Index

index continues on next page

* NEW INFORMATION since last filming

Index

BOARD COMPUTER

1988/1989

Starting m. y. 1990

1988-1991

Board Computer, functional testing

It is possible to check the condition of the computer components by selecting the individual functions in the specified sequence.

If defective components are found, check the wiring to these components using the wiring diagram.

The Board Computer is located in a module on the back of instrument cluster.

On vehicles with Board Computer and Auto-Check system, both components are contained in one module.

Individual components can be removed from the module and replaced.

For example:
If a vehicle with Board Computer and Auto-Check system has a defective Board Computer, the Board Computer can be removed from the module and replaced.

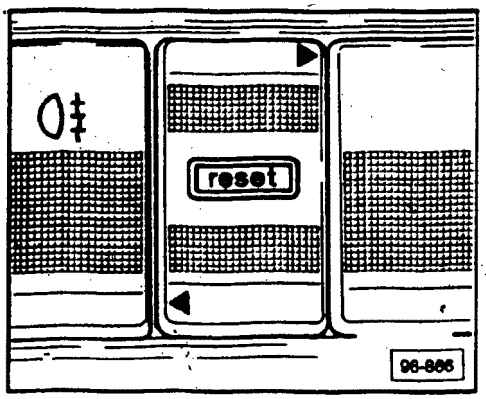
If a defect is found in the display unit of the Board Computer, it must be replaced.

If the Board Computer is replaced, the coding connector of the old computer must be installed on the new computer.

If the coding connector is not correct, the correct connector may be ordered by the Parts Department.

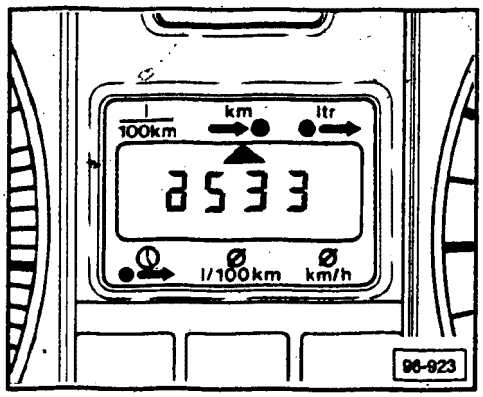
Check the following first:
- fuse S12 **OK**
- fuse S4 **OK**

Always perform complete functional testing procedure.



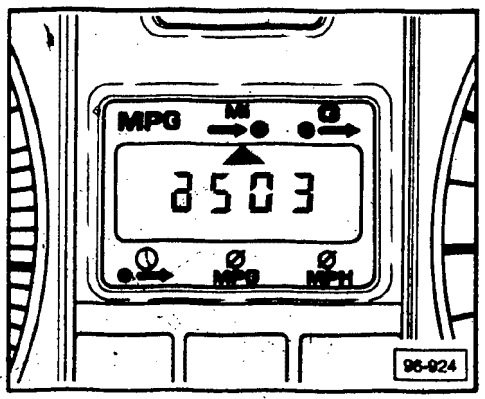
Computer code, checking

- switch ignition **OFF**
- push RESET button and hold
- switch ignition **ON** (while holding RESET button down)
  - ∂ and appropriate code displayed



Code numbers

503 = Audi 90 (USA)
523 = Audi 80/90 Quattro (USA)
523 = Audi 90 Quattro (Canada)

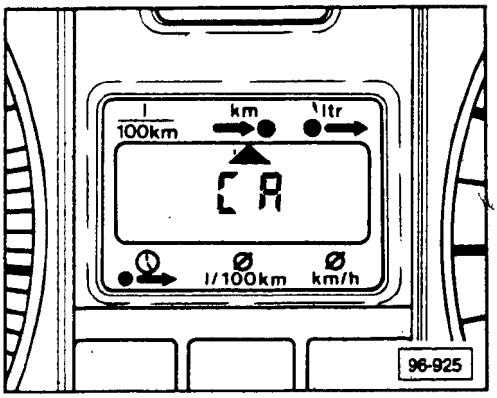


If code is indicated,
- switch ignition **OFF**
- check country code

If code is **NOT** indicated,
- check function selector switch
- repeat test

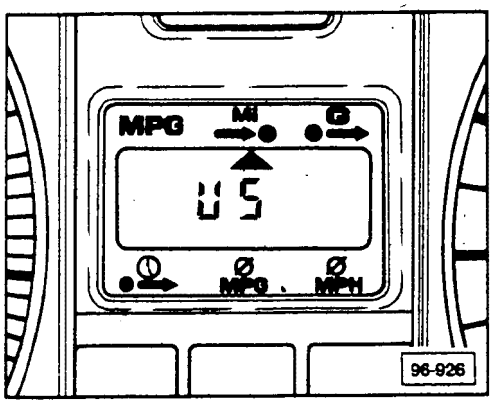
If code is still not displayed or displayed incorrectly,
- check consumption signal from fuel injection control unit

If code is still not displayed or displayed incorrectly,
- check Board Computer



Country code, checking

- switch ignition **OFF**
- push and hold RESET button down
- switch ignition **ON** (while holding RESET button down)
- release RESET button
- push lower function selector button and hold down
  - country code is displayed



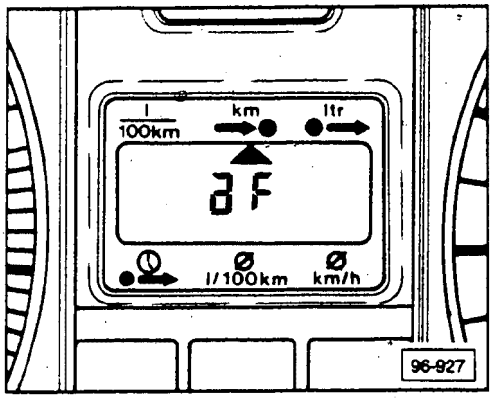
Country codes

EU = Europe
GB = Great Britain
US = USA
CA = Canada*
SA = Saudi Arabia
JA = Japan

*The country codes for CA (Canada) and SA (Saudi Arabia) are displayed alternately once every second.

If country code is displayed,
- switch ignition **OFF**
- check fuel injection code

If correct country code is **NOT** displayed,
- replace Board Computer control unit

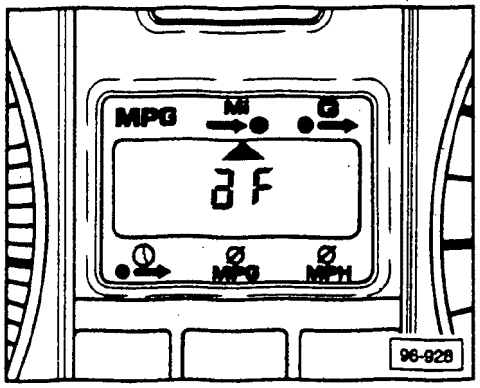


Fuel injection code, checking

Note

This code will only appear if there is a defect in the wire for the fuel consumption indicator signal.

- switch ignition **OFF**
- press and hold RESET button down
- switch ignition **ON** (while holding RESET button down)



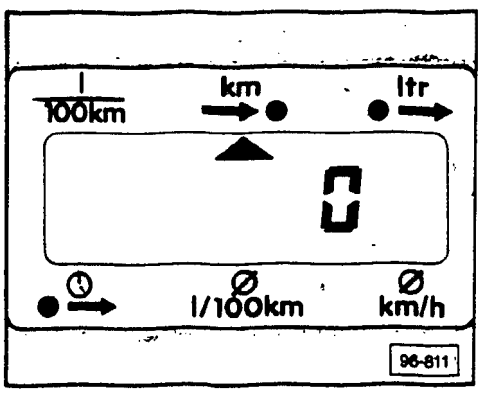
- push upper function selector switch and hold down

If no code is displayed,
- check average fuel consumption display

If fuel injection code **F** is displayed,
- check signal for fuel consumption indicator

- check function selector switch
- run engine at 3000 RPM for approximately 30 seconds
- repeat test

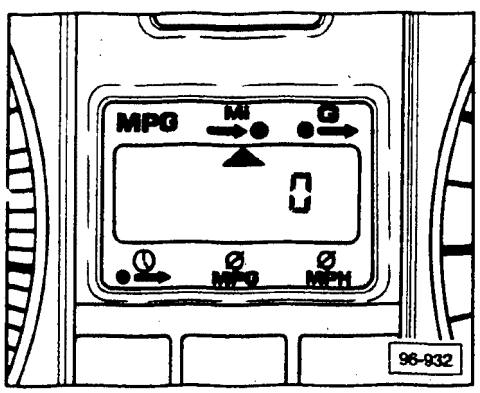
If fuel injection code **F** is displayed,
- check Board Computer



Fuel consumption correction factor, checking

- switch ignition **OFF**
- press and hold RESET button down
- switch ignition **ON**

- release RESET button
- push top function selector switch and hold down
  - fuel consumption factor is displayed



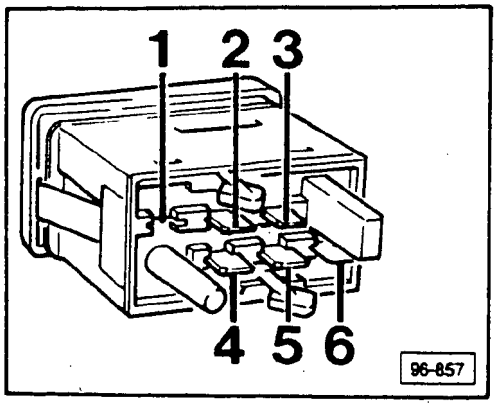
Note

Fuel consumption factor is calibrated to 0% at the factory. If percentage display is any figure other than 0%, it means that consumption percentage has been changed since vehicle left factory.

If fuel consumption factor is displayed,
- check Fuel Consumption from Start (●→ltr●→gal)

If fuel consumption factor is **NOT** displayed,
- check function selector switch
- repeat test

If the consumption correction factor is still not indicated,
- replace Board Computer



Function selector switch, checking

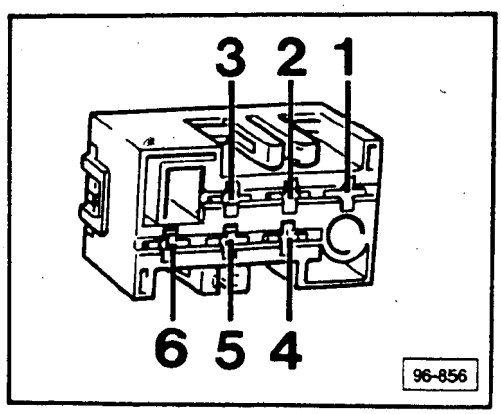
- unclip function selector switch from instrument panel
- remove electrical connector from switch
- connect multimeter **US 1119** set to ohm range between terminals **2** and **5**
  - must be infinite (∞) ohm (no continuity)
- press RESET button
  - must be 0.0 ohm (continuity)
- connect **US 1119** between terminals **5** and **4**
  - must be infinite (∞) ohm (no continuity)
- press top function selector button
  - must be 0.0 ohm (continuity)
- connect **US 1119** between terminals **5** and **6**
  - must be infinite (∞) ohm (no continuity)
- press bottom function selector switch
  - must be 0.0 ohm (continuity)

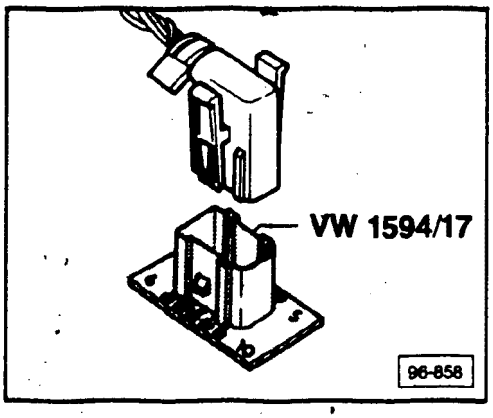
If specified values are **NOT** obtained,

- replace function selector switch
- connect multimeter **US 1119** set to volt range between terminals **6** and **3** of 6-point connector to function selector switch
- switch ignition **ON**
  - must be 12.0 volts
- switch ignition **OFF**

If specified value is **NOT** obtained,

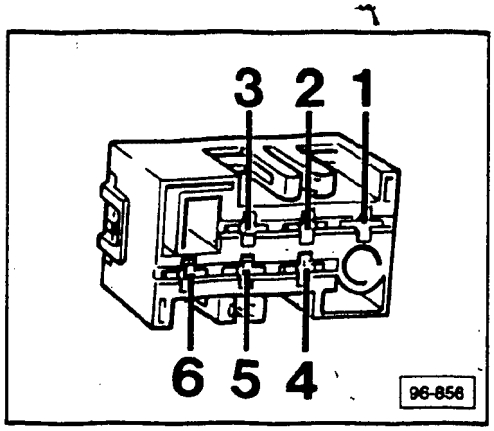
- repair wiring according to wiring diagram





If all specified values **ARE** obtained,

- remove instrument cluster
- remove 10-point connector (black) of Board Computer from instrument cluster and connect to test adaptor **VW 1594/17**



- set multimeter **US 1119** to ohm range
- connect **US 1119** between 6-point connector of function selector switch and 10-point connector of the Board Computer as follows:

6-point terminal	Test adaptor
5	**3**
3	**1**
2	**6**
6	**2**
4	**4**

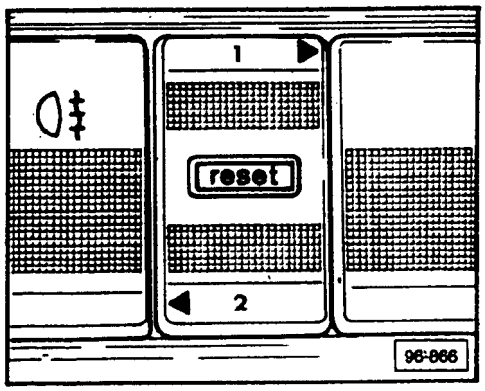
- must be 0.2 ohm

If specified values are **NOT** obtained,

- repair wiring according to wiring diagram

If specified values are obtained and functions cannot be selected,

- reinstall 10-point connector on Board Computer
- check Board Computer



Board Computer, checking

- switch ignition **ON**
- select all computer functions in sequence pressing function selector switch (1) and (2)

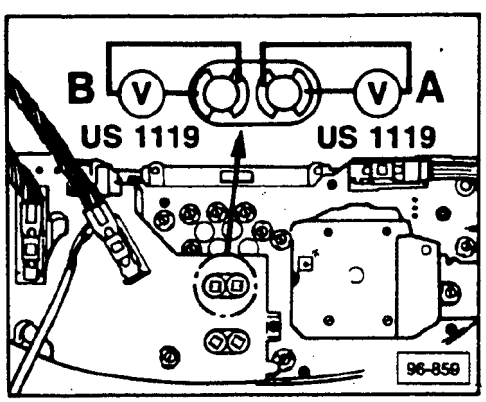
Note

The upper function selector switch moves the display from left to right. The lower function selector switch moves the display from right to left.

If it is not possible to select all functions,
- check function selector switch
- repeat test

If it is still not possible to select all functions or display is dim,

- remove instrument cluster (do not disconnect electrical connectors)
- check day/night illumination

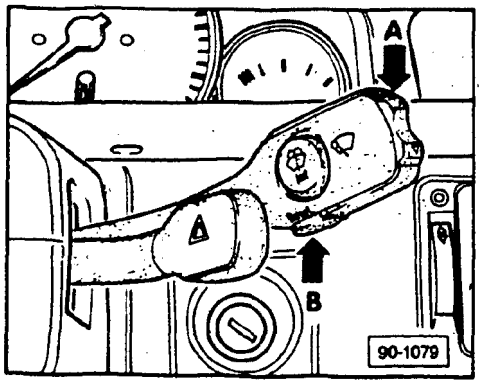


- connect multimeter **US 1119** set to 20 V range between connections for day illumination **A**
- switch ignition **ON**
  - must be approximately 12.0 V
- connect **US 1119** between connections for night illumination **B**
- switch headlights **ON** and turn dimmer to full bright position
  - must be approximately 12.0 V

If specified values are **NOT** obtained,
- repair open in wiring according to wiring diagram

If specified values **ARE** obtained,
- replace bulbs for day/night illumination

Function selector switch, operating



A — function selector switch
B — reset button

- select all computer functions in sequence by pressing upper or lower part of function selector switch **A**

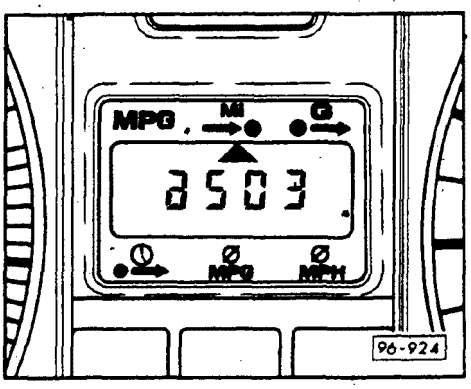
Display sequence

- press upper part of switch to advance display line-by-line from right to left
- press lower part of switch to advance display line-by-line from left to right

If functions cannot be selected
- check function selector switch

If board computer functions are only weakly lit
- check day/night illumination bulbs

Board computer code, checking



- switch ignition **OFF**
- press and hold **RESET** button
- switch ignition **ON** (while holding **RESET** button down)
  - ∂ and appropriate code displayed, see chart following

Computer codes

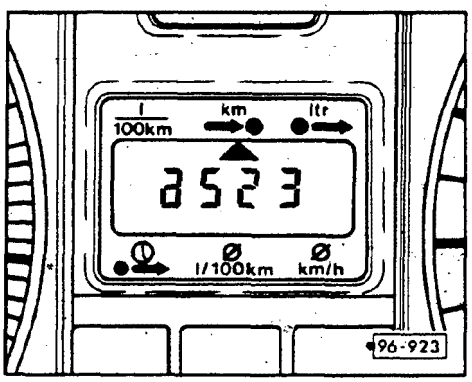
Vehicle	Coding Connector Part No.	Code Displayed
90 (USA)	893 919 100 H	503
80 Quattro (USA), 90 Quattro 20 V (USA, Canada)	893 919 100 G	523
Coupe Quattro 20 V (USA, Canada)	895 919 100 P	532

If correct code is displayed,
- switch ignition **OFF**
- check country code

If correct code is **NOT** displayed,
- check function selector switch
- repeat test

If correct code is still not displayed or displayed incorrectly,
- check consumption signal from fuel injection control unit

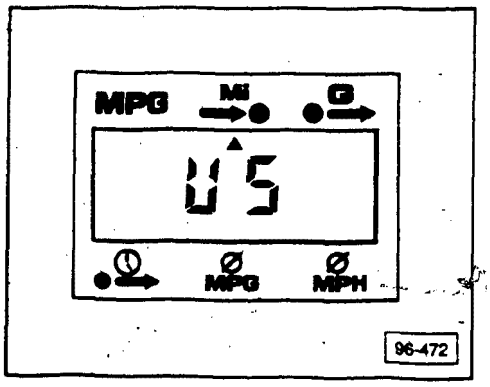
If correct code is still not displayed or displayed incorrectly,
- check Board Computer
- check coding connector for correct part number, see chart above



Note

The Board Computer display for Canada is illustrated at left. In the troubleshooting section, only the U.S. Board Computer display is shown. The values and data given are also applicable to the Board Computer for Canada.

Country code, checking



- switch ignition **OFF**
- press and hold **RESET** button
- switch ignition **ON**
- release **RESET** button
- press upper part of function selector switch and hold down
  - country code is displayed

    US for U.S.A. models

    CA for Canadian models

    SA for Saudi Arabian models

Note

The country codes for Canada (**CA**) and Saudi Arabia (**SA**) appear alternately approximately once per second.

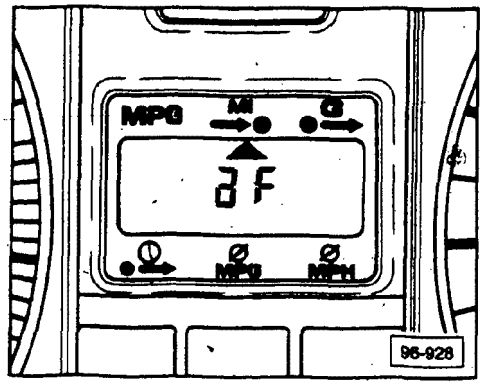
If correct country code is displayed,

- check fuel injection code, following

If correct country code is **NOT** displayed

- replace Board Computer printed circuit board

Fuel injection code, checking



- switch ignition **OFF**
- press and hold down **RESET** button
- switch ignition **ON** (while holding reset button down)
- press lower function selection switch and hold down
- F and appropriate fuel injection code is displayed

  F for CIS-E III, MPI

If the correct fuel injection code is displayed

- switch ignition **OFF**
- check average speed display

If fuel injection code is **NOT** displayed or is incorrect,

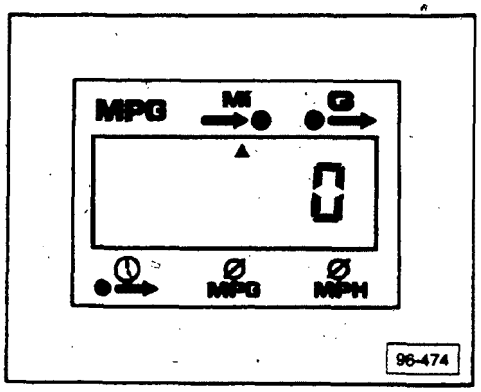
- check fuel consumption signal
- check function selector switch
- run engine at 3000 RPM for approximately 30 seconds
- repeat test

If correct fuel injection code is still not displayed,

- check Board Computer

Fuel consumption correction factor, checking

- switch ignition **OFF**
- press and hold down **RESET** button
- switch ignition **ON** (while holding reset button down)
- release **RESET** button



- press lower function selector switch and hold down
  - current fuel consumption correction factor is displayed

Note

Fuel consumption factor is calibrated to 0% at the factory. If percentage display is any figure other than 0%, it means that consumption percentage has been changed since vehicle left factory. The correction range lies between −15% and +15%.

If fuel consumption factor is displayed,

- check Fuel Consumption from Start (●⟶ltr●⟶gal)

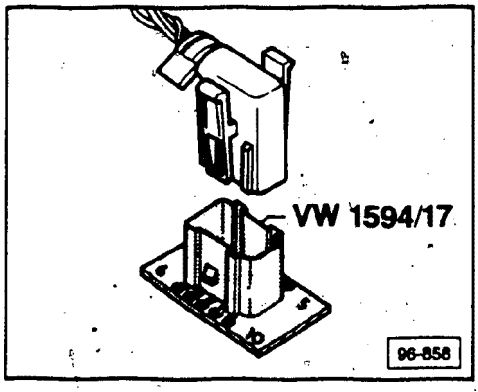
If fuel consumption factor is **NOT** displayed,

- check function selector switch
- repeat test

If the consumption correction factor is still not indicated,

- replace Board Computer

Function selector switch, checking



- remove instrument cluster
- connect test adaptor **VW 1594/17** to 10-point connector
- set multimeter **US 1119** to ohmmeter scale
- connect multimeter **US 1119** between terminals **6** and **3**
  - must be infinite (∞) ohms (no continuity)
- press **RESET** button
  - must be 0 ohms (continuity)
- connect multimeter **US 1119** between terminals **3** and **2**
  - must be infinite (∞) ohms (no continuity)
- press upper function selector switch
  - must be 0 ohms (continuity)
- connect multimeter **US 1119** between terminals **3** and **4**
  - must be infinite (∞) ohms (no continuity)
- press lower function selector switch
  - must be 0 ohms (continuity)

If one of the specified values is **NOT** obtained

- repair break in wiring according to wiring diagram

OR

- replace function selector switch

Board Computer, checking

- switch ignition **ON**
- select all computer functions in sequence by pressing function selector switch up and down

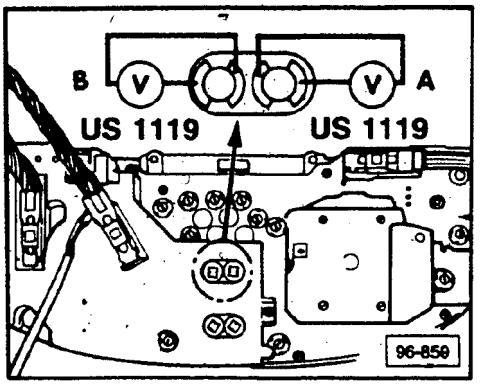
Note

The upper function selector switch moves the display from right to left. The lower function selector switch moves the display from left to right.

If it is not possible to select all functions,
- check function selector switch
- repeat test

If it is still not possible to select all functions or display is dim,

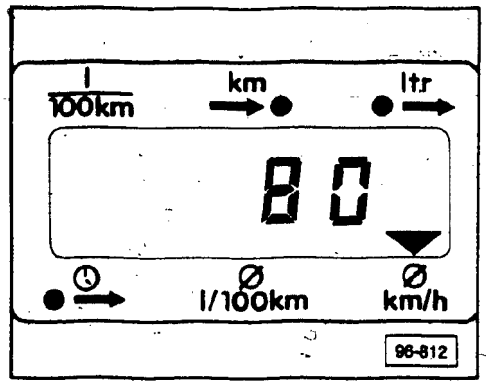
- remove instrument cluster (do not disconnect electrical connectors)
- check day/night illumination as follows:

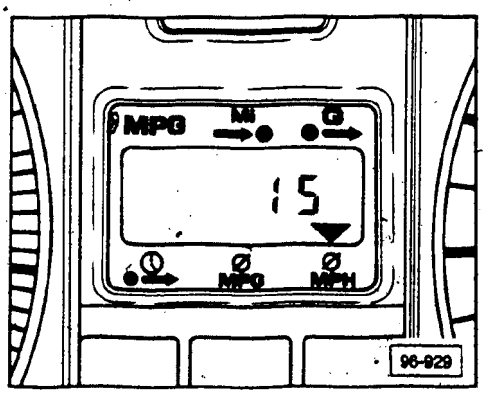


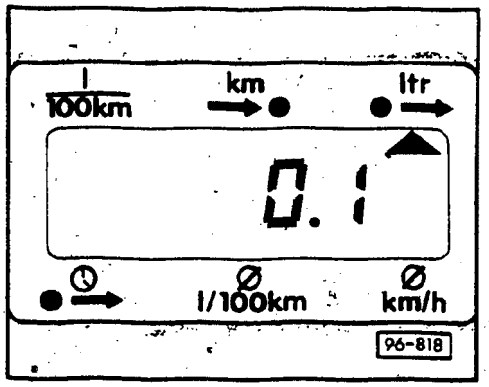
- connect multimeter **US 1119** set to 20 V range between connections for day illumination **A**
- switch ignition **ON**
  - must be approximately 12.0 V
- switch ignition **OFF**
- connect multimeter **US 1119** between connections for night illumination **B**
- switch parking lights **ON** and turn dimmer to full bright position
  - must be approximately 12.0 V

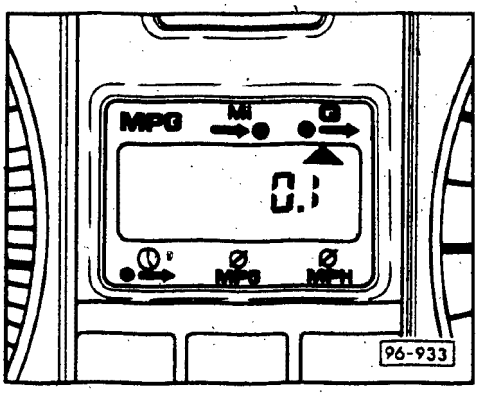
If specified values are **NOT** obtained,
- repair break in wiring according to wiring diagram

If specified values **ARE** obtained,
- replace bulbs for day/night illumination









Average speed display, checking (Ø km/h or Ø MPH)

- switch ignition **ON**
- select average speed display with function selector switch

If average speed display cannot be selected,
- check function selector switch

- drive vehicle and push RESET button for at least 2 seconds
  - instantaneous speed is indicated

If instantaneous speed is indicated,
- check average fuel consumption indicator (Ø ltr/100 km or Ø MPG)

If instantaneous speed is **NOT** indicated,
- check that instantaneous speed is displayed on speedometer

If instantaneous speed is displayed on speedometer,
- repair open in wire to Board Computer according to wiring diagram

If instantaneous speed is **NOT** displayed on speedometer,
- check speedometer speed sensor

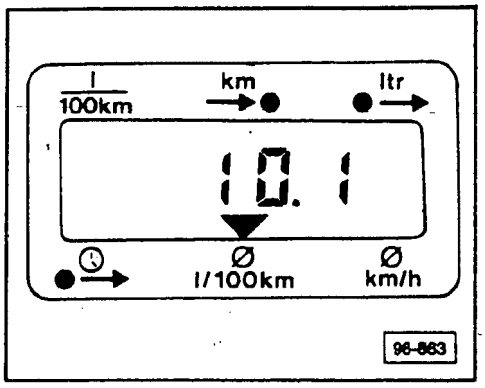
Fuel consumption since start, checking (ltr ●→, Gal ●→)

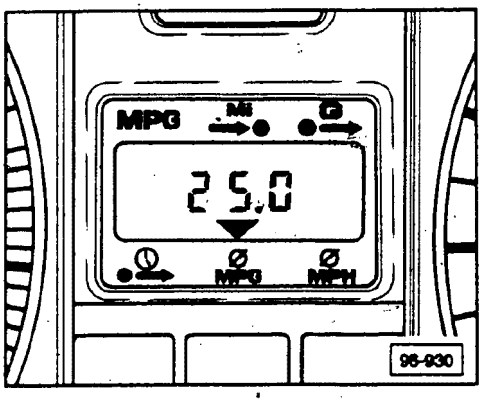
- switch ignition **ON**
- select Fuel Consumption from start with function selector switch
- drive vehicle and let coast
- push RESET button for 2 seconds

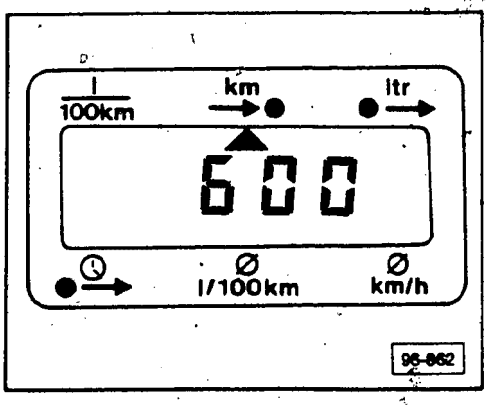
After approximately 5 km or 3 miles, fuel consumed is indicated
- 0.1 to 0.8 liter **OR**
- 0.1 to 0.3 gal

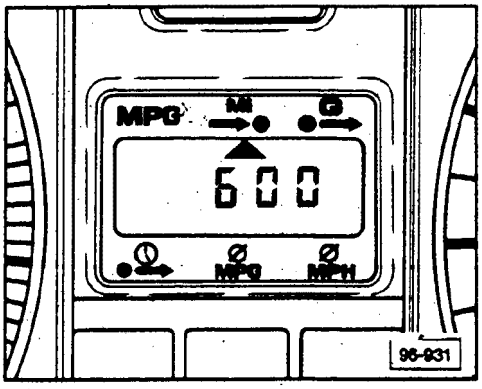
If fuel consumption from start is **NOT** displayed,
- check fuel consumption signal
- repeat test

If fuel consumption is still not indicated,
- replace Board Computer









Average fuel consumption display, checking (0 l/100 km or 0 MPG)

- switch ignition **ON**
- select average fuel consumption display (Ø ltr/100 km or Ø MPG)
- drive vehicle and press RESET button for at least 2 seconds
  - instantaneous average fuel consumption is displayed

If instantaneous average fuel consumption is displayed,

- check range reading (miles to empty)

If instantaneous average fuel consumption display increases after releasing reset button from approximately 15 to 51 ltr/100 km or 5 MPG **OR** 0 ltr/100 km or 2000 MPG is displayed,

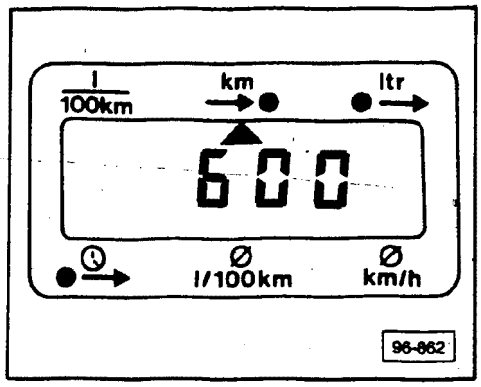
- check fuel consumption signal on terminal 10 of 10-point connector of Board Computer

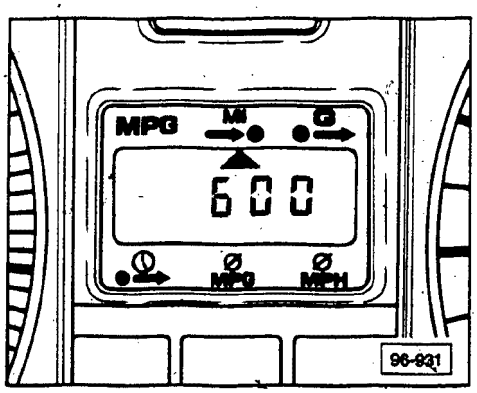
Range reading (km ⟶● or MI ⟶●), checking

Note

The computer calculates range (miles to go) against an average consumption of 10 ltr/100 km even if the Board Computer display is in USA measure of units.

Example: 60 liters of fuel in tank will indicate 600 km range (miles to go)





Range reading (km → ● or MI → ●), checking continued

- switch ignition **OFF**
- press and hold RESET button
- switch ignition **ON**
- release RESET button
  - tank contents X 10 is indicated

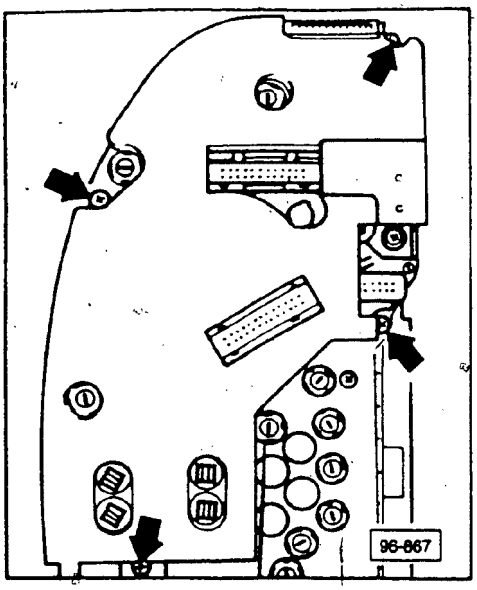
If tank contents X 10 is displayed,
- check adjusted consumption correction factor

If tank contents X 10 is **NOT** displayed,
- check that fuel level is displayed on fuel gauge in instrument cluster

If fuel level is **NOT** displayed on fuel gauge in instrument cluster,
- check fuel level sending unit

If fuel level is displayed on fuel gauge in instrument cluster,
- check voltage supply and output signals to Board Computer

If no open circuits are found,
- replace Board Computer



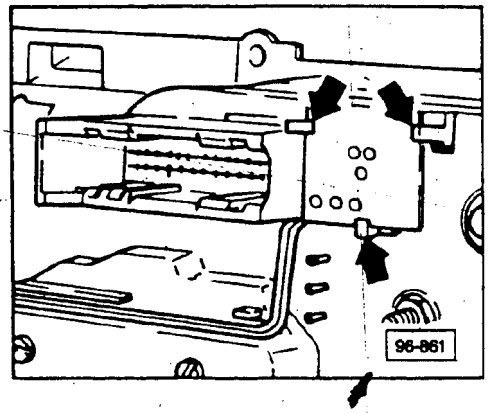
Board Computer voltage supply and output signal, checking

- disconnect battery ground strap
- remove instrument cluster
- remove 26-point connector (yellow)
- remove 10-point connector (black) from Board Computer

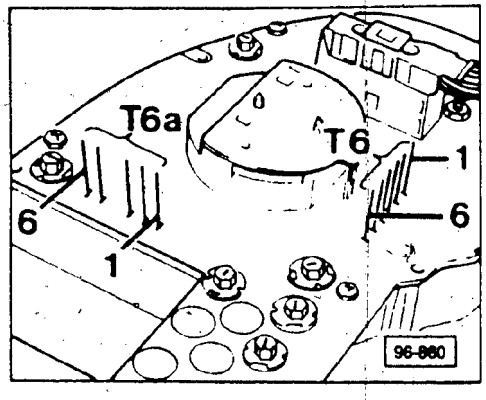
Note

On vehicles with Auto-Check system,

- remove 26-point connector (white) from instrument cluster
- remove module retaining screws (**arrows**)



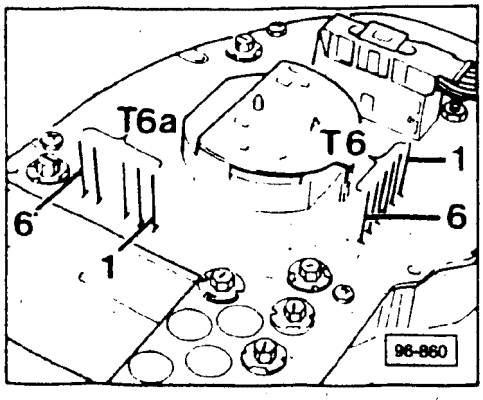
- unclip range calibration potentiometer and carefully remove Board Computer module
- attach battery ground cable
- attach 26-point connector (yellow) to instrument cluster



- connect multimeter **US 1119** set to volt range between terminals **T6/6** and **T6a/3**
  - must be approximately 12.0 V
- connect **US 1119** between terminals **T6a/2** and **T6a/3**
- switch ignition **ON** and leave **ON** during remaining tests
  - must be approximately 12.0 V
- connect **US 1119** between terminals **T6/1** and **T6a/3**
  - must be 9.75 V-10.3 V

If specified values are **NOT** obtained,

- repair open in wiring according to wiring diagram or check voltage stabilizer



- connect **US 1119** between terminals **T6/1** and **T6/2**
  - must be 1.5 V-6.0 V (depends on fuel tank level)

If specified values are **NOT** obtained,
- repair open in wiring according to wiring diagram or check fuel level gauge

- connect **US 1119** between terminals **T6/4** and **T6a/3**
- switch parking lights **ON**
  - must be approximately 12.0 V

- connect **US 1119** between terminals **T6/5** and **T6a/3**
- switch parking lights **ON** and turn instrument panel light dimmer to full bright position
  - must be approximately 12.0 V

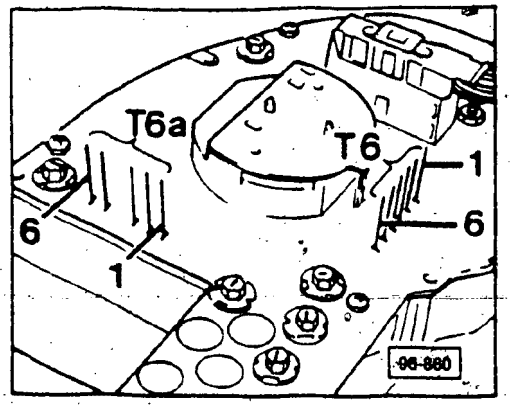
If the specified values are **NOT** obtained,
- repair open in wiring according to wiring diagram

- connect **US 1119** between terminals **T6a/1** and **T6a/3**
  - must be 0.0 V-4.0 V

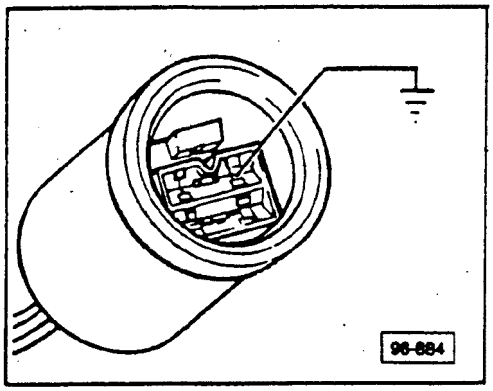
- start motor and let idle
  - must be 14.0 V

If specified values are **NOT** obtained,
- repair open in wiring according to wiring diagram or check alternator output

On vehicles without Auto-Check System,



- connect **US 1119** between terminals **T6a/2** and **T6a/5** (only on vehicles without Auto-Check system)
- press brake fluid level switch on brake fluid reservoir
  - must be 12.0 V

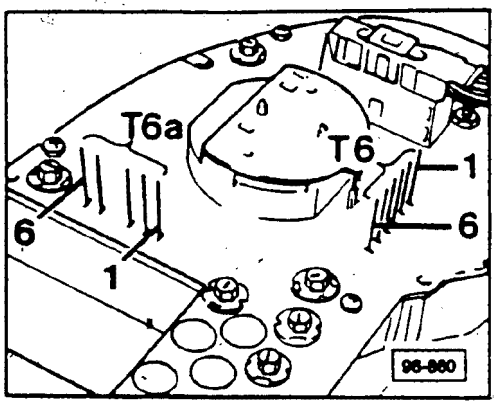


- connect **US 1119** between terminals **T6a/2** and **T6a/6**
- remove connector from electronic thermoswitch
- connect blue/white (Bl/W) wire to ground
  - must be 12.0 V

If the specified values are **NOT** obtained,

- repair open in wiring according to wiring diagram

Speed signal, checking



- connect multimeter **US 1119** set to ohm range between **T6/3** and **T6a/3**
- place transmission in neutral and apply parking brake
- secure vehicle with wheel chocks to prevent rolling
- raise left front of vehicle at proper lift point until wheel turns freely
- place jack stand under vehicle for safety
- slowly rotate wheel
  - reading must alternate between 0.0 ohm (continuity) and ∞ ohm (no continuity)

If specified values are **NOT** obtained,

- repair open in wiring according to wiring diagram **OR** replace speed sensor

Note

If the specified values from the tests on previous two pages are **NOT** obtained and wiring is not damaged,

- replace Board Computer

If specified values **ARE** obtained,

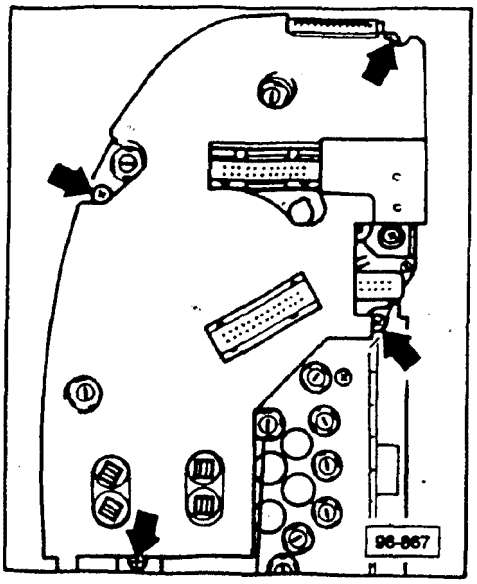
- connect modules to instrument cluster
- switch ignition **ON**

If the coolant warning temperature light or brake fluid level warning light do not flash,

- replace light bulbs

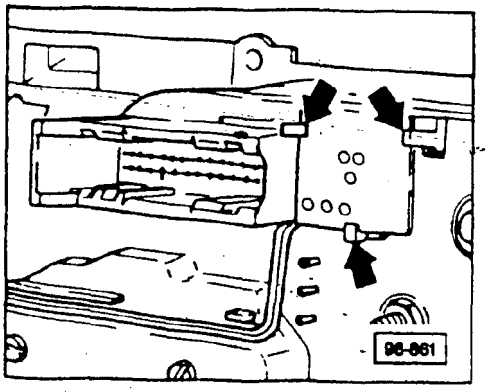
If warning lights still do not flash,

- replace Board Computer or computer module

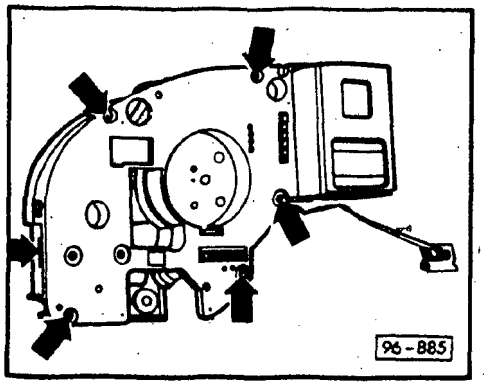


Board Computer or computer module, removing/installing from instrument cluster

- disconnect battery ground cable
- remove instrument cluster
- remove all electrical connectors from instrument cluster
- remove Board Computer retaining screws **(arrows)**



- unclip **(arrow)** range calibration potentiometer and remove



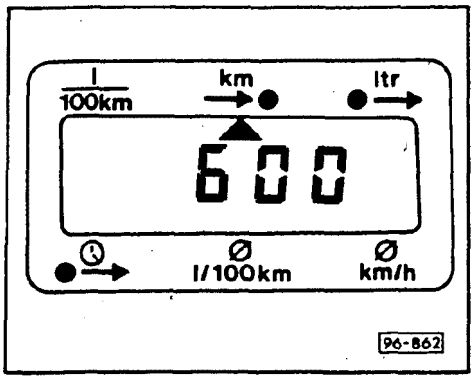
Board Computer, removing/installing from module (only vehicles with Auto-Check system and defective Board Computer)

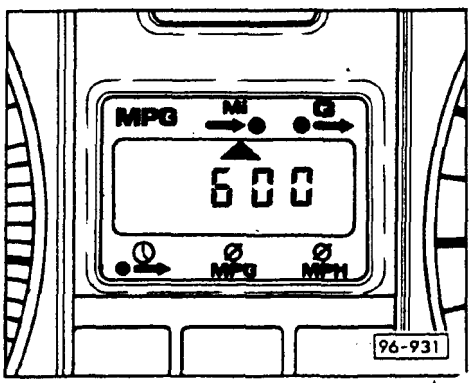
- remove coding terminal Board Computer
- remove nuts **(arrows)**
- carefully separate module halves without twisting

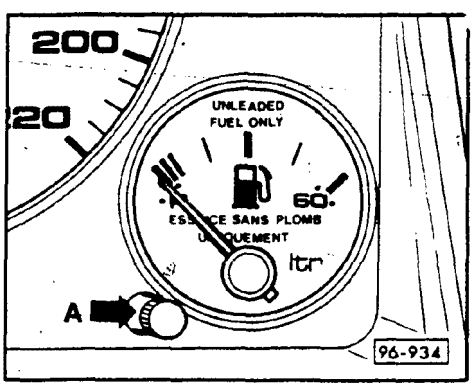
Note

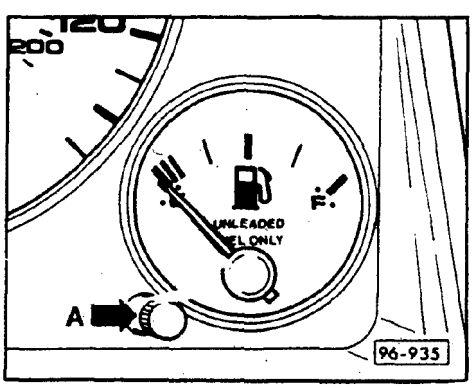
Store module halves so they are not damaged or become contaminated.

During installation, be sure that module halves are not damaged or distorted.









Board Computer, range calibration

CAUTION

Range calibration is done **ONLY** after the following repair work:

- replacing fuel gauge or fuel gauge sender
- replacing computer

The range calibration is done **ONLY** with a full fuel tank.

The computer calculates fuel consumption based on 10 L/100 km regardless if the computer display is in US or metric measurement units.

- switch ignition **OFF**
- press and hold RESET button
- switch ignition **ON** (while holding RESET button down)
- release RESET button
  - Board Computer display must show 500-700 (depending on vehicle)

If specified value is **NOT** displayed,

- adjust range calibration as follows:
- remove cap **A** from instrument cluster
- insert small flat blade screwdriver and turn adjusting screw

CAUTION

Range calibration screw can only be turned 1/2 turn at a time between stops.

- adjust range calibration value according to following:

Audi 90	= approximately 550
Audi 80/90 Quattro	= approximately 650
Audi 90 Quattro 20 V	= approximately 650
Audi Coupe Quattro 20 V	= approximately 650

If the range calibration was not correct during first measurement,

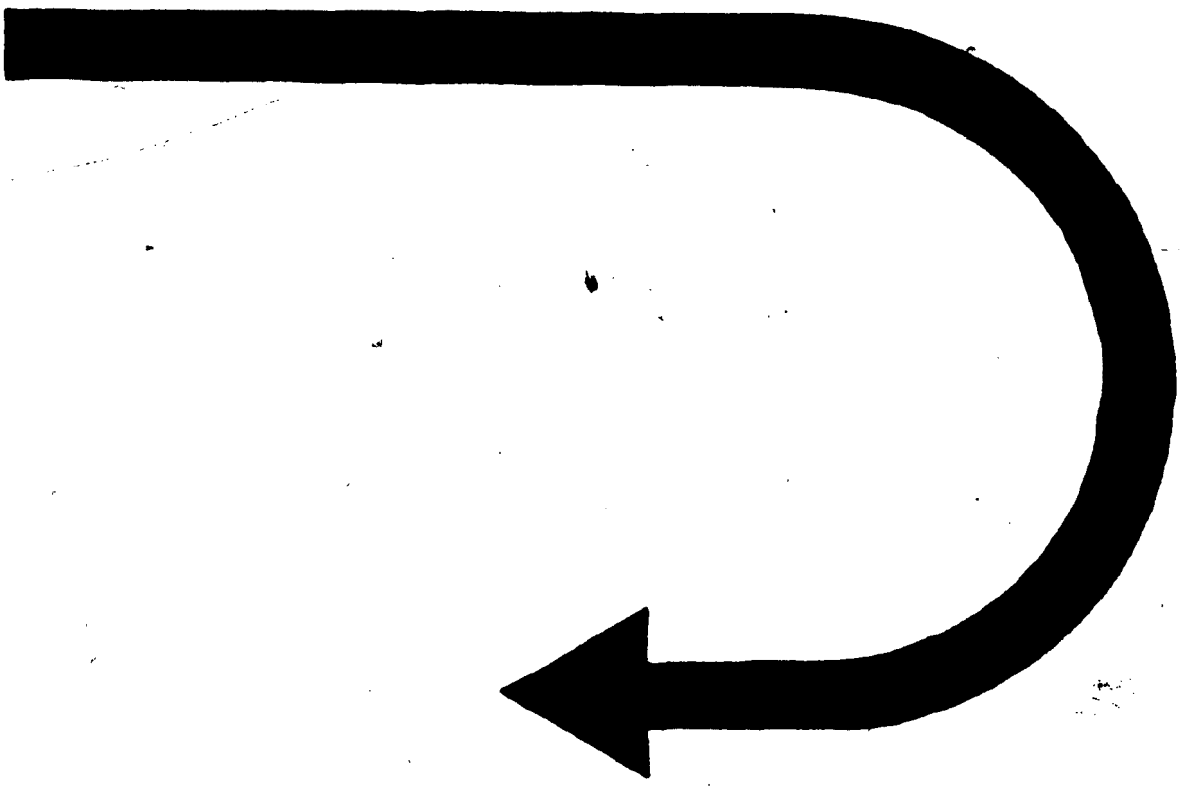
- check fuel gauge calibration
- repeat range calibration test

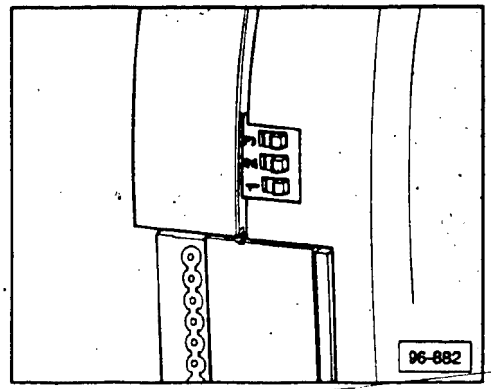
If specified range calibration is still **NOT** obtained,

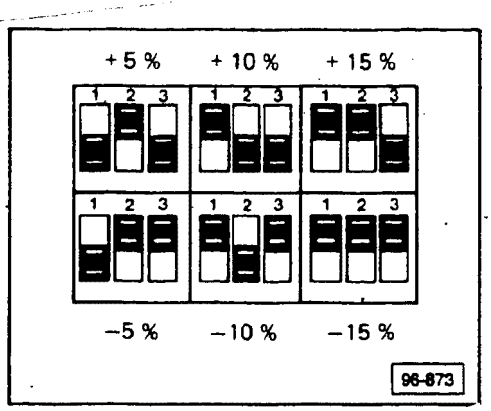
- replace Board Computer

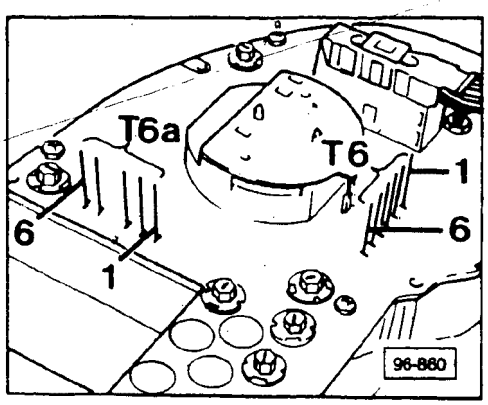
CONTINUED IN THE

BEGINNING OF NEXT ROW









Fuel consumption factor, correcting

It is possible to adjust the Board Computer if average fuel consumption measured by the driver varies by more than 5% from the average fuel consumption calculated by the Board Computer.

A total ± 15% correction can be made.

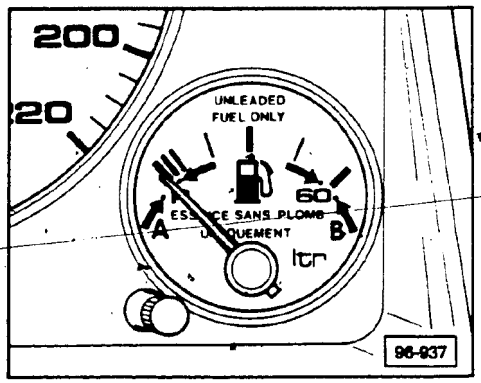
- remove instrument cluster but do not remove electrical connectors
- select corresponding correction range with the three sliding switches

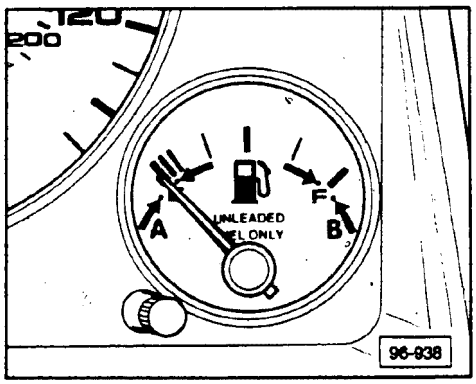
Fuel gauge display, checking

- remove trim cover from luggage compartment floor
- remove cover from fuel gauge sender
- remove connector from fuel gauge sender
- connect multimeter **US 1119** set to 20 V range between connector terminals
- switch ignition **ON**
  - must be 9.75 V-10.3 V

If specified values are **NOT** obtained,

- repair open in wiring according to wiring diagram **OR**
- replace voltage stabilizer
- connect **VW 1301** to fuel gauge sender connector terminals
- remove instrument cluster (leave electrical connectors connected)
- remove Board Computer module
- connect multimeter **US 1119** set to 20 V range between terminals **T6/1** and **T6/2**
- switch ignition **ON**
- adjust **VW 1301** as follows:
  544 - **US 1119** reads 1.5 V
  60 - **US 1119** reads 5.5 V





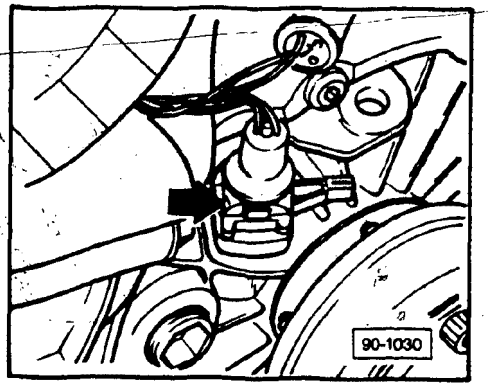
Fuel gauge needle must be within tolerance ranges **A** and **B** (**arrows**)

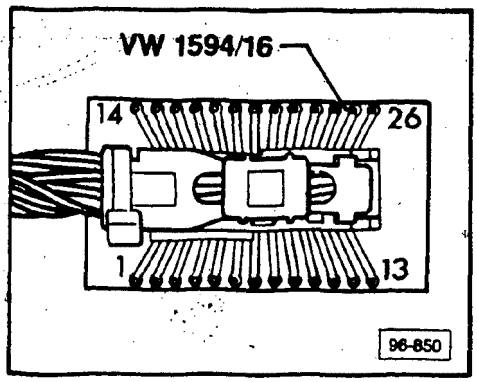
A = **VW 1301** at 544, **US 1119** reads 1.5 V
B = **VW 1301** at 60, **US 1119** reads 5.5 V

If specified values are **NOT** obtained,
- adjust fuel gauge

If adjustment not obtainable,
- check voltage supply and voltage stabilizer

If **OK**,
- replace fuel gauge





Speed sensor, checking

Note

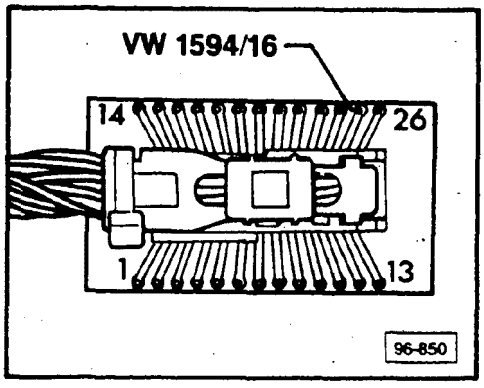
Sensor is located on left side of transmission near drive shaft flange.

- remove instrument cluster
- remove 26-point connector (blue) from instrument cluster and insert in test adaptor **VW 1594/16**
- connect **US 1119** between terminals **20** and **21**
- set **US 1119** to ohm scale
- place transmission in neutral and apply parking brake
- secure vehicle with wheel chocks to prevent rolling
- raise left front of vehicle at proper lift point until wheel turns freely
- place jack stand under vehicle for safety
- slowly rotate wheel
  - reading on **US 1119** must vary between 0.0 ohm and infinity

If specified value is not obtained,

- repair wiring according to current flow diagram **OR**
- replace defective speed sensor

Speed sensor, checking (vehicles with auto trans.)



Note

Sensor is located on left side of transmission near drive shaft flange.

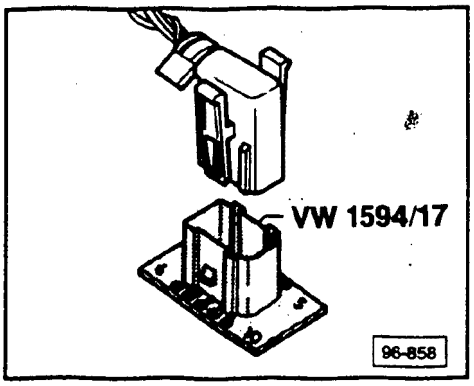
- remove instrument cluster
- remove 26-point connector (blue) from instrument cluster and insert in test adaptor **VW 1594/16**
- set multimeter **US 1119** to 20 V range
- connect red test lead of **US 1119** to terminal **16** and black test lead to terminal **20**
- switch ignition **ON**
- roll vehicle forwards and backwards approximately 4 feet
  - voltage must vary between 0 and 12 volts (pulsing DC voltage)

If not **OK**

- check for break in wiring using wiring diagram

OR

- replace speed sensor



Fuel consumption signal from fuel injection control unit, checking

- remove instrument cluster
- remove 10-point connector (black) from instrument cluster and insert in **VW 1594/17**
- connect **US 1119** set to 2 V range between terminal **10** and engine ground
- start engine and let idle
- raise and lower idle speed between 1000 and 4000 RPM
  - must be 0.3 V-0.8 V (depending on RPM)

If the specified value is **NOT** obtained,

- repair open wire between fuel injection control unit and 10-point connector for Board Computer according to wiring diagram

If the specified value is obtained but there is no fuel consumption display,

- replace Board Computer module

THIS FRAME INTENTIONALLY LEFT

BLANK

Signal Reception

Audi 80/90 models are equipped with two window antennas.

AM radio signals are received only by the antenna mounted in the rear window.

FM radio signals are received by both the front windshield antenna and the rear window antenna. The radio tunes in to the FM signal that is the strongest.

If radio reception disturbances occur during radio operation,

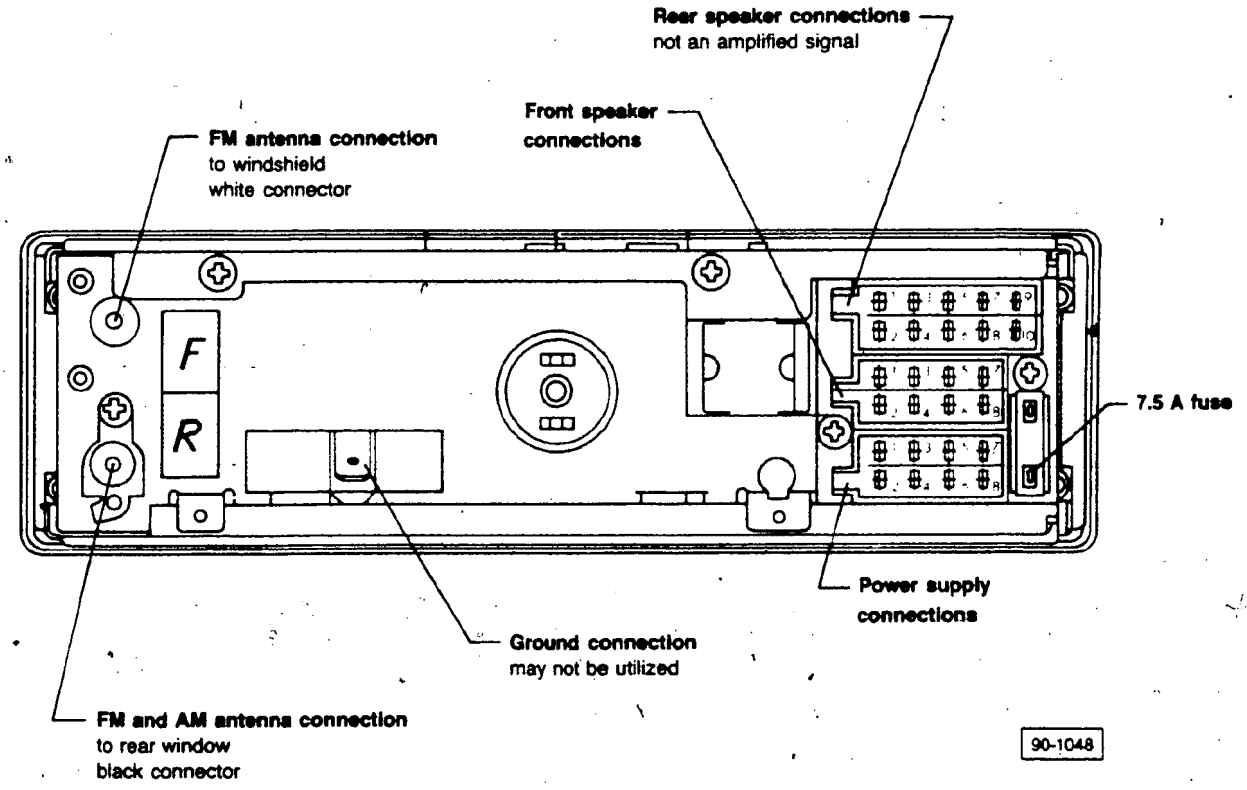
- remove radio from center console
- check that the 7.5 A fuse in the back of the radio is **OK**
- check that all wires are properly connected, 91.23

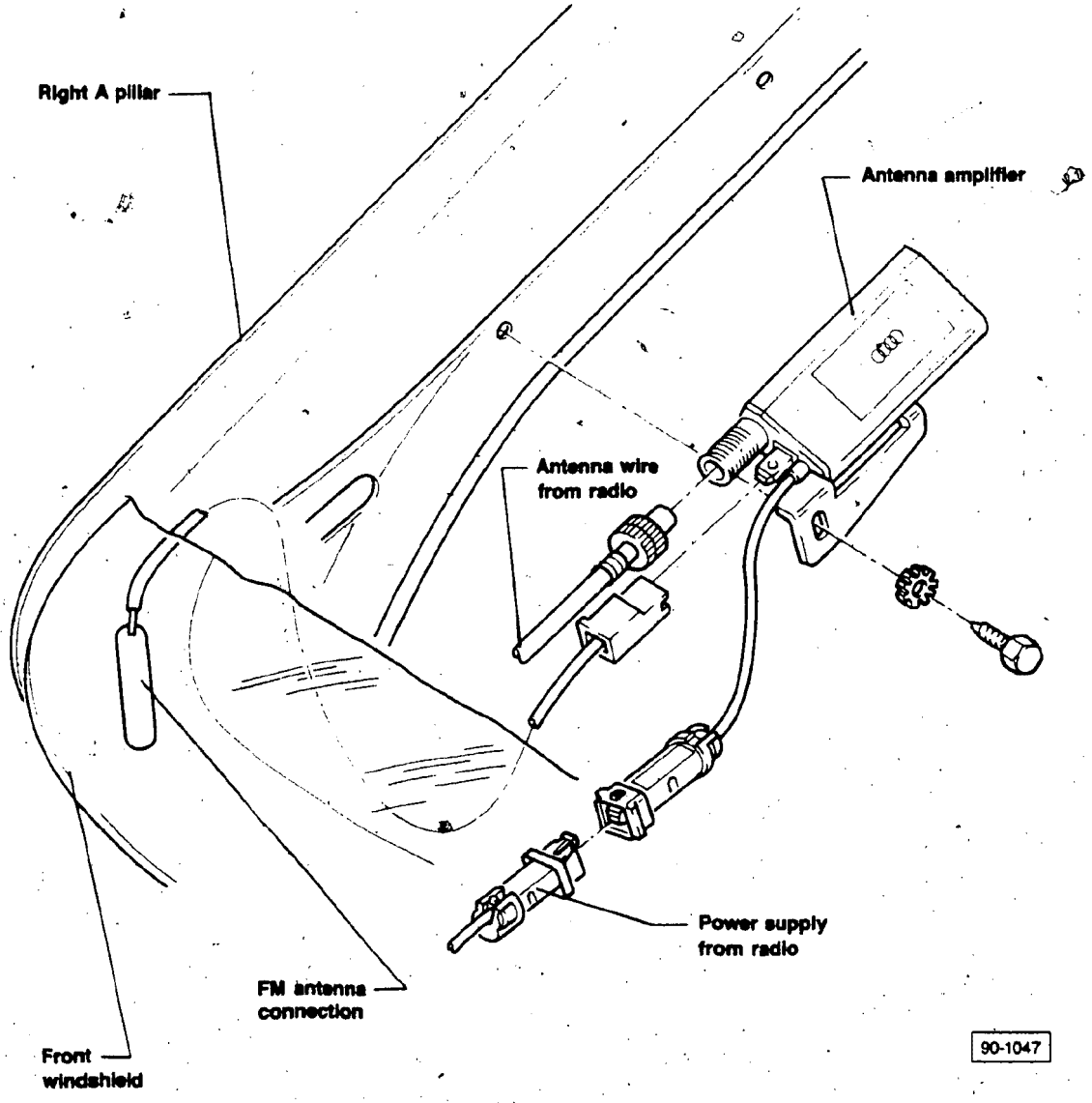
If there is no AM reception,

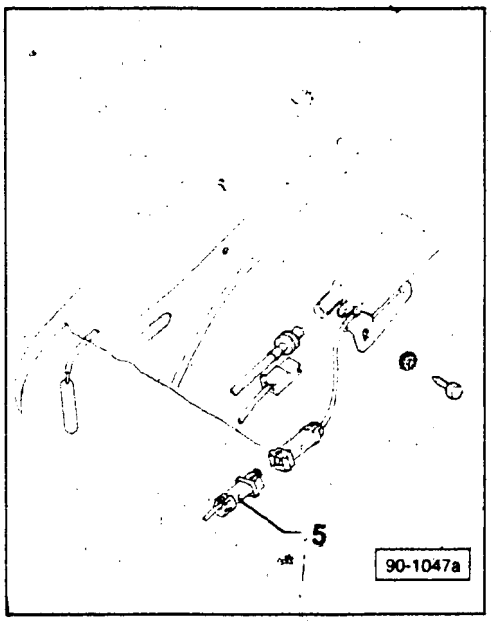
- check rear antenna amplifier, 91.27

If there is no AM or FM reception,

- check front antenna amplifier, 91.25
- check rear antenna amplifier, 91.27


Rear speaker connections
not an amplified signal
Front speaker
connections
FM antenna connection
to windshield
white connector
F
R
7.5 A fuse
Power supply
connections
Ground connection
may not be utilized
FM and AM antenna connection
to rear window
black connector
90-1048


Right A pillar
Antenna amplifier
Antenna wire from radio
Power supply from radio
FM antenna connection
Front windshield
90-1047



Front antenna, checking

Test requirements

- battery **OK**

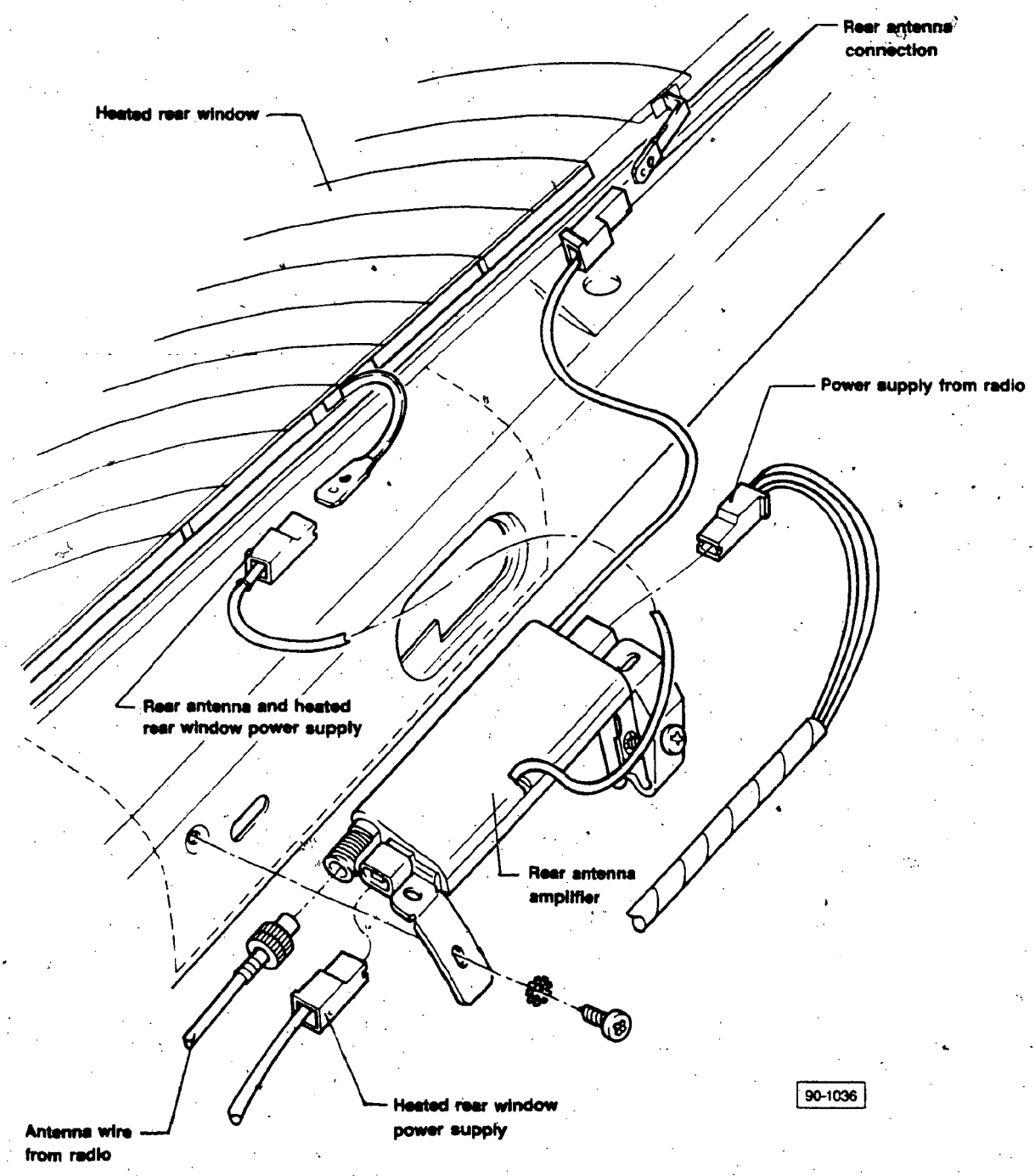
- remove right **A** pillar cover
- remove connector **5**
- connect voltmeter between connector **5** and ground
- switch radio **ON**
  - approximately battery voltage

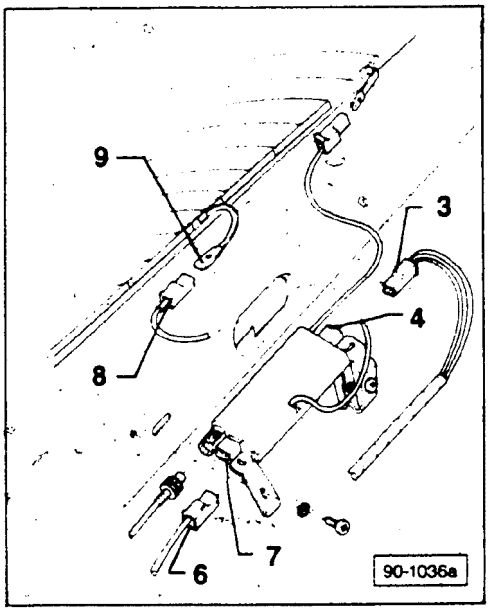
If **NO**,

- repair break in wiring according to current flow diagram

If specified value is obtained,

- replace antenna amplifier


Rear antenna connection
Heated rear window
Power supply from radio
Rear antenna and heated rear window power supply
Rear antenna amplifier
Heated rear window power supply
Antenna wire from radio
90-1036



Rear antenna, checking

Check these first:
- battery **OK**
- fuse **S16 OK**

- remove right and left **D** pillar trim panels
- check heated rear window ground connection for tightness

- remove connector **3**
- connect voltmeter between connector **3** and ground
- switch radio **ON**
  - approximately battery voltage

If **NO**
- repair break in wiring according to current flow diagram

With connector **3** still removed and ignition **ON**,
- measure current between connector **3** and rear antenna amplifier at **4**
  - 30-50 mA

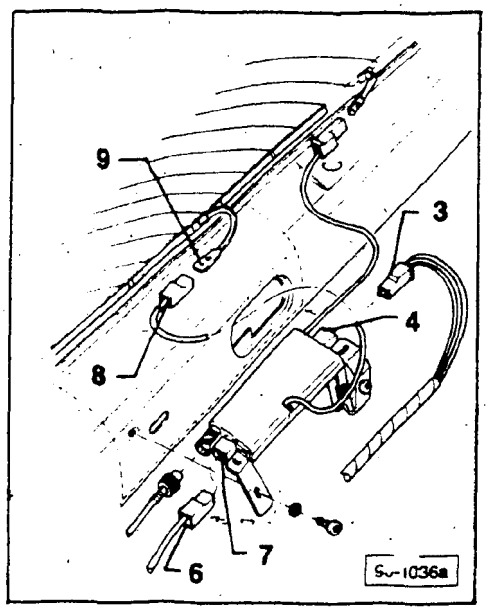
If **NO**
- replace rear antenna amplifier

- remove connector **6** from antenna amplifier
- connect voltmeter between connector **6** and ground
- switch ignition **ON**
- switch heated rear window **ON**
  - approximately battery voltage

If **NO**
- repair break in wiring according to current flow diagram

With connector **6** still removed and ignition **ON**,
- measure current between connector **6** and rear antenna amplifier at **7**
  - 13.0-13.5 A

If **NO**
- repair break in wiring according to current flow diagram or check rear window heater elements



- remove connector **8** from heated rear window
- connect voltmeter between connector **8** and ground
- switch ignition **ON**
- switch heated rear window **ON**
  - approximately battery voltage

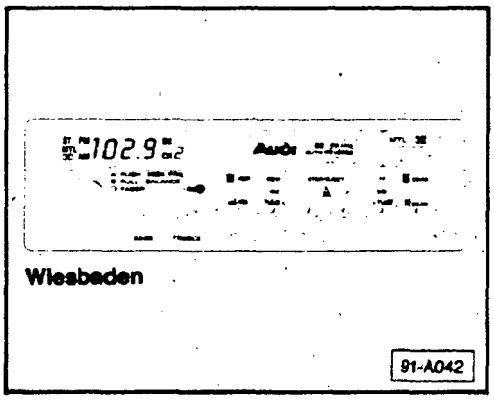
If **NO**,
- repair break in wiring according to current flow diagram

If specified value is obtained,
- replace rear antenna amplifier

With connector **8** still removed and ignition **ON**,
- measure current between connector **8** and rear window heat elements at **9**
  - 13.0-13.5 A

If **NO**,
- repair break in wiring according to current flow diagram **OR** check rear window heater elements

Wiesbaden fixed coded radio



Overview

As of model year 1990, Wiesbaden radios are assigned a fixed four digit security code from the factory. Unlike previous coded radios, **the security code cannot be changed.**

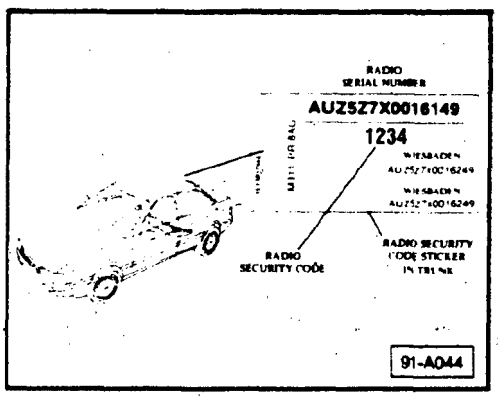
The fixed coded radios have been implemented gradually and can be identified by the part number. A part number label is attached to the radio chassis.

Wiesbaden — Part No. **893 035 180A**

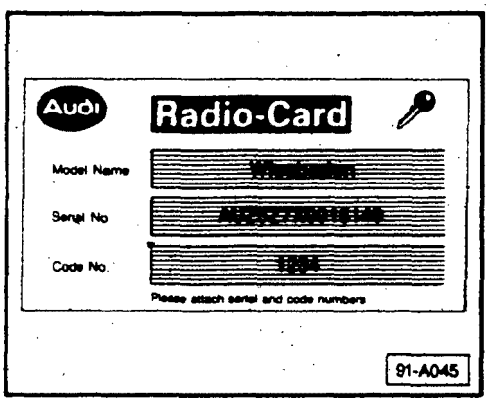
CAUTION

Part numbers are for reference only. Always check with your Parts Department for latest information.

The radios are not coded at the factory. To activate the theft protection, the radio must be coded during the Pre-Delivery Inspection.



The security code and serial number of the radio are printed on a removable sticker located in the trunk near the vehicle identification sticker.

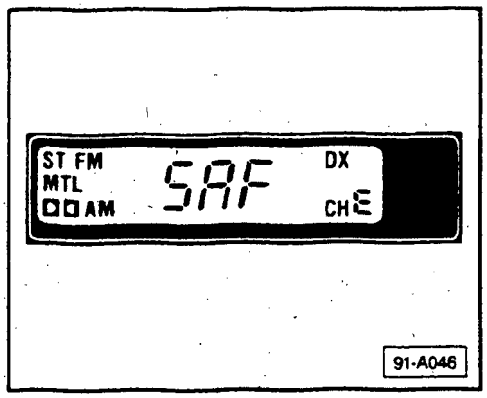


Coding a new or remanufactured radio

- remove radio security code/serial number sticker from trunk and attach to radio card in operating instructions manual

CAUTION

DO NOT keep the security code or radio card with the vehicle. Always instruct customers to detach radio card from operating instructions manual and keep in a safe place.



Note

The security code/serial number sticker for remanufactured replacement radios comes in the box with the new radio. Place the new sticker over the old sticker on the radio card.

- switch radio **ON**
  - radio plays and radio station frequency is displayed
- push and hold **AM/FM** and **SCAN** buttons
  - radio display changes to **CODE** and then **1000**
- release **AM/FM** and **SCAN** buttons
  - **1000** will remain on display
- enter radio's security code using first four program station buttons
  - security code will appear on display
- push and hold **AM/FM** and **SCAN** buttons once again until display changes to **SAFE**

Note

A new or remanufactured radio will only accept its factory assigned security code. If an incorrect code is entered, the radio display will not change to **SAFE**.

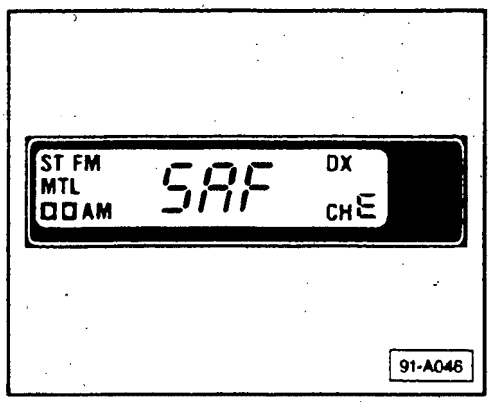
- release **AM/FM** and **SCAN** buttons
  - radio display changes to a radio station frequency
  - radio is now coded

Reactivating radio after reconnecting power

After disconnecting power (fuse, battery, etc.), the radio will lock up electronically.

To reactivate:

- obtain radio's security code
  - located on radio card
- switch radio **ON**
  - radio will not play
  - radio display shows **SAFE**



- push and hold **AM/FM** and **SCAN** buttons
  - display changes to **1000**
- release **AM/FM** and **SCAN** buttons
  - **1000** remains on display

Note

If the **AM/FM** and **SCAN** buttons are held down too long or pushed again, the radio will misinterpret the **1000** as an attempt at coding and one incorrect attempt will be logged.

- enter radio's security code using first four program station buttons
  - security code will appear on display
- push and hold **AM/FM** and **SCAN** buttons once again until display changes to **SAFE**
- release **AM/FM** and **SCAN** buttons
  - radio display changes to a radio station frequency
  - radio is now coded and plays

Unlocking an electronically locked radio

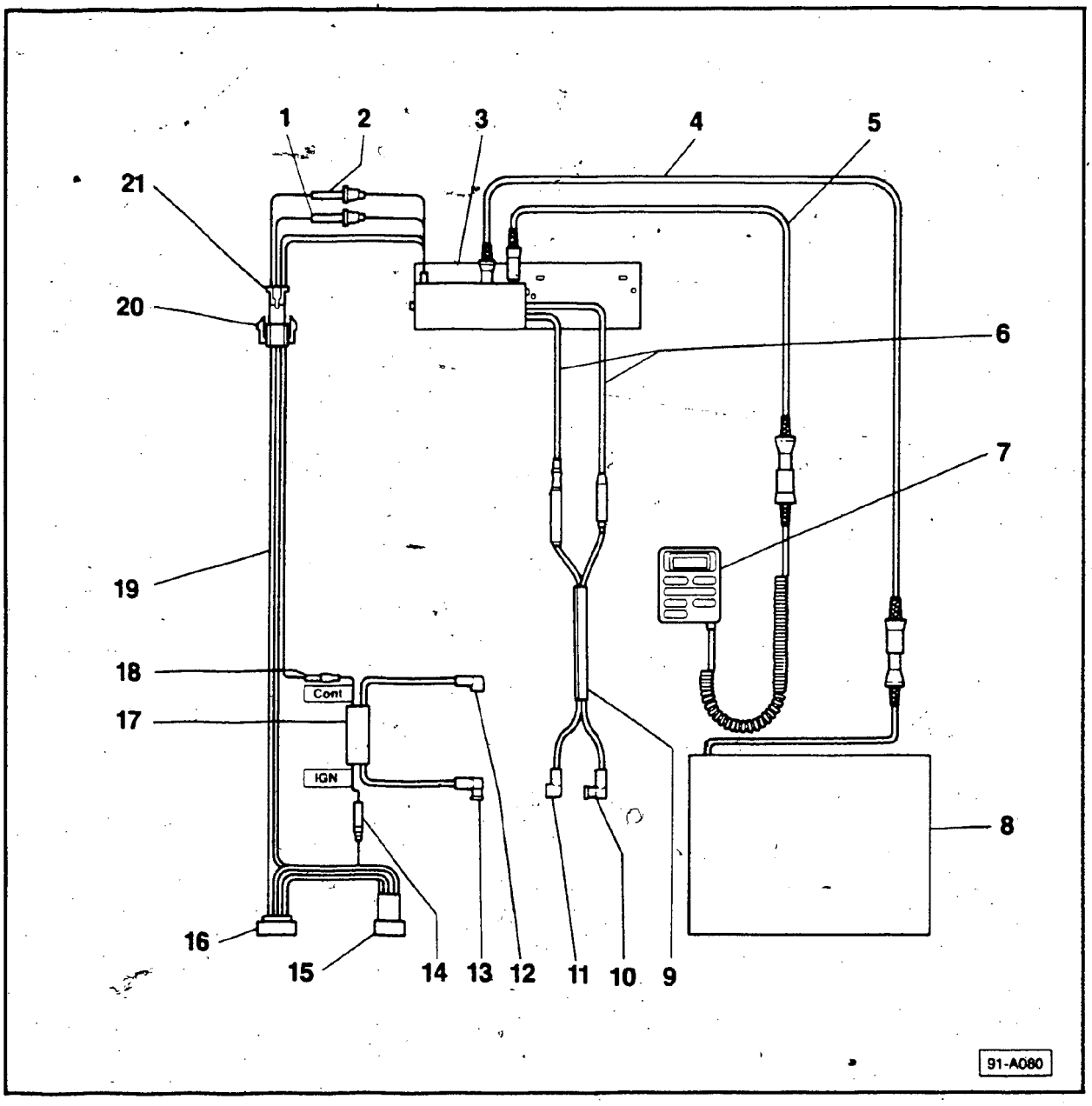
After two incorrect attempts at entering the security code, the radio will lock-up electronically. The display shows **SAFE** and will not change.

To unlock:

- leave radio switched **ON** for approximately one hour
- after one hour, reactivate (code) radio as it would be after a power interruption

Note

The radio will never permanently lock-up no matter how many incorrect coding attempts are made. The reactivation procedure can be repeated indefinitely.



Note

For complete wiring information, see Wiring Diagram.

1 — Fuse, 3A

2 — Fuse, 1A

3 — CD changer controller
installed on driver's side knee bar

4 — CD changer unit cable
DIN, blue

5 — CD remote control cable
DIN, black

6 — Antenna cables

7 — CD remote control

8 — CD changer unit
- six disc capacity
- installed in trunk

9 — Antenna adaptor cable (assembly)

10 — Rear antenna connector
to rear antenna lead

11 — Rear antenna connector
connects to radio

12 — Front antenna connector
connects to radio

13 — **Front antenna connector**
to front antenna lead

14 — **Single-point bullet connector**

15 — **Radio connector**
connects to radio connector on car

16 — **Radio connector**
connects to radio

17 — **Antenna diversity switch**
located behind center console, near radio

18 — **Single-point bullet connector**

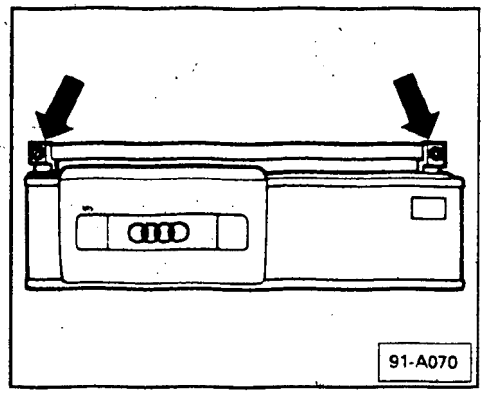
19 — **Radio interface wiring harness**

20 — **Four-point connector, male**

21 — **Four-point connector, female**

CD changer components, removing/installing

CD changer unit, removing/installing



- disconnect eight-point DIN cable connection from rear of CD changer
- remove CD changer mounting screws (**arrows**)
- slide CD changer unit off trunk support bracket

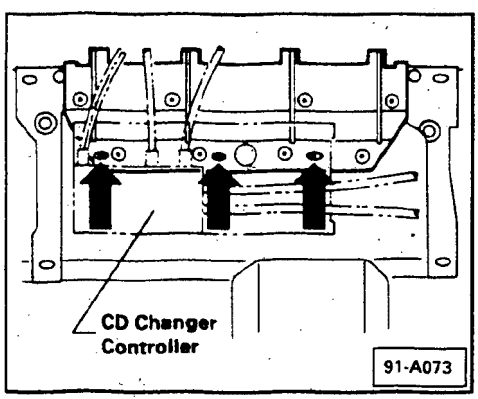
- install in reverse order of removal
- ensure brackets on CD changer unit properly engage trunk support bracket

CD changer controller, removing/installing

- obtain radio security code
- disconnect battery ground strap
- disconnect airbag power supply connector
- remove left knee bar securing screws and carefully lower knee bar

Note

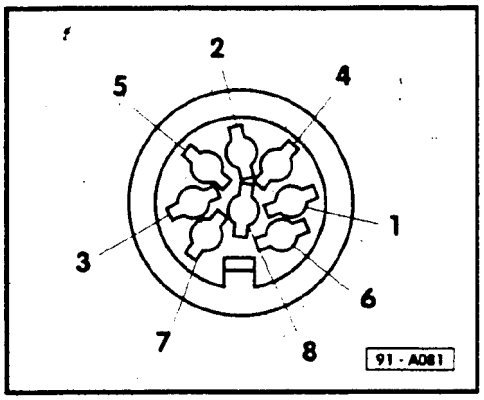
The frequency and loudness switches on the CD changer controller can be changed without completely removing the controller.



- remove all cable and wire connections from CD changer controller
- remove CD changer controller securing screws (**arrows**)
- remove CD changer controller

- install in reverse order of removal

CD changer electrical connectors, terminal identification

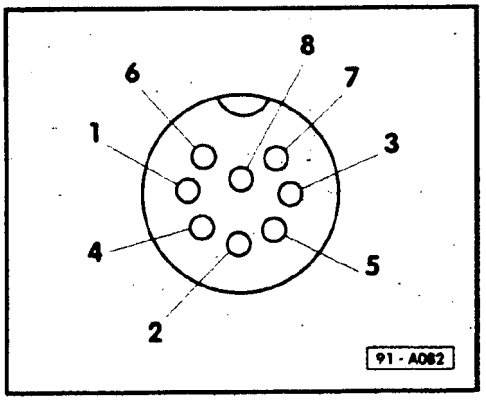


CD remote control cable (DIN, black), terminal identification

Note

Illustration at left shows connector end (female) that plugs into CD changer controller. Female connector on CD remote control is also the same.

1– data bus
2– not connected
3– data bus ground
4– control signal
5– not connected
6– plus (+), terminal **30**
7– plus (+), terminal **15**
8– ground (–), terminal **31**

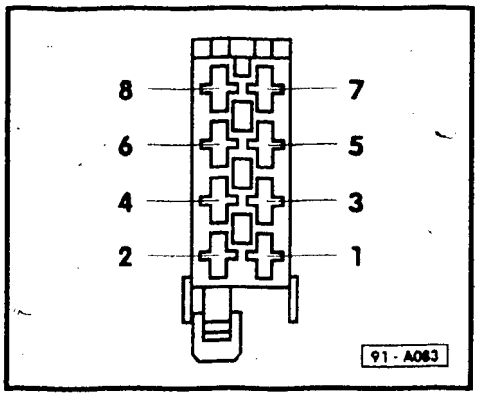


CD changer unit cable (DIN, blue), terminal identification

Note

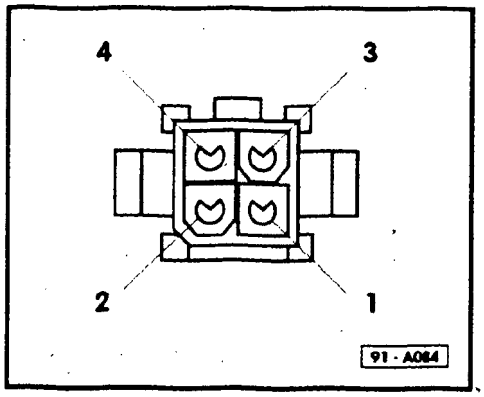
Illustration at left shows connector end (male) that plugs into CD changer controller. Male connector on CD changer unit is also the same.

1– data bus
2– signal ground
3– data bus ground
4– right channel
5– left channel
6– plus (+), terminal **30**
7– plus (+), terminal **15**
8– ground (–), terminal **31**



Eight-point radio connector (female, gray), terminal identification

1 – not connected
2 – ground
3 – plus (+), radio **ON**
4 – not connected
5 – plus (+), radio **ON**
6 – plus (+), terminal **58b**
7 – plus (+), terminal **30**
8 – ground (–), terminal **31**

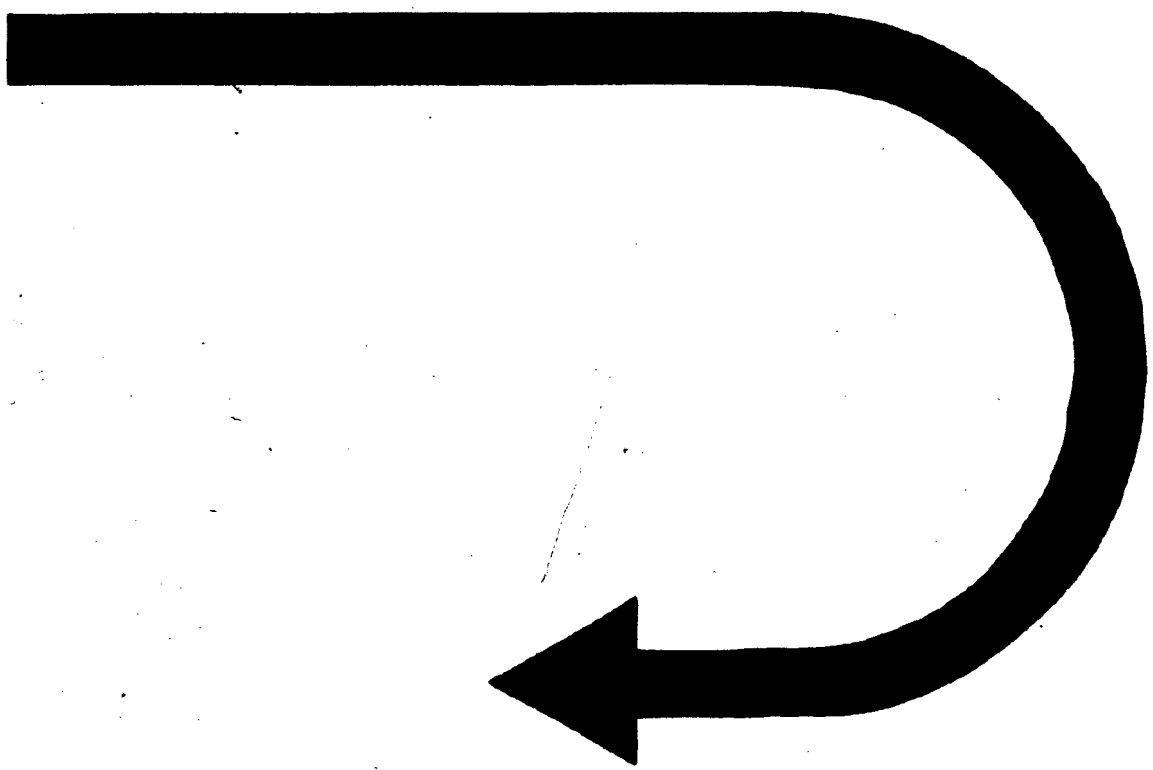


Four-point connector (male, on radio interface wiring harness), terminal identification

1 – plus (+), terminal **30**
2 – plus (+), terminal **15**
3 – ground (–), terminal **31**
4 – control signal

CONTINUED IN THE

BEGINNING OF NEXT ROW



CD changer system, self-diagnosis

The CD changer is equipped with a self-diagnostic function. If the CD remote displays one of the following error codes, follow the service solution indicated.

Error code	Cause of problem	Service solution
E-01	Disc change malfunction	■ press magazine eject button on CD changer and remove magazine ■ reinsert magazine
E-02	Disc is in player mechanism	■ press magazine eject button on CD changer and remove magazine ■ remove any CD's from magazine ■ reinsert empty magazine
E-03 **E-04** **E-05**	Disc change malfunction	■ obtain radio security code ■ disconnect battery ground strap ■ reconnect battery and reactivate (code) radio ■ switch CD **ON** and recheck display If error code remains, ■ replace CD changer **Note** After switching CD changer **ON**, one of the above codes may be displayed for a few seconds and then disappear. This is normal and the CD changer unit is **OK**.
E-06	Disc change malfunction	■ press magazine eject button on CD changer and remove magazine ■ reinsert magazine ■ check display for error code If error code remains, ■ replace CD changer If magazine does not eject, ■ refer to CD magazine emergency eject procedure, see Index If magazine still does not eject, ■ replace CD changer and magazine

Error code	Cause of problem	Service solution
E-07	Magazine ejection impossible	■ press magazine eject button on CD changer If magazine does not eject, ■ refer to CD magazine emergency eject procedure, see Index If magazine still does not eject, ■ replace CD changer and magazine
E-30	High temperature	■ temperature of CD changer has exceeded 50°C (122°F), CD operation has stopped ■ CD operation will resume when temperature drops to normal range Once CD changer has cooled off, ■ check CD operation
E EE	No communication (data connection) between radio and CD changer	■ refer to troubleshooting section, see Index
— ——	No CD magazine in CD changer	■ insert CD magazine into CD changer
2 ——	No CD in second slot of CD magazine or CD installed upside down in second slot	■ insert CD into second slot of CD magazine or turn CD over

Note

A similar display will appear if a CD disc is missing from, or is upside down in, another slot. The number displayed will correspond with the slot. If a slot is empty, or if a disc is upside down, the CD changer will automatically proceed to the next available disc.

0 00	No CD is in magazine; CD magazine is empty	■ insert CD's into magazine

Note

This display will also appear if all the discs in the CD magazine are installed upside down.

CD changer system, troubleshooting

WARNING

Compact disc players contain an optical laser. Any internal adjustments or repairs by an unauthorized person may result in injury. Using optical instruments with the CD changer may cause eye injury.

CAUTION

Do **not** attempt to play cracked, warped or otherwise damaged discs. Playing a damaged disc could severely damage the changer.

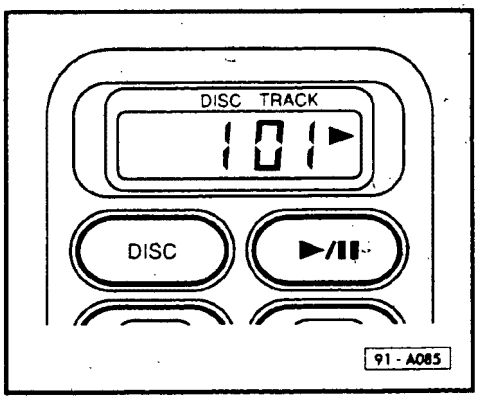
Note

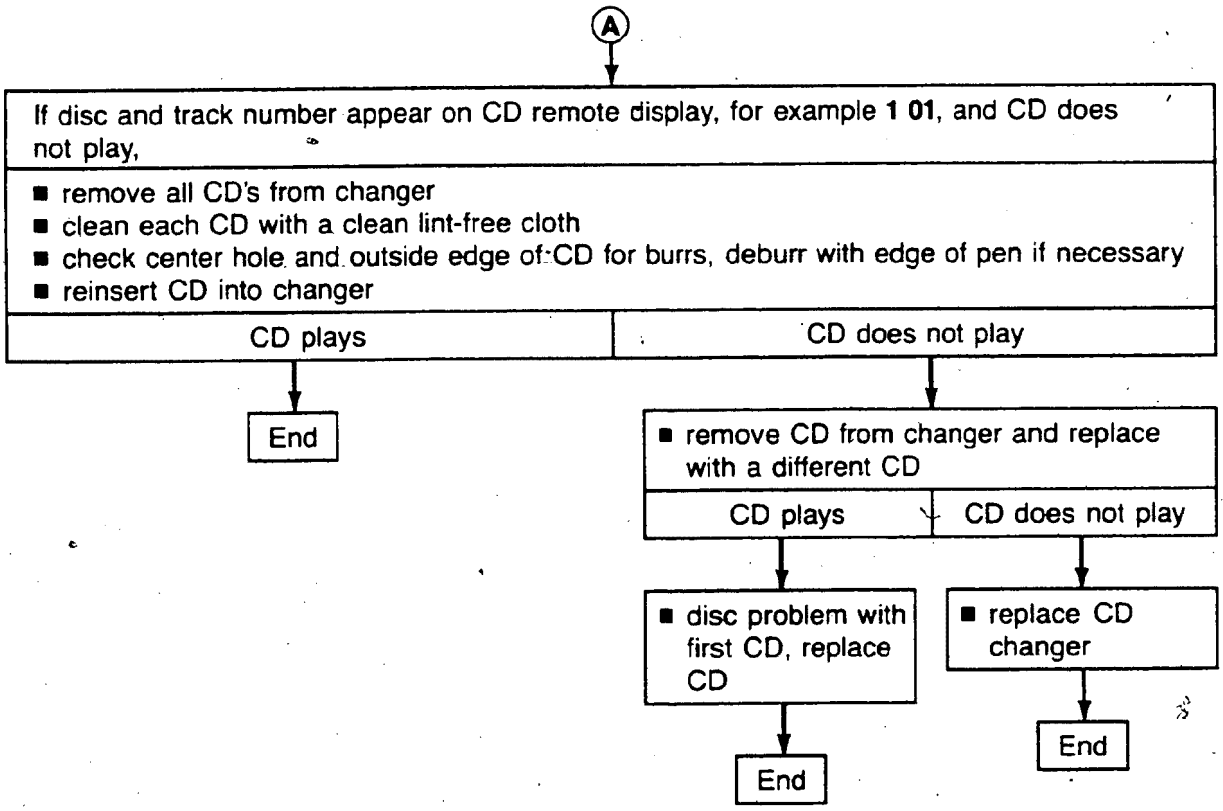
The CD changer may not operate properly because of condensation collected on the discs or optical parts (lens or prism). This may happen during cold winter weather when the inside of the car starts to warm up. Dry a misted disc with a clean, dry, lintfree cloth. Wait approximately one hour for optical parts to dry.

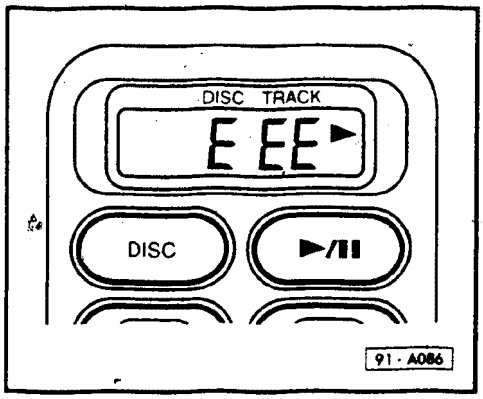
CD does not play

- switch radio and CD changer **ON**
- compare display on remote control with the following chart

Display on CD remote control	Troubleshooting reference
1 01	Go to Ⓐ, next page
E EE	Go to Ⓑ, two pages following
No display (blank)	Go to Ⓒ, two pages following
E-01 to **E-07**	See self diagnostic chart preceding this section
E-30	Go to Ⓓ, three pages following
0 00	Go to Ⓔ, three pages following
— ——	Go to Ⓕ, three pages following


DISC TRACK
101
DISC
►/II
91-A085


A
If disc and track number appear on CD remote display, for example 1 01, and CD does not play,
■ remove all CD's from changer
■ clean each CD with a clean lint-free cloth
■ check center hole and outside edge of CD for burrs, deburr with edge of pen if necessary
■ reinsert CD into changer
CD plays
CD does not play
End
■ remove CD from changer and replace with a different CD
CD plays
CD does not play
■ disc problem with first CD, replace CD
■ replace CD changer
End
End



Ⓑ

If **E EE** appears on CD remote display, and CD does not play,

- check wiring (DIN cables) and connections between radio and CD changer for open circuits according to wiring diagram, repair as necessary

All wires and connections check **OK**, display does not change	Open in wire or connection found and repaired
■ replace CD changer End	Go to Ⓖ, two pages following

Ⓒ

If CD remote display is blank and CD does not play,

- check fuses and power supply to CD changer

If **OK**

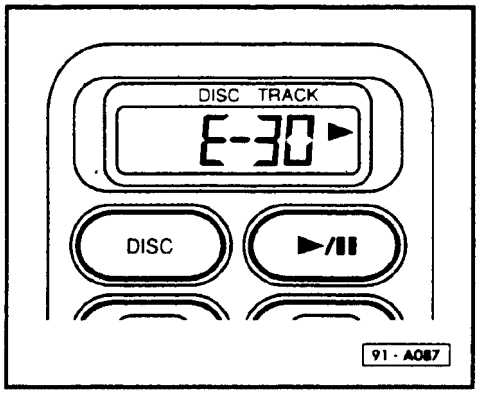
- check wiring (DIN cables) and connections between radio and CD changer for open circuits according to wiring diagram, repair as necessary

All wires and connections check **OK**, display does not change	Open in wire or connection found and repaired

■ replace CD remote control with a known good unit
- CD remote must display disc and track number, for example **1 01**, and CD must play

YES	**NO**
■ replace CD remote control End	■ reinstall first CD remote control ■ replace CD changer End

Go to Ⓖ, two pages following



Ⓓ

If **E-30** appears on CD remote display and CD does not play,
- temperature of CD changer has exceeded 50°C (122°F), CD operation has stopped
- CD operation will resume when temperature drops to normal range

Once CD changer has cooled off,
- check CD operation

Go to Ⓖ, next page

Ⓔ

If **0 00** appears on CD remote display, and CD does not play,

CD magazine is empty or all discs in CD magazine are installed upside down
- insert discs into CD magazine or turn all CD's over
- insert CD magazine into CD changer

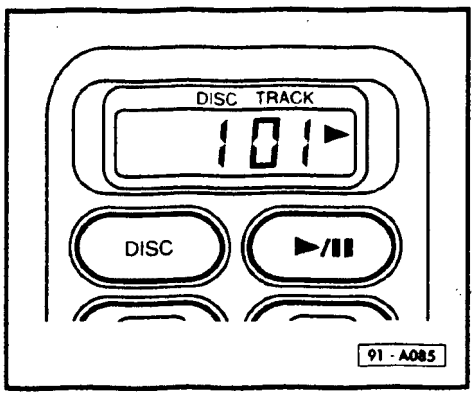
Go to Ⓖ, next page

Ⓕ

If — —— (dashes) appear on CD remote display and CD does not play,

CD magazine not installed in CD changer
- insert discs into CD magazine
- insert CD magazine into CD changer

Go to Ⓖ, next page



(G)

- switch radio and CD changer **ON**
  - disc and track number, for example **1 01**, must be displayed on CD remote

YES

- CD must play

YES

End

NO

- replace CD with a known good disc
  - CD must play

YES

End

NO

- replace CD changer

End

NO

If another error code is displayed on the CD remote (different from the original code),

- refer to beginning of this section and continue with troubleshooting

If original error code has not changed,

- replace CD changer

If CD remote display is blank,

- replace CD remote control with a known good unit
  - CD remote must display disc and track number, for example **1 01**, and CD must play

YES

- replace CD remote control

End

NO

- reinstall first CD remote control
- replace CD changer

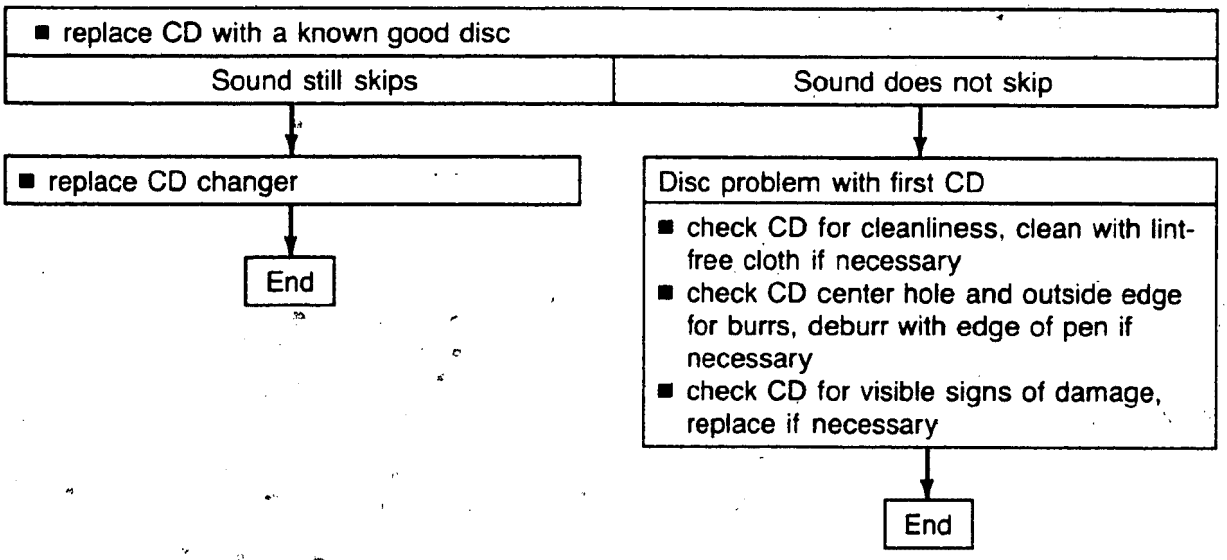
End

Disc problem with first CD

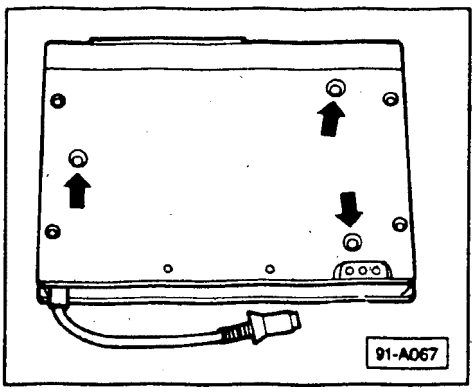
- check CD for cleanliness, clean with lint free cloth if necessary
- check CD center hole and outside edge for burrs, deburr with edge of pen if necessary
- check CD for visible signs of damage, replace if necessary

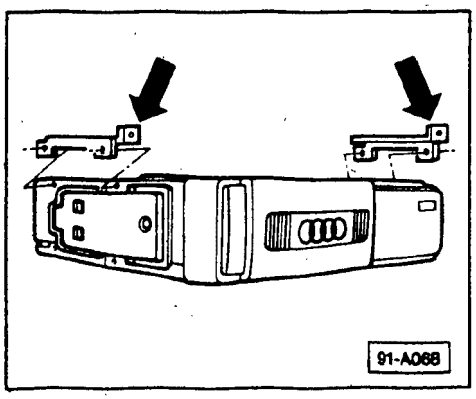
End

Sound skips, vehicle stopped



Sound skips, vehicle moving





- ensure shipping screws (**arrows**) are removed from bottom of CD changer
- check CD changer mounting brackets (**arrows**) for looseness and tighten if necessary
- drive vehicle while playing CD

Sound skip varies with road conditions or driving mode	Sound skip remains constant regardless of road conditions or driving mode

- replace CD with a known good disc

Sound still skips	Sound does not skip

Note

High frequency shock caused by rough roads or roads hazards can cause a normally operating CD changer to skip.

If excessive skipping persists,
- replace CD changer

End

- replace CD changer

End

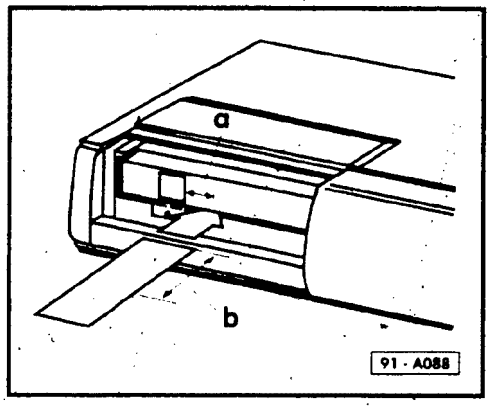
- replace CD with a known good disc

Sound still skips	Sound does not skip

Disc problem with first CD

- check CD for cleanliness, clean with lint-free cloth if necessary
- check CD center hole and outside edge for burrs, deburr with edge of pen if necessary
- check CD for visible signs of damage, replace if necessary

End



CD magazine will not eject

Use the following procedure if CD magazine will not eject.

CD magazine, emergency ejecting

- slide open dust cover on CD changer
- fold a business card vertically in half
- insert business card between CD magazine and CD changer mechanism to release lock lever
  - **a** = approx. 20 mm (3/4 in.)
  - **b** = approx. 40 mm (1 1/2 in.)
  - CD magazine will eject when the folded business card is inserted approximately 40 mm (1 1/2 in.)
- remove CD magazine

CD sound level, too high or too low

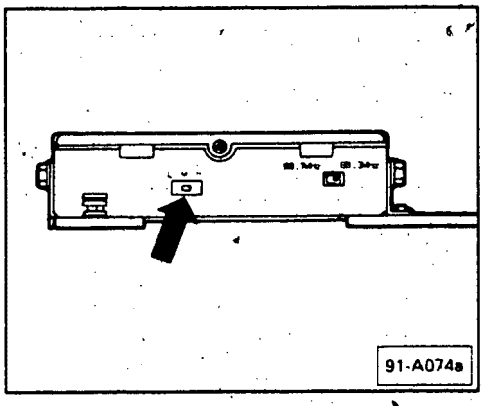
If CD sound level is too high or low relative to radio/tape sound level, adjust CD output level (loudness) with loudness switch on the CD changer controller.

CD loudness switch, changing

- obtain radio security code
- disconnect battery ground strap
- disconnect airbag power supply connector
- remove left knee bar securing screws and carefully lower knee bar
  - CD changer controller mounted to knee bar

Note

The CD changer loudness switch is set to "M" (middle) at the factory.



- adjust CD changer loudness switch (**arrow**) as follows:

If CD sound level is too high (loud) relative to radio/tape play or if CD sound level becomes distorted at high volume level,

- adjust switch to "L" (low) position

If CD sound level is too low (soft) relative to radio/tape play,

- adjust switch to "H" (high) position

- reinstall left knee bar
- reconnect airbag power supply connector
- reconnect battery ground strap
- reactivate (code) radio
- check CD changer operation

Static when listening to CD

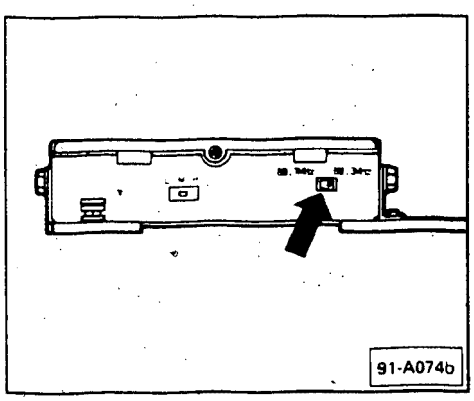
A strong station broadcasting at 88.3MHz in the customer's area can cause static while listening to the CD. If static is heard, change the CD frequency switch on the CD changer controller to 88.7MHz.

CD frequency switch, changing

Note

The CD changer frequency switch is set to 88.3MHz at the factory.

- obtain radio security code
- disconnect battery ground strap
- disconnect airbag power supply connector
- remove left knee bar securing screws and carefully lower knee bar
  - CD changer controller mounted to knee bar



- adjust CD changer frequency switch (**arrow**) to 88.7MHz

- reinstall left knee bar
- reconnect airbag power supply connector
- reconnect battery ground strap
- reactivate (code) radio
- check CD changer operation