

FUB-FUB-FB-GZ-A52-F01 Top HiFi amplifier

ISTA system version	3.52.32.15580	Data version	R3.52	Programming data	-
VIN		Vehicle	4/F82/COUPE/M4/S55/MANUAL/USA/LL/2015/06		
Integration level factory	-	Integration level (current)	-	Integration level (target)	-
Mileage	0 km				

Top HiFi amplifier (AMPT)

The Top HiFi system uses a digital 10-channel amplifier. However, only 9 of the 10 channels are used in the Top HiFi system. The digital Top HiFi amplifier (AMPT) converts the digital audio signals transmitted from the headunit on the MOST bus (optical fibre) into analogue audio signals. Then the audio signals are amplified and output via the speakers in the vehicle.

The main features of the Top Hi-Fi amplifier are:

- MOST device
- Graphic 7-channel equaliser with operation via control centre
- Playback of multichannel audio formats
- 15 V output voltage per mid-range speaker/tweeter
- 30 V output voltage per bass speaker

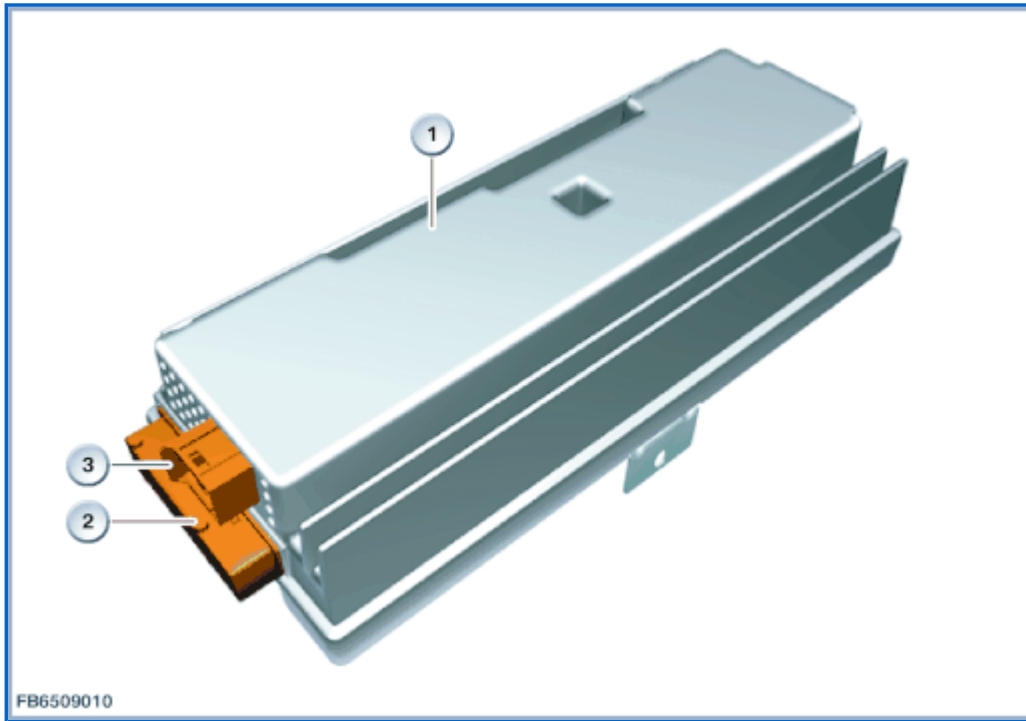
Functional description

The audio signals and control signals are transmitted via optical fibre (MOST) to the Top Hi-Fi amplifier.

The Top Hi-Fi amplifier supports playback of multichannel signals in the format 5.1. The signal are output in format 7.2. (7 mid and high-range channels and 2 low-range channels). Via these channels, sound tracks contained on a DVD can be played back directly and fully independently on each individual channel. Together these sound tracks generate a spatial sound pattern. For this reason, this method is referred to as discrete multichannel playback. While a CD generally contains two sound tracks to generate the stereo signal, a DVD commonly has the 5.1 format with six sound tracks. To optimally adapt this format to the vehicle configuration (two rows of seats), it is converted into a 7.2 format and played back. For multichannel playback, the Top Hi-Fi amplifier decodes the digital data of the data source. Playback of the multichannel audio formats is possible on the drive in the Car Information Computer (CIC) and on the DVD changer (DVDC). For calculation of the surround sound function from an existing stereo signal, the Top Hi-Fi amplifier supports Dolby Pro Logic II. This procedure replaces the Logic7 system used in other BMW vehicles. In this manner, a spatial sound pattern can be calculated from a stereo signal that only delivers the right and left channels. The signals of the individual channels are run-time corrected when they are output on the speakers of the Top HiFi system; the speakers are optional equipment. As a result, the listener hears a homogeneous sound pattern in format 7.2.

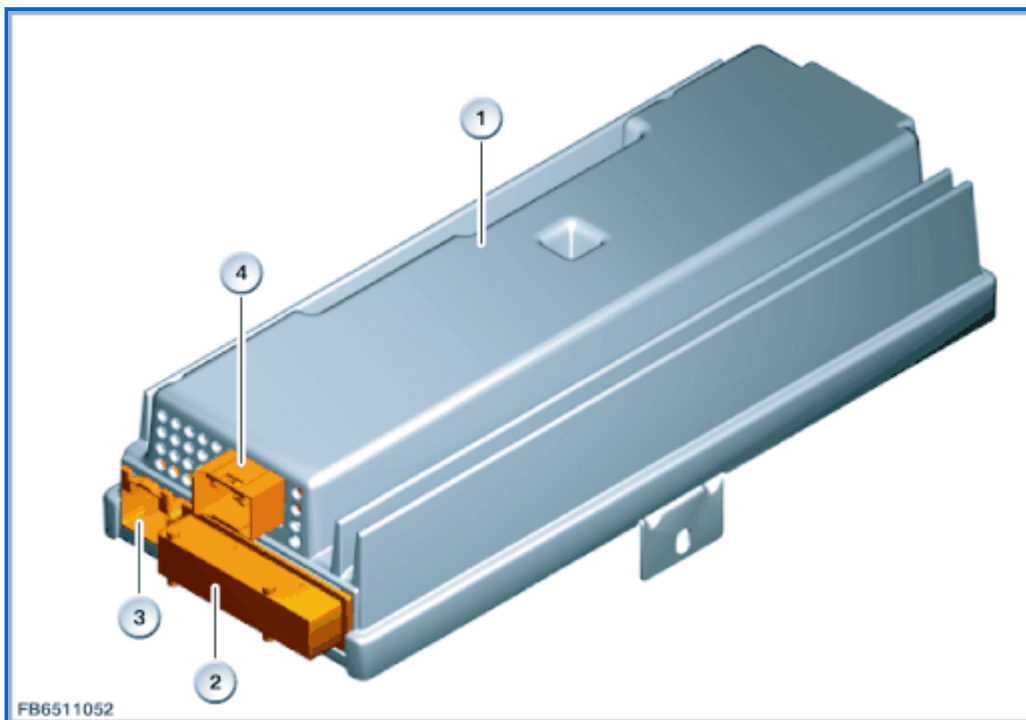
Using the 7-channel equaliser integrated in the Top Hi-Fi amplifier, audio playback can be adjusted by the customer via iDrive. After signal processing, the audio signals are transferred to the speakers as analogue audio frequency signals. The Top Hi-Fi amplifier supports speed-dependent equalising in addition to speed-dependent volume control. Vehicle response is adjusted to the driving speed. All speakers are activated in Top HiFi system quality via 9 amplifier channels.

The Top Hi-Fi amplifier is a digital 10-channel amplifier. However, only 9 of the 10 channels are used in the Top HiFi system. The following graphic shows the Top HiFi amplifier with 2 plug connections (up to 09/2009).



Item	Explanation	Item	Explanation
1	Top HiFi amplifier (AMPT)	2	Plug connection, 20-pin (voltage supply and transmission of audio signals to the speakers)
3	Plug connection, 6-pin (with MOST interface)		

The following graphic shows the Top HiFi amplifier with 3 plug connections (from 09/2009).

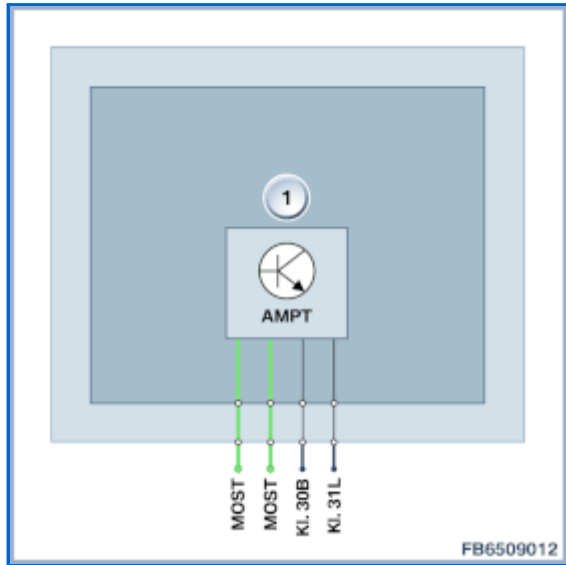


Item	Explanation	Item	Explanation
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1	Top HiFi amplifier (AMPT)	2	20-pin plug connection (voltage supply for logic unit and transmission of audio signals to the speakers)
3	2-pin plug connection (voltage supply for the load part)	4	Plug connection, 6-pin (with MOST interface)

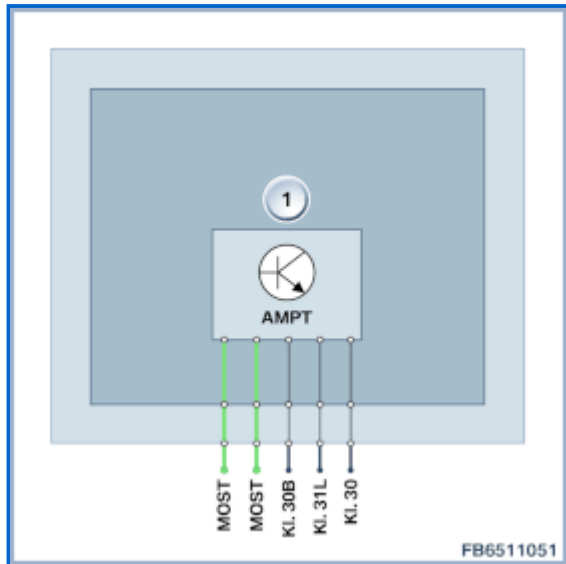
Structure and inner electrical connection

Up to 09/2009 , the Top HiFi amplifier (AMPT) is connected to the vehicle electrical system via 2 plug connections. The Top Hi-Fi amplifier is a bus user in the MOST ring. The rear power distribution box supplies the load part and logic part of the Top HiFi amplifier with terminal 30B.



Item	Explanation	Item	Explanation
1	Top HiFi amplifier (AMPT)		

From 09/2009, the Top Hi-Fi amplifier (AMPT) is connected to the vehicle electrical system via 3 plug connections. The load unit of the Top HiFi amplifier is supplied with terminal 30 via the rear power distribution box. The logic unit of the Top HiFi amplifier is supplied with terminal 30 via the rear power distribution box.



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1	Top HiFi amplifier (AMPT)		

Pin assignments

The graphic above shows only the supply and bus connection. The current pin assignment is recorded on the wiring diagrams in the ISTA diagnosis system (Integrated Service Technical Application). Click on the component code in the wiring diagram to activate the "Installation location" and "Pin assignment" tabs.

Nominal values

Please note the following setpoint values for the Top Hi-Fi amplifier (AMPT):

Variable	Value
Supply voltage	9 to 16 V
Power (9 channels)	600 W (2 times 125 W (8 Ω) bass, 7 times 50 W (4 Ω) mid- and high- tone)
Sound pressure	> 110 dB as of 40 Hz
Bandwidth	20 Hz to 20 kHz
Linearity	\pm 3 dB
Temperature range	-40 to 85 °C

Diagnosis instructions

Failure of the component

If communication to the Top Hi-Fi amplifier (AMPT) fails, run the standard checks (global testing procedure). If there is an internal control unit fault, the following behaviour is to be expected:

- Fault entry in the Top Hi-Fi amplifier (AMPT)

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