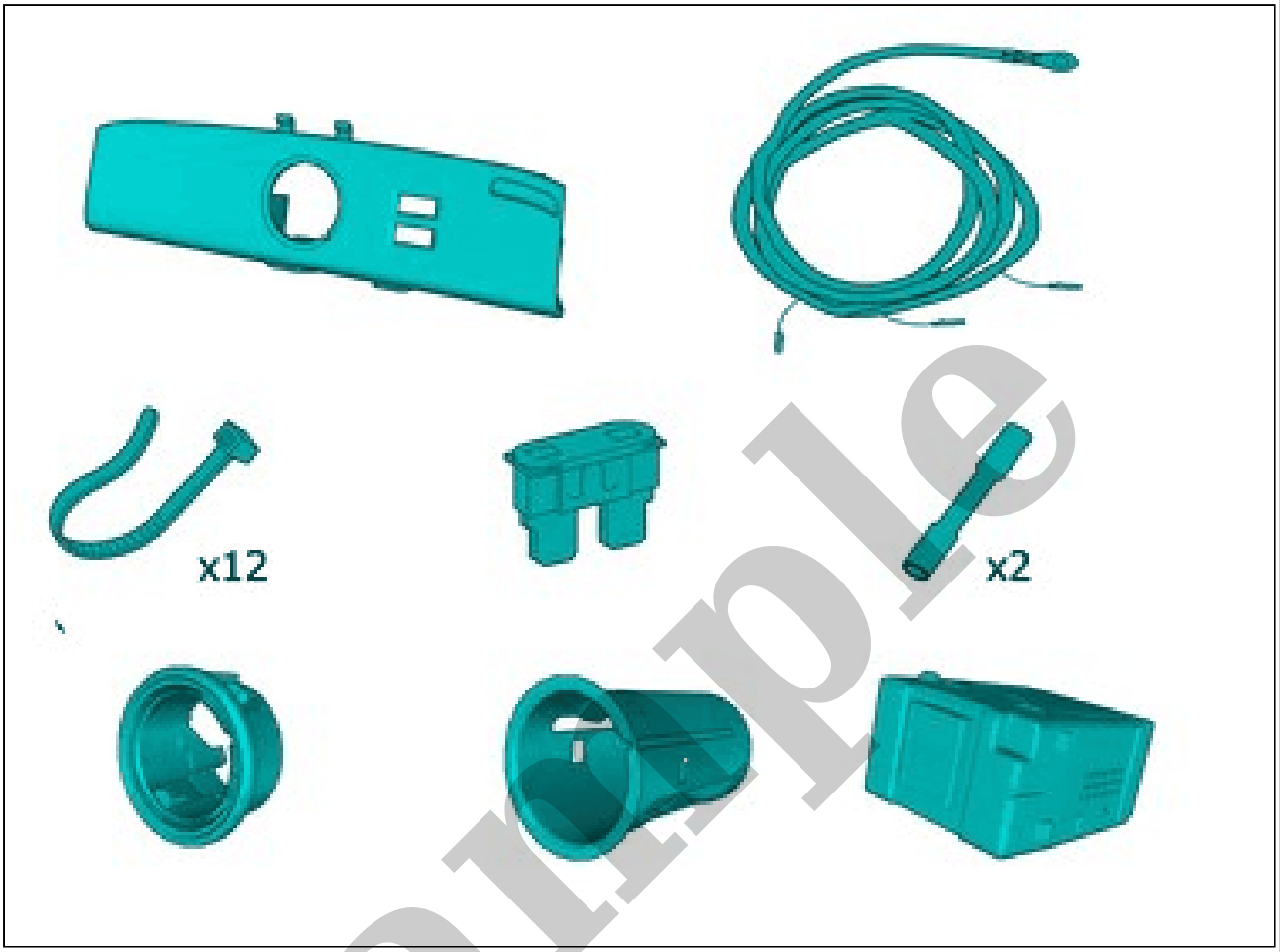
- The center console switch module CCSM, which sends control signals to the Infotainment Head Unit (IHU).
- The steering wheel switch module SWSM, which sends control signals via the Driver Information Module (DIM), to the Infotainment Head Unit (IHU).
- Parts of the function can also be controlled by the voice control function as playing a specific radio channel or choosing between radio channels.

SENSUS: RADIO > SENSUS: RADIO [2018-2022] > SIGNALS

AM/FM radio, HD radio and DAB radio
The figure below shows the components used for the function.

INTEGRATED SMARTPHONE > INTEGRATED SMARTPHONE [2018-2022] > ACCESSORY INSTALLATION

Component overview



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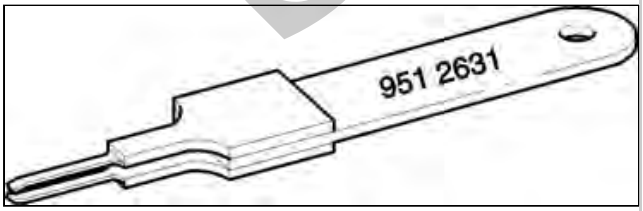
SPECIAL TOOLS



Courtesy of VOLVO CARS CORPORATION

951 2631 Terminal removal tool (Color code: Brown)
Tool number: 951 2631
Tool description: Terminal removal tool (Color code: Brown)
Tool boards: 39