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Technical Bulletin

Subject: **Wiring Harness, Coolant Contamination at Instrument Cluster**

Group: **97**

Number: **01-01**

Model(s): **New Golf, New Jetta**

1999 ▶ 2001

Date: **Apr. 30, 2001**

Condition

Coolant leaking from coolant reservoir bottle wiring connector contaminates the wiring harness.

Contamination can result in various malfunctions of the instrument cluster.

Service

If an instrument cluster exhibits a malfunction:

- Record Vehicle Mileage (odometer adaptation reading) (see Repair Manual).
- Print out any and all instrument cluster coding and adaptation values using the VAS 5051 for use after repairs are complete.
- Remove instrument cluster (see Repair Manual).
- Remove blue flat contact housing cover and inspect wire terminals for moisture or corrosion.

◀ If moisture or corrosion is found (arrow):

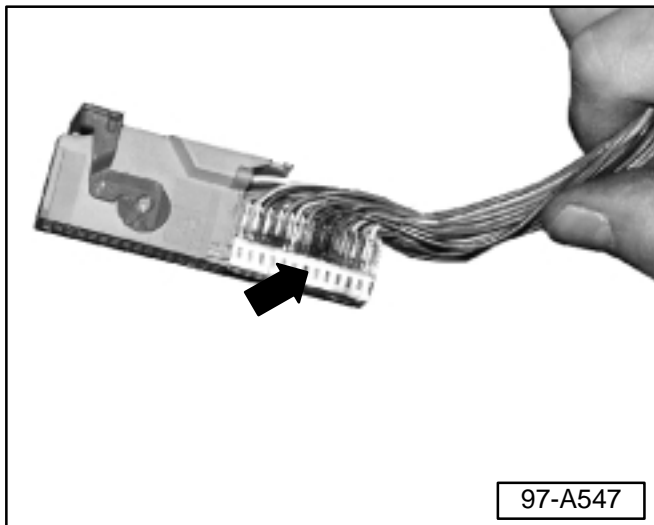
- Repair wiring using repair kit 1JM 998 001.

This kit contains overlay harnesses, splice connectors, tape and installation tube necessary to repair the affected harnesses.

The instrument cluster, coolant bottle and fuel pump/fuel sender must also be replaced.

IMPORTANT!

ALWAYS perform complete repair as outlined in this Technical Bulletin. DO NOT skip steps or fail to replace parts as instructed.





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Parts required:

- Instrument cluster, coolant bottle and fuel pump/fuel sender.
- Vehicles with Climatronic may require ambient temperature sensor replacement. (see Parts Dept. for correct Part No.)
- Repair Kit, Part No: 1JM 998 001 contains:

Description	Part No.	Qty.
Overlay harness		
Engine Fuel pump	N/A	1
Instrument cluster		
Guide tube	NPN	1
Bolt tie wraps	N 104 010 01	4
Interior cloth tape	N/A	1
Vinyl tape	N/A	1
Engine compartment cloth tape	N/A	1
Crimp connectors		
light yellow	111 971 941 A	30
red	111 971 940 A	10
blue	111 971 939 B	4
Butyl	N/A	1

CAUTION!

Part numbers are for reference only. Always check with your Parts Dept. for the latest parts information.

Wiring repair, general procedures

- ◆ Review instruction manual included in VAS 1978 wiring repair kit.
- ◆ ONLY use parts included in this kit. if supplemental wiring terminals or supplies are required, use only materials from the VAS 1978 kit.



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Wiring, making splice connections

- All wiring splice connections **MUST** be made using the VAS 1978/1 crimping tool with either the VAS 1978/24 crimp tool die for connections using (light yellow) crimp connector Part No: 111 971 941 A, or the VAS 1978/2 crimp tool die for connections that utilize other crimp connectors.
- All wiring splice connections **MUST** be heat shrunk and sealed using the hot air blower from the VAS 1978 kit and the VAS 1978/15 adapter.
- When required, strip wiring ends using the VAS 1978/3 wire stripper (this minimizes possibility of broken wire strands).

Unused wiring, taping back to harness

During this repair, **ALL** unused wires in the vehicle must be terminated using a cut, stretch, fold, and tape technique as follows:

This prevents unused wires from coming in contact with ground or any other circuit.

- Cut wires with suitable wire cutters.
- Stretch (pull) wire insulation with pliers to extend slightly beyond end of wire strands.
- Fold wire over upon itself.
- Tape wire using vinyl tape.

Wiring terminals and seals, removing and installing in connectors

- Removal of terminals from 10 or 14 pin engine harness connector or fuel pump connector (if needed) must be performed using the VAS 1978/4a.
- Insertion of the single wire seals on 10 or 14 pin engine harness connector or fuel pump connector (if needed) must be performed using the appropriate seal tool from VAS 1978 kit.



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Vehicle, Preparation

The following should be performed prior to installation of the repair kit.

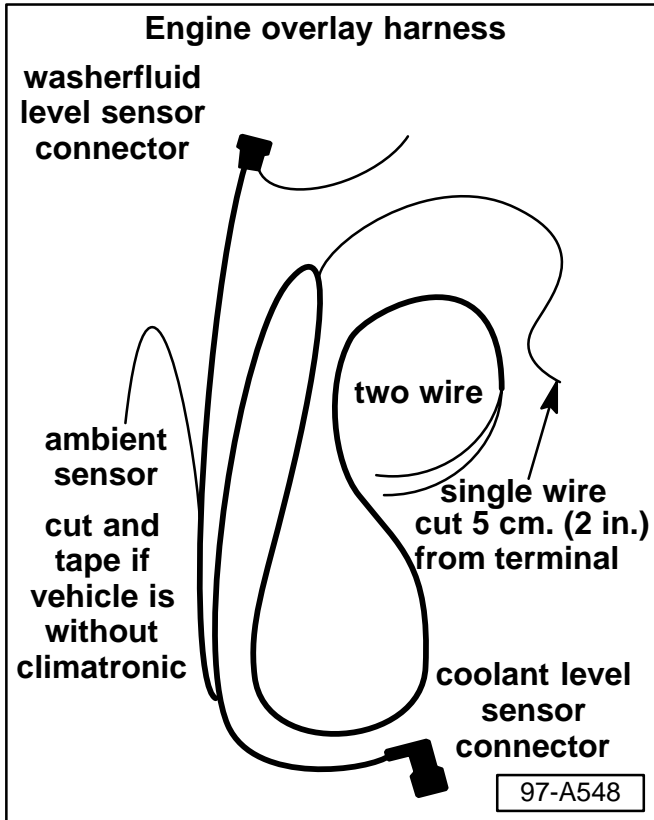
- Obtain radio code, odometer adaptation readings.
- Disconnect battery Ground (GND) cable.
- For m.y. 2001 vehicles, remove battery (see Repair Manual, Group 27).
- Remove windshield washer reservoir.
- Loosen fuel and evaporative emission tube housing from strut tower.
- Remove windshield wipers and plenum cover (see Repair Manual, Group 92).
- Cut and remove three tie wraps holding engine harness to firewall in plenum.
- Remove wiring harness (cable) channel cover on left side of engine compartment (see Repair Manual, Group 97).
- Disconnect 10 Pin (m.y. 1999 vehicles) or 14 pin (m.y. 2000 ► vehicles) connector in wiring harness channel (m.y. 2001 vehicles below battery).
- Remove instrument panel see Repair Manual, Group 70.
- Remove passenger side sill panel trim.
- Lift rear seat and remove cover for fuel pump/fuel gauge sensor.



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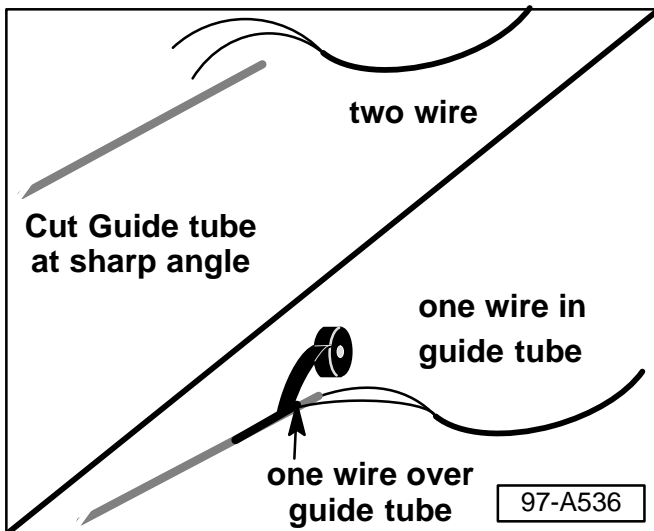
Engine overlay harness, preparation

◀ Prior to installing the engine overlay harness, prepare the harness as follows:

- Locate single wire portion of engine overlay harness.
- Cut terminal and wire approx. 5cm (2 in.) from terminal end (SAVE for reinstallation at a later point in procedure).

Vehicles without Climatronic:

- Cut ambient temperature sensor wire and tape back to harness (see page 3).



- Locate two wire portion of engine overlay harness.

◀ - Locate guide tube from kit, cut one end at sharp angle.

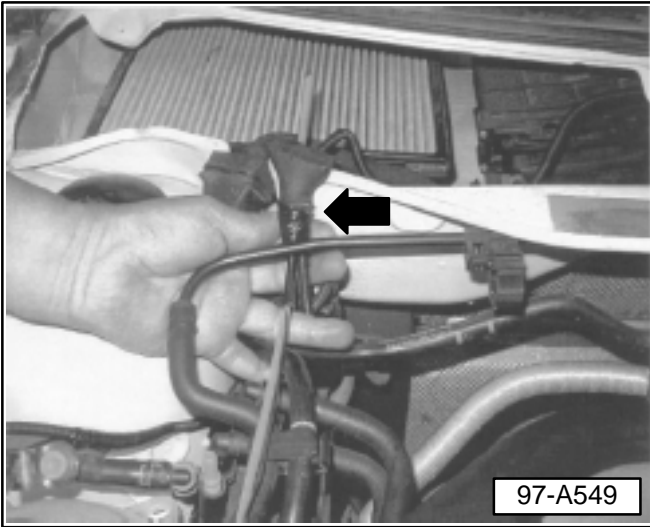
- Insert one wire from two wire portion of engine overlay harness into guide tube and tape second wire over guide tube using vinyl tape.



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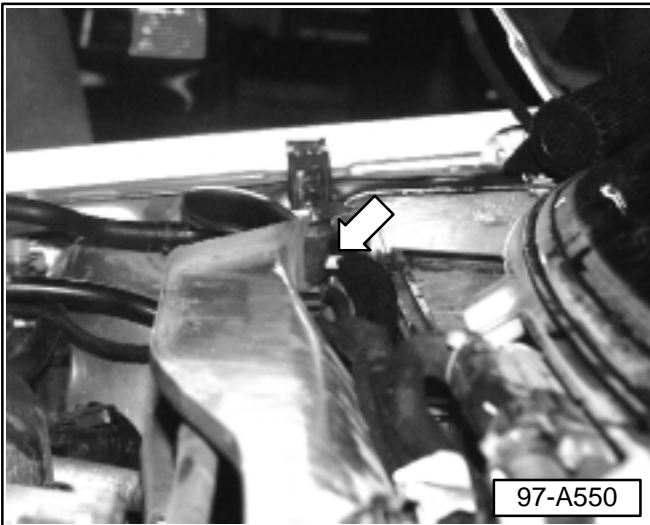
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Engine overlay harness, installing

With overlay harness taped to guide tube:

- Apply lubricant over engine overlay harness. (DO NOT use silicone spray).
- Remove tape on lower end of harness grommet (arrow).
- ◀ - Insert guide tube through main harness grommet (arrow) in plenum (passenger side).

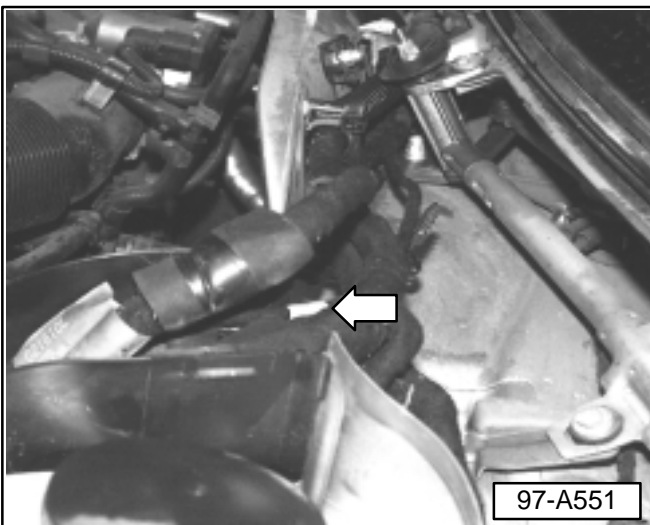


- ◀ - Pull harness through grommet to third assembly mark on harness.

Note:

You must also pull the single wire portion of engine overlay harness into the plenum along with main portion of overlay harness.

- Continue harness routing along existing wiring harness across plenum through any existing harness fasteners to left side of plenum (attach with new bolt tie wraps).



- ◀ - Continue overlay harness routing into left hand harness channel (second assembly mark at plenum as shown (arrow)).

Inspect connector for contamination:

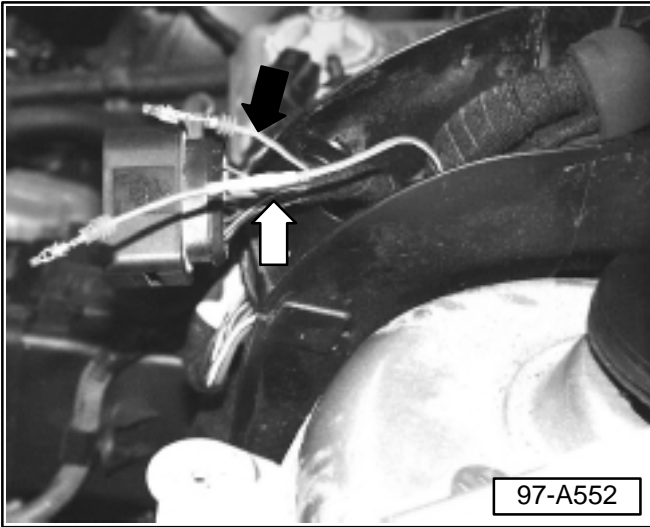
- m.y.1999: 10 Pin in wiring harness channel.
- m.y. 2000: 14 pin in wiring harness channel.
- m.y. 2001: below battery.
- Clean connector housing as necessary, replace contaminated terminals as necessary (except cavity 9, see below).



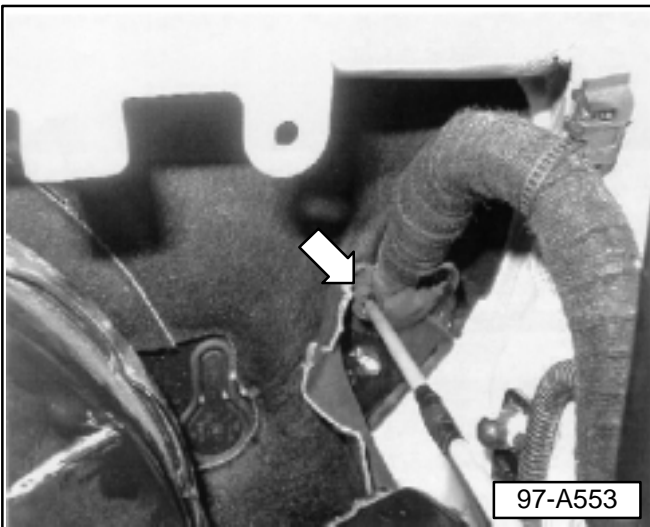
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- ◀ – Remove pin (brown/white wire) from cavity 9 (black arrow) of this connector.
- Cut connector from brown/white wire removed from cavity 9, then, fold loose wire end back to harness and secure with vinyl tape (see page 3).
- Insert terminal / wire (5 cm) previously removed (see page 5) from engine overlay harness into cavity 9.
- Reattach single wire portion of engine overlay harness (previously removed) to pin 9 of (10 or 14 pin) connector using wire splice Part No: 111 971 941 A (shorten wire to achieve correct length).
- Reconnect connector.



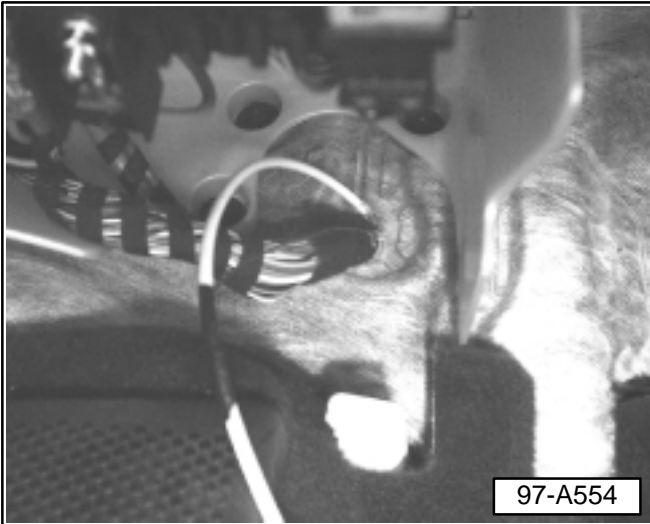
- Continue harness routing down cable channel. then loop behind channel and route to bulkhead.
- Reinstall cable channel cover
- ◀ – Push guide tube through main harness (arrow) into vehicle interior at bulkhead.



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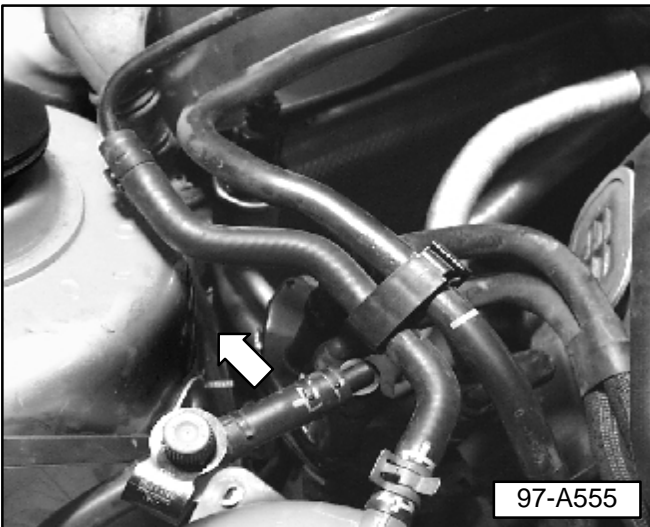
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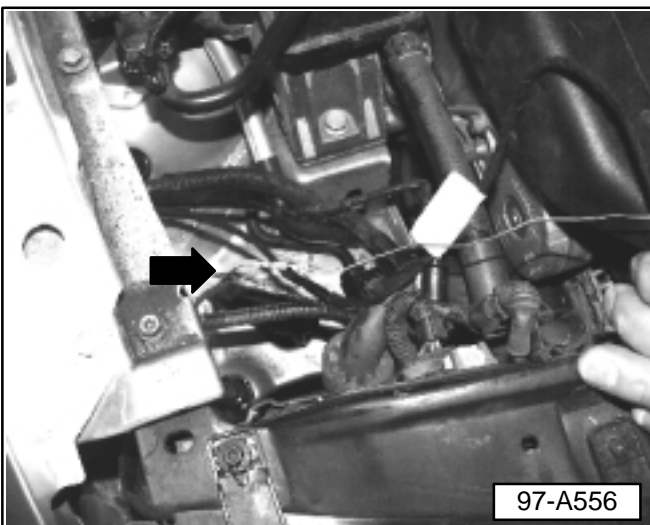
From inside vehicle, behind relay panel:

- ◀ – Pull guide tube with overlay harness inside vehicle.
- Continue routing two wire portion of engine overlay harness along main harness towards instrument cluster following original harness route along cross member (DO NOT secure with tape at this time).
- Remove guide tube from harness.
- Seal engine harness grommet in engine compartment (where overlay harness was pulled through) with Butyl sealer.



Engine overlay harness, routing to coolant bottle

- ◀ – Engine overlay harness must be routed following factory harness behind fuel and evaporative emission tubes and into plastic clip (arrow) that secures factory harness.
- Continue overlay harness routing along original harness back to coolant reservoir.
- Install new coolant reservoir.
- Cut old coolant reservoir connector from original harness, fold and tape wires back to harness using vinyl tape (see page 3).



- Connect overlay harness connector to new coolant reservoir.
- ◀ – Locate connector to washer level sensor and cut from factory harness (tape brown/white wire back to harness (see page 3)).
- Splice purple/white wire from overlay harness to factory harness using yellow splice (seal using hot air blower).



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Vehicles with Climatronic

- Disconnect and inspect ambient temperature sensor -G17- connector for coolant contamination (located behind bumper left side).

If coolant contamination is NOT found:

- Cut brown/white wire from ambient temperature sensor harness approx. 5 cm (2 in.) away from connector.

Using light yellow splice connectors

Part No: 111 971 941 A:

- Adding wire as necessary to reach sensor, splice brown/white wire from overlay harness to ambient sensor connector wire (follow and tape to existing harness as necessary) (use Part No: 000 979 981 for additional wire).

If coolant contamination is found:

- Install new ambient temperature sensor.
- Remove wires from sensor connector and clean connector housing.
- Cut brown/white wire from sensor harness and tape back into harness (see page 3).

Using light yellow splice connectors

Part No: 111 971 941 A:

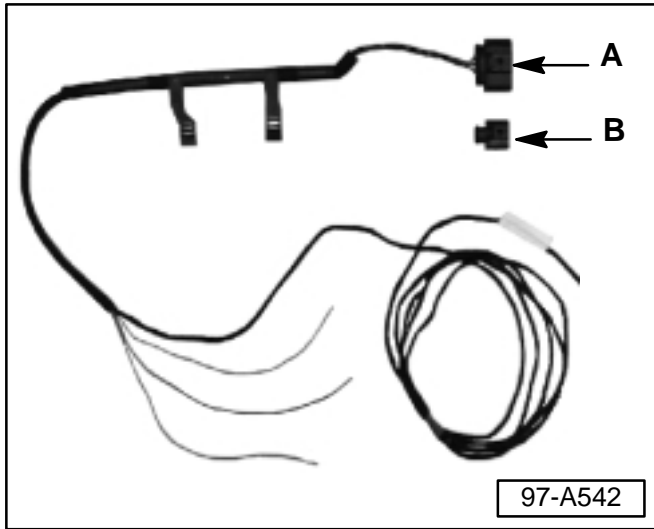
- Adding wire as necessary to reach sensor, splice appropriate wire with terminal on brown/white wire of overlay harness.
- Insert terminal from overlay harness into appropriate cavity of sensor connector.
- Install new wire with terminal on remaining factory harness wire using appropriate connectors/wires from the VAS 1978 kit.
- Insert into appropriate cavity of sensor connector.
- Reinstall connector on sensor.



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Fuel fuel gauge sensor overlay harness, preparing for Diesel vehicles

Note:

Vehicles with TDI engines do not use an in-tank fuel pump.

For vehicles with TDI engine, perform the following prior to installing harness:

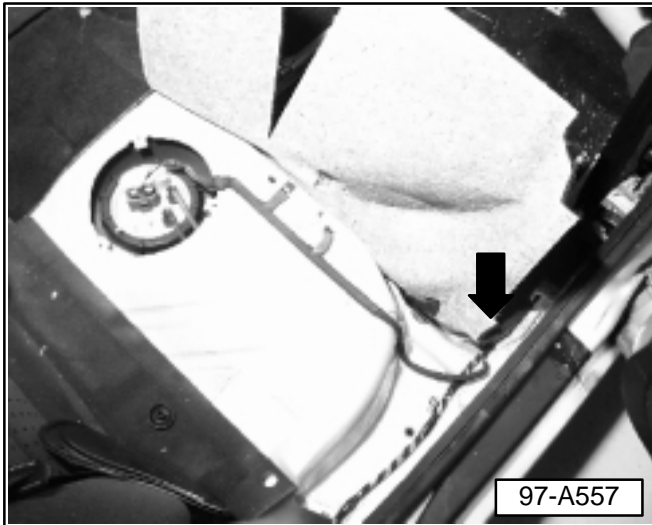
- ◀ – Remove wire terminals from fuel pump harness connector -A- and discard connector.
- Cut terminals from two large wires, fold and tape wires (Blue/red and brown at both ends of harness) back into harness using vinyl tape (see page 3).
- Insert two small wires from overlay harness into appropriate cavities of two wire fuel gauge sensor connector -B- (provided in kit).



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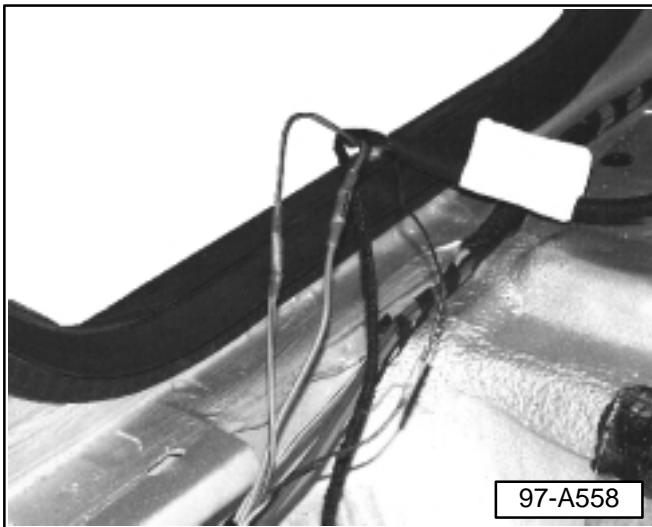
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Fuel pump / fuel gauge sensor overlay harness, preparing factory harness

- ◀ – Disconnect fuel pump / fuel gauge sensor connector including cable guiding.
- Loosen fuel pump / fuel gauge sensor wiring harness from its attachment point below the seat belt on passenger side “B” pillar.
- Remove tape covering from wiring harness, starting where fuel pump harness joins the main harness (arrow) and working forward to a point approx. 5 cm (2 inches) in front of the attachment point (loosened earlier at “B” pillar).
- Cut wiring at this point to old connector and remove.
- Fold over and tape brown/white wire of original harness using vinyl tape (see page 3).



Fuel pump / fuel gauge sensor overlay harness, connecting to factory harness

- ◀ – Connect three wires of overlay harness to their mating factory harness wires using crimp connectors:
 - Part No:111 971 939 B (blue) for blue/red and brown wires
 - Part No:111 971 941 A (light yellow) for violet/black wire

Note:

Diesel vehicles, only connect violet/black wire.

- Install new fuel pump/fuel sender unit. Connect overlay harness to fuel pump / fuel gauge sensor.
- Install cover for fuel pump/fuel gauge sensor.



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Fuel pump / fuel gauge sensor overlay harness, routing to instrument cluster

- Route fuel pump overlay harness, following original harness routing along passenger side floor sill towards "A" pillar and secure using interior vinyl tape.
- Continue fuel pump overlay harness routing along original harness routing, forward of instrument panel cross member, towards instrument cluster (do not secure with tape at this time).

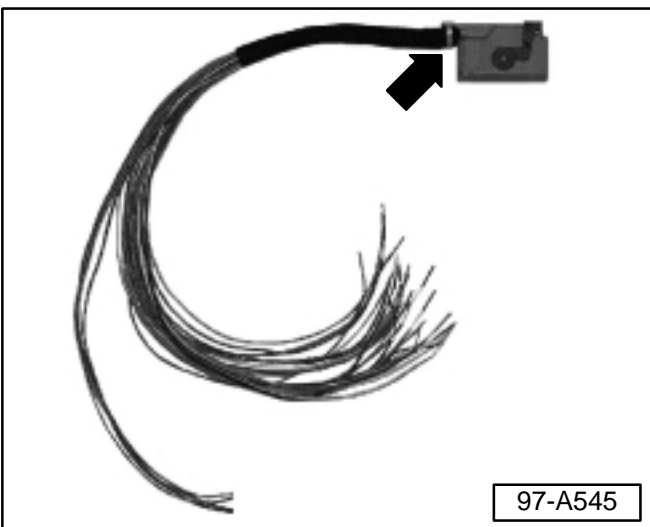


Instrument cluster harness, preparing factory harness

- ◀ - Remove insulating tape from factory harness on instrument cluster blue connector back to the point where it joins with the main harness

Note:

Some wires may be looped under tape, be careful not to cut wires while removing tape. Pull any excess (looped) wire in original harness towards blue connector.



Instrument cluster wiring, special procedures

- Cut tie-wrap (arrow), remove blue flat contact housing cover and cloth tape from the overlay harness.
- ◀ - Locate the red/violet wire from position 22 (will splice to violet/red wire from coolant level sensor of engine overlay harness).
- Locate brown/white wire from position 7 (will splice to brown/white wires of engine overlay harness and fuel pump overlay harness).
- Once located, separate these wires from the wire cluster (when splicing wires, splice these wires first).



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Instrument cluster overlay harness, general instructions for wire splicing

- ◆ Use Part No: 111 971 941 A (Light yellow crimp connectors) for all positions except brown/white wire.
- ◆ Use Part No:111 971 940 A (red crimp connector) to connect brown/white wires from engine and fuel pump overlay harnesses to brown and white wire from instrument cluster overlay harness (2 wires connect to 1 wire).

When splicing instrument cluster overlay harness you must:

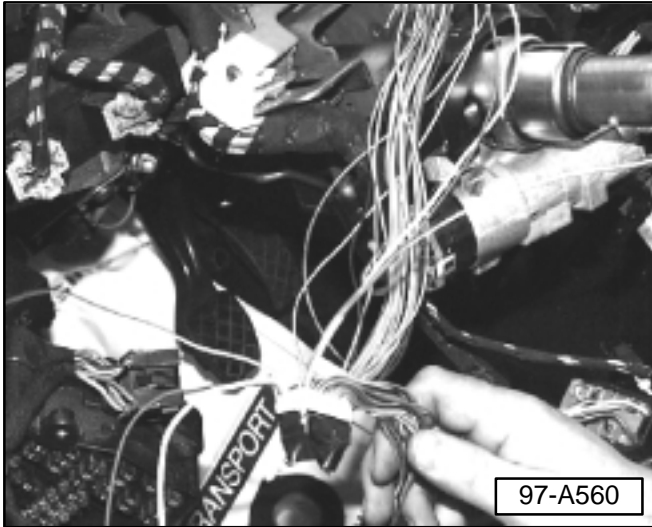
- ◆ Maintain a harness length of 40cm from the blue connector to the main harness take out point.
- ◆ Stagger crimped connections to maintain a flexible and compact harness.
- ◆ Not all wires in the instrument cluster overlay harness will be used on every vehicle.
- ◆ The overlay harness connector is made to fit many models with various equipment levels. Any wires not used should be folded and taped back into the harness (see page 3).
- ◆ Tape the overlay harness connector next to the factory connector (because wiring leading to instrument cluster may vary in coloring from vehicle to vehicle compared to the overlay harness)
- ◆ When taped side by side, you can easily trace each wire out away from the connectors in pairs (i.e. wire from position one of the overlay harness and wire from position one of the factory harness).
- ◆ Cut original wires from factory harness (ONE AT A TIME) and reattach to the instrument cluster overlay harness.



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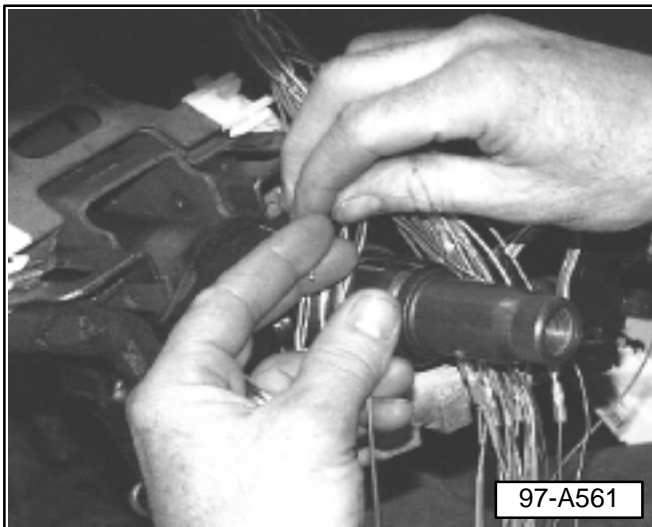


Instrument cluster overlay harness, splicing to instrument cluster

- Start by placing all wires from factory harness to the left of the steering column.

- ◀ - With overlay harness connector taped alongside of instrument cluster harness as shown.

This will allow side by side comparison of wire splicing as follows:



- Locate the red/violet wire from position (22) of both connectors

- ◀ - With one wire from each cavity between index and middle finger, slide fingers out along wires towards cluster harness breakout from main harness.

- Cut both wires.

Using a light yellow splice connector
Part No:111 971 941 A:

- Strip, splice and crimp the red/violet wire from position (22) of overlay harness to the violet/red wire from coolant level sensor of engine overlay harness).

- Place this spliced wire to the right of the steering column keeping wire out of the way.

- Tape violet/red wire (from main harness back to harness).

To eliminate confusion as wires are spliced, cut wire from position (22) of old connector near its base.



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- Locate the brown/white wire from position (7) of both connectors.
- With one wire from each cavity between index and middle finger, slide fingers out along wires towards cluster harness breakout from main harness (stop just short of the last splice connector).

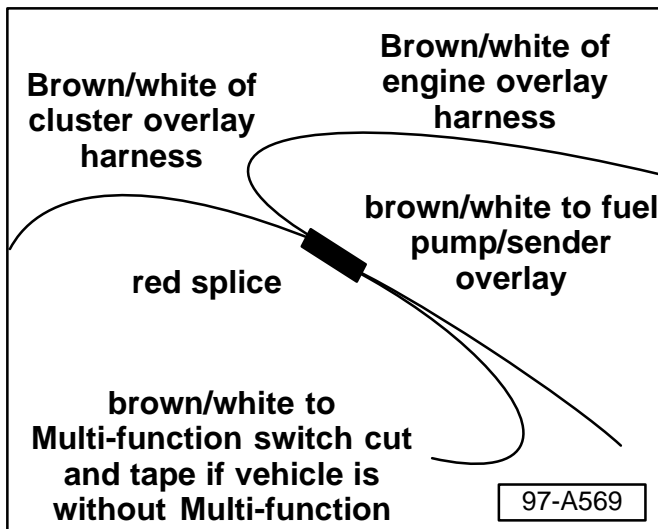
Note:

Remember, wire splices must be staggered to reduce the wire bundle size of the complete repair.

- Cut both wires.

To eliminate confusion as wires are spliced, cut wire from position (7) of old connector near its base.

- Locate and strip brown/white wire from engine overlay harness.
- Strip wire from position (7) of cluster overlay harness and twist together with brown/white wire from engine overlay harness.
- Insert these two wires into a red splice, Part No:111 971 940 A and crimp.
- Twist together the two brown/white wires from fuel pump/sender overlay harness.
- Insert these two wires into the open end of the red splice connector and crimp.
- Place these spliced wires to the right of the steering column keeping wire out of the way.





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With special connections to overlay harnesses now complete:

- Locate wire in position (1) of both connectors.
- With one wire from each cavity between index and middle finger, slide fingers out along wires towards cluster harness breakout from main harness (stop just short of previous splice).

Using a light yellow splice connector

Part No: 111 971 941 A:

- Cut, strip and immediately splice wires.
- Place this spliced wire to the right of the steering column keeping wire out of the way.

Continue splicing wires in this fashion until all wires from original harness have been used.

Any unused wires must be taped back to the harness.

- Locate steering column multi-function switch connector on main harness.

Vehicles with Multi-function (MFA) display

- Replace brown/white wire of original harness at the windshield wiper multi-function switch connector T8c/3 with brown/white wire of fuel pump overlay harness
- Tape all reworked areas using velour tape.



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- Reassemble instrument panel using a new replacement instrument cluster. Reinstall all trim.
- Reinstall washer fluid container
- Reinstall battery as necessary.
- Re-connect battery (GND) cable (NO person can be inside vehicle during this step).
- Code -J533- "Gateway" and Immobilizer functions where applicable.
- Code instrument cluster and adapt odometer (see Repair Manual Electrical Equipment OBD Group-01) for appropriate m.y. vehicle.

When procedure applies to vehicles within the New Vehicle Limited Warranty, use the following:	
Part Identifier:	1940
Damage Code:	1940 50 SB6 2
Labor Operation:	97114100 700 TU

For vehicles outside the New Vehicle Limited Warranty:
Contact your OTS