3.1 All Models with MB-Radio

Diagnosis – Function Test

Explanation to Function Test
The operation of the radio is described in the radio "Operation Guide".

For the function test adjust the radio as follows:
- Select a strong radio station (music) or play a cassette or CD.
- Set fader, bass, treble and balance to the center position 0 (RESET or CENTER in display window).

Note:
Local and atmospheric conditions must be taken into consideration for a interference free and good radio reception.

Note: (Except model 163)
When replacing a radio, the speed-sensitive volume control must be adapted to the individual model.
The adaption takes place automatically by exceeding a vehicle speed of 38 mph (60 km/h).

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Remedy/Test step
Entire radio (A2) not functioning.	Power supply: Radio (A2)	23 ⇒ 1.0
No display in display window of radio (A2)	Power supply: Radio (A2)	23 ⇒ 1.0
Cassette player functions in radio (A2) not working	Power supply: Radio (A2)	23 ⇒ 1.0
Entire CD operation not functioning.	Power supply radio (A2), CD changer (A2/6)	23 ⇒ 1.0, 2.0 or 3.0
Left front loudspeaker not operating.	Radio (A2), loudspeaker	23 ⇒ 4.0
Right front loudspeaker not operating	Radio (A2), loudspeaker	23 ⇒ 5.0
Left rear loudspeaker not operating	Radio (A2), loudspeaker	23 ⇒ 6.0
Right rear loudspeaker not operating	Radio (A2), loudspeaker	23 ⇒ 7.0
Radio interference	Radio (A2), Antenna	23 ⇒ 8.0
Poor radio reception	Radio (A2), antenna, Reception area	23 ⇒ 9.0
Automatic antenna (M11) not operating	Radio (A2), automatic antenna (M11)	23 ⇒ 10.0
Speed-sensitive volume control not operating	Radio (A2), vehicle speed signal (except model 163)	23 ⇒ 11.0
Radio illumination not operating	Radio (A2)	23 ⇒ 12.0
Radio mute switching when using telephone not operating	Radio (A2), cellular telephone system	23 ⇒ 13.0

Diagnosis – Complaint Related Diagnostic Chart

Model 129, 202, 208, 210 as of 06/98 with D2B fiber optics

Complaint/Problem/DTC	Possible cause	Notes	Test step/Remedy [1]
B 1000	Radio: Internal fault		Replace radio
B 1010	Radio: Low voltage		23 ⇒ 3.0
B 1011	Radio: High voltage		23 ⇒ 3.0
B 1057 B 1074 B 1088	Radio: CAN B fault		Check CAN data bus
B 1761	Radio: Automatic antenna switching circuit ⌜⌝		Check antenna system (ATS)
B 1764	Radio: Cassette player or cassette faulty		Check cassette Replace radio
B 1768	Radio: Front flap end switch - locking Front flap end switch - openning		 Replace radio Replace radio
B 1782	Radio: Internal fault CAN data bus failure		 Replace radio Check CAN data bus

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Model 129, 202, 208, 210 as of 06/98 with D2B fiber optics

Complaint/Problem/DTC	Possible cause	Notes	Test step/Remedy [1]
N 1111	Radio: D2B Data transfer faulty		Check connections Check fiber optics
N 1112	Radio: Data transfer between radio and preceding D2B component		Check connections Check fiber optics
N 1113	Radio: D2B Data transfer faulty		Check connections Check fiber optics
N 1114	Radio: D2B initialization fault		Reconfigure the D2B system, refer to HHT
N 1115	Radio: D2B initialization fault		Reconfigure the D2B system, refer to HHT
N 1116	Radio: D2B components not recognized (By-pass mode)		Check all D2B components, replace if necessary
N 1130	Radio: EEPROM defect		Replace radio

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Model 129, 202, 208, 210 as of 06/98 with D2B fiber optics

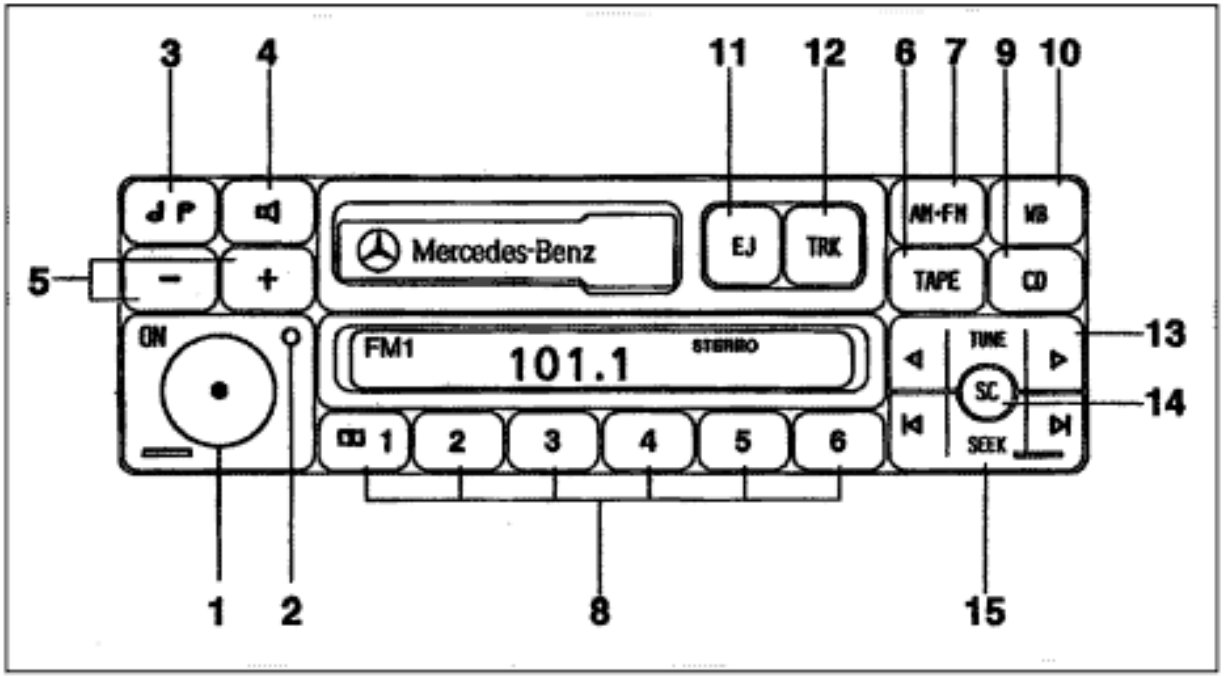
Complaint/Problem/DTC	Possible cause	Notes	Test step/Remedy [1]
n 1131	Radio: RAM defect		Replace radio
n 1132	Radio: One or more buttons stuck		Press and test all buttons several times
n 1133	Radio: Low voltage		23 ⇒ 3.0
n 1134	Radio: Interal fault		Replace radio
n 1135	Radio: D2B Wake-up circuit ⌜⌝ – ⌜⌝ +		Check circuit
n 1140	Radio: CAN bus faulty		Check CAN data bus
n 1141	Radio: Nominal - actual values of the D2B- rings different		Reconfigure the entire D2B system, refer to HHT
n 1142	Radio: Scan function faulty (antenna connection)		Check antenna system (ATS)
n 1143 n 1144 n 1145 n 1146	Radio: Cassette player or cassette faulty		Check cassette Replace radio

[1] Observe Preparation for Test, see 22.

Diagnosis – Component Locations - Radio Faceplates

Figure 1 (as of M.Y. 1994)

1 On/Off switch, Volume control
2 Anti-theft indicator
3 Bass/Treble selector
4 Fader/Balance selector
5 Bass, Treble, Fader, Balance control
6 Tape mode selector
7 AM or FM band
8 Station memory/Disc selection buttons
9 CD mode selector
10 Weather band (WB)
11 Cassette eject button
12 Track selector
13 Manual tuning – Radio
Fast forward/Rewind – Cassette
Fast forward and Reverse – CD
14 Scan tuning – Radio
Tape scan – Cassette
Track scan – CD
15 Seek tuning – Radio
Music search – Cassette
Track seek – CD

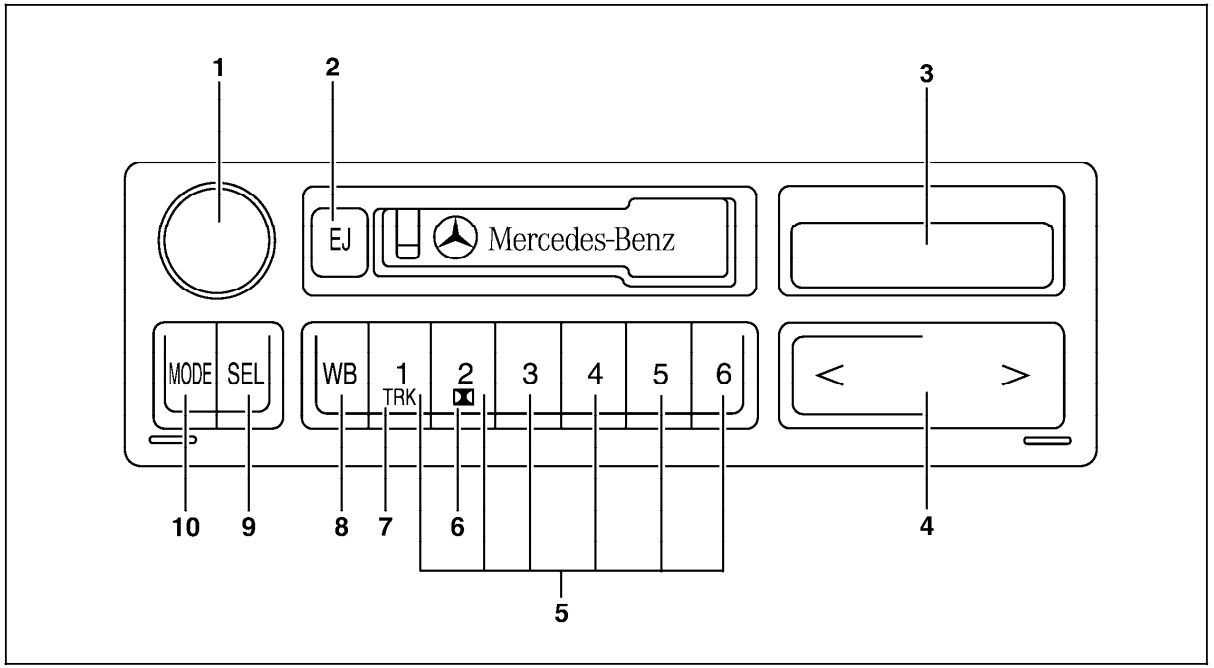


as of M.Y. 1994 radio faceplate

Diagnosis – Component Locations - Radio Faceplates

Figure 2 (Model 163 - Radio HI-Line)

1 On/Off switch, Volume control, Bass, Treble, Fader, Balance control
2 Cassette eject button
3 Display panel
4 Seek tuning – Radio, Cassette, Track seek – CD
5 Station memory/Disc selection buttons
6 Dolby noise reduction selector
7 Track selector
8 Weather band (WB)
9 Tone selection
10 AM or FM band, Cassette or CD



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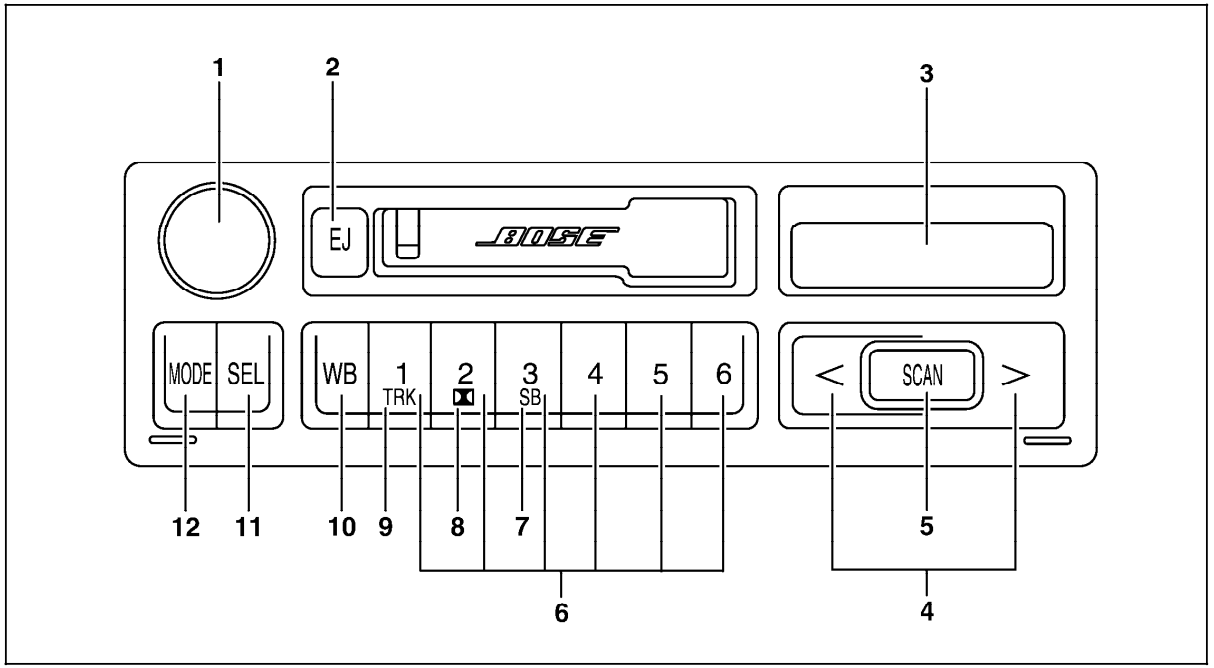
Diagnosis – Component Locations - Radio Faceplates

Figure 3 (Model 163 - Radio Premium)

1 On/Off switch, Volume control, Bass, Treble, Fader, Balance control
2 Cassette eject button
3 Display panel
4 Seek tuning – Radio, Cassette, Track seek – CD
5 Scan tuning – Radio, Cassette, CD
6 Station memory/Disc selection buttons
7 Blank tape skip
8 Dolby noise reduction selector
9 Track selector
10 Weather band (WB)
11 Tone selection
12 AM or FM band, Cassette or CD



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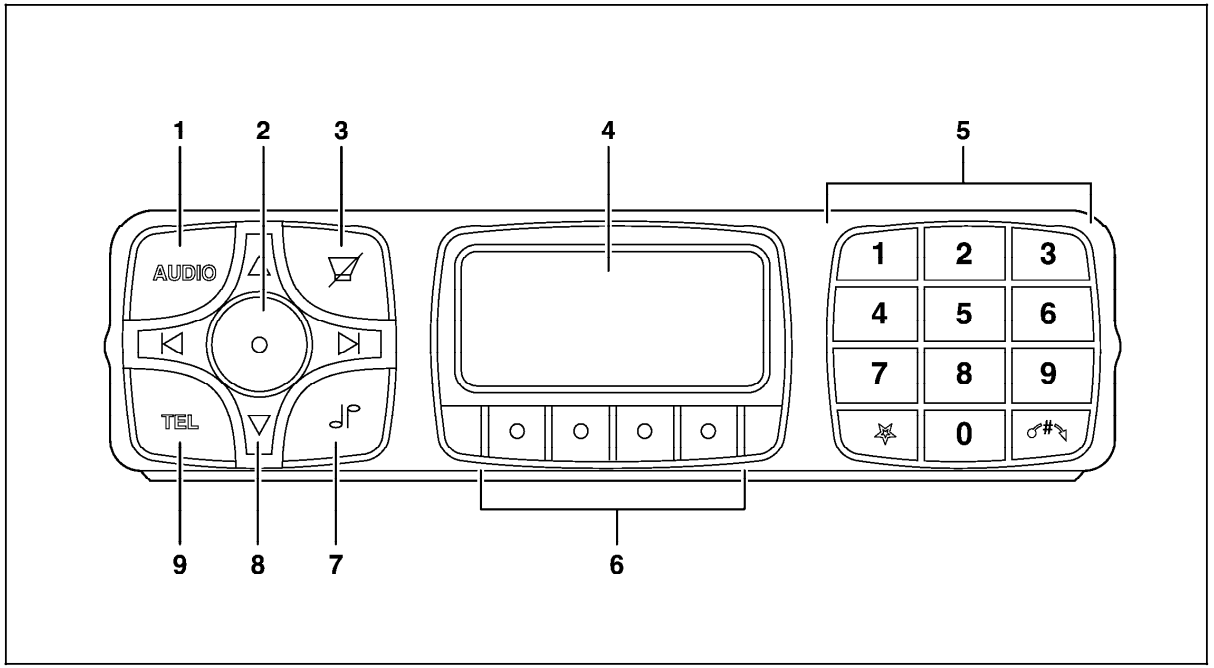
Diagnosis – Component Locations - Radio Faceplates

Figure 4 (as of M.Y. 1999 - Audio 30)

1 Radio mode selector
2 On/off, volume
3 CD mode selector
4 Display panel
5 Alphanumeric keypad for station storage, frequency entry and optional telephone
6 Soft keys for radio band selection, tone controls, tape eject and scan
7 Tape mode selector
8 Tune
9 Telephone mode selector



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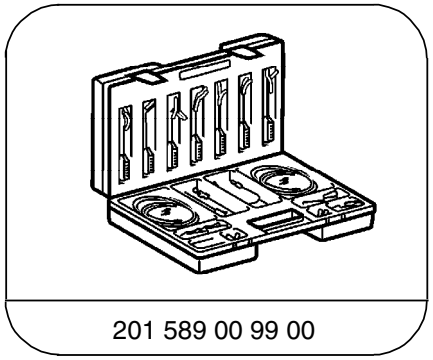
Electrical Test Program – Preparation for Test

1. Battery voltage 11–14 V.
2. Check fuses.

Note:
To prevent damage to the radio, the connectors must only be removed or installed with the ignition **OFF**.

Electrical wiring diagrams:
Electrical Troubleshooting Manual:, Models 124, 129, 140, 202/208, 210, group 82
Model 163:
group 82 in WIS

Special Tools



201 589 00 99 00

Electrical connecting set

Radio removal tool

Description	Part No.
Removal tool (1 set = 2 pieces)	000 833 03 61

Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter 1)	Fluke Models 23, 77 III, 83, 85, 87, 88
Signal generator 1)	SUN DTR-8416

1) Available through the MBUSA Standard Equipment Program.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		**Radio (A2)** Voltage supply Terminal 30	A2 8 (A.8) — V — 4 (A.4)	Remove radio (A2). Disconnect connector A (Figure 1).	11 – 14 V	Wiring, ⇒ 1.1.
1.1		Voltage supply Terminal 15	A2 8 (A.8) — V — 7 (A.7)	Remove radio (A2). Disconnect connector A (Figure 1). Ignition: **ON**	11 – 14 V	Wiring, Fuse E in A2, A2.
2.0		**Radio (A2)** Voltage supply for CD changer, Terminal 30 Model 129, 140, 170, 202, 208, 210 up to 05/98 Model 124, 163	C 6 — A2 — C 4	Remove radio (A2). Disconnect connector C (Figure 1). Measure on radio connector C.	10 – 14 V	Wiring, Fuse E in A2, ⇒ 2.1
2.1		Voltage supply for CD changer, switched	C 6 — A2 — C 5	Remove radio (A2). Disconnect connector C (Figure 1). Ignition: **ON** Radio: **ON** Measure on radio connector C.	10 – 14 V	Wiring, Fuse E in A2, A2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		**Radio (A2)** Voltage supply for CD changer (A2/6) Terminal 30 Model 129, 140, 170, 202, 208 and 210 as of 06/98	C A2 C 6 — ◄ –Ⓥ+ ► — 5	Remove radio (A2) Disconnect connector C Measure on back of connector C.	10 – 14 V	Wiring, Fuse E in A2
4.0		**Radio (A2)** Left front loudspeaker output	B A2 B 6 — ◄ –Ⓥ+ ► — 5	Remove radio (A2) Disconnect connector B Radio: **ON** Measure on back of connector B. Turn volume control to maximum.	> 0.2 V	A2 Values OK: Loudspeaker system (LS) – 5.3 23 AD82.62-P-6001 in WIS **Note:** Additionally test loudspeaker output with a single speaker.
5.0		**Radio (A2)** Right front loudspeaker output	B A2 B 4 — ◄ –Ⓥ+ ► — 3	Remove radio (A2). Disconnect connector B Radio: **ON** Measure on back of connector B. Turn volume control to maximum.	> 0.2 V	A2 Values OK: Loudspeaker system (LS) – 5.3 23 AD82.62-P-6001 in WIS **Note:** Additionally test loudspeaker output with a single speaker.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0		**Radio (A2)** Left rear loudspeaker output	B A2 B 7 — ◄–Ⓥ+► — 8	Remove radio (A2). Disconnect connector B Radio: **ON** Measure on back of connector B. Turn volume control to maximum.	> 0.2 V	A2 Values OK: Loudspeaker system (LS) – 5 23 AD82.62-P-6001 in WIS **Note:** Additionally test loudspeaker output with a single speaker.
7.0		**Radio (A2)** Right rear loudspeaker output	B A2 B 2 — ◄–Ⓥ+► — 1	Remove radio (A2). Disconnect connector B Radio: **ON** Measure on back of connector B. Turn volume control to maximum.	> 0.2 V	A2 Values OK: Loudspeaker system (LS) – 5 23 AD82.62-P-6001 in WIS **Note:** Additionally test loudspeaker output with a single speaker.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0		**Radio (A2)** Radio interference		Radio: **ON** Set reception frequency (e.g. 87.9) with no station. Engine: **OFF** Ignition: **ON**	No interference	Ground connections, Wiring, Electronic components, ⇒ 80.1
8.1		Radio (A2) Radio interference		Radio: **ON** Set reception frequency (e.g. 87.9) with no station. Engine: **at Idle**	No interference.	Ground connections, Wiring, Electronic components, Ignition system, Engine control system Values OK: Antenna system (AS) – 4 23 AD82.62-P-6000 in WIS **Note:** Additionally test, using a seperate antenna.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0		**Radio (A2)** Radio reception		Radio: **ON** Tune in strong station. Perform test drive.	Radio reception OK.	Ground connections, Wiring, A2, Radio station, Tranmitter antenna. Values OK: Antenna system D.M., Information/Communication, Vol.1, – 4 23 AD82.62-P-6000 in WIS **Note:** Additionally test, using a separate antenna.
10.0		**Radio (A2)** Activation of automatic antenna (M11) or antenna system (AS), left/right audio power amplifier (N40/3) Model 163: Activation of radio/speakers power amplifier control module (N40/6)	A2 8 (A.8) – V + 5 (A.5)	Remove radio (A2). Do not unplug connector. Radio: **ON**	9 – 14 V	A2, Values OK: Antenna system (AS) – 4 23 Loudspeaker system (LS) – 5 23, AD82.62-P-6000 in WIS AD82.62-P-6001 in WIS Left/right audio power amplifier (N40/3). Model 163: N40/6

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
11.0		**Radio (A2)** Speed sensitive volume control Except model 163	A2 8 (A.8) – V + – 1 (A.1)	Remove radio (A2). Do not unplug connectors. Connect signal generator and set to a voltage amplitude of approx. 2 – 4 V. Radio: **ON**	The volume increases with increasing frequency between 0 – 300 Hz.	Wiring, Vehicle speed signal, A2 Values OK: AD54.30-P-6000 in WIS **Model 129** Instrument cluster (IC) – 1 23 **Model 140** Instrument cluster (IC) – 1 23 **Model 202, 208, 210** ABS control module (N30), ASR control module (N30/1), ASR/SPS or ETS/SPS control modules (N47-1 or N47-2).

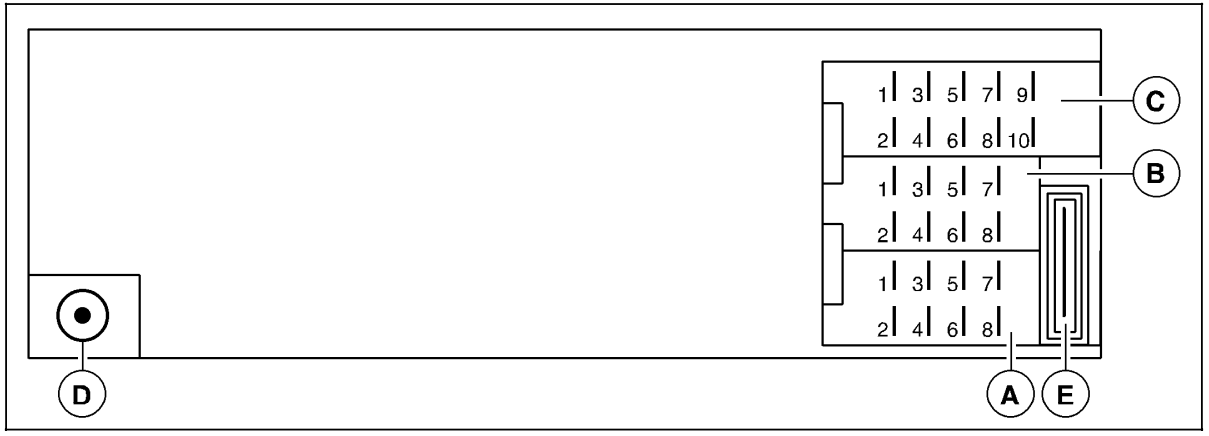
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
12.0		**Radio (A2)** Radio illumination with park lamps off	A2 8 (A.8) – V – 7 (A.7)	Remove radio (A2). Do not unplug connectors. Ignition: **ON** Radio: **ON**	11 – 14 V ON-button illuminated. ON-button and display illuminated.	Wiring, Fuse E in A2, A2, ⇒ 12.1
12.1		**Radio (A2)** Radio illumination with park lamps on	A2 8 (A.8) – V – 6 (A.6)	Remove radio (A2). Do not unplug connectors. Park lamps: **ON** Radio: **ON**	11 – 14 V Switches and buttons illuminated. Switches, buttons and radio display illuminated.	Wiring, Fuse E in A2, A2
13.0		**Radio (A2)** Radio muting by telephone system	A2 8 (A.8) – (–) – 3 (A.3)	Remove radio (A2). Do not unplug connectors. Radio: **ON**	Radio is muted, the display window shows: PHONE	Wiring, A2, Telephone system.

Electrical Test Program – Component Locations

Connections on back of Radio

Figure 1



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A

1 Speed-sensitive volume control
2 Diagnostic connection (as of MY 1998)
3 Muting for telephone system
4 Battery voltage (circuit 30)
5 Automatic antenna control output, FM/AM amplifier voltage supply and control signal for sound system control module
6 Illumination (circuit 58)
7 Switched battery power (circuit 15)
8 Ground (circuit 31)

B

1 Right rear loudspeaker +
2 Right rear loudspeaker –
3 Right front loudspeaker +
4 Right front loudspeaker –
5 Left front loudspeaker +
6 Left front loudspeaker –
7 Left rear loudspeaker +
8 Left rear loudspeaker –

C Connector for CD changer, coding (via wiring harness)

D Antenna jack

E Fuse