DIY PTC (Auxiliary) Heater Install

02-05-2010, 07:09 PM #1

Cadbury
Rally Car Newbie

Drives: 2007 Black Magic GTI
Join Date: Apr 2008
Location: Winnipeg
Posts: 268

DIY PTC (Auxiliary) Heater Install

TDI's are notorious for having very poor heat output, especially in colder climates. VW finally did something about this and MKV TDI Jettas have an auxiliary 1000W electric heater installed just after the normal heater core inside the heating system. Gas powered vehicles like the GTI don't have this heater because they heat up quicker, but as I discovered the place for the heater is still there.

This should with for both Climatronic and Climatic heating systems.

You will need access to a VAG-COM to make the necessary coding changes to some modules.

This will only work for Valeo heating systems and may only work on specific years.

The heater:

Stage 1, Inside:

Tools:
T25
6mm socket

Parts:
PTC Heater 1K0 963 235 E (from German eBay)
Cover 1K1 819 349 E (optional)
10 feet 4AWG wire
4x 4 AWG ring connectors
Electrical Tape/zip ties
Connector 1K0 972 704 C
Repair wire 000 979 009
2 6mm nuts from the hardware store

Step 1, Gain access to the heater.

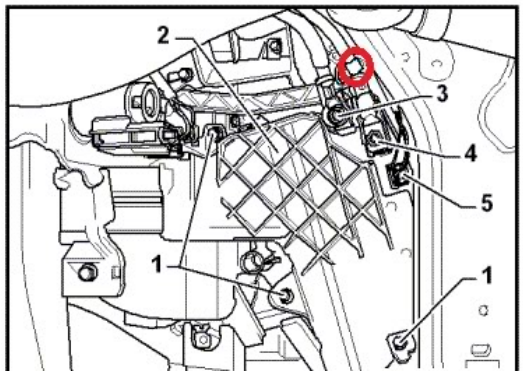
The heater is installed on the right hand side inside the driver's footwell.
Remove these 2 screws (red), they are both T25:

Remove this screw, it is T25 as well:

To remove the panel you will need to pull back slightly on the overlapping portion shown here:

Step 2, Remove the stock cover.

Here we see a drawing of the heater installed. Remove the 3 screws marked number 1. There is one more bolt not in the picture is located in red:



With the cover removed you can install the heater into the slot behind it, use 2 of the cover bolts to attach the heater.

Here is an image of the installed heater. You may need to trim some plastic around the terminals depending on the size of your ring connectors:

In the above picture the cover has been reattached. The red line is where I trimmed off the plastic where the cover is now. The 3 remaining bolts were used to attach the cover. Here is the piece I trimmed off:

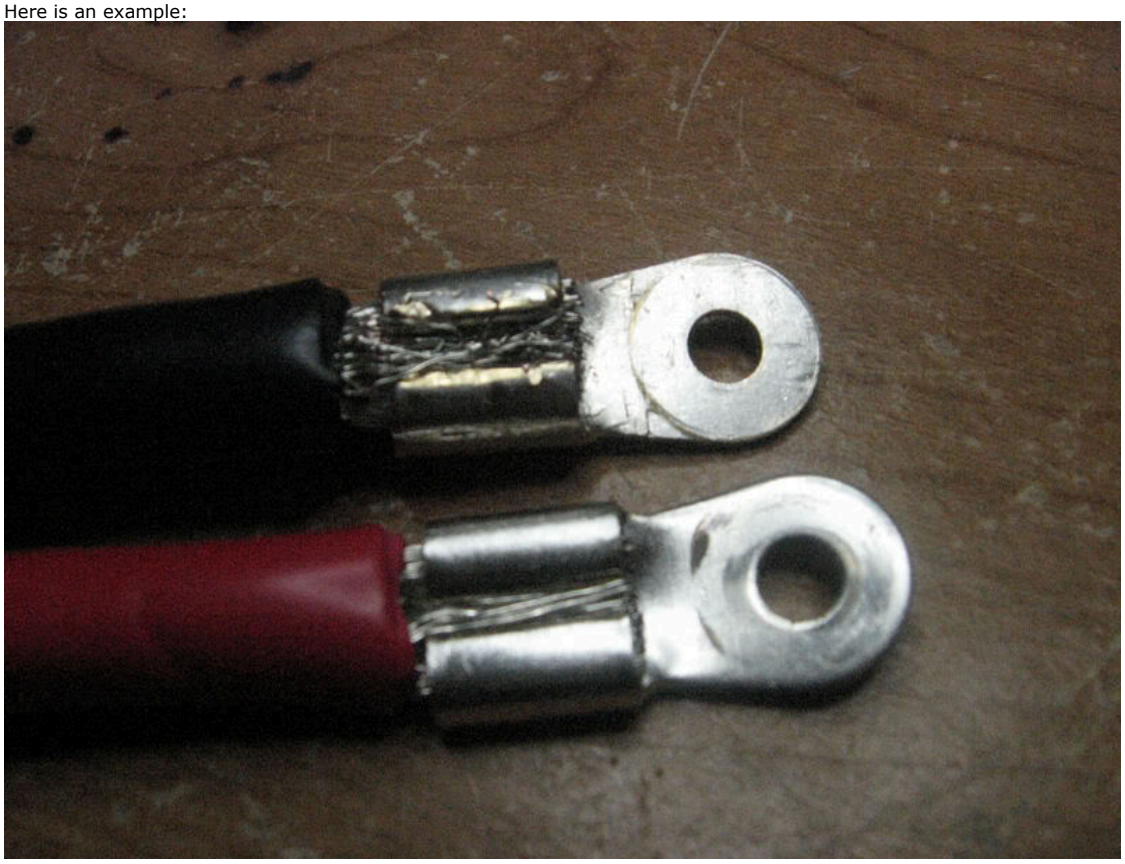
The bolt holes at the top and bottom are in the same position as the 2 holes used to attach the heater itself.

Step 3, Positive and ground connections.

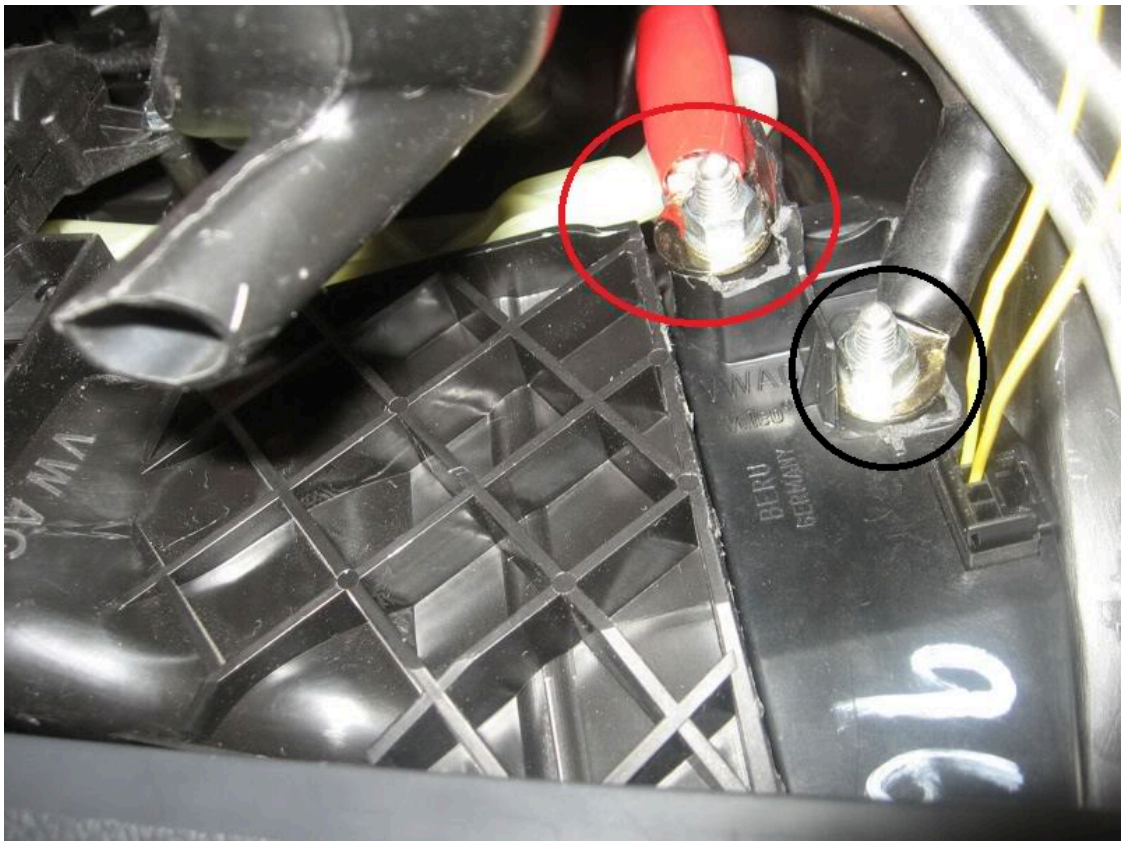
The heater uses around 80 Amps of current, this is a lot of current and if the connections are not made good enough we could cause a fire. There was actually a TSB for the nuts on the heater not being tightened enough from the factory causing a fire I believe.
Cut the 10 feet of wire into 2 pieces, 1 4 feet and the other 6 feet.

Attach 1 connector to the end of the wires, 4 in total. I crimped the connections, soldered them to the wire and added sleeves to the connectors

Here is an example:

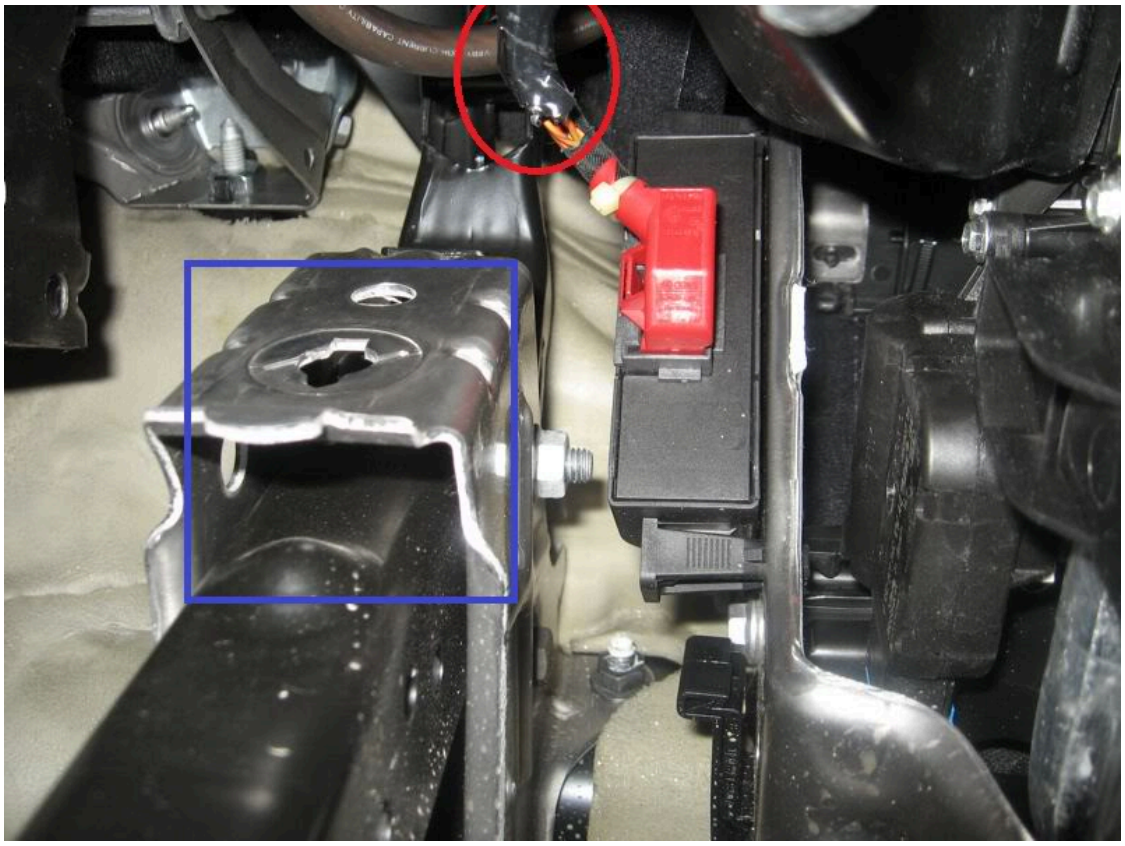


Attach the wires to the heater using the 6mm bolts. Make sure you have the negative wire on the (–) terminal and the positive wire to the (+) terminal:



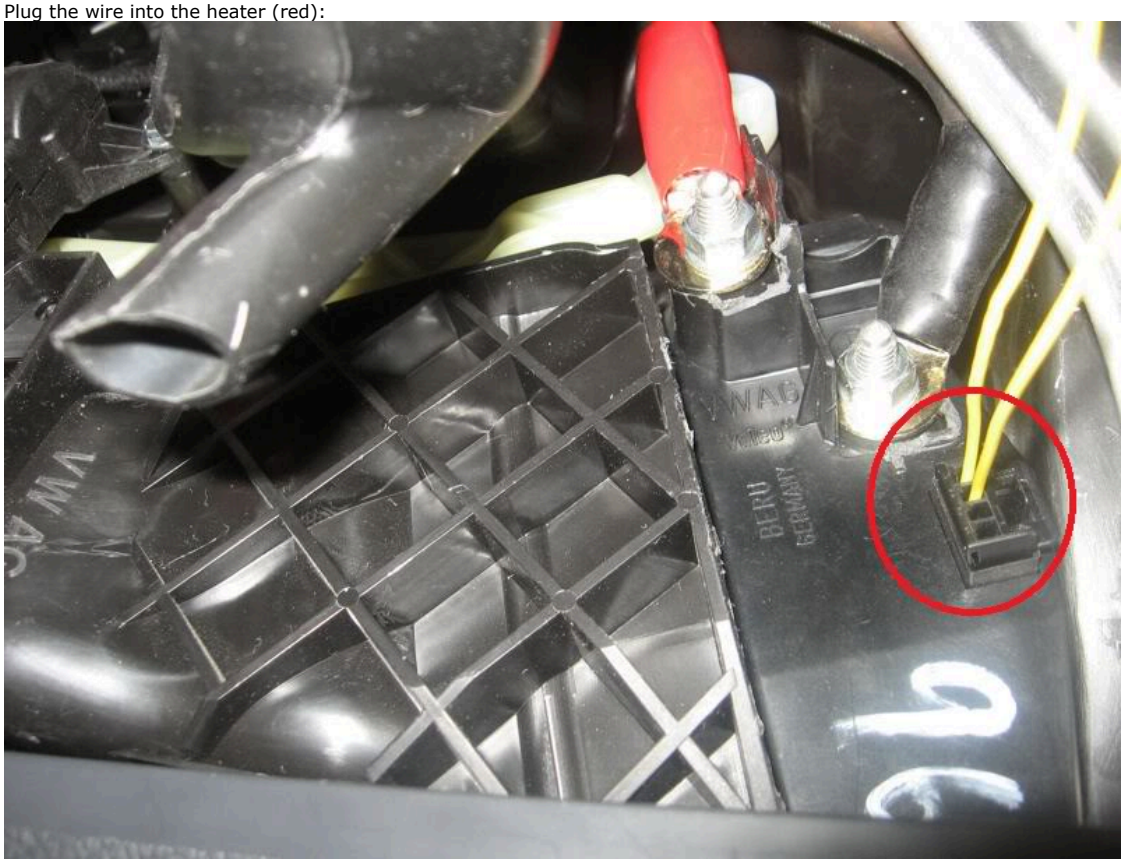
Step 4, Wire the data connection:
The heater has a direct connection to the comfort CAN bus. The nearest location of the bus would be the Data bus diagnostic interface.
The pins are not visible so we are looking for the orange/brown and orange/green that are twisted together. Cut the repair wire in half and attach 1 end to each of the wires and to each of the bus wires.

The module is the black box with the red plug in it, the object in the blue box is the top of the brake pedal. Circled in red is there the wiring connections are made:



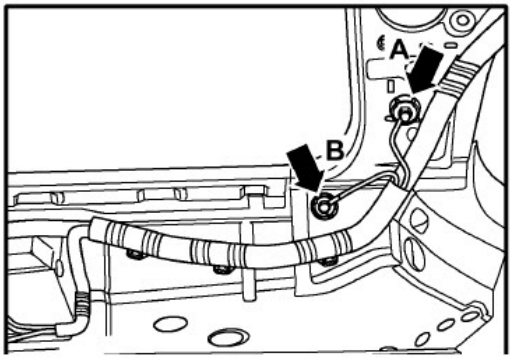
The repair wire attached to the orange/green wire goes into pin 1 and orange/brown goes into pin 2.

Plug the wire into the heater (red):



Step 5, Negative wire to the chassis.

Remove the left kick panel to access the ground post. Instructions can be found in the sub install DIY http://forums.vwvortex.com/zerothread?id=3250572. Once the panel is removed attach the other end of the ground wire to the lower post (B). You will need to move the carpet to see the post:



Step 6, Positive wire through the firewall.

This is the rubber gasket where we will feed out wire through the firewall (ignore those 3 wires, they are for my water injection controller). Cut a slit into the gasket large enough to feed the wire through:

Feed the wire through:

Stage 2, Outside.

Tools:
8mm socket
10mm socket
13mm socket

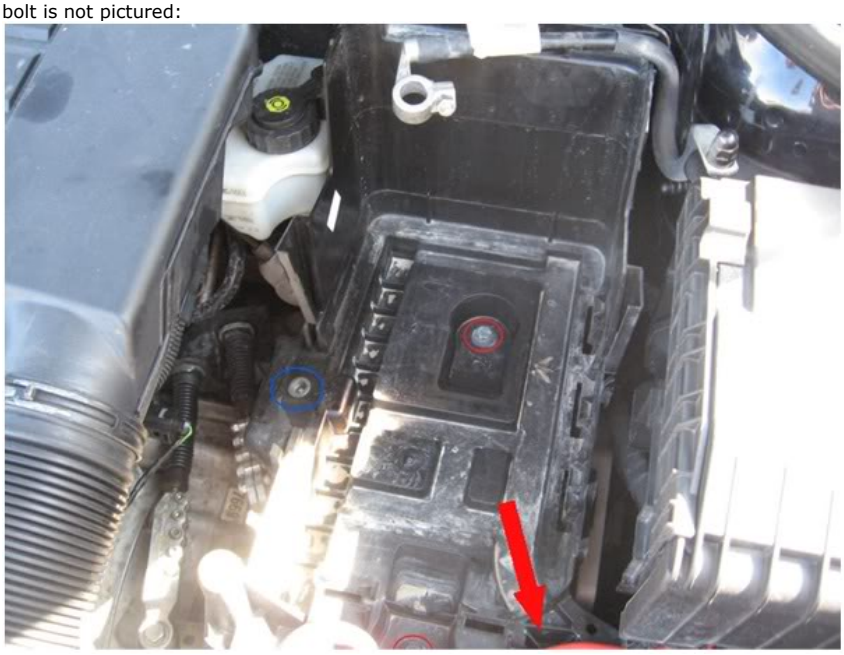
Parts:
100 Amp fuse N 105 255 06
Nut N 101 181 02
5x16mm bolt and 5mm nut from a hardware store

In red is where we will attach the wire we fed through the firewall in stage 1:

Step 1, Remove battery and tray:

The removal of the battery is self explanatory. You will need a 10mm wrench/socket to remove the cables from the battery. Always remember to remove the negative side first. The bracket that holds the battery down is 13mm (blue).

Once the battery is removed you will need to remove the tray it sits on. There are 3 bolts (red). In the picture below one bolt is not pictured:



Tray removed:

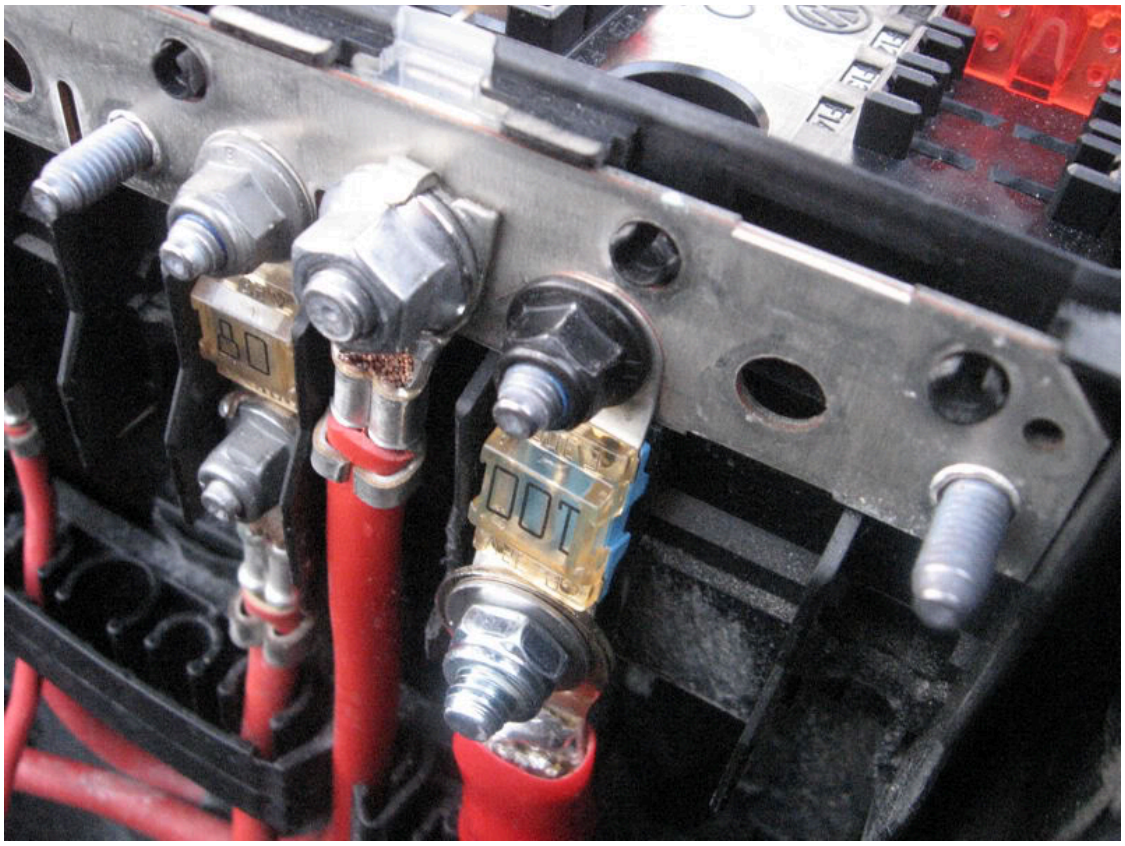
Step 2, Pull wire through firewall:
This is the rubber gasket where the wire will come out of. Simply pull on it till you just enough slack on the inside to make the wires neat:

Run the wire here (red):

Step 3, Attach positive wire to the bus bar:

Attach the wire to the fuse. For example:

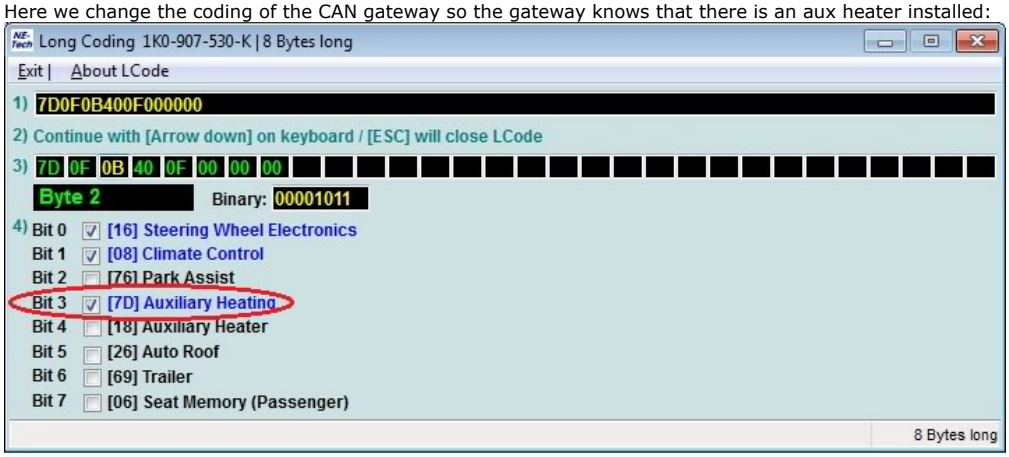
Attach the fuse to the bus bar:



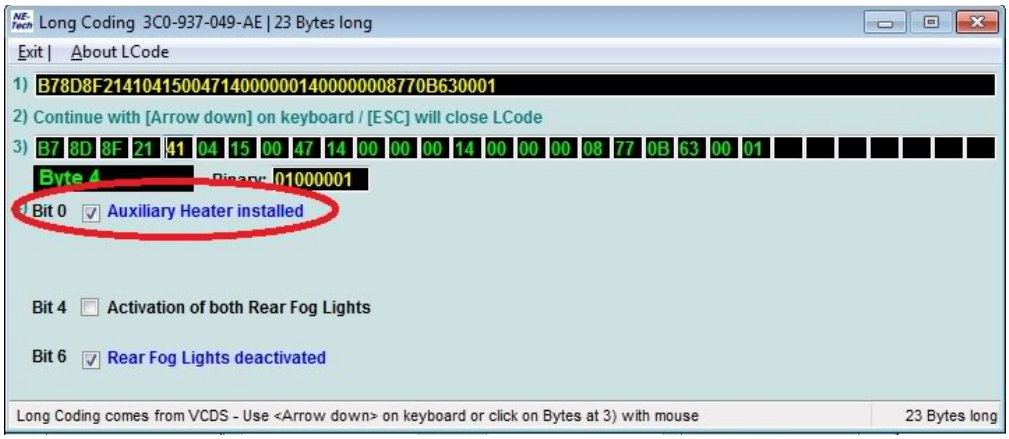
Stage 3, Programming:

Tools:
VAG-COM

Step 1, CAN gateway:
Here we change the coding of the CAN gateway so the gateway knows that there is an aux heater installed:



Step 2, Central electronics:
Here we change the coding of the central electronics module so the it knows that there is an aux heater installed:



Notes:
The heater works very well. It was about -5 outside today and I had warm air in about 30 seconds and hot air in about 1 minute. A few days ago it was -20 or so and in about 2 minutes I had hot air.

Some criteria needs to be met before the heater will turn on. For example: The engine must be running and above about 700 RPMs, the alternator load must be below a certain percent, and your heater temperature setting has to be past a certain point. Once your coolant temperature reaches 75C the heater turns off.

The heater will adjust its output based on the alternator load. For example: idling with your headlights on will limit the output to about 600W. When you are driving the heater will go to a 1000W output.

-Cad

QUOTE

Today

GolfMKV

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10-21-2010, 05:17 PM #2

2006UG
<ding dong>

Drives: 2006 United Gray GTI

thanks for the write up! looks like a great mod for me to do :D

youd know all about our weather haha

Join Date: May 2010
Location: America's Hat
Posts: 396

QUOTE

10-21-2010, 10:54 PM #3

Simmsled
Parking Garage > Tree

Drives: TSI GTI & Rabbit & E46 325i
Join Date: Jun 2009
Location: Indianapolis
Posts: 1,765

Any idea if the alternator is different on the tdi? (Higher amperage?)

_____
DRIVE_

QUOTE

11-05-2010, 07:52 PM #4

Cadbury
Rally Car Newbie

Drives: 2007 Black Magic GTI
Join Date: Apr 2008
Location: Winnipeg
Posts: 268

The TDI's come with a 140 amp alternator. I checked the part number on mine and I have a 140A as well. There is a listing for a 110 amp alternator in ETKA.

-Cad

_____

QUOTE

11-05-2010, 11:26 PM #5

olegg
Touring Car Newbie

Drives: GLI MKV
Join Date: Jun 2007
Location: Winnipeg MB
Posts: 208

did you find your pcv?
great diy btw...

_____
07 GLI, BPY 6 speed. REVO st2+, ARR hpfp. Surewin 3" DP, OEM "D" DV, "E"PCV, CIM boost gauge, KONI Sport shocks, neuspeed springs. VAG COM in Winnipeg

Last edited by olegg; 11-05-2010 at 11:45 PM.

QUOTE

11-28-2010, 06:29 AM #6

maydond
Passed Driver's Ed

Drives: skoda :)
Join Date: Dec 2009
Location: moscow
Posts: 6

Thanks, man! I did the exact installation in my Skoda. Could you, please, explain this a bit more:

Quote:

> Originally Posted by **Cadbury**
> *Some criteria needs to be met before the heater will turn on. For example: <...> and your heater temperature setting **has to be past a certain point***

QUOTE

01-16-2011, 03:21 PM #7

Cadbury
Rally Car Newbie

Drives: 2007 Black Magic GTI
Join Date: Apr 2008
Location: Winnipeg
Posts: 268

A VW Self study guide indicated that the temperature needs to be set at least 80% to the hot side.

I have found that as long as you have the temperature set slightly on the heat side the heater is on.

-Cad

QUOTE

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