2.0L CR TDI

From Ross-Tech Wiki

General Information about the NAR (North American Region) 2.0L CR TDI engine can be found in the Official Factory Repair Information and sources such as Bentley Publisher's SSP (Self-Study Program 826803) (http://www.bentleypublishers.com//volkswagen/technical-training/vw-tiguan-2-0l-tdi-common-rail-ssp-826803.html) .

Contents

- 1 Coding
- 2 Coding-II
- 3 Adaptation
  - 3.1 Driving DPF (Diesel Particle Filter Emergency Regeneration) Emergency Regeneration
  - 3.2 Adaptation of Carbon Mass (after DPF Replacement)
- 4 Basic Setting
  - 4.1 Standing DPF (Diesel Particle Filter Emergency Regeneration) Emergency Regeneration
  - 4.2 Fuel Pump
- 5 Special Functions
  - 5.1 Injector Quantity Adjustment (IMA) and Injector Voltage Adjustment (ISA)
  - 5.2 Exhaust Gas Differential Pressure Sensor (G450) Adaptation
    - 5.2.1 CAN Protocol (G450) procedure
    - 5.2.2 UDS Protocol (G450) procedure
- 6 Special Notes

Coding

Coding-II

Cruise Control Activation in addition to Exhaust Gas Differential Pressure Sensor (G450) Adaptation is performed using the Coding-II function in vehicles with a CAN Protocol EDC. *UDS Protocol control modules do not support this function*.

Adaptation

Driving DPF (Diesel Particle Filter Emergency Regeneration) Emergency Regeneration

- Diesel Particle Filter Emergency Regeneration, Regeneration while Driving

Adaptation of Carbon Mass (after DPF Replacement)

Prerequisites:

- Ignition ON
- Engine OFF

[Security Access -16]
Enter the code shown in the VCDS pop-up balloon for "Adaptation Enabling"
[Do It!]
[Adaptation - 10]
From the pulldown menu, select the entry for "Carbon Mass (DPF Replacement)" or "Particle filter initialization".
Save a new value of 1 to reset the learned Carbon Mass. It's normal for that value to automatically change to 0 after it has been successfully saved. Check and clear fault codes to make sure none are present.

Basic Setting

Standing DPF (Diesel Particle Filter Emergency Regeneration) Emergency Regeneration

- Diesel Particle Filter Emergency Regeneration, Regeneration while Standing/Idle

Fuel Pump

- Fuel Pump Basic Settings

*The CR (Common Rail) TDI engines should **NOT** be operated without fuel so that operation is absolutely necessary after ANY fuel system repairs!*

Special Functions

Injector Quantity Adjustment (IMA) and Injector Voltage Adjustment (ISA)

These values represent the behavior of an injection valve (Piezo Injector). Caused by manufacturing tolerances the injectors have a unique behavior and get divided into separate classes. In combination with the automatically determined learning values of the engine control module the pre- and post-injections are being calculated individually for each valve. The behavior of an injection valve is also mileage dependent, so a valve with e.g. 10000 km has a different behavior then one with 70000 km. The control module determines these automatically while driving so the learning values change against the mileage. When altering one of the following values the learning values are being reset because the ECU thinks you are adjusting a new valve.

The IMA-ISA values need to be adapted when:

- One or more injection valves have been replaced. Make sure not to adjust the valves which have not been changed!
- The engine control module has been replaced.
- *Do NOT adapt these values when you did not replace one of the above parts, also not for training or demonstration purposes.*

The adjustment code can be found on the injector itself, it is a 7-digit value and does only use the following chars:
1,2,3,4,5,6,7,8,A,B,C,D,E,F,G,H,K,L,M,N,O,P,R,S,T,U,V,W,X,Y,Z. *A value of* AAAAAAA *is also not valid.*

Click on thumbnail image to enlarge.

Prerequisites:

- Ignition ON
- Engine OFF

[Select]
[01 - Engine]

[Adaptation - 10]
Channel 071: IMA-ISA Value for Cylinder 1
Channel 072: IMA-ISA Value for Cylinder 2
Channel 073: IMA-ISA Value for Cylinder 3
Channel 074: IMA-ISA Value for Cylinder 4
Enter the actual values from each fuel injector as needed.
[Test]
[Save]
[Done, Go Back]
CR (Common Rail) TDI engines should **NOT** be operated without fuel so that operation is absolutely necessary after ANY fuel system repairs! Perform the Fuel Pump Basic Settings BEFORE the engine is cranked or started!

- Switch Ignition OFF, wait 10 seconds and switch Ignition ON again. The values should be saved now, please verify them by double checking the adaptation values.

- The Test value shows "AAAAAAA" if you have entered an implausible value. If the IMA-ISA value on the new injector is difficult to read, consider scanning the QR code with a smart phone app.
  - We have had success with BB, Android and iOS platform mobile devices running i-nigma's free app. (http://www.i-nigma.com/Downloadi-nigmaReader.html)

Exhaust Gas Differential Pressure Sensor (G450) Adaptation

The Exhaust Gas Differential Pressure Sensor (G450) Adaptation is performed based on the EDC Protocol which is shown in the upper left corner of the Open Controller (http://www.ross-tech.com/vcds/tour/open_screen.html) screen

CAN Protocol (G450) procedure

Instructions should be populated in a pop-up balloon when connected to the controller in question with VCDS.

Key ON, Engine OFF
[Coding-2] *or [Login-II]* button
Enter the code shown in the VCDS pop-up balloon
[Do It!]
Switch Ignition OFF for 30 seconds

After the key is cycled back on the adaptation should be completed. If it is not completed, proceed with the next steps:

These steps must be repeated 5 times.

- Ignition ON
- Wait 5 seconds
- Ignition OFF
- Wait 40 seconds
- Repeat 4 more times

Note: If a code is NOT shown in the VCDS pop-up balloon registered customers can Join our Forum (http://forums.ross-tech.com) -or- send the complete Auto-Scan via email (https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=Support@Ross-Tech.com) with the recent repair history including the part number of the original/removed sensor and the new replacement sensor.

UDS Protocol (G450) procedure

Key ON, Engine OFF
[Basic Settings]
Select **Adaptation of diff. pressure sensor particulate filter**

[Go!] to activate the Basic Setting.
After the result of **Finished Correctly** appears click **[Stop]**

Select **Resetting of learned values of difference pressure sensor**
[Go!] to activate the Basic Setting.
After the result of **Finished Correctly** appears click **[Stop]**
[Done, Go Back]

Special Notes

- Exhaust Pressure Control Valve (J883) feedback from a 2009 NAR market Jetta is located Here (http://forums.ross-tech.com/showthread.php?4170-2010-jetta-tdi&p=41373&viewfull=1#post41373)
- G212/N18, G69/J338 and G336/V157 feedback from RoW market CBAB and CBBB engines in the Passat is located In this thread (http://forums.ross-tech.com/showthread.php?4408-Mb-123-124-tdi-cr-cbab-cbbb)
- FMA (Fuel Mean Value Adaptation / Kraftstoffmengen-Mittelwertadaptation) discussion is located In this thread (http://forums.ross-tech.com/showthread.php?6110-2-0-TDI-CBE-CJA-N276-adaptation&p=58745&viewfull=1#post58745)

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