

Technical Bulletin



Condition

Starter Does Not Crank, Engine Does Not Start; Key Cannot be Removed from Ignition Switch

27 06 09, Dec. 12, 2006, 2010466 Supersedes 27-05-03, Apr. 14, 2005 due to added Midtronics code requirement in Warranty table and inclusion into ElsaWeb.

Model(s)	Year	Eng. Code	Trans. Code	VIN Range From	VIN Range To
Touareg	2004	AXQ, BHX	All	All	All
Touareg	2005	AXQ, BHX	All	7L_5D000001	7L_5D023561

Technical Background

Consumer concern of electrical issues including No start, No crank, Load interventions and/or load intervention faults (electrical consumers not functioning) may be due to low battery voltage.

Production Solution

As of VIN 7L_5D023562, all Touareg V8 engine vehicles produced have improved battery/generator B+ cable.

Service

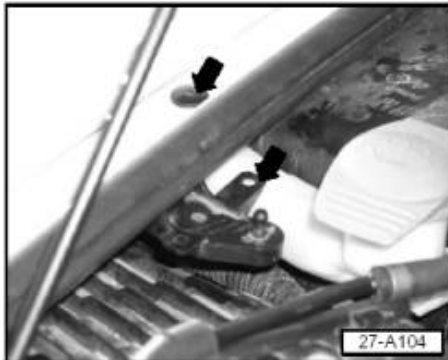
Battery cables, measuring voltage:

Measure voltage of battery positive (B+) cable between generator and wire junction for terminal 30 (remote jumper positive terminal) as follows:

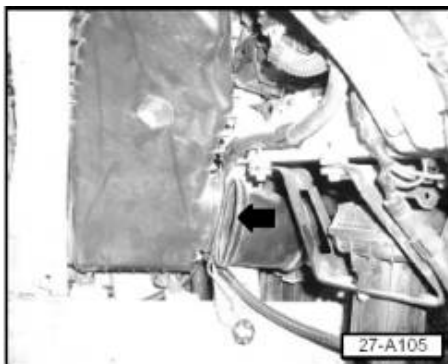
Measure voltage of ground (GND) cable between generator/engine and chassis as follows:

- Remove right front wheel.
- Remove right front wheel well liner.
- Remove engine compartment trim covers.

Technical Bulletin



- Remove right side engine compartment trim cover clip.
- Disconnect right Mass Air Flow (MAF) electrical connector.
- Reposition coolant hose away from air cleaner box.
- Remove air cleaner cover and filter. See Repair Manual.



- From wheel well, disconnect air cleaner box from air intake pipe (in direction of arrow).
- Remove air cleaner box from vehicle.
- Remove protective cap covering battery positive (B+) cable attached to generator.

Using VAS 5051 or approved VW DVOM, measure voltage drop in battery positive (B+) cable between generator and remote jumper positive terminal as follows:



- Connect one lead to battery positive (B+) cable at rear of generator.
- Connect second lead to terminal end of battery positive (B+) cable - arrow-
- Temporarily connect right side MAF sensor.
- Start and idle engine for 5 minutes with all electrical consumers ON (radio at half volume, HVAC, rear defrost, heated seats, heated mirrors, interior lights, high beam headlights, parking lights, etc.)
- Allow engine to idle with these consumers ON for 5 minutes before taking any measurements.

Technical Bulletin



Using the VAS 5051 (500 Amp.) current probe, with engine idling:



- Calibrate and then measure the current near the TV2 connector at the remote jumper location with current direction (arrow) as shown.
- Record the current value measured on the Repair Order as $I_{GL}XX$ Amperes (XX = your current measurement).
- Measure the voltage drop between the B+ cable at the rear of the generator and the wire junction of the remote jumper positive terminal.
- Record the measured value on the Repair Order as $V_{B+} XX$ in Volts (XX = your voltage drop measurement).

- Now measure the voltage drop in chassis Ground (GND) cable (between the generator casing and chassis ground location).
- Connect one lead to the GND terminal at the chassis connection.
- Connect the second lead to the generator casing.
- Record the measured value on the Repair Order as $V_{ECG} XX$ in Volts (XX = your voltage drop measurement).
- Based on the measured current (I_{GL}) and the voltage drop readings $V_{B+} XX$ and $V_{ECG} XX$, use Table 1 to determine the maximum allowable voltage drop for both the B+ cable and the Engine/Chassis GND cable.



Tip:

[Always tighten terminal fasteners to correct torque as outlined in the Repair Manual!](#)

If the measured voltage drop of the battery positive (B+) cable is outside the limits based on current measurement as stated in Table 1:

- Replace the positive (B+) cable between generator and remote jumper positive terminal.

If the measured voltage drop of the Engine/Chassis Ground (GND) is outside the limits based on current measurement as stated in Table 1:

- Clean contamination at both sides of the cable connection using a brass wire brush.

If cable contamination cannot be cleaned:

- Replace the Engine/Chassis Ground (GND) cable.

Technical Bulletin



 **Tip:**

If the measured voltage drops are within allowable limits based on current measurement as stated in Table 1:

- DO NOT complete this bulletin, further diagnosis is required.

 **Tip:**

All measured values taken during the diagnosis must be recorded on the repair order. Failure to document these values will result in a denied Warranty claim!

Table 1: Current Measurement Range and Voltage Drop Limits		
Measured Current (Amps) In B+ Cable (Generator to Terminal End at Jump Location) Measured value as I_{GL}	Maximum Allowable Voltage Drop In B+ Cable (Generator to Terminal End at Jump Location) Measured value as V_{B+}	Maximum Allowable Voltage Drop Generator / Engine – Chassis Ground Measured value as V_{ECG}
40-49	0.08	0.08
50-59	0.1	0.1
60-69	0.12	0.12
70-79	0.14	0.14
80-89	0.16	0.16
90-99	0.18	0.18
100-109	0.2	0.2
110-119	0.22	0.22
120-129	0.24	0.24
130-139	0.26	0.26
140-149	0.28	0.28
150-159	0.3	0.3
160 -169	0.32	0.32
170 -179	0.34	0.34
180 - 189	0.36	0.36
190 - 199	0.38	0.38
200 -209	0.4	0.4

- Replace Battery positive (B+) cable between generator and remote jumper positive terminal as follows:

Technical Bulletin



Battery positive (B+) cable between generator and remote jumper positive terminal, removing



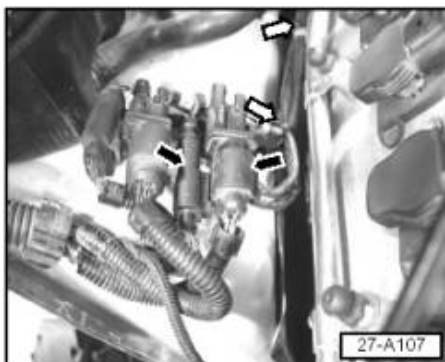
WARNING

When disconnecting battery cables, ALWAYS disconnect the battery Ground (GND) cable first. Failure to do so in this order could result in personal injury!

- Disconnect battery (see Repair Manual Electrical Equipment Group 27 – Battery, Starter, Generator, Cruise control " Battery, disconnecting and reconnecting").
- Remove all engine trim covers.



- Remove right and left air intake pipes -arrows-.



- Disconnect oxygen sensor (black) connectors -black arrows-.
- Remove two cable ties retaining oxygen sensor wiring harness -white arrows-.

Technical Bulletin

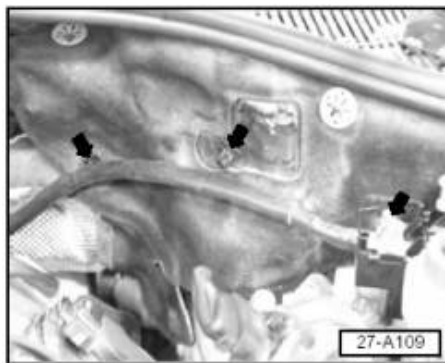


- Remove two cable ties retaining oxygen sensor wiring harness to push pins shown -arrows-.
- Unclip oxygen sensor wiring harness from top of transmission.
- Position oxygen sensor wiring close to exhaust system.

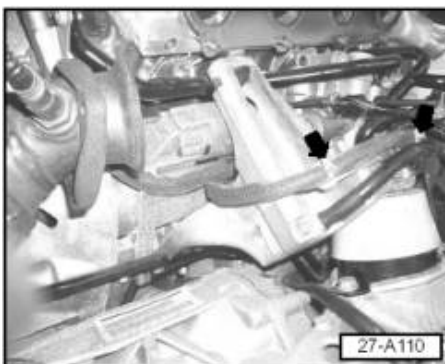


WARNING

Make sure engine is cool. Contact with a hot engine can cause severe burns!



- Remove two clips securing battery positive (B+) cable to bracket on rear of engine.
- Unclip battery positive (B+) cable from clips on bulkhead and remove nut securing (B+) cable to remote jumper positive terminal -arrows-.



- From wheel well, remove two clips -arrows- securing battery positive (B+) cable to bracket on right side of engine.

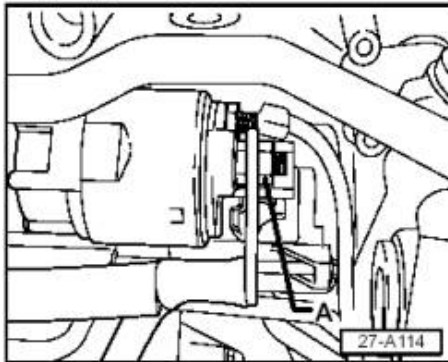


Tip:

Battery positive (B+) cable is routed around engine mount.

Photo shows engine removed from vehicle for clarity.

Technical Bulletin



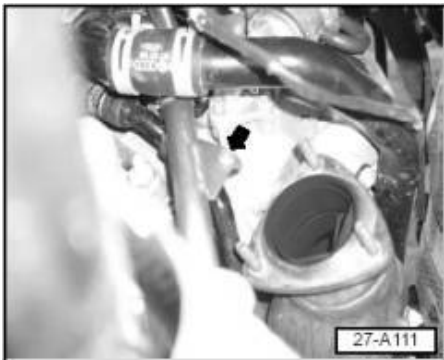
- Remove nut securing battery positive (B+) cable to generator.
- Remove cable from generator.
- Remove nut securing battery positive (B+) cable to starter.
- Remove cable from starter.
- From underside of vehicle, remove rear sound insulation.
- Using suitable jack, support transmission.
- Remove transmission crossmember.
- Remove right side catalytic converter.



Tip:

A Use U-Joint extension and 13 mm socket to start removing cable nut at starter (two turns maximum).

Use 13 mm swivel socket to remove nut from stud.



- Remove bolt securing battery cable bracket to coolant pipe -arrow-.
- Temporarily reinstall transmission crossmember.
- Remove battery positive (B+) cable.
- Verify new battery positive (B+) cable is Part No. 7L0 971 228 B.

Technical Bulletin



- Verify production date of battery positive (B+) cable is on or after 06-08-04 (August 6, 2004). This date is shown on cable -arrow-.



Tip:

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

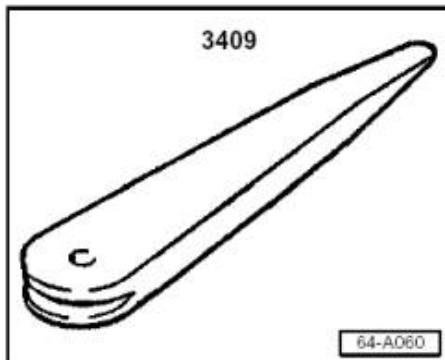
Battery positive (B+) cable between generator and remote jumper positive terminal, installing

- Route and connect battery positive (B+) cable to generator and starter.

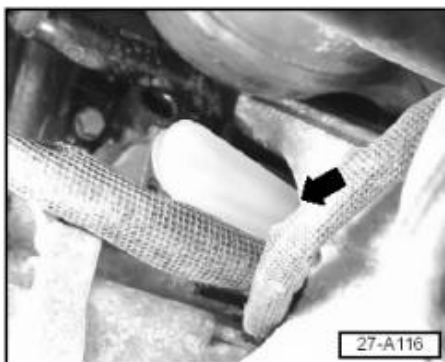


Tip:

The following steps should be performed prior to tightening B+ cable to starter.



- Using special tool 3409 (Trim removal wedge):



From access above steering rack:

- Insert Wedge Tool 3409 -arrow- between engine mount support and cable as shown.

Technical Bulletin

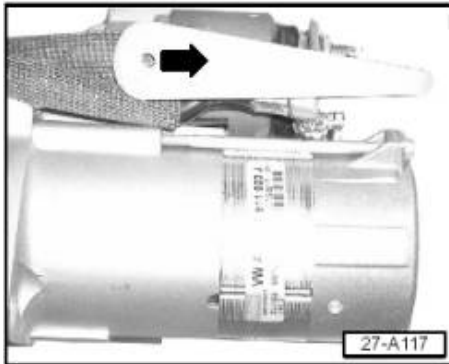
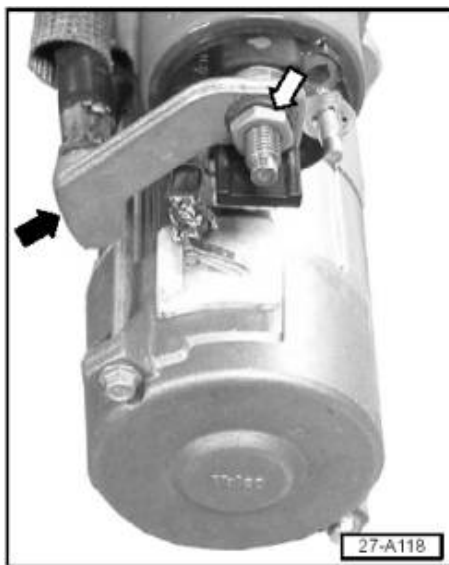


Illustration shows starter removed for clarity.

Trim tool is inserted in direction shown (arrow).



If Wedge Tool 3409 has been inserted properly:

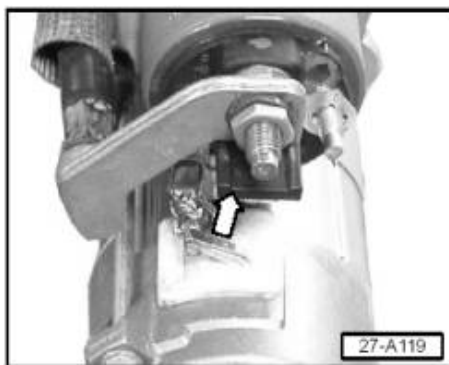
1. You will be able to see the tip of Tool 3409 from Air Box Access.
2. Wedge tool 3409 will effectively space and hold B+ cable (black arrow) in position away from engine mount while tightening nut (white arrow).

Battery positive (B+) cable to starter torque = 15 Nm (white arrow).

Battery positive (B+) cable to generator torque = 15 Nm.

With starter nut properly tightened:

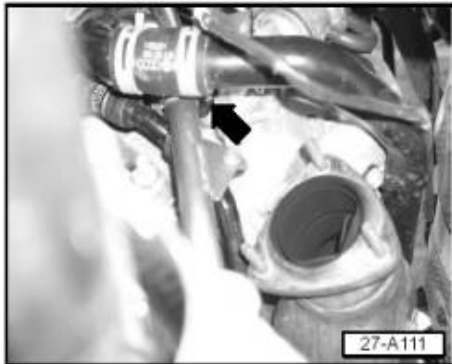
- Remove trim tool.



• Ensure that cable is spaced away from engine mount support and that the terminal is lying flat on alignment block (arrow) of starter.

• From wheel well, install two clips securing battery positive (B+) cable to bracket on right side of engine.

Technical Bulletin



Tip:

Make sure battery positive (B+) cable is routed between coolant pipe and engine -arrow-.

- Install bolt securing battery positive (B+) cable bracket to coolant pipe.

Battery positive (B+) cable bracket torque = 12 Nm.

- Support transmission with suitable jack.
- Remove transmission crossmember.
- Install right side catalytic converter.
- Install transmission crossmember.
- Clip oxygen sensor wiring to top of transmission.
- Route oxygen sensor wiring and secure with cable ties.
- Install rear sound insulation.
- From top of engine compartment, attach battery positive (B+) cable to bracket on rear of engine.
- Attach battery positive (B+) cable to two clips on bulkhead.
- Install battery positive (B+) cable to remote jumper positive terminal.

Battery positive (B+) cable torque = 15 Nm.

- Install right and left air intake pipes.
- Install air cleaner box, filter and cover.
- Install engine trim covers.
- Install right side engine compartment trim cover clip.
- Connect left and right MAF sensor electrical connectors.

Technical Bulletin



- Install engine compartment trim covers.
- Install right front wheel well liner.
- Install right front wheel.



WARNING

When connecting battery cables, ALWAYS connect the battery positive (B+) cable first then connect the battery Ground (GND) cable. Failure to do so in this order could result in personal injury!

- Connect battery (see Repair Manual Electrical Equipment, 27 – Battery, Starter, Generator, Cruise control “Battery, disconnecting and reconnecting”).
- Connect the VAS 5051/VAS5052 Diagnostic tool.
- Interrogate and erase any stored DTCs.
- Test battery and charging system using MCR340V tester.

Post procedure component reset / relearn Access Start Module

Before starting vehicle, Access Start Module must be reset:

- Turn ignition switch to left most position.
- Let ignition switch return to zero position (at rest when key is in ignition switch).
- Turn ignition switch to the right position to start the engine.

Front windows “One touch feature”

With vehicle idling

- Fully open both front windows.
- Fully close both front windows.



Electronic front seat (if equipped) “Soft stop function”

With vehicle idling:

- Hold seat “forward/backward” switch in forward position until front seat moves fully forward and seat stops.
- Release switch.
- Hold seat “forward/backward” switch in forward position to ensure front seat is in fully forward position.
- Release switch.

Forward soft stop position is learned.

- Hold seat “forward/backward” switch in backward position until front seat moves fully backward and seat stops.
- Release switch.
- Hold seat “forward/backward” switch in backward position to ensure front seat is in fully backward position.
- Release switch.

Backward soft stop position is learned.

- Repeat steps for other front seat.

Electronic steering column (if equipped)

With Vehicle idling

- Operate steering column adjustment switch in each direction (up, down, forward and backward) until steering column stops in that direction.

Steering angle sensor & Air suspension

Air suspension will temporarily lose communication with the steering wheel angle sensor (light will illuminate).

Drive vehicle forward with wheels in the straight ahead position for approx. 45 ft. (13.7 meters).

Technical Bulletin



Warranty

When procedure applies to vehicles within the New Vehicle Limited Warranty, use the following:	
Claim Type:	W2
Part Identifier:	9745
Damage Code:	---*
Labor Operation: Diagnose Battery / Starter Harness and Engine Chassis Ground Harness	9745 0100 = 100TU
Labor Operation: Remove and Install Battery / Starter Harness	9745 0102 = 300TU
Labor Operation: Remove & Install or Replace Ground (GND) cable	9787 1900 = 70TU
Diagnostic Time:	Included in SRT's above No Additional Diagnostic Time Allowed
Claim Comment: Input "As per Technical Bulletin 2010466 " and include the Midtronics Test Code XXX in comment section of Warranty Claim.	

* Code per warranty vendor code policy.

Required Parts and Tools

No Special Tools required.

No Special Parts required. Always see ETKA for the latest part(s) information.

Description	Part No:	Quantity
Battery B+ Cable	7L0 971 228 B	1 (if necessary)



Tip:

Part number(s) are for reference only. Always see ETKA for the latest part(s) information.

Description	Tool No:	Quantity
Trim removal wedge	3409*	1

* Call Volkswagen Tools and Equipment Program (EQS), which is Equipment Solutions, at 1-800-892-9650 for product.