Instrument cluster (from M.Y. 2000)

WARNING!

Disconnect battery Ground (GND) cable before performing work on the electrical system.

Notes:

- *Obtain radio code before disconnecting battery.*
- *Be sure to activate vehicle features (radio, clock, electric window regulator, engine) according to owner's manual when the battery is re-connected.*

Malfunction message "dEF" on trip odometer display

If the control module in the instrument cluster detects a malfunction in its permanent memory, the letters "dEF" will appear on the trip odometer display.

- If "dEF" is indicated on display, replace instrument cluster ⇒ Page 90-27 .

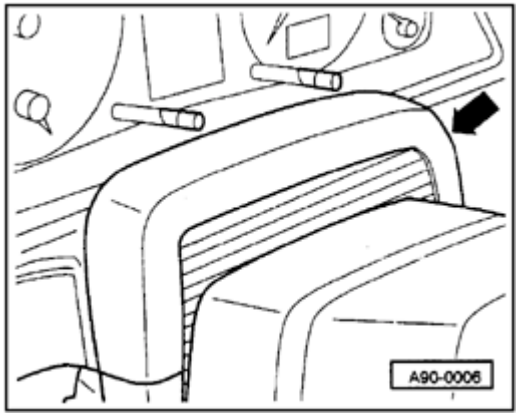
Instrument cluster, removing and installing

Notes:

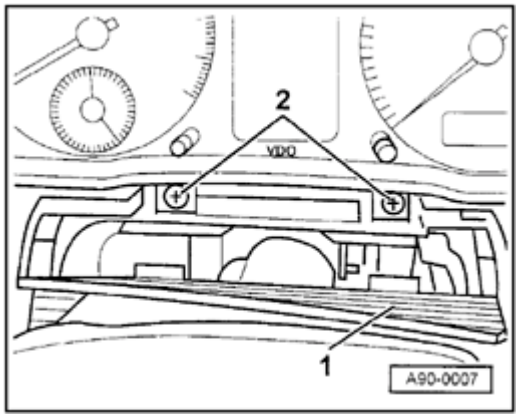
- *Do not disassemble instrument cluster.*
- *Removing the steering wheel is not required. For clarity, the steering wheel does not appear in the following illustrations.*
- *Check DTC memory before removing the instrument cluster* ⇒ *Page 01-91* .
- *Also check and write down values of the service display and the odometer reading via the VAG1551 scan tool* ⇒ *Page 01-133* .

Removing

- Using the adjustment mechanism, move steering wheel fully out and downward.



- Tilt upper cover forward an remove upward.



- Flip trim -1- toward front.
- Remove both Phillips-head screws -2-.
- Pull out instrument cluster toward front.
- Cut cable ties at rear of instrument cluster.
- Unclip securing latches of connectors and disconnect connectors.

Installing

- Connect electrical harness connectors and affix wiring harness to rear of instrument cluster with cable ties.

- To install, perform the steps described for removal in reverse order.

- Perform a function test after installation.

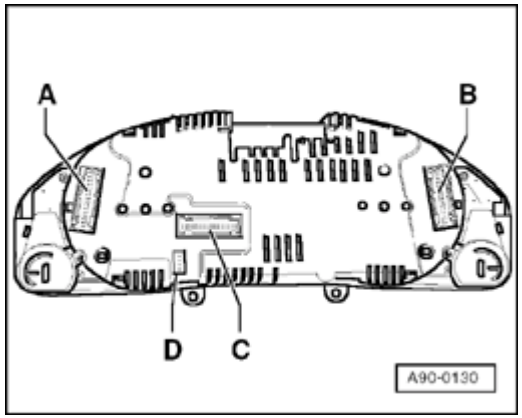
- If function test is OK

  observe notes for the replacement of the instrument cluster ⇒ Page 01-191 .

Instrument cluster multi-pin connectors

Note:

On the Audi A4/S4, all control lamps are equipped with LEDs which means that if one control lamp malfunctions the instrument cluster must be replaced.



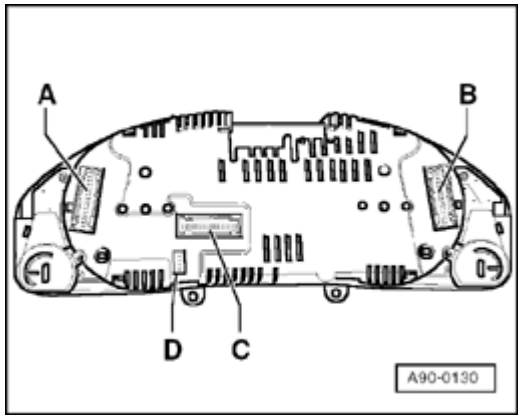
Midline-instrument cluster

A - Green 32-pin multi-pin connector

B - Blue 32-pin multi-pin connector

C - Discontinued

D - Black 4-pin multi-pin connector for remote clock (not connected in US)



Highline-instrument cluster

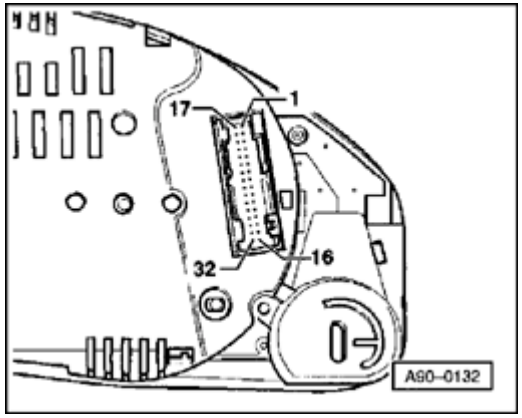
A - Green 32-pin multi-pin connector

B - Blue 32-pin multi-pin connector

C - Gray 32-pin multi-pin connector

D - Black 4-pin multi-pin connector for remote clock (not connected in US)

Instrument cluster, terminal assignments



Blue 32-pin multi-pin connector for basic functions

1 - Terminal 15

2 - Brake pad wear

3 - Tachometer output 1

4 - not occupied

5 - Tank sensor

6 - Tank warning OBD 2

7 - Terminal 31 (sensor Ground (GND))

8 - Coolant temperature

9 - Terminal 31 (load Ground (GND))

10 - Oil pressure 2 (high)

11 - RPM signal

12 - A/C shut-off

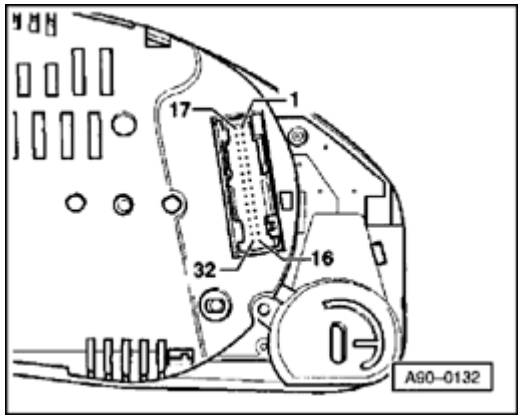
13 - E-Gas/glow plug control

14 - Level control

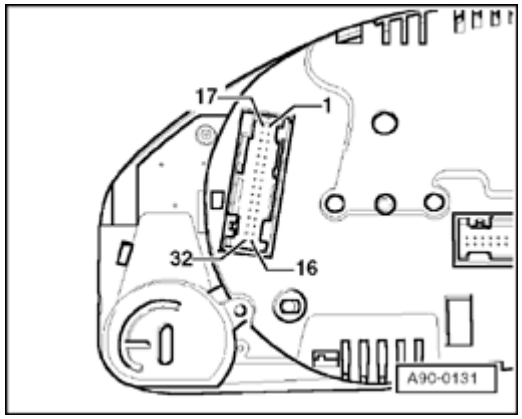
15 - Terminal 58d

16 - Trailer turn signal

90-33



17 - High beam
18 - Left turn signal
19 - not occupied
20 - Terminal 58s
21 - Driver door contact
22 - Low coolant
23 - Terminal 30
24 - Terminal 31 (load Ground (GND))
25 - Consumption signal
26 - Right parking light
27 - Left parking light
28 - Tachometer input
29 - Brake
30 - S-contact
31 - Tachometer output 2
32 - ESP/ASR



Green 32-pin multi-pin connector for auxiliary functions

1 - Door contact (all doors)

2 - Transponder 1

3 - not occupied

4 - not occupied

5 - W-wire

6 - Tailgate

7 - Right turn signal

8 - External buzzer

9 - External gong

10 - Airbag

11 - Stand-still time output

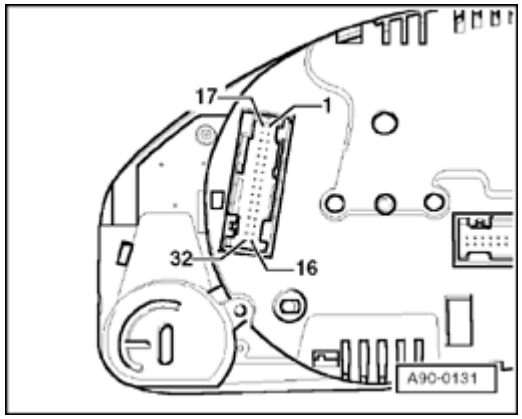
12 - Terminal 61

13 - Parking brake/BRAKE

14 - CHECK

15 - Oil level/oil temperature

16 - not occupied



17 - Transponder 2

18 - CAN high speed (powertrain) (high +)

19 - CAN high speed (powertrain) (low -)

20 - CAN high speed (powertrain) (screen)

21 - ABS

22 - CAN low speed (comfort) (high +)

23 - CAN low speed (comfort) (low -)

24 - CAN low speed (comfort) (screen)

25 - Engine lid

26 - not occupied

27 - Belt buckle

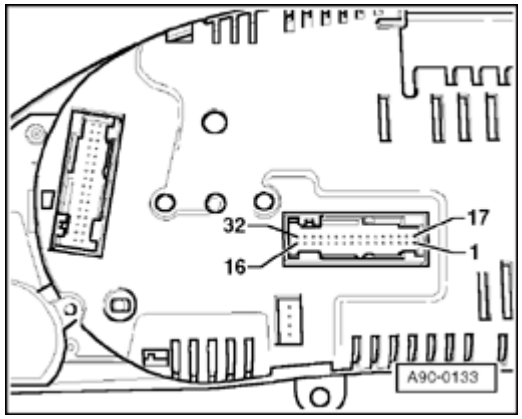
28 - K-wire

29 - Outside temperature -input

30 - not occupied

31 - Selector range display

32 - not occupied



Gray 32-pin multi-pin connector for multi-function display

1 - Menu selection switch (menu)

2 - Menu selection switch (out A)

3 - Menu selection switch (out B)

4 - Menu selection switch (Enter)

5 - CAN high speed display (high +)

6 - CAN high speed display (low -)

7 - CAN high speed display (screen)

8 - Passenger door contact

9 - Right rear door contact

10 - Left rear door contact

11 - Enable

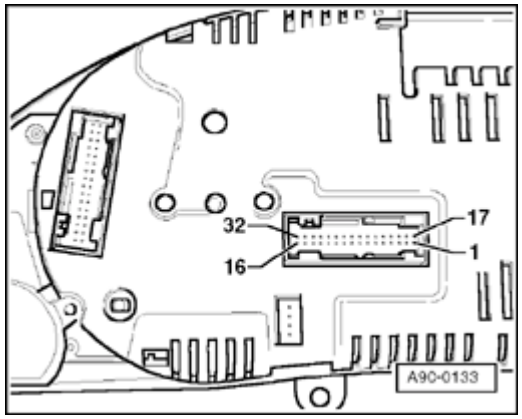
12 - Clock

13 - Data

14 - Brake light

15 - Windshield washer fluid level

16 - Rear lights/low beams



17 - Left board computer

18 - Right board computer

19 - Board computer, reset

20 - not occupied

21 - not occupied

22 - not occupied

23 - Button branch 1 navigation

24 - Button branch 2 navigation

25 - Button branch Telematic

26 - not occupied

27 - not occupied

28 - not occupied

29 - not occupied

30 - not occupied

31 - not occupied

32 - not occupied

Engine speed signal, checking

If a malfunction of the RPM display at tachometer is detected, signal at the tachometer must be checked.

- Connect VAS5051 tester or VAG1551 scan tool ⇒ Page 01-241 .

- Read Measuring Value Block ⇒ Page 01-114 .

- Select display group number 001 and perform a road test.

If the speed appears on the VAG1551 Scan Tool display but not via the speedometer in instrument cluster, the instrument cluster is faulty and must be replaced.

If no speed is indicated on the VAG1551 Scan Tool display either, the signal must be checked at multi-function connection at instrument cluster.

- Remove instrument cluster ⇒ Page 90-27 .

- Connect VAG1598 tester with VAG1598/25 adapter to the blue 32-pin connector.

- Perform an acoustic continuity check of the sensor and wire using the VAG1526 multimeter between terminal 28 and socket 9 (load Ground (GND))

Test

The beep signal of the resistance tester must switch on and off several times while the vehicle is rolled slightly forward and backward (approx. 1m)

If the test is not OK, the wire connection to speed sender must be checked.

- Check wire connection according to wiring diagram.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

If the wire connection is OK, the speed sender must be replaced.

Signal from sender for fuel gauge -G-, checking

If a malfunction of the sender for fuel gauge is detected at instrument cluster, check if the signal at the instrument cluster is OK.

- Connect VAS5051 tester or VAG1551 scan tool ⇒ Page 01-241 .

- Read Measuring Value Block ⇒ Page 01-114 .

- Select display group number 2.

If the fuel level appears on the VAG1551 scan tool display but not via the fuel gauge, the instrument cluster is faulty and must be replaced.

If no speed is indicated on the VAG1551 scan tool display either, the signal must be checked at multi-function connection at instrument cluster.

- Remove instrument cluster ⇒ Page 90-27 .

- Connect VAG1598 tester with VAG1598/25 adapter to the blue 32-pin connector.

90-41

- Measure resistance (sensor resistance) between terminal 5 and 7 using VAG1526 multimeter.

Specified values:

Fuel tank empty: approx. 280 Ohm (Front Wheel Drive/All Wheel Drive)

Fuel tank full: approx. 40 Ohm (Front Wheel Drive/All Wheel Drive)

- If the specified values are not reached, check wire connection between instrument cluster and the sender for fuel gauge -G- (Front Wheel Drive/All Wheel Drive) according to wiring diagram.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

- If there is neither an open circuit nor a short circuit, check the sender for fuel gauge -G- (Front Wheel Drive/All Wheel Drive)

- Sender for fuel gauge, checking

⇒ *Repair Manual, Fuel Supply System, Repair*

Group 20; sensor for fuel gauge, checking

- If the specified values are met, the malfunction is in the instrument cluster, meaning that the instrument cluster must be replaced ⇒ Page 90-27 .

Signal from Engine Coolant Temperature (ECT) sensor -G2-, checking

If a malfunction of the Engine Coolant Temperature (ECT) gauge is detected at the instrument cluster, check if the signal at the instrument cluster is OK.

- Connect VAS5051 tester or VAG1551 scan tool ⇒ Page 01-241 .

- Read Measuring Value Block ⇒ Page 01-114 .

- Select display group number 003.

If the Engine Coolant Temperature (ECT) appears on the VAG1551 scan tool display but not by the Engine Coolant Temperature (ECT) gauge, the instrument cluster is faulty and must be replaced.

If no Engine Coolant Temperature (ECT) is indicated on the VAG1551 scan tool display, the signal must be checked at multi-function connection at instrument cluster.

- Remove instrument cluster ⇒ Page 90-27 .

- Connect VAG1598 tester with VAG1598/25 adapter to the blue 32-pin connector.

90-43

- Measure resistance (sensor resistance) between terminal 8 and 7 using VAG1526 multimeter.

Specified values:

Coolant temperature 90 ° C: approx. 110 Ohm

Coolant temperature 120 ° C: approx. 50 Ohm

If the specified values are not reached, the wire connection to Engine Coolant Temperature (ECT) -G2- must be checked.

- Check wire connection according to wiring diagram.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

If the wire connection is OK, Engine Coolant Temperature (ECT) -G2- must be replaced.

Consumption signal, checking

Special tools and equipment

- VAG1526 multimeter
- VAG1598 test box with VAG1598/25 adapter
- VAG1594 connector test kit
- Test box for the individual Engine Control Module (ECM)

- Set display indicator of board computer to current consumption (1/100 km),
- Start engine and perform a road test.
- Observe consumption display in instrument cluster.

90-45

What appears in the consumption display?

1. constant 0.0 L/100 km

⇒ Possible short circuit to battery Ground (GND) in the signal wire.

- Switch ignition off.

- Connect corresponding test box to the Engine Control Module (ECM).

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24; additional signals, checking; consumption signal for board computer, checking*

- Remove instrument cluster ⇒ Page 90-27 and disconnect blue 32-pin connector from instrument cluster.

- Connect VAG1598 tester with VAG1598/25 adapter to the blue 32-pin connector.

- Connect (+) adapter lead to VAG1598/25 test box socket 25 using VAG1526 multimeter

- Connect (-) adapter lead to the corresponding test box of Engine Control Module (ECM) and the corresponding consumption signal socket of the Engine Control Module (ECM).

- Perform a resistance check.

Specification: Display < 2 Ohm

- Connect (+) adapter lead to to the corresponding test box of the Engine Control Module (ECM) using VAG1526 multimeter

- Connect (-) adapter lead to battery Ground (GND).

- Perform a resistance check.

Specification: Display > 9 M Ohm

- If the specified values are reached, the wire connection is OK.

2. constant 51 L/100 km

⇒Possible open circuit in the signal wire.

- Switch ignition off.

- Connect test box to Engine Control Module (ECM).

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24; additional signals, checking; consumption signal for board computer, checking*

- Remove instrument cluster ⇒ Page 90-27 and disconnect blue 32-pin connector from instrument cluster.

- Connect VAG1598 tester with VAG1598/25 adapter to the blue 32-pin connector.

- Connect (+) adapter lead to VAG1598/25 test box socket 25 using VAG1526 multimeter.

- Connect (-) adapter lead to the corresponding test box of Engine Control Module (ECM) and the corresponding consumption signal socket of

the Engine Control Module (ECM).

- Perform a resistance check.

Specification: Display < 2 Ohm

- Connect (+) adapter lead to to the corresponding test box of the Engine Control Module (ECM) using VAG1526 multimeter

- Connect (-) adapter lead to battery Ground (GND).

- Perform a resistance check.

Specification: Display > 9 M Ohm

- If the specified values are reached, the wire connection is OK.

3. The consumption display has no logical or fluctuating consumption value.

⇒ The consumption display deviates from the actual fuel consumption.

- Perform adaptation of consumption display ⇒ Page 01-140 .