

Bulletin Nr. : LPdi16004
Date : 20-10-2016
Subject : 1.2 and 1.4TSi solution regarding cold start problems
System / type: LPdi

Dear Vialle dealer,

We are glad to inform you that we have made a solution for the 1.2 and 1.4 TSi starting problems caused by the leaking high pressure pump.

Description of the problem:

It can happen that the client has some difficulties with starting of the car, which can be caused by a leaking seal of the high pressure pump. This is causing a too rich mixture during the start because the crankcase is filled with leaked vaporized LPG.

Solution:

We have made some changes in the wiring connections to have the possibility to power some components when the system isn't active. We also made special software to make it possible to work when the engine is off. These two changes make it possible to use our new strategy "Unpressurized". This new strategy makes it possible to get rid of the pressure in the FSU, high pressure pump and the LPG fuel lines when the system is off. The advantage is that when the high pressure pump might leak it can't be leaking anymore because there is no pressurized LPG anymore inside of the system.

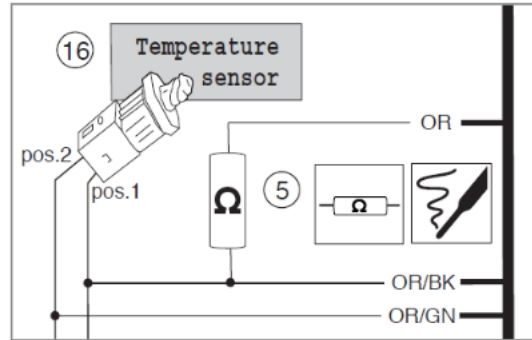
Shortly after the engine is turned off and the engine is hot the software starts to depressurize the system. The system is monitoring the pressure and check for pressure rising, we open the return valve to relieve the pressure back to the tank. After a while when the pressure isn't rising anymore the valve to the canister is opened which relieves the vapor pressure to atmospheric.

After the system is unpressurized the high pressure pump can't leak anymore. Leaving the system without pressure brings us to the next challenge and which is the first start. When there is no pressure and no pressurized liquid LPG in the system it will be hard to start the engine, which isn't what we want because we have made this strategy to make the start better. Therefore we have made the following changes;

- We have made a connection to the indicator lights of the car. The reason is that we need to have a trigger signal for starting up the system and the LPG pump to supply the high pressure pump with fluid LPG before the engine gets started. We have chosen the indicator lights because in most of the cars the door-locking system makes the indicator lights flash and that is ideal for us to prime and wake up the system.
- We have changed the software to start the LPG pump to run with a higher speed of 2800rpm for the first 10 seconds, in order to fill up the pressure as quick as possible. When the engine is started the LPG pump will again run 10 seconds at 2800 rpm and after that it switches to a lower speed.

Working procedure:

1. Before you start to make the changes on the system; write down or make a print screen from F1 data in the LDT. To be sure that you can program the right software afterwards. Check also that there are no error codes stored in LDT and OBD.
2. Switch the car to petrol and let the car run until the mix procedure has finished.
3. Shut down the engine and disconnect the battery to be sure that the system can't be activated during the work.
4. Be sure that there is an ECT resistor 18000hm and parallel connected



5. You can start to follow the next procedure.

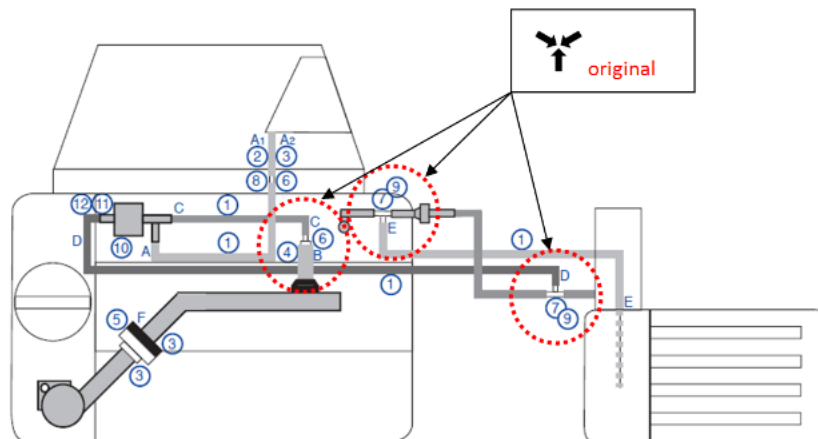
When you have a 1.4 TSi CAX.. or CAV.. engine, start at 6.

When you have a 1.2 TSi CBZ.. or 1.4 TSi CTH.. engine start at 7.

6. Crankcase ventilation system modification removal

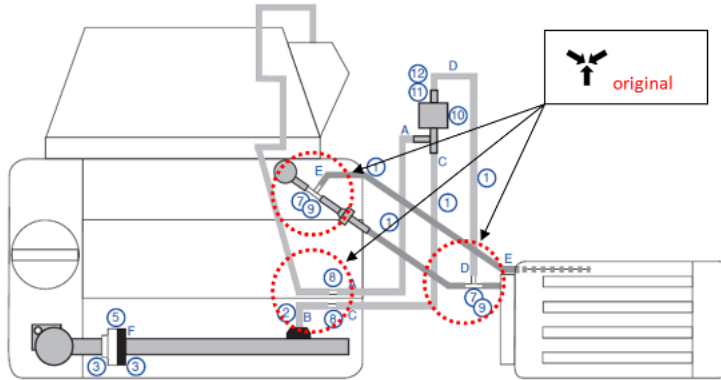
Check if the car has a modification on the crankcase ventilation system, when there is a modification set on it you have to remove the modified parts and make the connections original. The changes that are made are in the air connections and electrical on the FSU shut off valves.

CAV.. engines



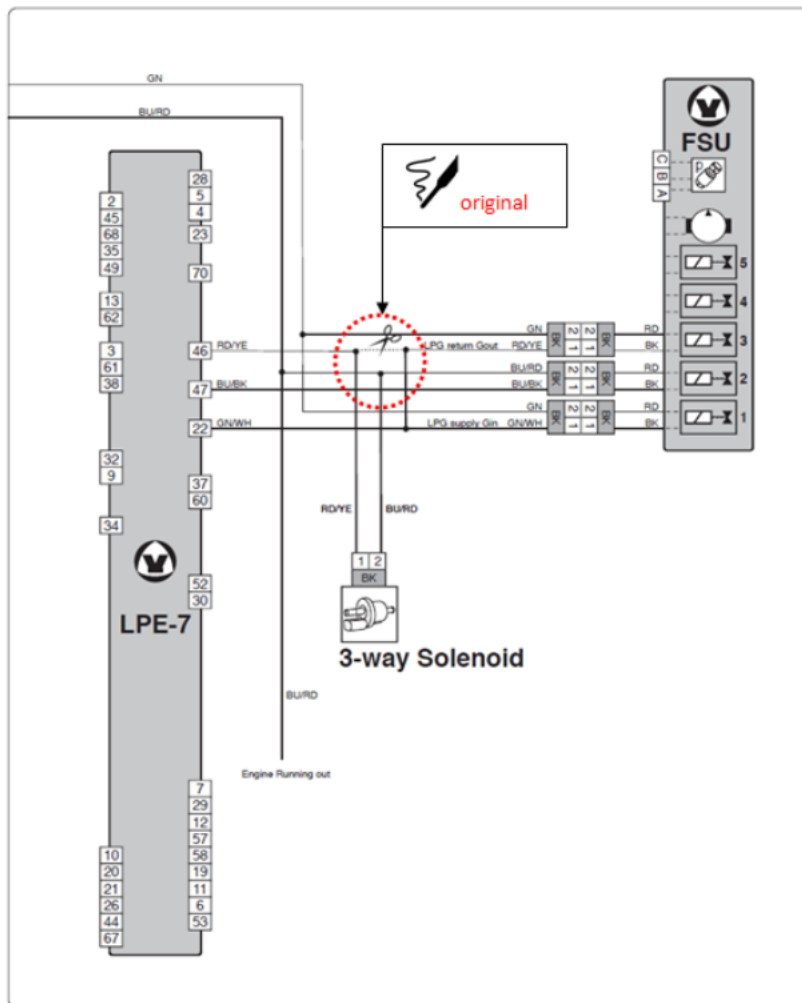
Manual 221979.2

CAX.. engines



Manual 221972.3

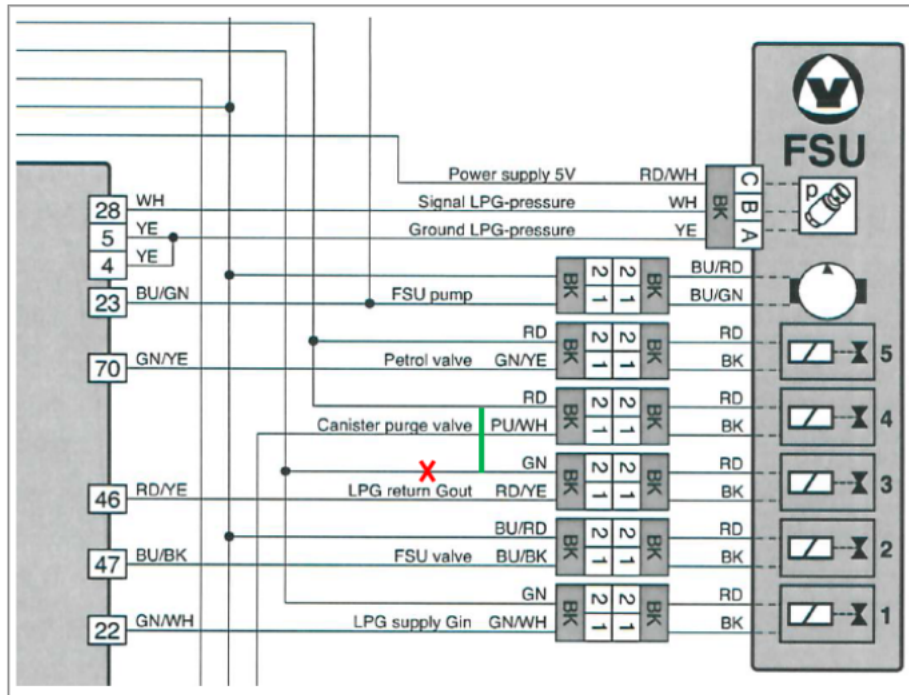
Electrical connection for the CAV.. and CAX.. engine.
Remove the 3-way solenoid and make the wiring back to original.



After you have made the electrical connections back to original don't isolate them at this point because you need to make some more changes at the next step 7.

7. New electrical connection for the power supply of shut off valve 3 “GOUT” at the FSU.

You have to cut the green wire of the 3th shut off valve on the FSU. Isolate the green wire which is coming from the LPE. The green wire which is going to the shut off valve needs to be connected parallel to the red wire of shut off valve 4.



8. Electrical connection to wake-up the LPdi system

We need to make an extra signal for waking up the LPG system to let the LPG pump start up to build up the pressure to be sure that the system is flushed before the engine is going to be started. We have chosen to take the wake-up signal from the indicator lights, because in most situations the car will be unlocked and the indicator light will be powered.

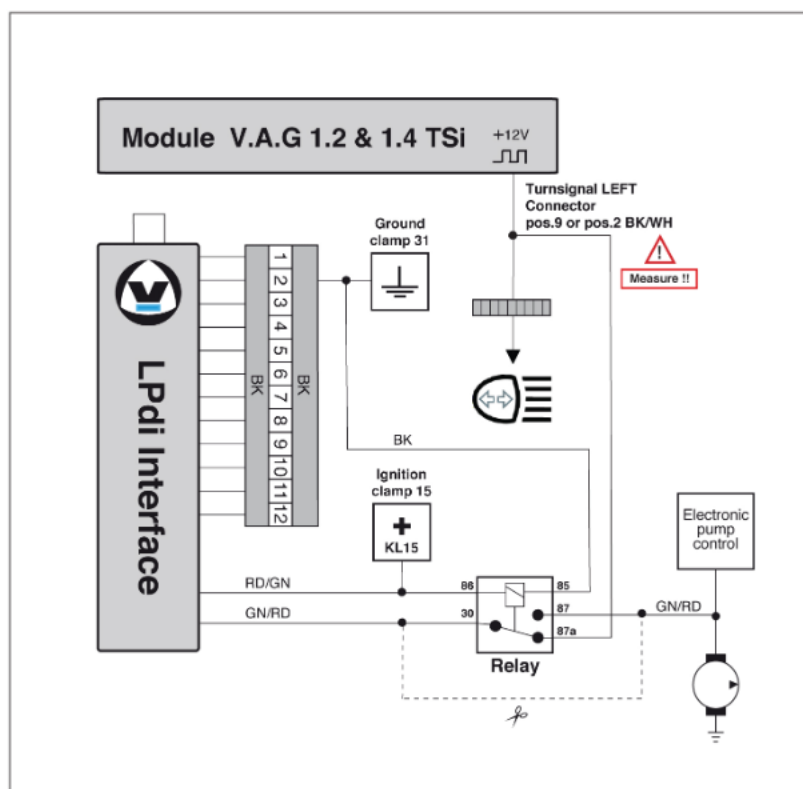
9. Type of interface

There are two types of interfaces used and the connection to generate a wake-up signal what needs to be made depending on what type of interface is used.

Type of interface	Next step
207614.0-207614.3	10
207614.4-350060.x	11

10. Connection with interface type 207614.0-207614.3

Position Relay	Function	Location	Wire
1 85	ground	pos2 (12p interface connector)	BK
2 86	+15	Wiring loom without connector	RD/GN
3 30	input interface	Wiring loom without connector	GN/RD
4 87a	Indicator light	pos9 (10p left headlight unit connector) or pos2 (2p left headlight unit connector)	BK/WT
5 87	Petrol pump control	To petrol pump	GN/RD



11. Connection with interface 207614.4 or 350060.x

This type of interface has 2 connectors and an extra option for wake-up, with signal wire WT/RD. Connect the WT/RD wire parallel on the positive wire of the indicator light.

Connector at the left indicator light*	pos9 (10pin left headlight unit connector) of pos2 (2pin left headlight unit connector)	BK/WT
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*2 times a 12V positive pulse when the car is unlocked

12. Reconnect the batter plus terminal and go to the next step 13.

13. Program the new Master Software

When the changes are made you have to program the new Master software. You have to connect your computer to the car and open the LDT software (updated with **version 16.0**). Let the car run on petrol and program the new master software in menu F8 with level3.

Type of FSU	Master Software
FSU-2	206960.9
FSU-3 (=with extra boost pump)	206961.3

14. Program the calibration

To program the right calibration file go to F8 Level2. In case of the 1.2 TSi you have to be careful by selecting the right ECT; ECT-1 or ECT-2 (use the same type as programmed before this modification, the one you have noted at the beginning).

15. Check the software

Go to F1 to check if you have programmed the right and same software as was programmed before (the only thing that needs to be changed is the version number behind the dot of the software-id). E.g. LPE number, master software and calibration file.

16. Tank rest liters

After you have checked for the software version go to F9 to fill in the right rest liters for the tank which is installed so the system can switch back at the right moment to petrol when the LPG tank is empty.

17. Switch to LPG

Now you are ready to switch to LPG, to check if it runs right on LPG and there are no error codes stored under F2 and F3.

We hope we have informed you enough in this matter, but when you do have some questions, don't hesitate to contact our helpdesk. helpdesk@vialle.nl

The Vialle Team,