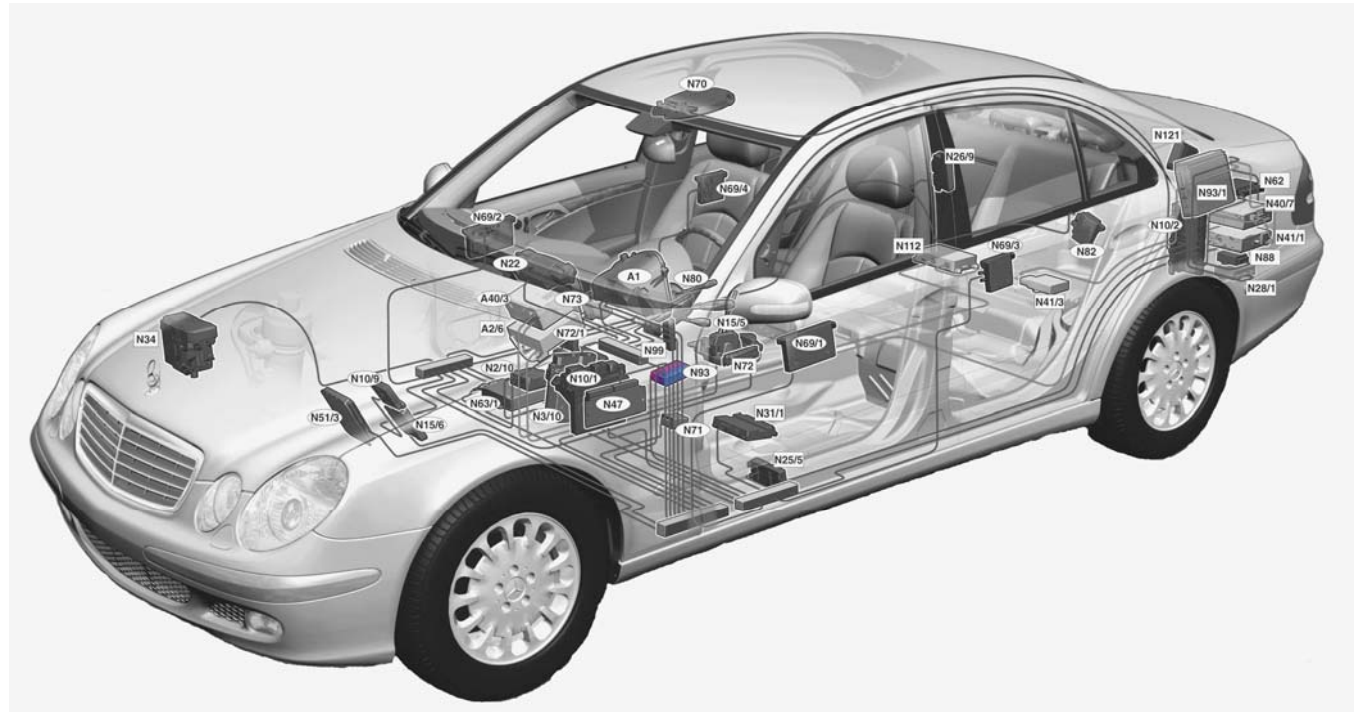




Mercedes-Benz

# W211 Networking



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# Communication Networks

The W211 uses many control modules that share information, control consumers and self diagnostics. There are 3 vehicle communication networks and 1 dedicated diagnostic network.

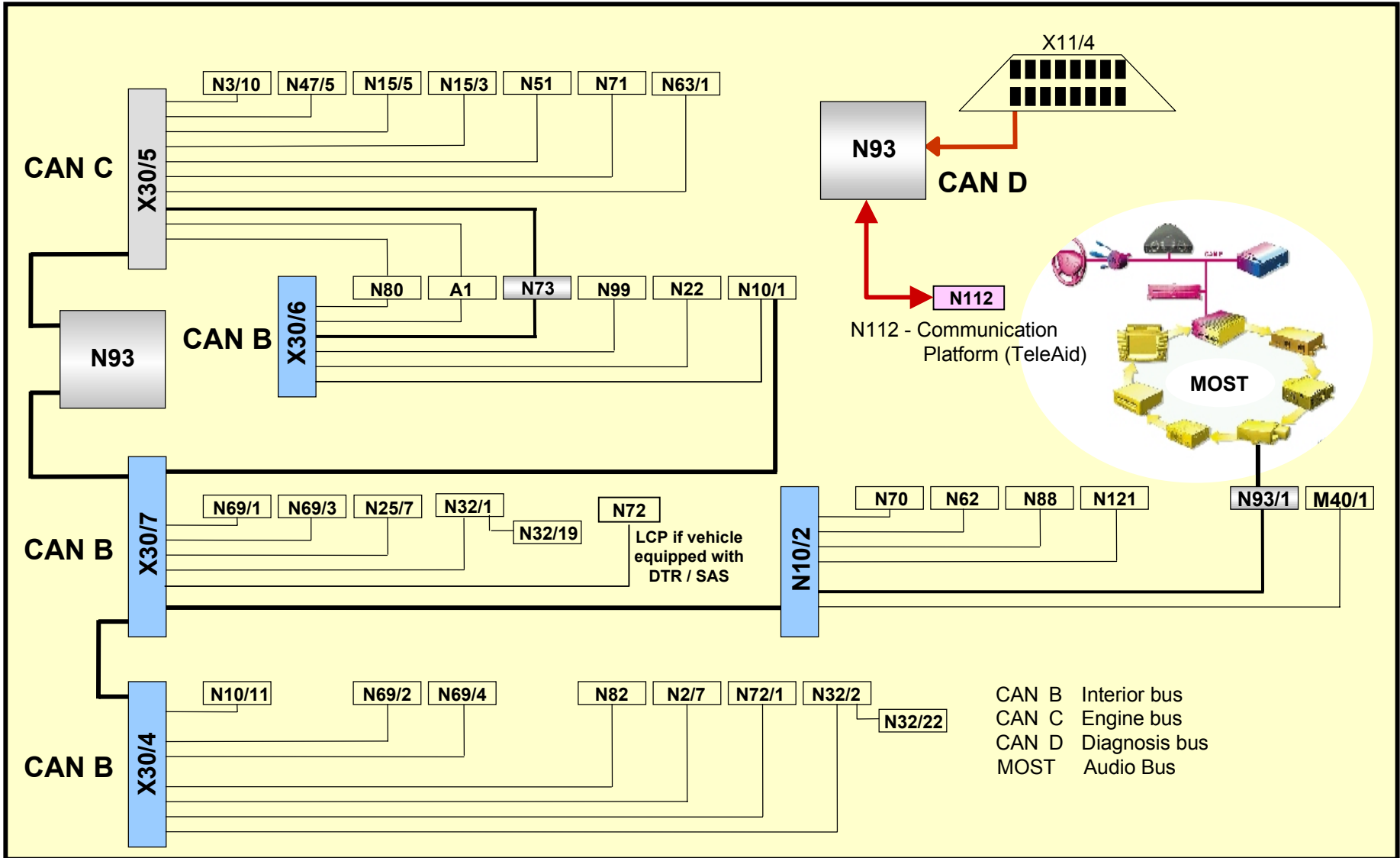
CAN B - Interior databus (sometimes called body CAN)

CAN C - Engine databus (sometimes called chassis CAN)

MOST - Digital fiber optic databus (replaces D2B)

CAN D - Diagnostic databus

# W211 Networking Diagram



# W211 Networking Legend

## CAN C

N3/10	ME-SFI Control Module
N15/3	ETC - Electronic Transmission Control
N15/5	ESM - Electronic Selector Module
N47/5	ESP - Electronic Stability Program
N51	SAS - Semi-Active Air Suspension
N63/1	DTR - Distronic Control Module
N71	HRA - Headlamp Range Adjustment
N93	CGW - Central Gateway Module

## CAN B

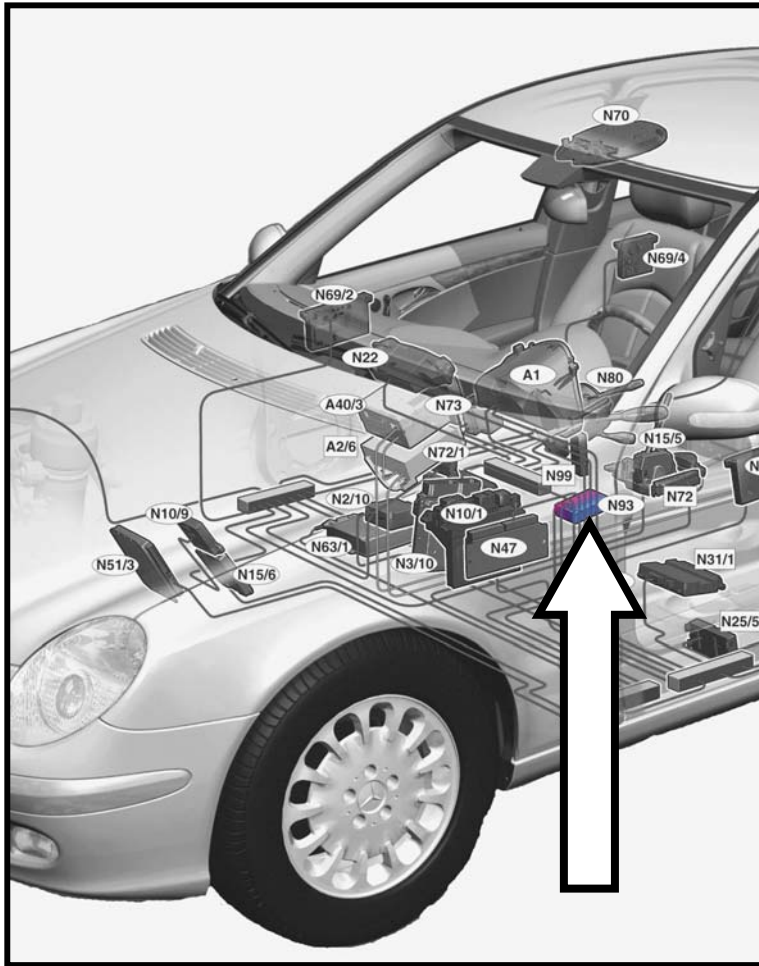
M40/1	Pneumatic Pump of Dynamic Seat
N2/7	Supplemental Restraint System
N10/1	SAM-D - Driver-side
N10/2	SAM-R - Rear
N10/11	SAM-P - Passenger-side
N22	AAC - Automatic Air Conditioning Control
N25/7	HS and Seat Ventilation Control Module
N32/1	ESA - Left Front Seat Adjustment
N32/2	ESA - Right Front Seat Adjustment

N32/19	Left Front Dynamic Seat Control
N32/22	Right Front Dynamic Seat Control
N62	PTS - Parktronic Control
N69/1	DCM - Left Front Door Control Module
N69/2	DCM - Right Front Door Control Module
N69/3	DCM - Left Rear Door Control Module
N69/4	DCM - Right Rear Door Control Module
N70	OCP - Overhead Control Panel
N72/1	UCP - Upper Control Panel
N82	BCM - Battery Control Module
N88	TPC - Tire Pressure Monitor Control Module
N93/1	AGW - Audio Gateway Control Module
N99	SWH - Steering Wheel Heater
N121	RTL - Remote Trunk Locking Control Module

## CAN C & B

A1	ICM - Instrument Cluster
N73	EIS - Electronic Ignition Switch Control
N80	SCM - Steering Column Module
N93	CGM - Central Gateway Module

# Central Gateway Module (N93)



Location: Drivers under dash panel

# CGW (N93)

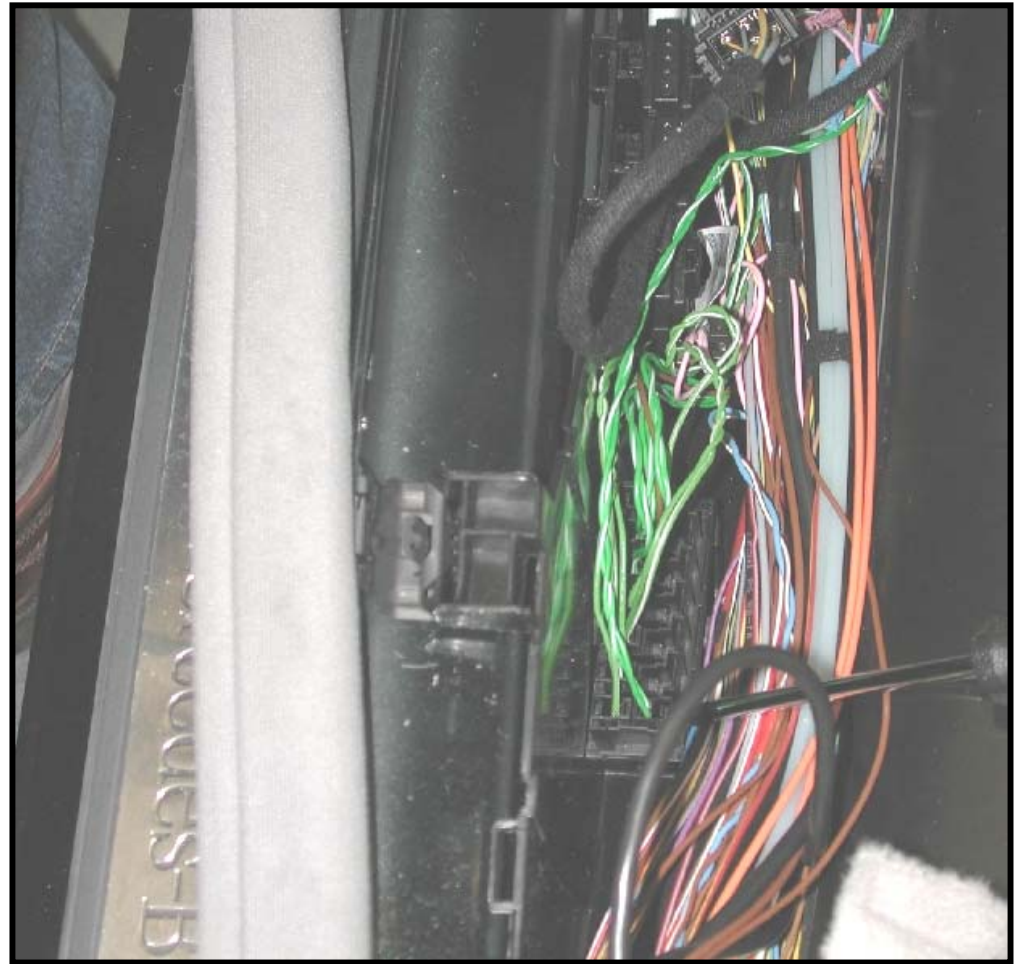
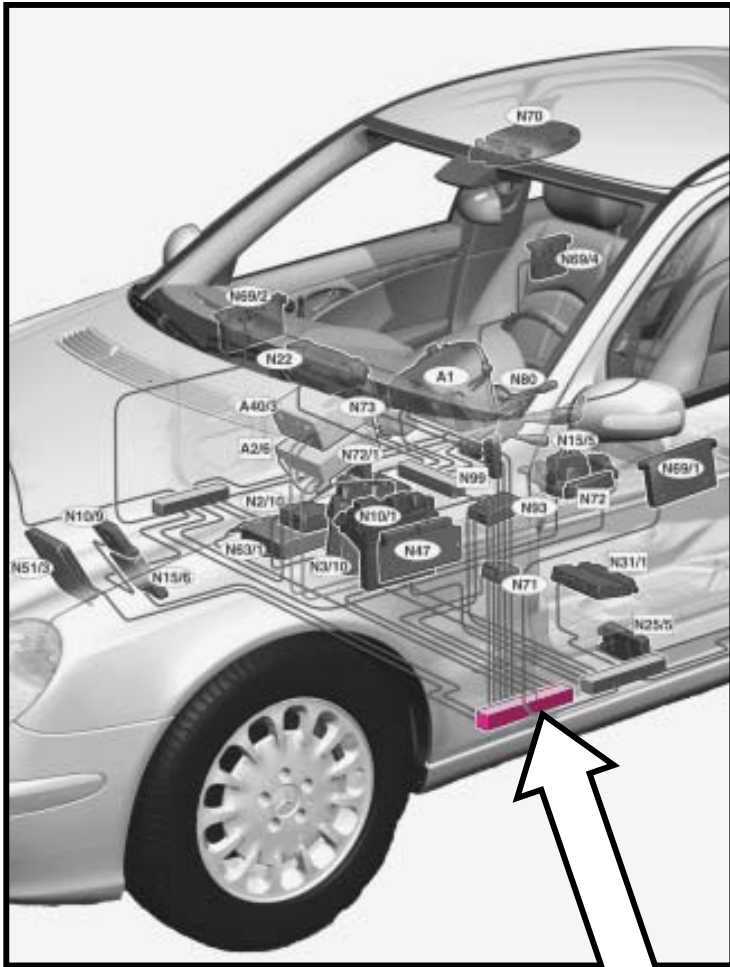
- CGW is the primary gateway between CAN C and CAN B
- Version coding known from EIS (N73) is now contained in CGW (N93)
- CGW contains FSS plus maintenance programs, no longer in ICM
- CGW module replacement
  - CGW module attempts to adapt to vehicle control modules
  - System diagnosis knowledge base updated by flashing
- Incorporates system diagnosis functions
  - CGW replaces system diagnosis module known from (R230)
  - Monitors, evaluates and performs logic assessments of CAN B related components (later production CAN C will be included)

# System Diagnosis Functions

- Monitors CAN B control modules for proper operation and faults
  - Provides DTC's related to CAN B communication problems
  - Monitors inputs & outputs of CAN B control modules
- Determines impaired functions and suspicious components
  - Narrows down the list of suspicious components
  - Puts suspicious components in order of likelihood
- Informs DAS via X11/4
  - Requests component activation for evaluation
  - Results of diagnosis
- Provides information on the cause of an ATA triggering event

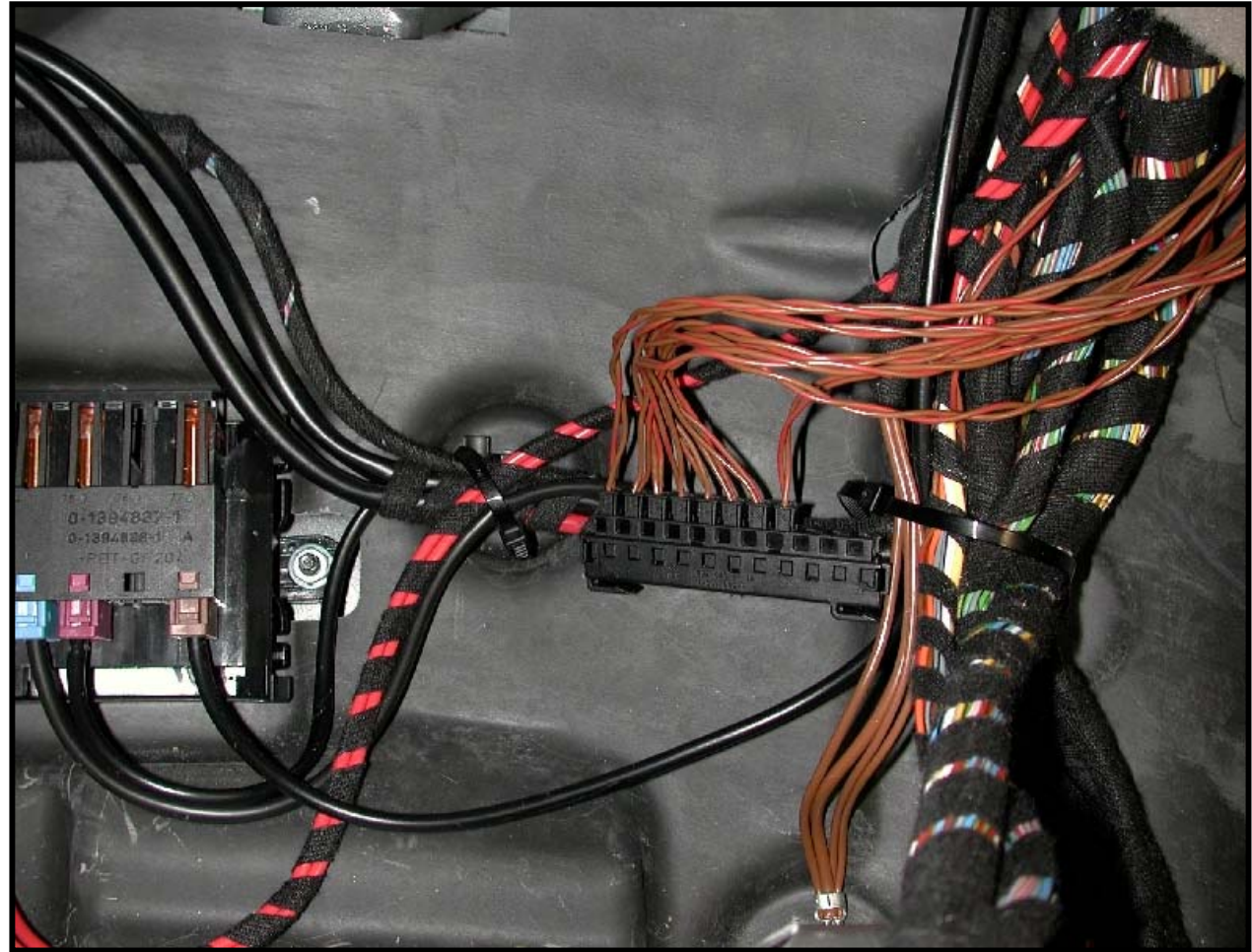
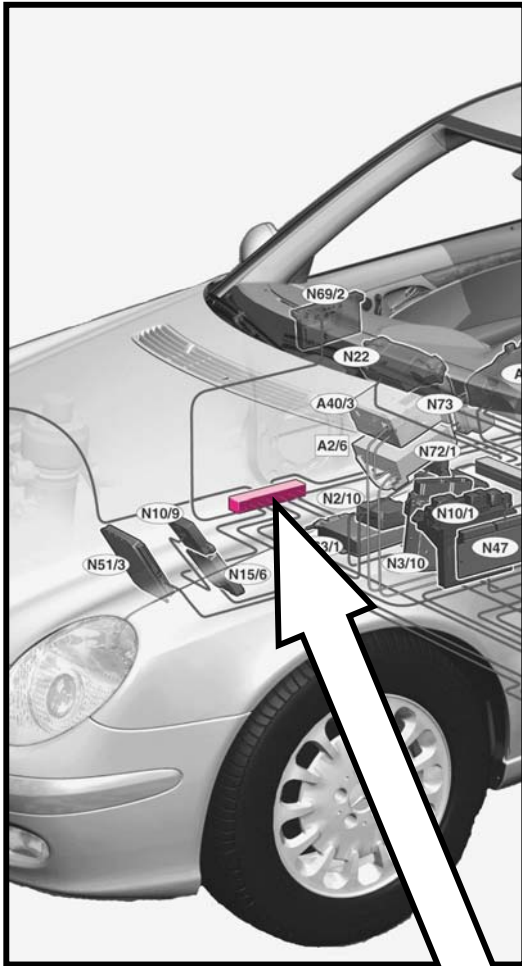


# CAN C Connector (X30/5)



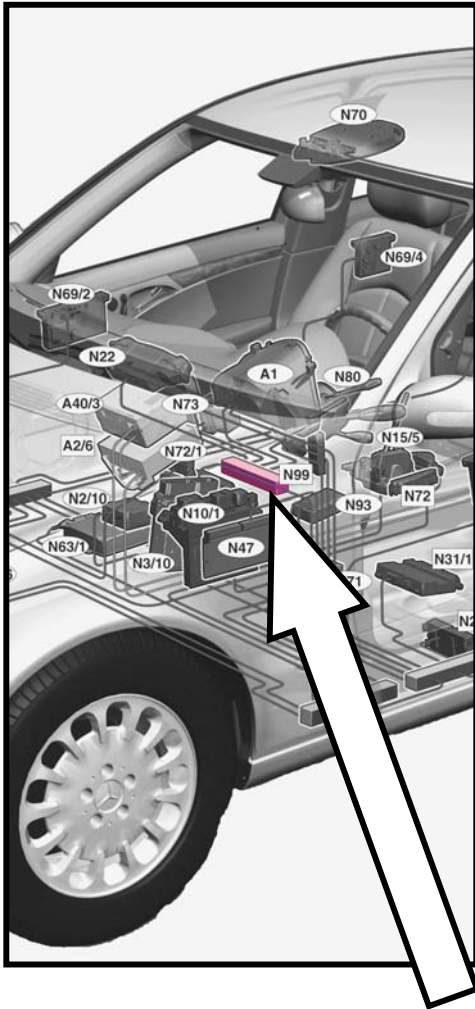
Location: Drivers rocker panel wiring trough

# CAN B Connector (X30/4)



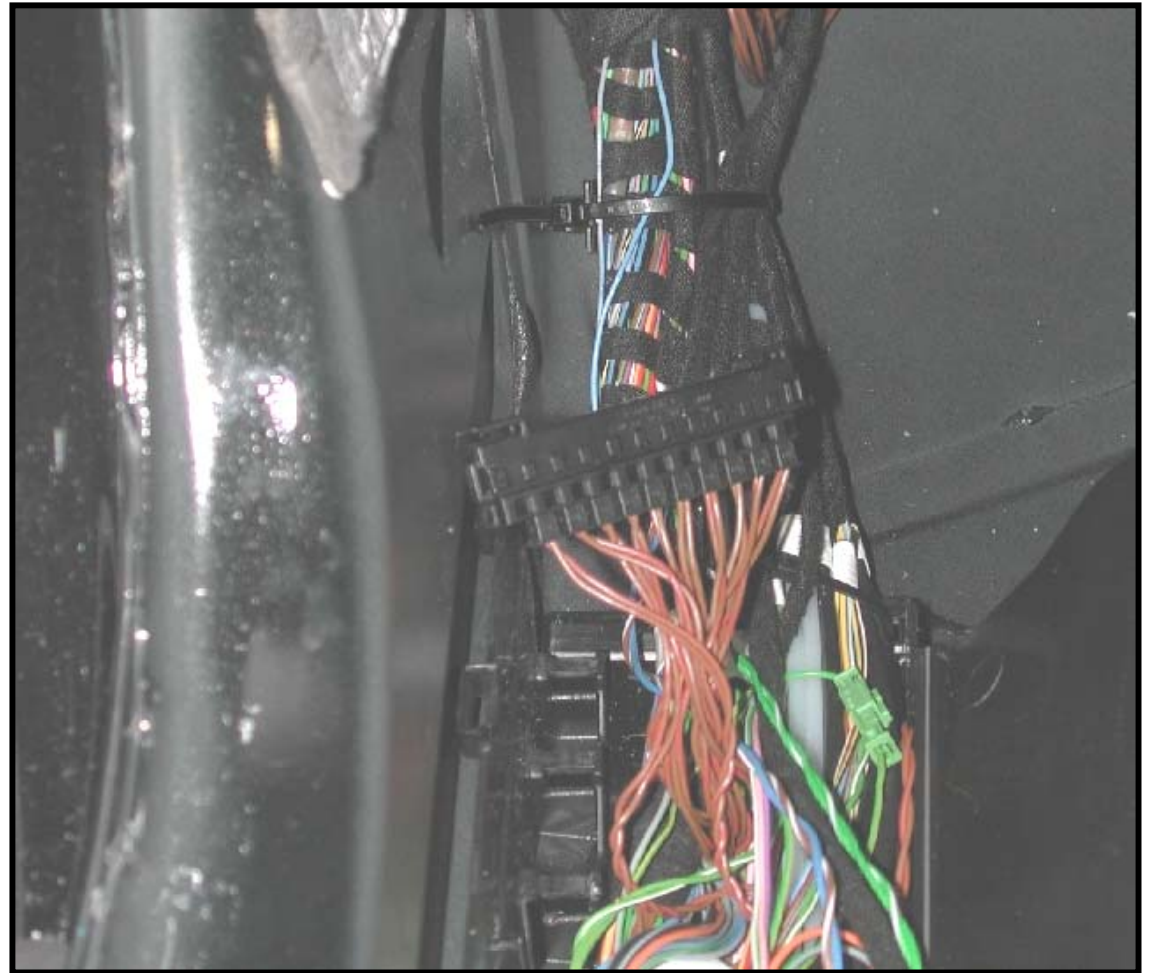
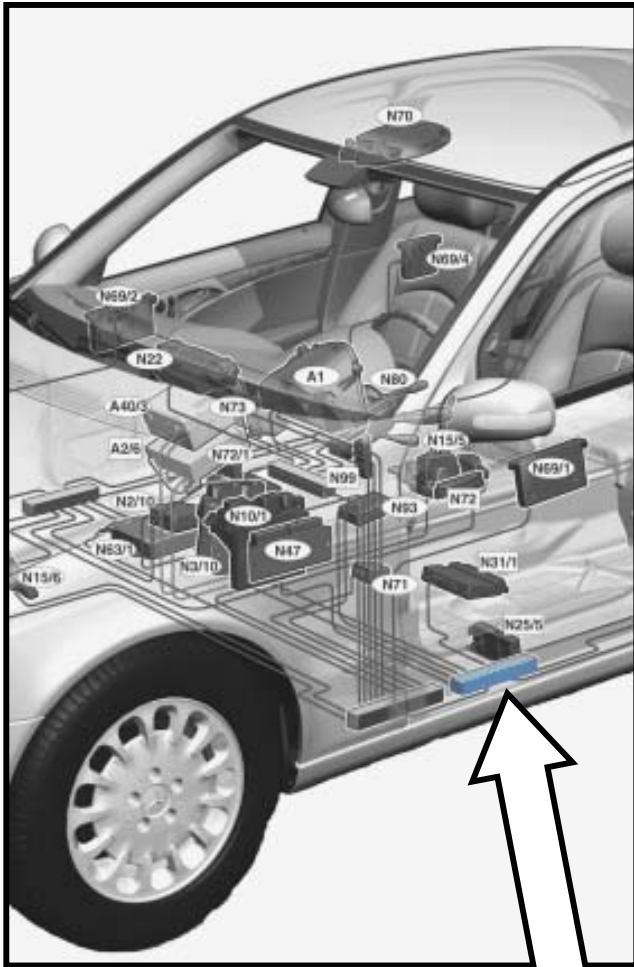
Location: Right side passenger footwell

# CAN B Connector (X30/6)



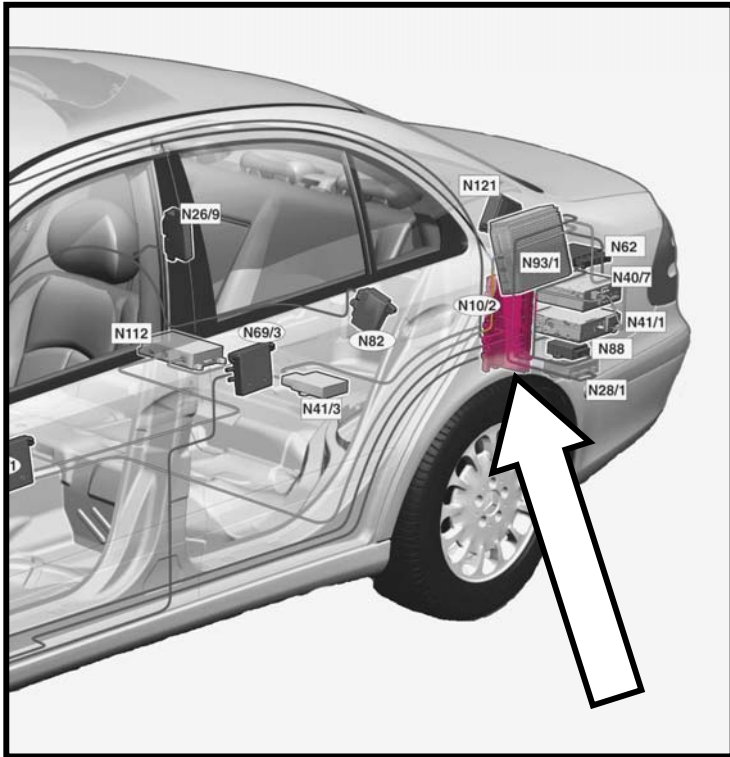
Location: Passenger side HVAC case

# CAN B Connector (X30/7)

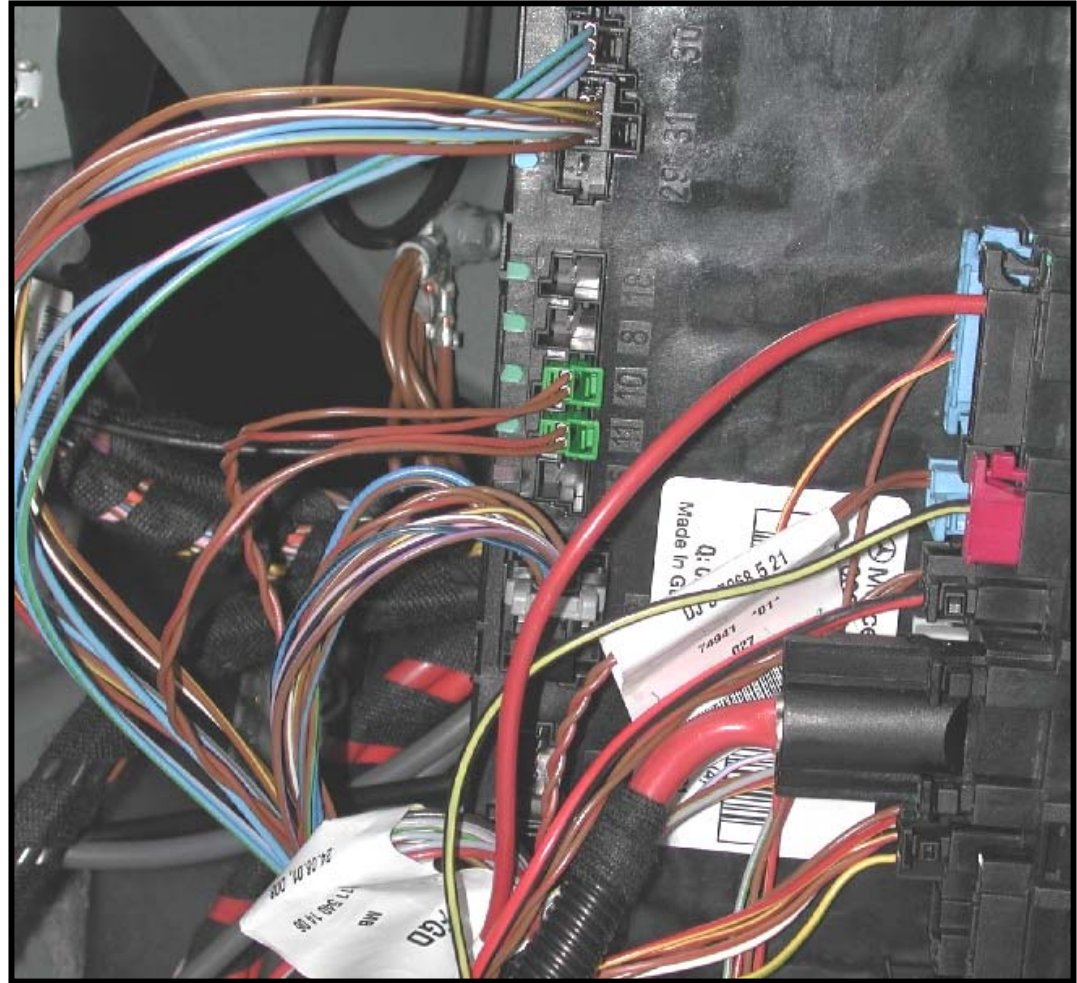


Location: Drivers rocker panel wiring trough

# SAM-Rear (N10/2)



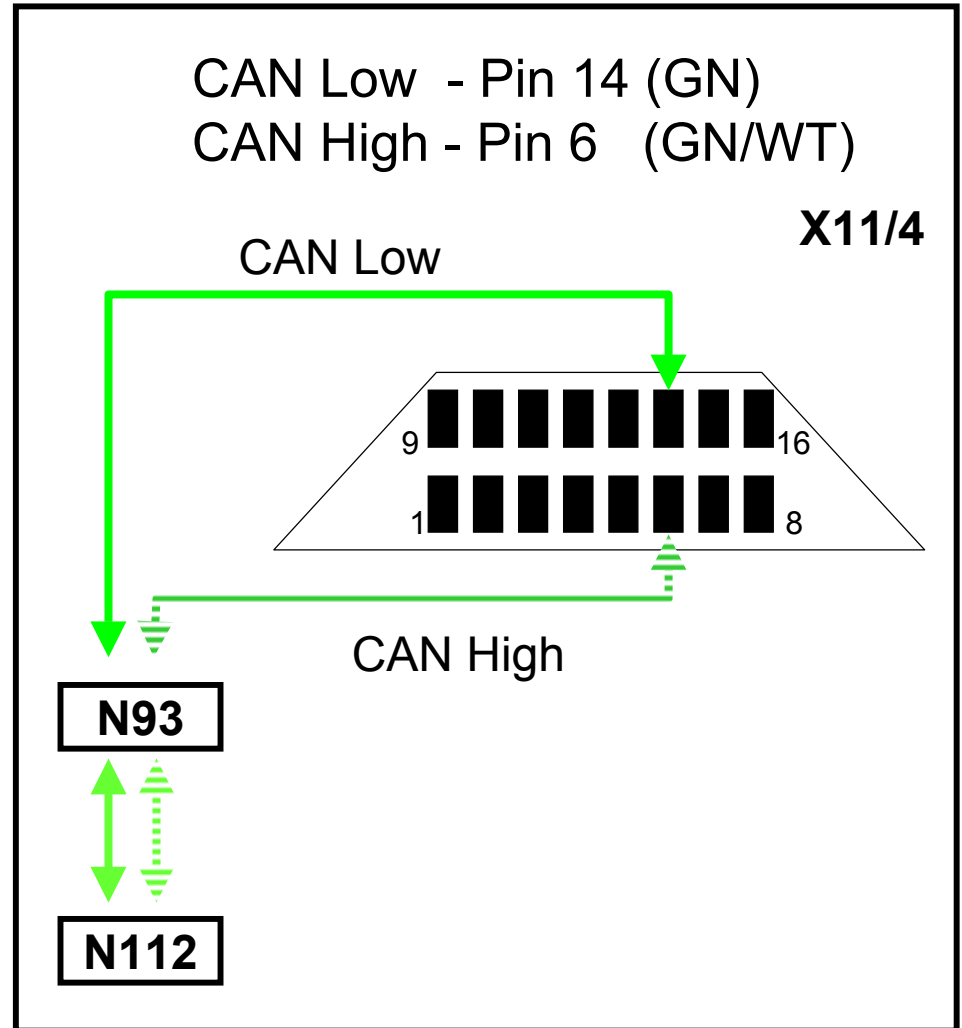
Several control modules are connected to the CAN B network via N10/2.



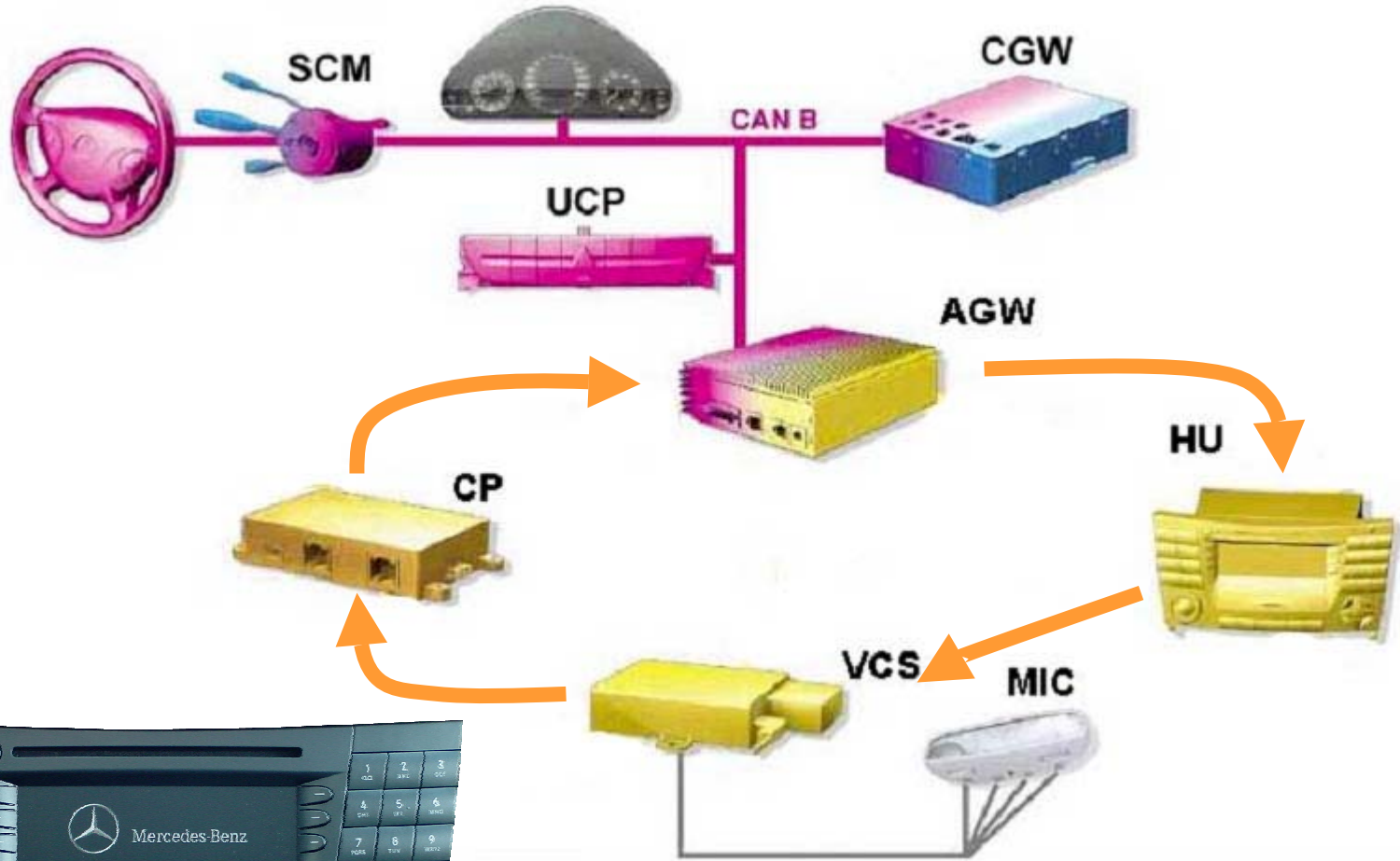
Location: Left side trunk

# W211 CAN D

- Is the diagnostic link between Central Gateway Module (N93), Communications Platform (N112) and SDS / DAS
- CAN D voltage
  - High = 2.5v
  - Low = 2.5v
- CAN D voltage awake
  - High = activity to 3.5v
  - Low = activity to 1.5v
- All modules on CAN B are diagnosed by SDS / DAS through CAN D



# Audio / Communication Network



# What is MOST?

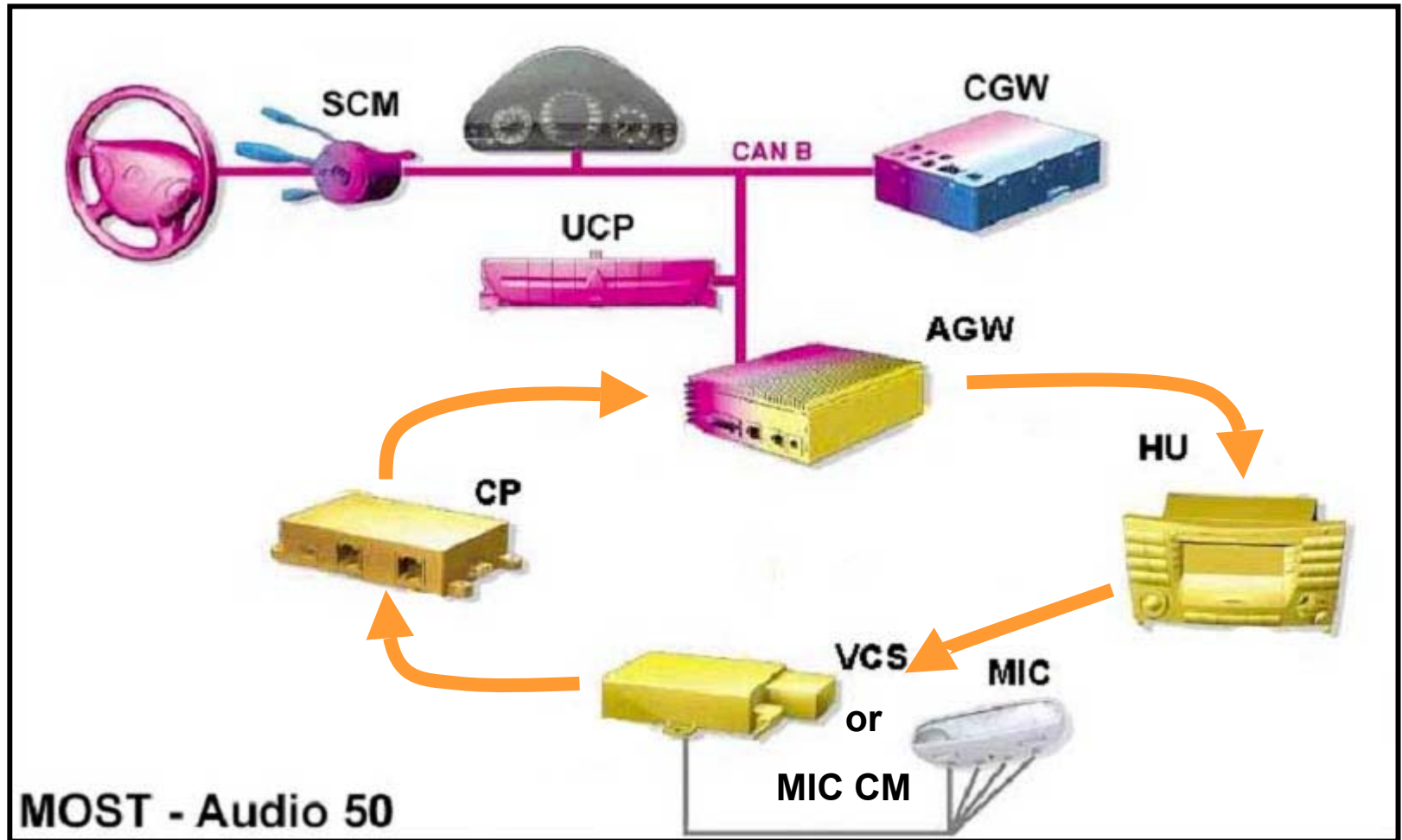
- The MOST acronym is derived from its definition as a “Media Oriented System Transport”
- Fiber optics manufactured with greater durability than D2B
- Communication standard created by DCAG, Becker, and other corporations
- The configuration of the system is a combination of ring and star topology similar to D2B



# MOST Component Functions

- AGW, audio gateway (N93/1) *Harman-Becker*:
  - MOST master
  - Tuner
  - Amplifier
  - CAN B to MOST gateway
- CP, communication platform (N112) *Motorola*:
  - HSE
  - TeleAid
  - GPS (location of car for TeleAid)
- VR, voice recognition (A35/11) *Temic/Motorola*  
or  
MIC CM, Microphone in mirror module (A35/1) *AKG*
- CDC compact disc changer (A2/6) *Alpine*
- HU head unit (A2/56) or later COMAND *Harman-Becker*

# MOST Ring Network



# MOST Bus Legend

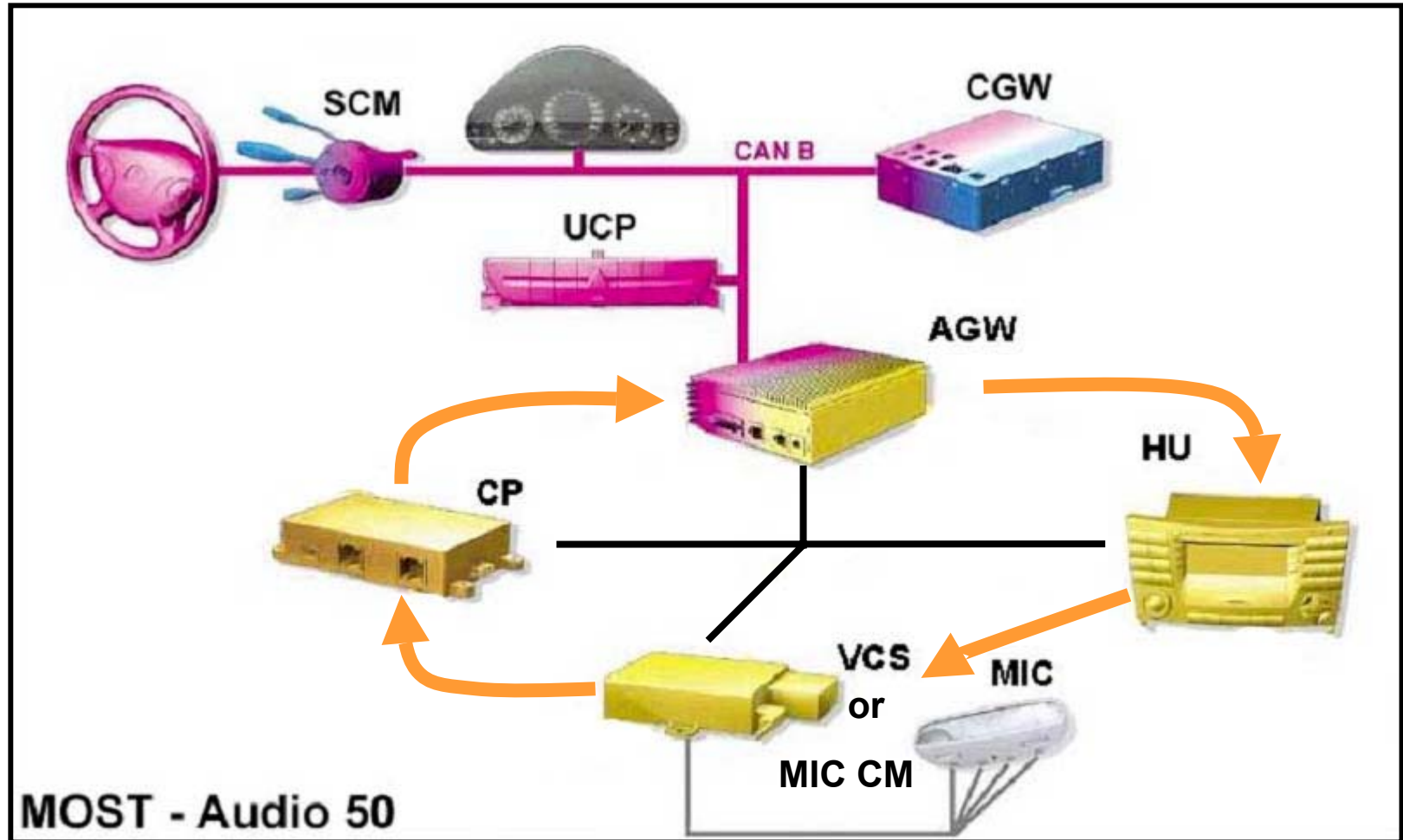
## **MOST**

- A2/56 - Audio 50 head unit (HU)
- A35/1 - Microphone module (MIC CM)
- A35/11 - Voice recognition module (VR)
- B25 - Microphones in mirror (MIC)
- N93/1 - Audio gateway module (AGW)
- N112 - Communication platform (CP)

## **CAN B**

- A1 - Instrument cluster (ICM)
- N72/1 - Upper control panel (UCP)
- N80 - Steering column module (SCM)
- N93 - Central gateway module (CGW)

# MOST Wake-Up

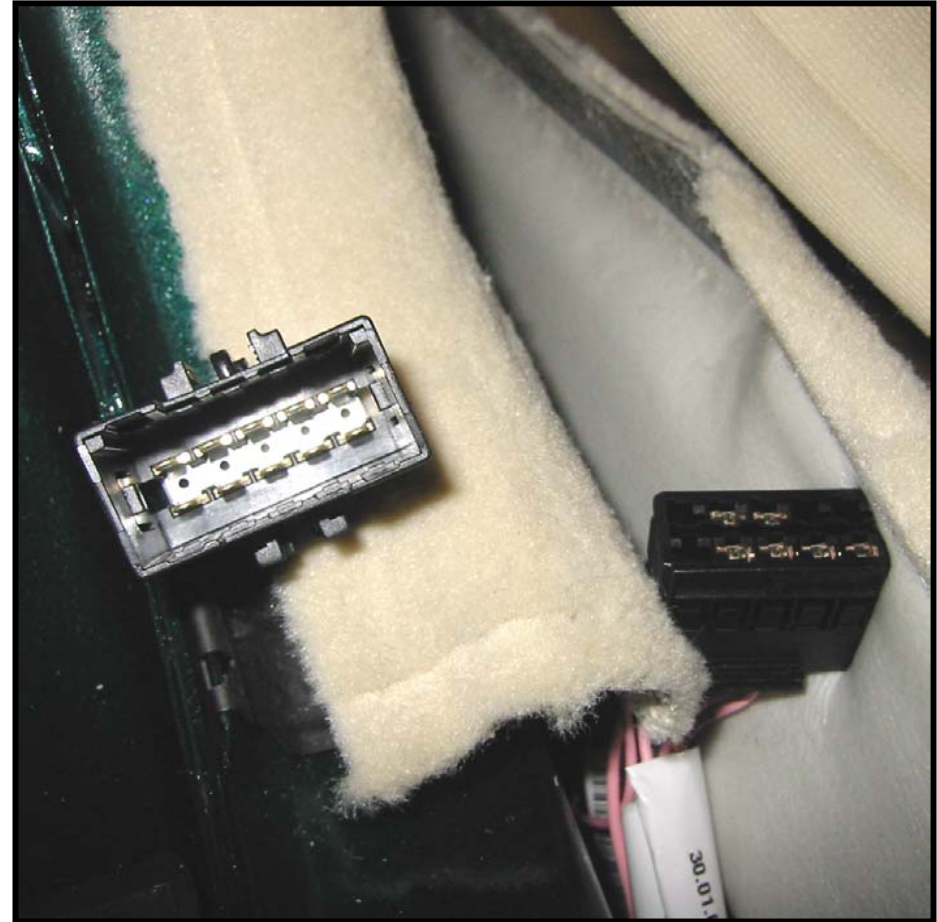


- 12 volt electrical wakeup
- Components will still wake up using optical ring

# MOST Wake-Up Bus Connector



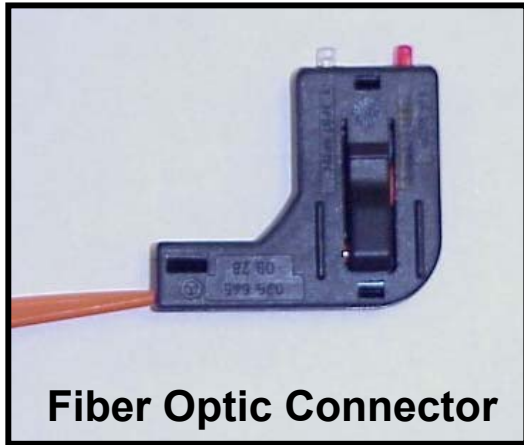
Location: Drivers rocker panel wiring trough



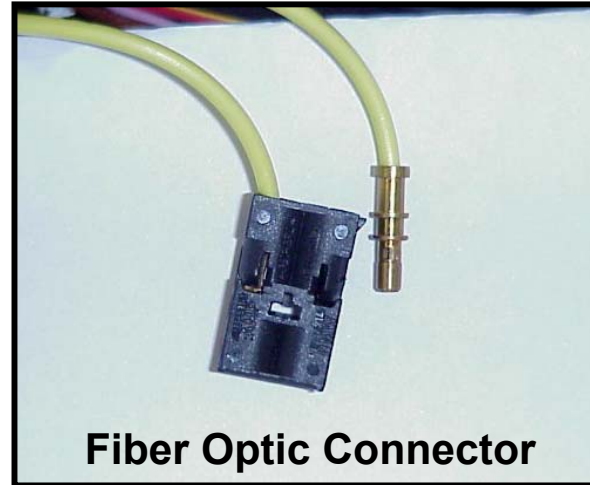
Connector cover incorporates bridges connecting all the individual wake-up wires

# MOST vs. D2B Connector

**D2B**



**MOST**



Note: MOST fiber optic ends same color

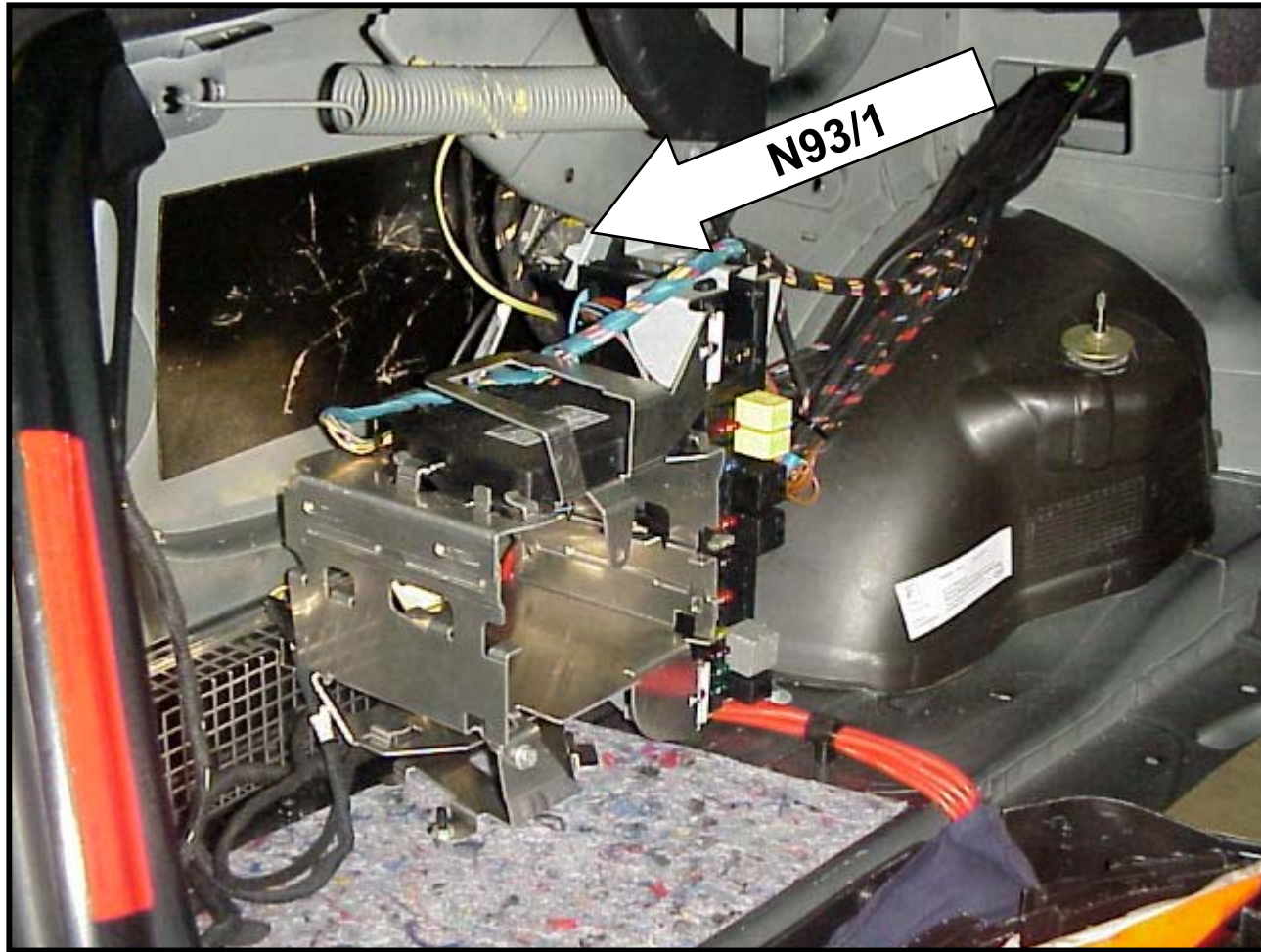


# MOST - In Car Connections



Location: Left rear door sill

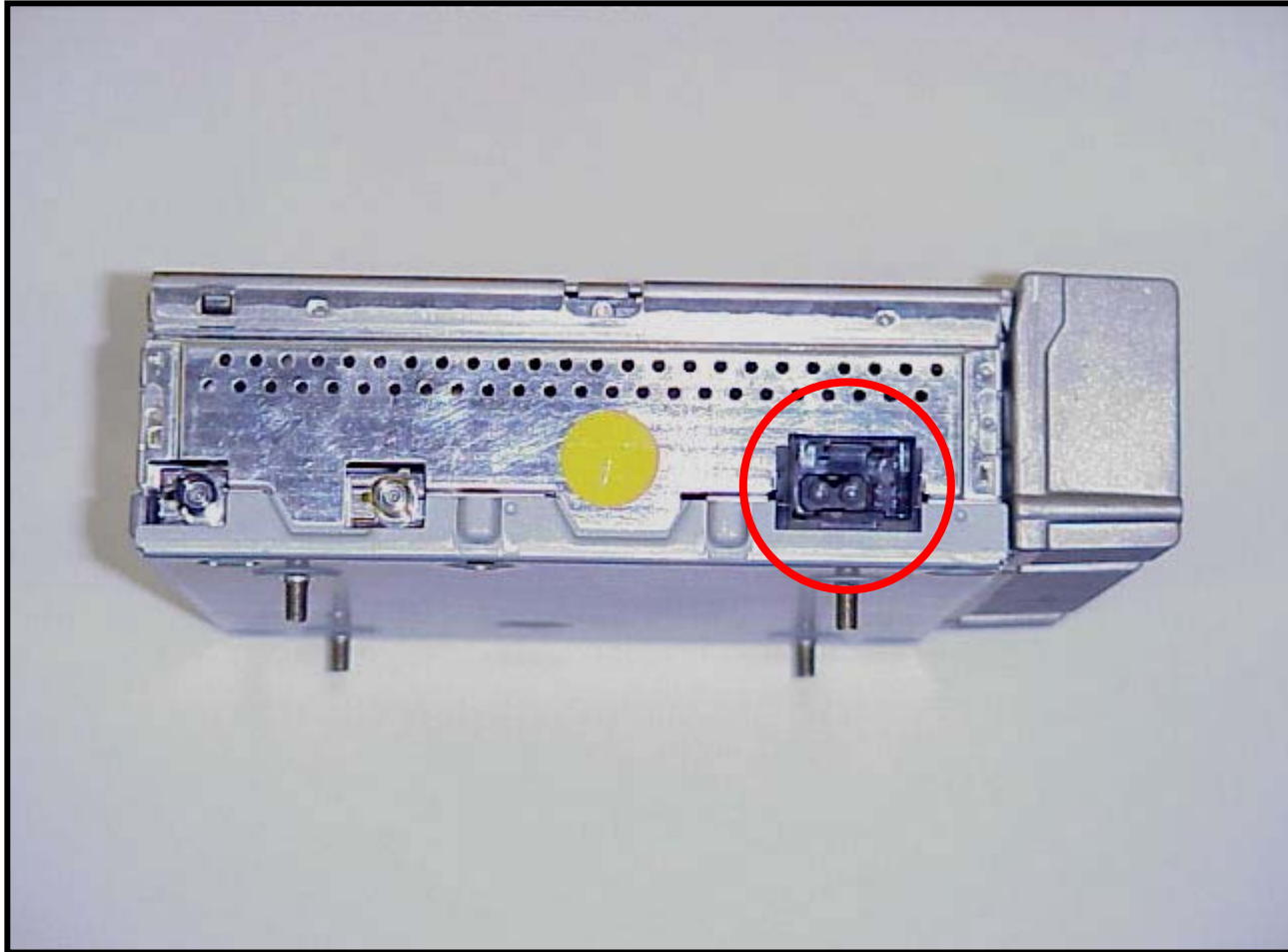
# Audio Gateway Module (N93/1)



Location: Left side trunk - "buried"

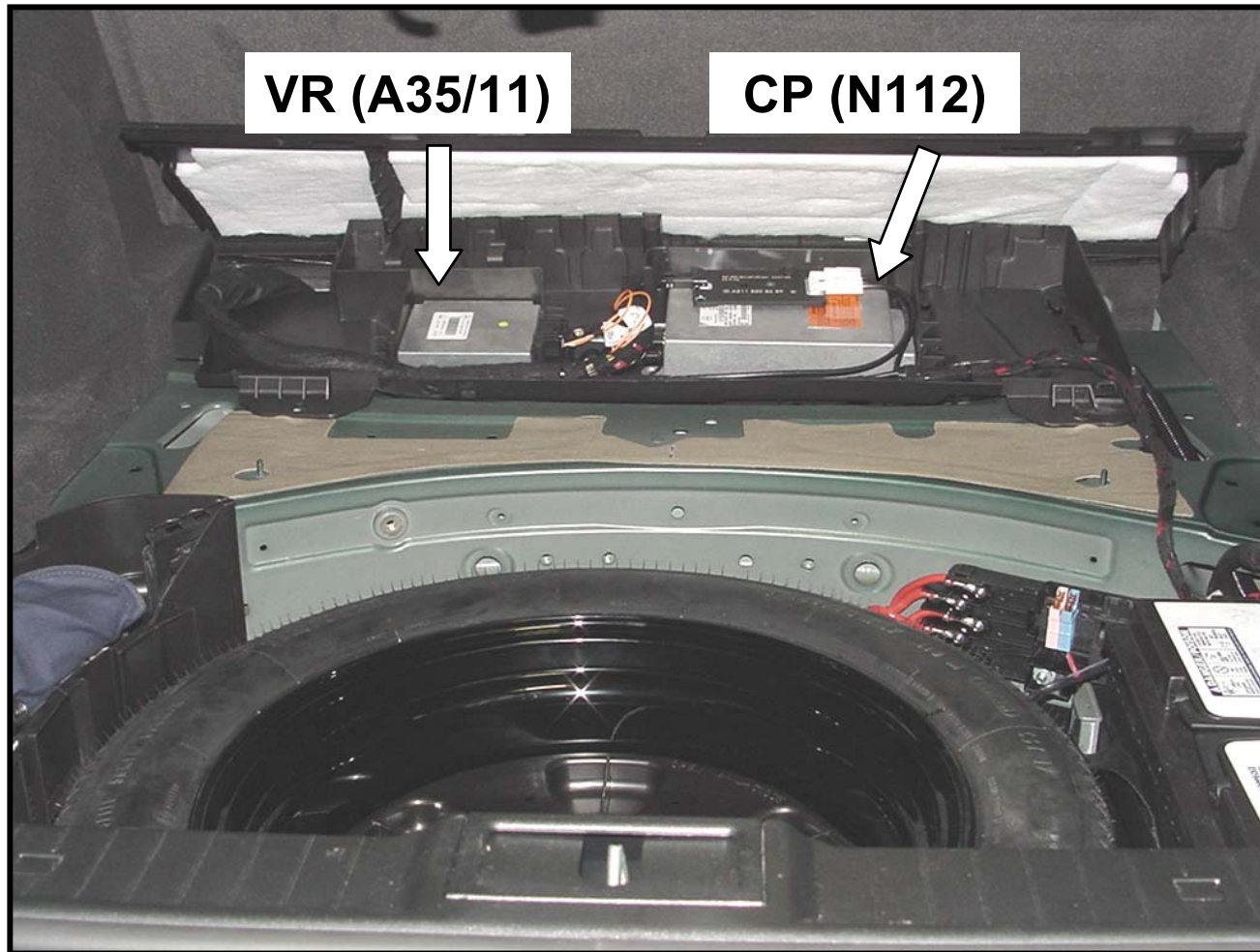


# Audio Gateway Module (N93/1)



All MOST components have a watchdog circuit, can default to a repeater.

# VR and CP Component Location



# Communication Platform (N112)

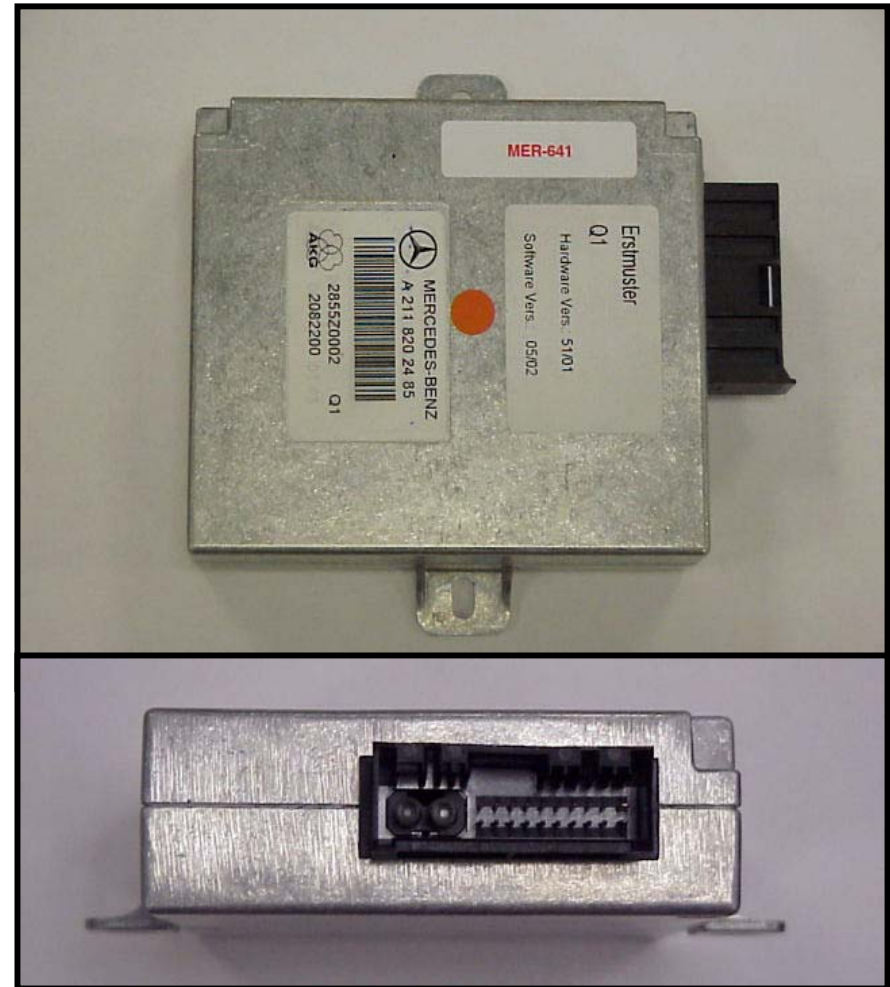
Integrates the following systems:

- HSE
- TeleAid
- GPS (location of car for TeleAid)



# MIC CM (A35/1) / VR (A35/11)

- Microphone in mirror control module (A35/1)
  - installed with basic equipment
  - TeleAid only
  - Manufactured by *AKG*
  
- Voice recognition module (A35/11) (optional)
  - control of audio voice commands
  - Manufactured by *Temic / Motorola*



Note: Both control modules have same physical appearance

# Head Unit Audio 50 (A2/56)



# CD Changer (A2/6)



- Controlled by HU or multifunction steering wheel
- Single slot disc loading - no magazine (1)
- Six numbered buttons eject each disc (2)
- Only plays music CD's - No Mini Disc, DVD or Navi function

# D2B vs. MOST Comparison

## D2B

- Speed up to 5.65Mbps
- Maximum of 6 devices
- Orange fiber cable
- Light wavelength = 650 nm (red)
- Max. bend radius of fiber is 25 mm
- 12 volt electrical wake-up
- Created specifically for DCAG \$\$\$
- Limited fiber optic length
  - 10m w / no inline connectors
  - 3m w / 3 inline connectors

## MOST

- Speed up to 24.8Mbps (future up to 50 Mbps)
- Maximum of 64 devices
- Yellow / orange fiber cable
- Light wavelength = 650 nm (red)
- Not critical, but do not kink
- 12 volt electrical and optical wake-up
- Shared communication standard
- Limited fiber optic lengths
  - up to 100m w / unlimited inline connectors
- CP replaces HSE, TeleAid
- Head Unit does not contain radio receiver or amplifier (no radio codes).
- Special MOST connectors