Cell Phone Components
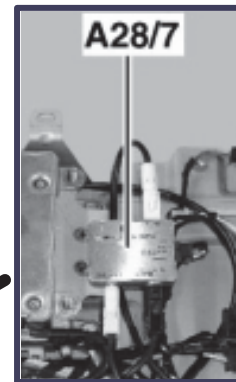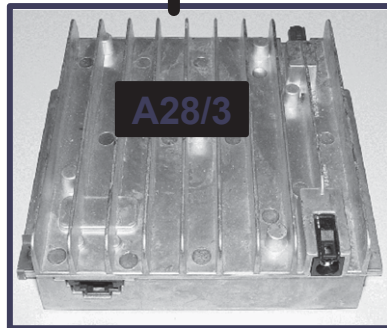
Multiple Handset Interface

N123/1

Antenna mast

A28/7

RF Switch

A28/3
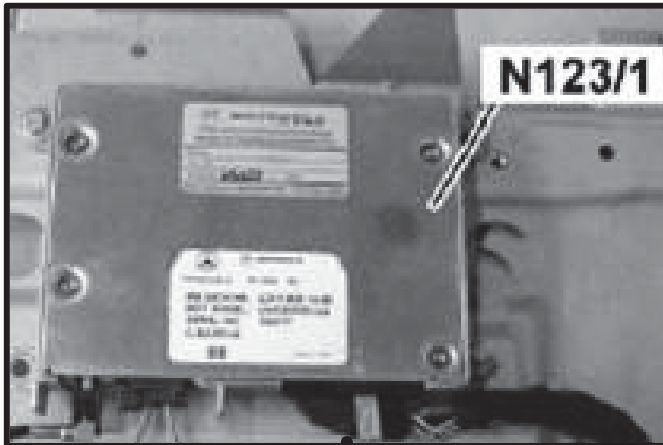
Linear Compensator

All except cradle are mounted on Module Bridge

Handset Cradle

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Handset Cradle

• Provides the physical connection to the mounting plate

•Unique cradle for each type of handset

• Contains the necessary software to translate Motorola cell phone language into a standard language that the Multiple Handset Interface (MHI) understands

• Incorporates software to enhance voice sound quality

• Can be replaced to match future MB phones allowing flexible, easier, more cost effective upgrades without having to replace other phone components
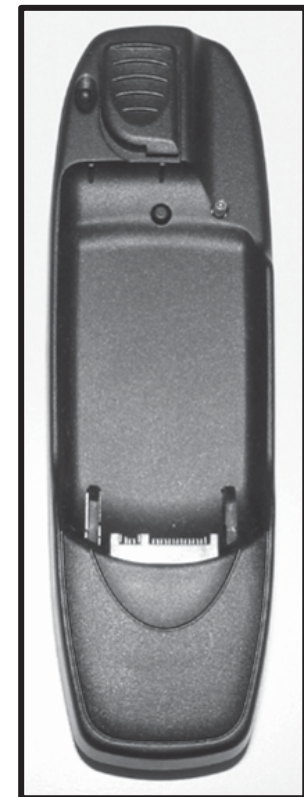
Cell Phone Microphone Connection

Hook-up in trunk– <u>with</u> Cell Phone

OCP

B25

b2   b1   b3

Tele Aid

To B1 only

X39/65

Cell phone

MOST-BUS
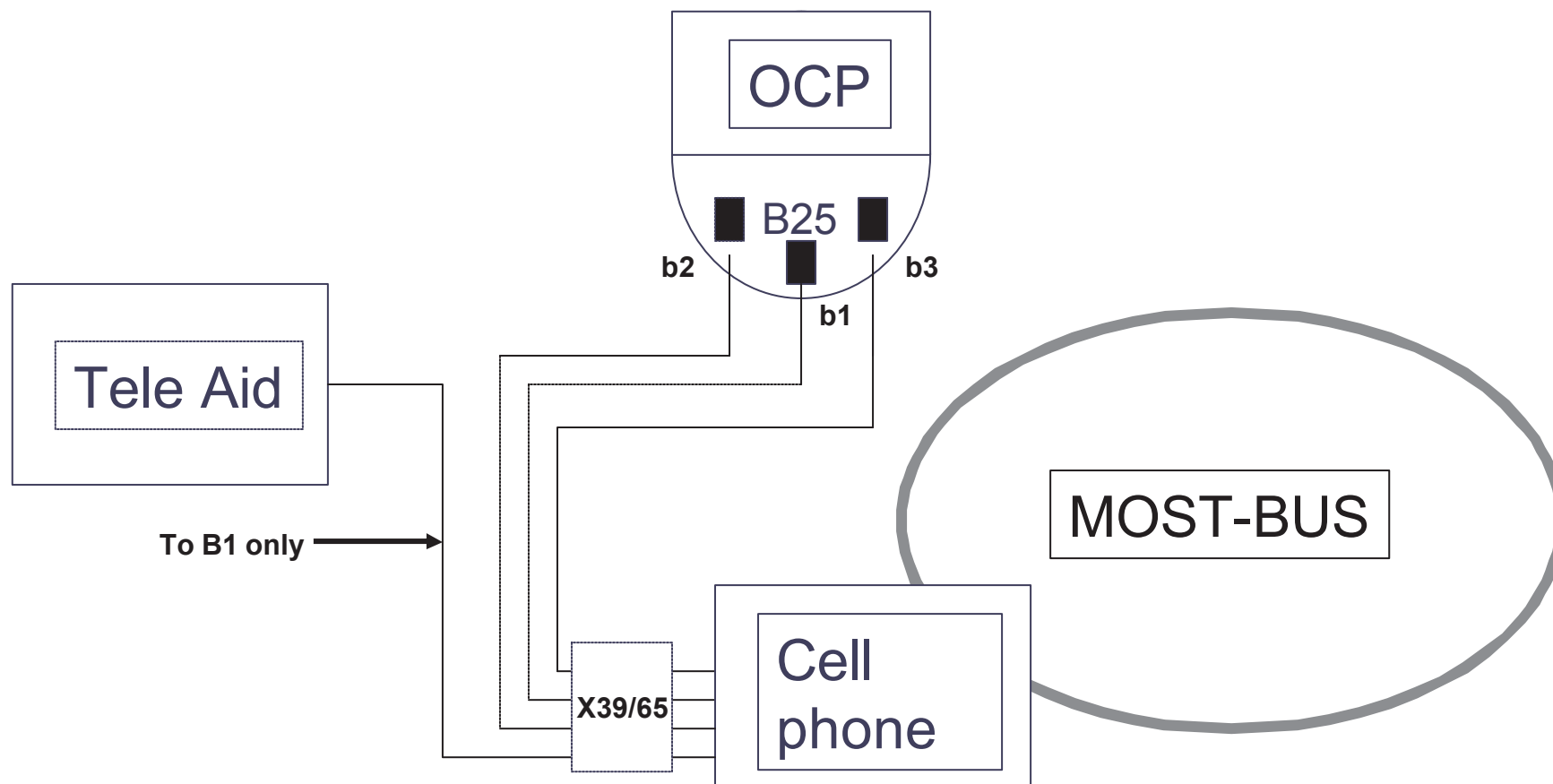
Connecting Microphone for Cell Phone
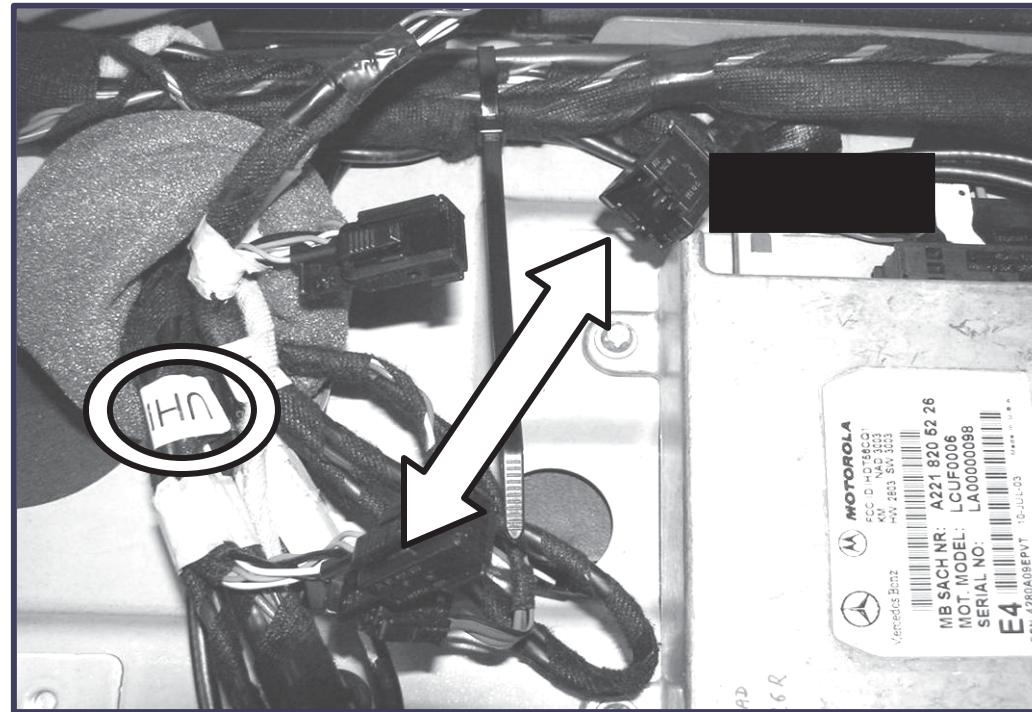
Remove jumper at X39/65 and connect
phone (UHI)* connector instead

UHI is the German acronym for Multiple Handset Interface (MHI)

Review #2

1. Which Head Unit will play MP3 recordings?

2. Describe the components included in the "Entertainment Package".

3. Is the COMAND unit the "master" of the MOST ring?

4. What components are installed with the cell phone option?

R171 Antennas

1. Antenna mast (A28)
2. GPS antenna (A2/23)
3. Digital Tele Aid back-up antennae (A2/54 & A2/55)
4. Satellite Radio antenna (A2/82)
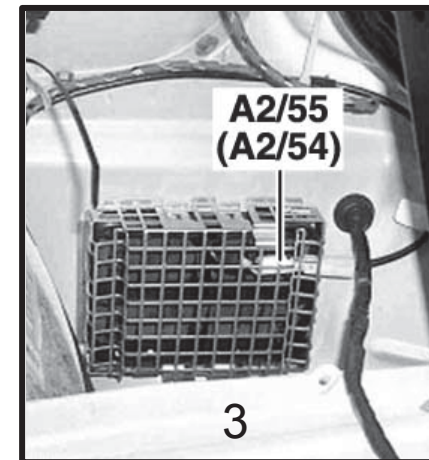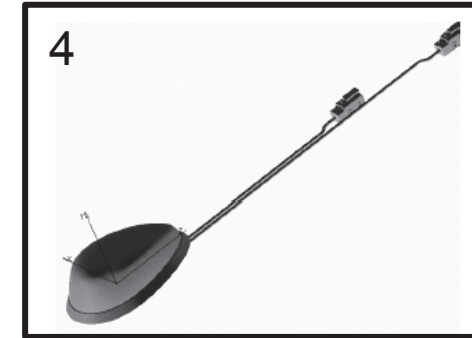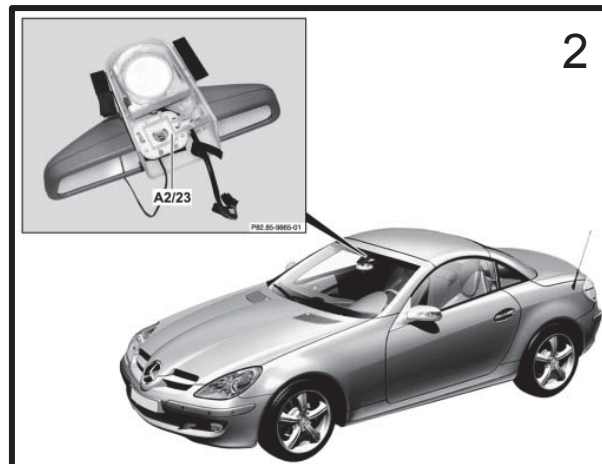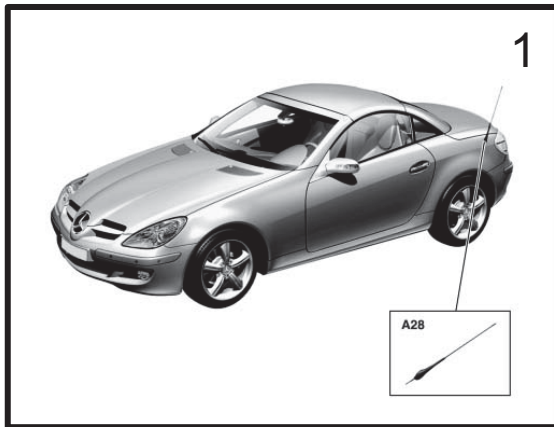
1. Antenna Mast (A28)

- AM / FM

- Central Locking

- Phone (receiving and calling)

  – Digital Tele Aid (main)

  – Cellular phone
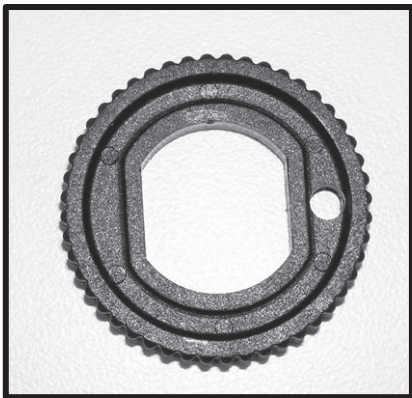
**Removal tool included
with vehicle**

A28
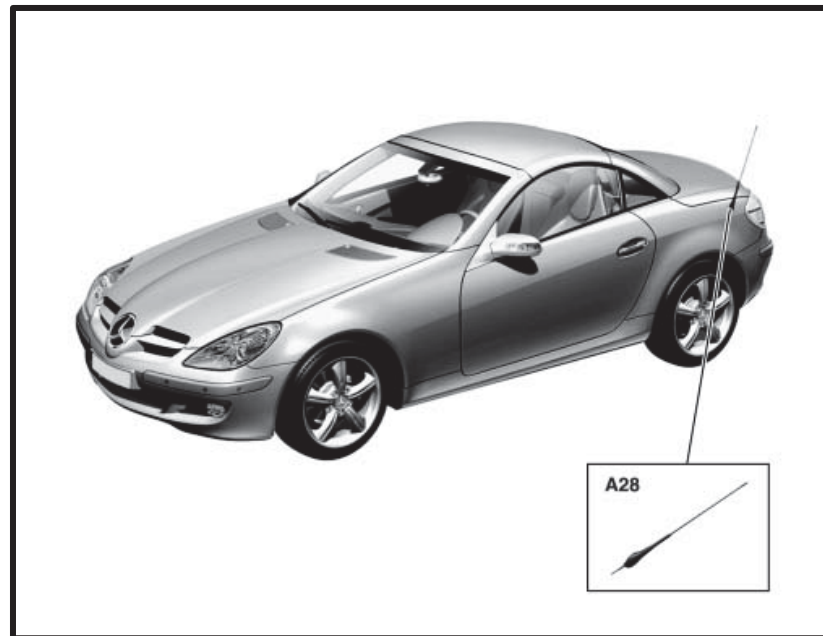
Basic Antenna Mast Signal Path

Antenna Mast

A28

Digital Tele Aid

Phone

Antenna Amp (A2/64)

Audio

Audio 20 or Audio Gateway

CL

Rear SAM
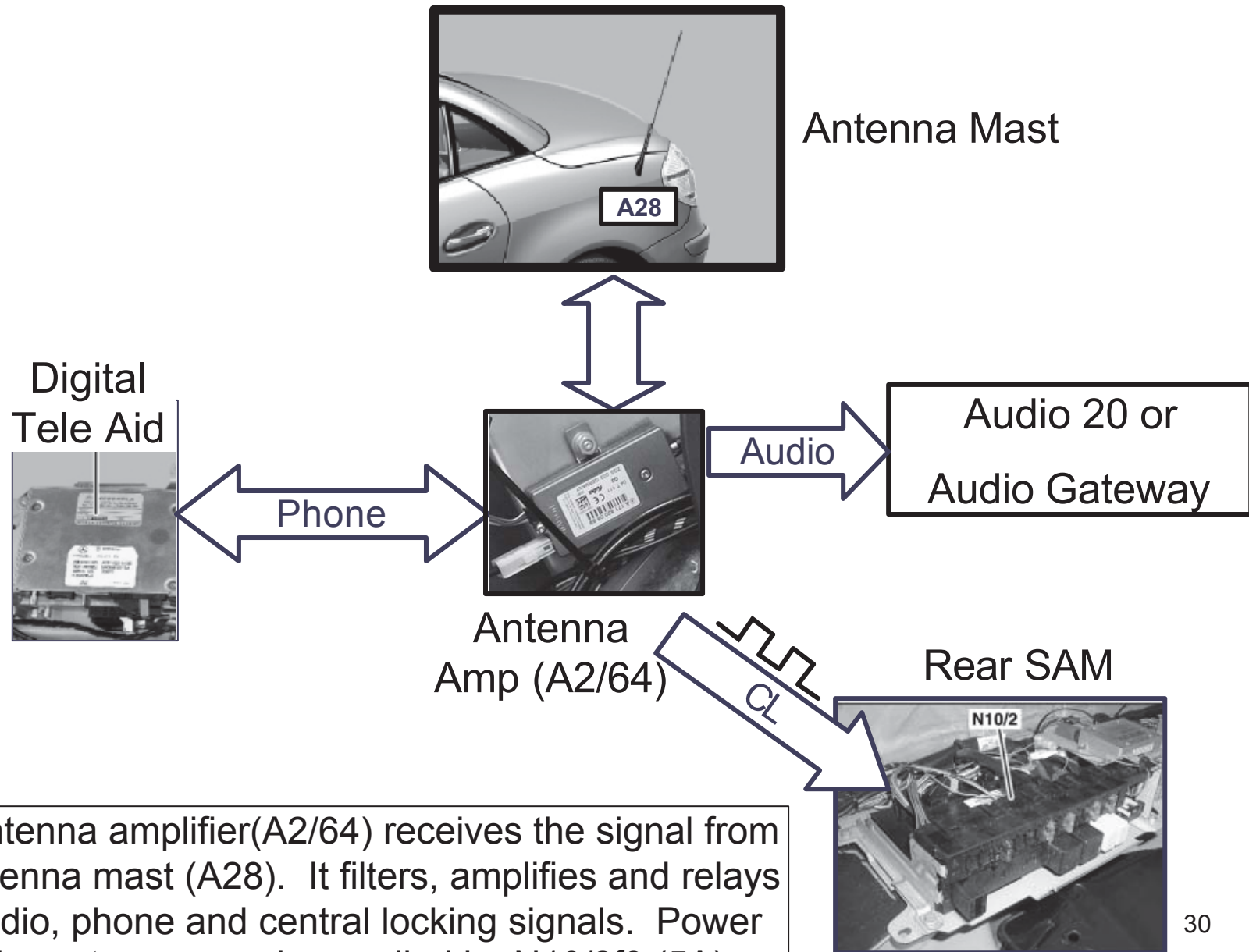
N10/2

The antenna amplifier(A2/64) receives the signal from the antenna mast (A28). It filters, amplifies and relays the radio, phone and central locking signals. Power for the antenna amp is supplied by N10/2f8 (5A).

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2. GPS Antenna (A2/23)
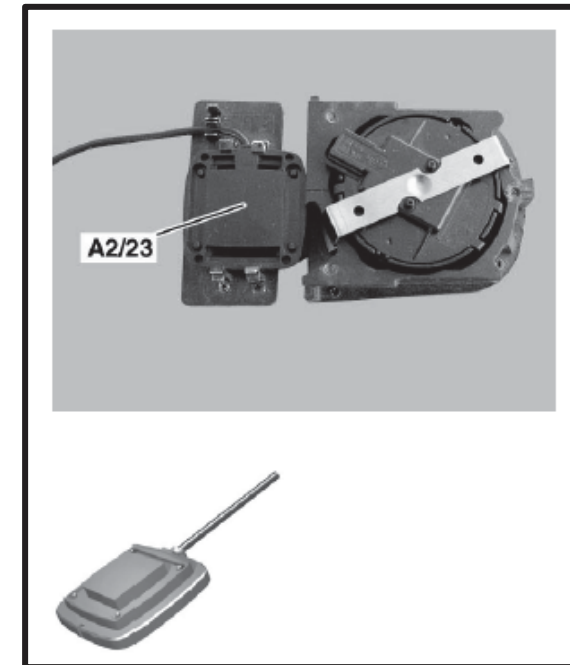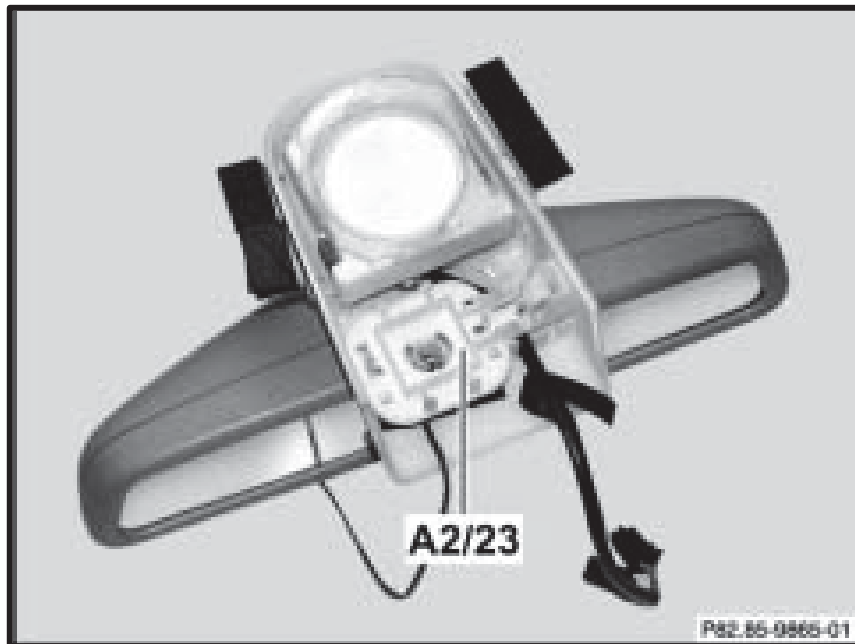
- Mounted above the interior rear view mirror
- Provides position information from the navigation satellites

GPS Antenna Splitter (A2/57)

A2/23

P82.85-9865-01

A2/57

N123/4

N41/1

P82.85-9866-06

N123/4

- Located next to the the Digital Tele Aid control unit (N123/4)
- Splits the signal received from the GPS antenna (A2/23)
- Provides it to the Digital Tele Aid control unit (N123/4) and
  to the Navigation module (N41/1).

3. Digital Tele Aid Back-up Antennae (A2/54 & A2/55)

A2/55 (A2/54)
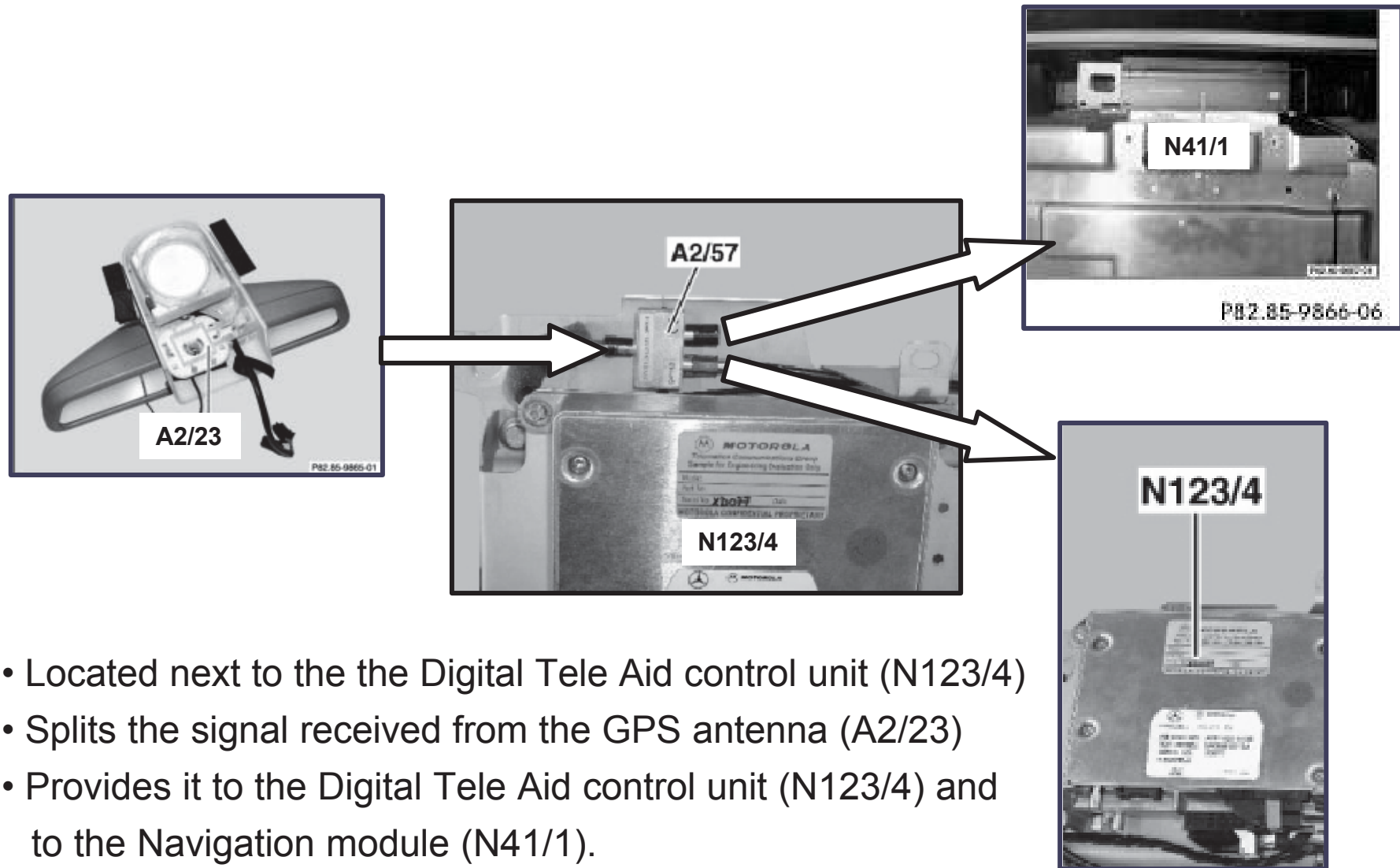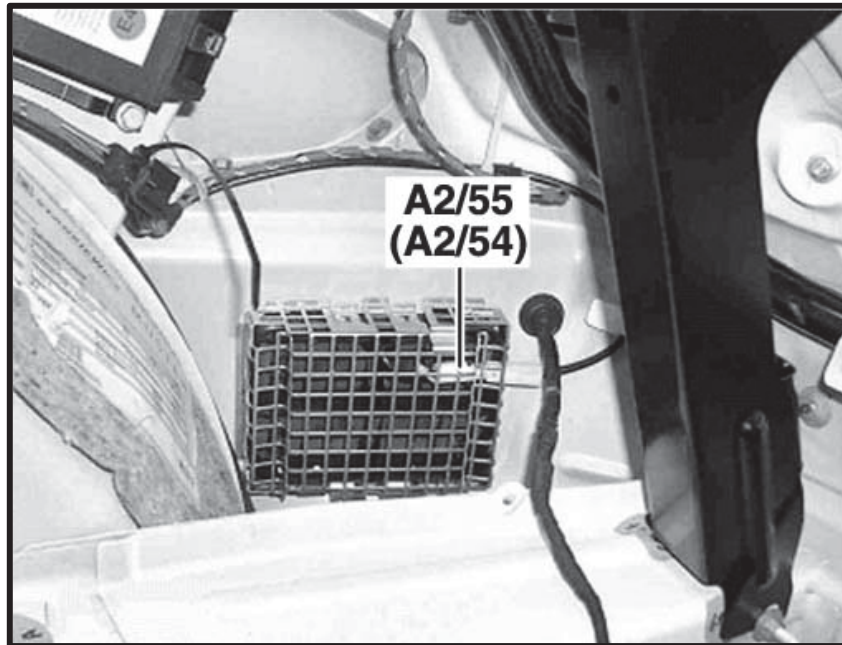
The control unit (N123/4) detects faults or poor reception with the mast antenna and then switches to the back-up antennae.

- Back up antennae (A2/54-left & A2/55-right)
- Installed at both ventilation grates in the left and right corners of the trunk
- If a fault or poor reception characteristics are detected in the antenna mast (A28), these antennae are automatically selected by the Tele Aid control unit (N123/4) .

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Backup Antenna Combiner (A2/53)

- Receives and combines the signals from both back up antennae (A2/54 & A2/55)
- Combined signal is transmitted to the Tele Aid control unit (N123/4).

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4. Satellite Radio Antenna (A2/82)
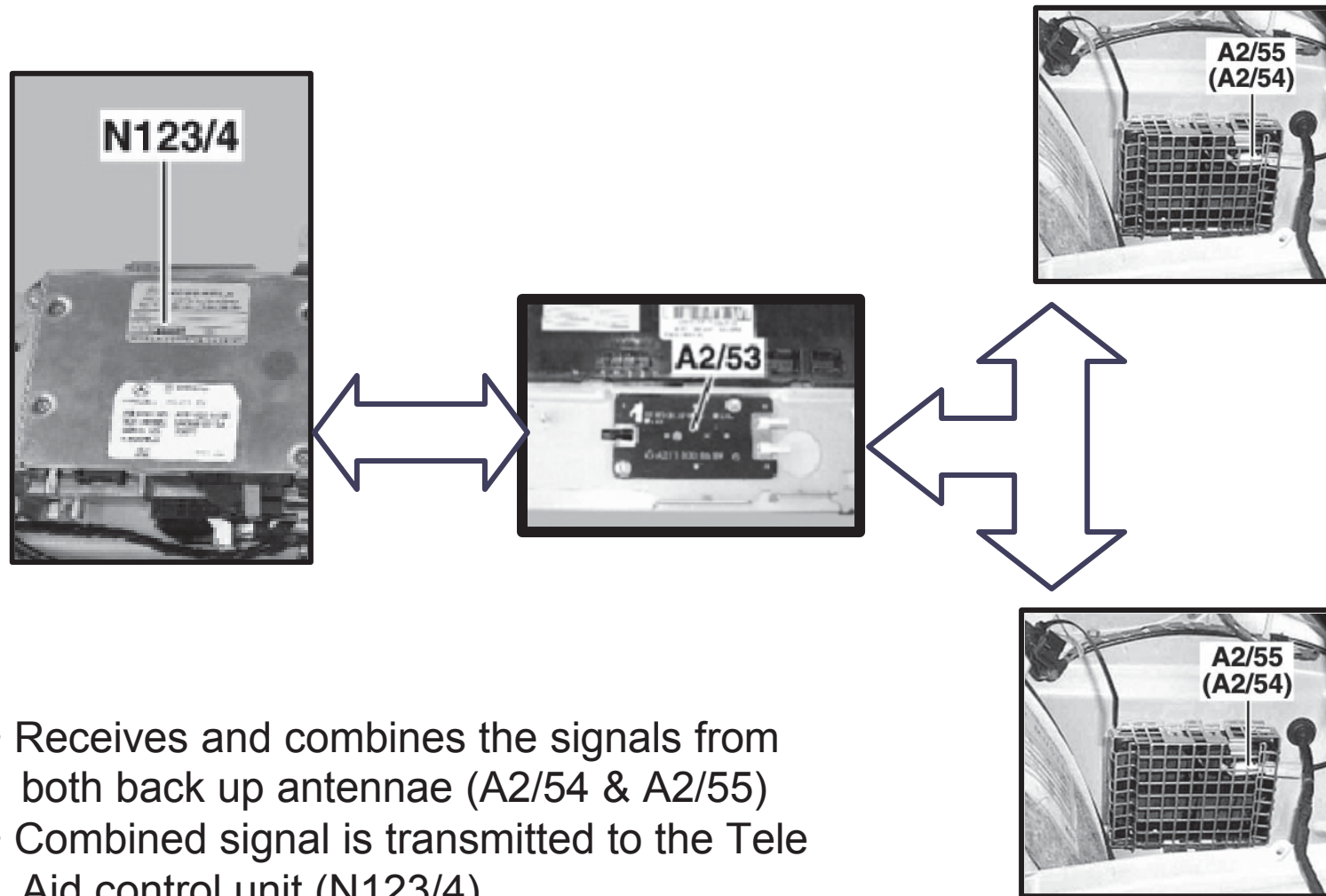
Antenna (A2/82)
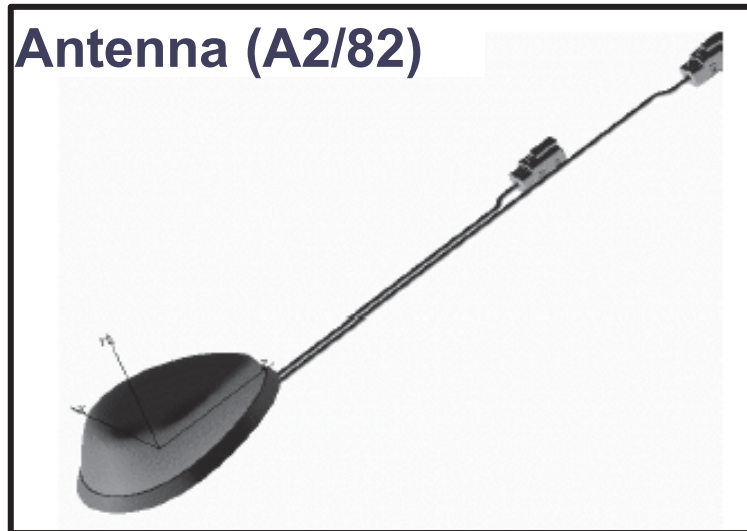
Trunk Lid

- Mounted on trunk lid

- Two leads:

    1. Satellite signal

    2. Terrestrial repeater

Satellite Radio Signal Path

Antenna (A2/82)

Audio 20

A2

N87/5

MOST

or

MOST

(Lower left side of trunk)
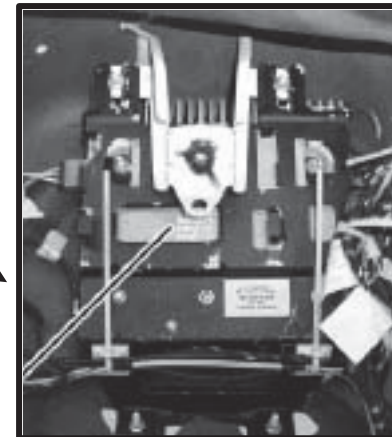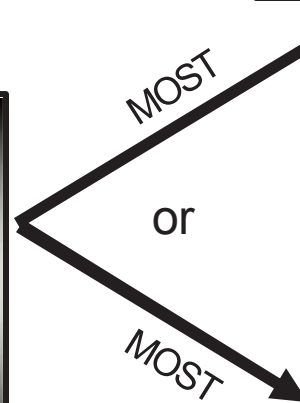
(Beneath passenger footrest)

Audio Gateway

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Appendix

Power Supply for audio & communication control units

Connector information for components on MOST ring

- Digital Tele Aid

- Audio 20

- COMAND

- Audio Gateway (AGW)

- Multiple Handset Interface

- CD Changer

- Satellite Radio

Power Supply

- Head Unit
  - N10/1f64 (10A)

- Audio Gateway
  - N10/1f64 (10A), N10/1f47 (15A) → circuit 15R in SAM

- Multiple Handset Interface
  - N10/2f16 (7.5A), N10/2f3 (7.5A)

- Satellite Radio Receiver
  - N10/2f17 (5A)

- CD Changer
  - N10/2f19 (7.5A)

- Navigation
  - N10/2f19 (7.5A)
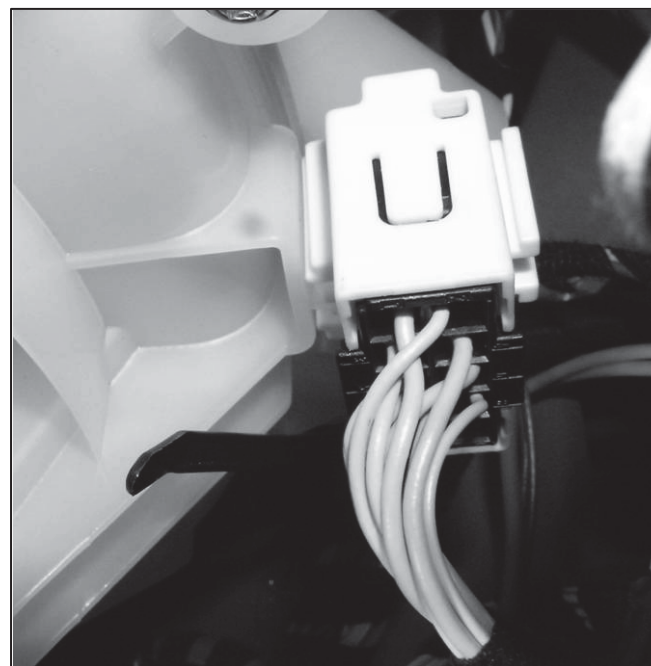
Location: Right side of AC blower housing
X30/8 Wake up signal connector - pink
Tel Mute Line (Tele Aid) - yellow

Digital Tele Aid – Connectors

Main Antenna
Back-up antenna

CAN D
Speaker
RF Switch
Ecall LED
Icall LED
Rcall LED
Mute signal

GPS Antenna

CAN D
Microphone
Ecall button
Icall button
Rcall button
Crash signal
UHI compensator line
Power / Ground

No fiber optic connections!
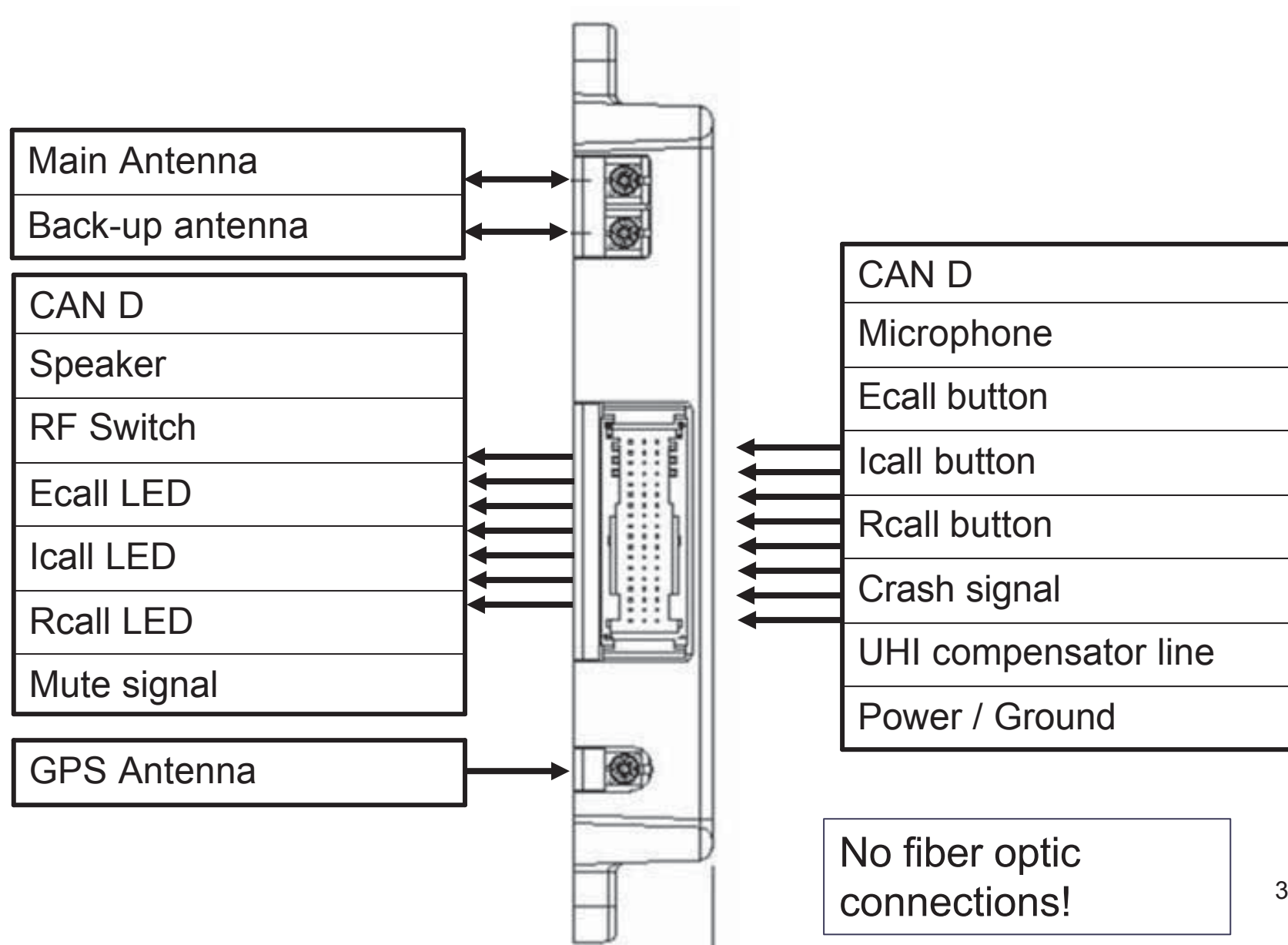
Audio 20 Connectors

ANT.   **2**   **3**   **1**
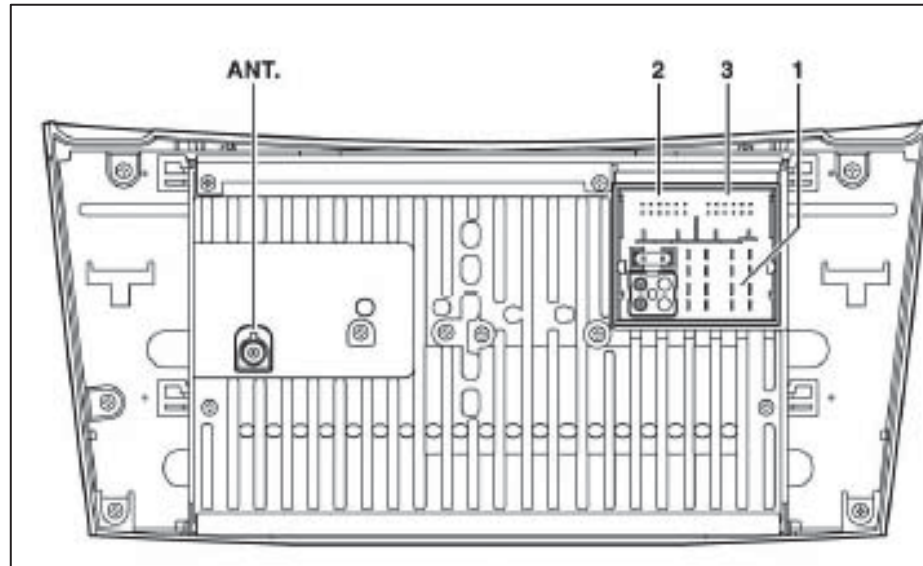
The plug assignment is as follows:

1 =   Loudspeaker and power supply plug
2 =   Reserved
3 =   CAN B / electr. antenna / Tel. mute plug

ANT= radio antenna plug

MOST plug: R = MOST receiver (in)
               T = MOST transmitter (out)

Connector assignment 1 loudspeaker / power supply:	Connector 1	Connector assignment 3 CAN B, el. antenna, tel. mute:	Connector 2
PIN — signal / signal info.		PIN — signal / signal info.	
1 — FL +		1 — CAN high	
2 — FL -		2 — CAN low	
3 — RL +		3 — El. antenna actuation	
4 — RL -		4 — Wake-up	
5 — FR +		5 — Telephone mute	
6 — FR -		6-12 — Reserved	
7 — RR +			
8 — RR -			
9-14 — Reserved			
15 — Ubat- (T.31)			
16 — Ubat+ (T.30)			

No Auxiliary Jack

COMAND Connectors

Connectors on the COMAND HU

1   MOST/power supply connection plug
2   AUX socket, glove compartment

Pin assignment plug 1

PIN	signal / signal info.
T	MOST output (out)
R	MOST input (in)
1	T. 30
2	T. 31
3	Electrical wake-up
4	Reserved

Pin assignment plug 2

PIN	signal/signal info.
1	LF-R
2	shielding
3	LF-L
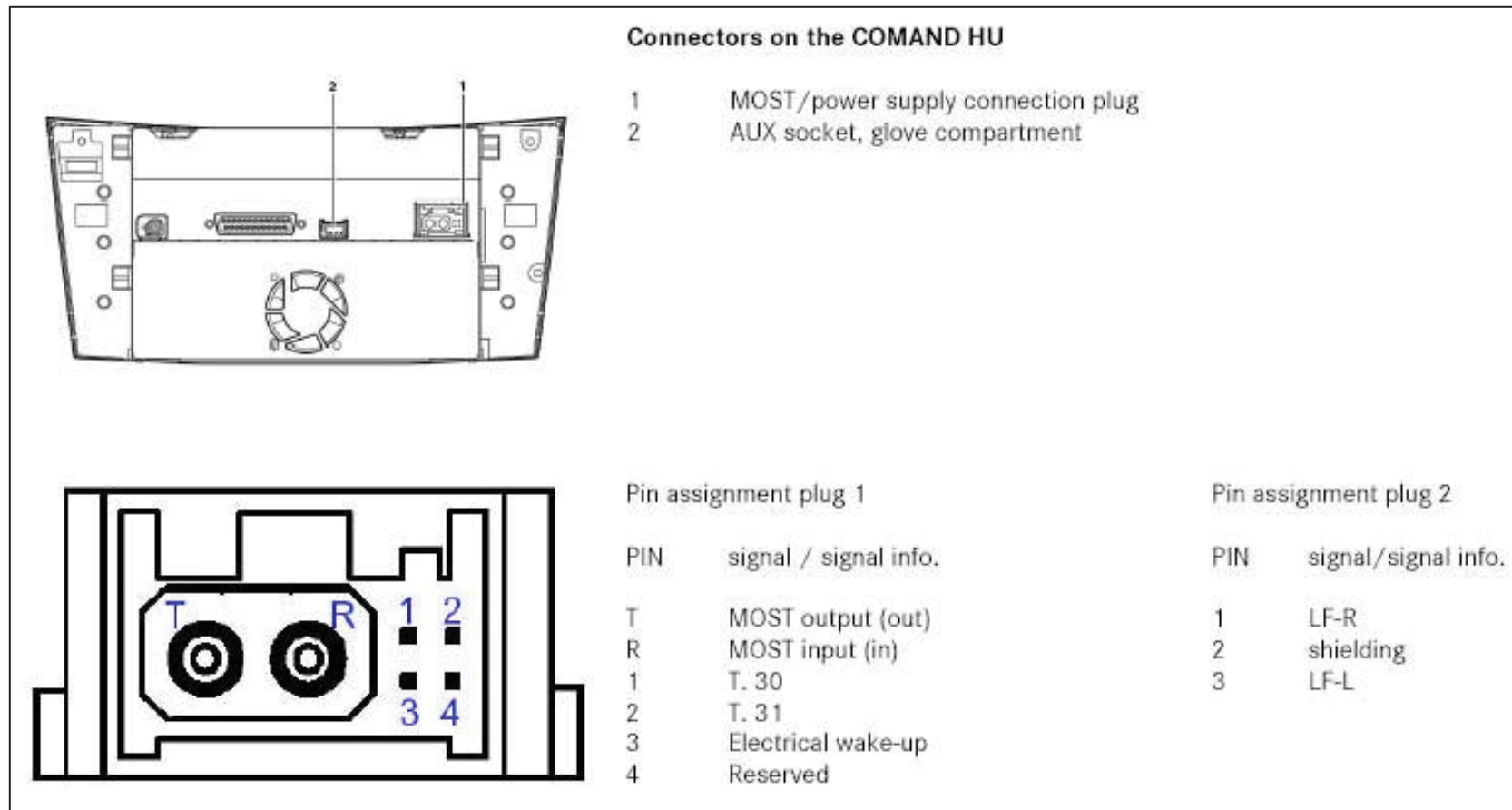
Audio Gateway (N93/1) Connectors
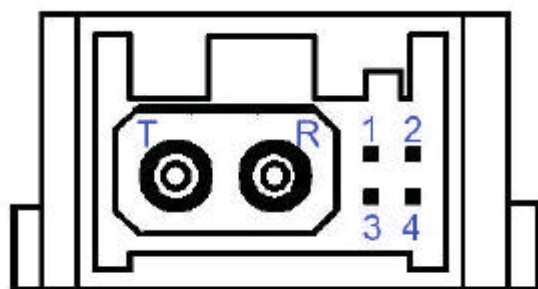
MOST connection plug ①

PIN	signal / signal info.
T	MOST output (out)
R	MOST input (in)
1	Telephone mute
2	CAN B high
3	Electrical wake-up
4	CAN B low

Loudspeaker connections connection plug ④
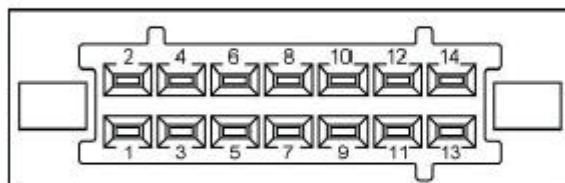
PIN	signal/ signal info.		PIN	signal/ signal info.	
1	SUB1+	(TT l)	8	FL-	(MHT l)
2	SUB1-	(TT l)	9	RL+	(rear fill l)
3	SUB2+	(TT r)	10	RL-	(rear fill l)
4	SUB2-	(TT r)	11	RR+	(rear fill r)
5	CENTER+	(center fill)	12	RR-	(rear fill r)
6	CENTER-	(center fill)	13	FR+	(MHT r)
7	FL+	(MHT l)	14	FR-	(MHT r)

TT= woofer   MHT= middle/tweeter
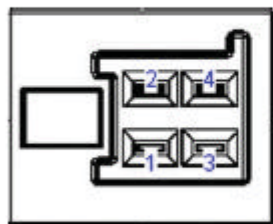
Connection plug
power supply /+antenna ⑤

PIN	signal / signal info.
1	Antenna control output
2	Reserved
3	Supply voltage (T. 31)
4	Supply voltage (T. 30)
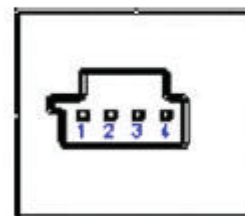
DRO microphone connection plug ⑥

PIN	signal / signal info.
1	Reserved
2	Microphone shielding
3	Microphone-
4	Microphone+

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Multiple Handset Interface (N123/1) Connectors
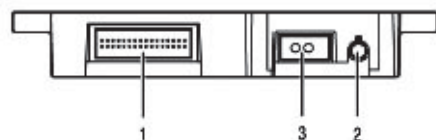
The plug assignment is as follows:

1 = Power supply/cradle connection /microphone connection plug
2 = Bluetooth antenna plug
3 = MOST

Connector assignment ① power supply/cradle connection /microphone connection plug

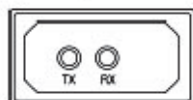| PIN	signal / signal info.			PIN	signal / signal info.	
1	DEBUG TXD			17	VC	(cradle)
2	DEBUG RXD			18	Ground	(cradle)
3	T. 31			19	Reserved	
4	T. 31			20	T. 30	
5	Res.			21	T. 30	
6	Shielding			22	TX -	(cradle)
7	Res.			23	TX +	(cradle)
8	Res.			24	Ext. wake-up	
9	Res.			25	RX +	(cradle)
10	TeleAid microphone GND	(with LCT)		26	RX -	(cradle)
11	Microphone Array shielding	(microphone group)		27	LS -	(cradle)
12	Microphone ground (GND)	(microphone group)		28	Compensator	
13	TeleAid microphone OUT	(with LCT)		29	Microphone 1	(microphone group)
14	LS+	(cradle)		30	Microphone 2	(microphone group)
15	Microphone +	(cradle)		31	Microphone 3	(microphone group)
16	Microphone -	(cradle)		32	Microphone 4	(microphone group) not with R171

Connector assignment ③ MOST plug

PIN	signal / signal info.
TX	MOST output (out)
RX	MOST input (in)

Satellite Radio(N87/5) Connectors

4 - Pole connector with MOST
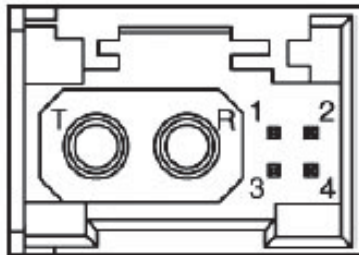
PIN	Signal/Signalinfo
T	MOST Tx (output)
R	MOST Rx (input)
1	T. 31
2	T. 30
3	Wake up
4	Not used

Satellite Antenna
Terrestrial: Neutral color

PIN	Signal
X	S Band-Terrestrial Input
S	Shielded ground

Satellite Antenna: Blue color

PIN	Signal
X	S Band-Satellite Input
S	Shielded ground