

ECM and ACM Software Updates  
OBD2013, D11H, D13H, D16H  
VAH, VHD, VN**SP 284-042, ECM and ACM Software Updates**

(October 2013)

**Information**

Software updates with enhancements are available for the engine control module (ECM) and aftertreatment control module (ACM) **for vehicles built from the start of OBD2013 production to May 10, 2013.**

**Note: For vehicles built from May 11, 2013 to October 2, 2013, refer to SP 284-047.**

Software updates are to resolve the following diagnostic trouble codes (DTC).

- DTC P1086, Oil Level Moderately Low, low oil level light coming on during start up
- DTC P0420, NOx Catalyst: Missing SCR, catalyst system efficiency below threshold
- DTC P205B, Aftertreatment Diesel Exhaust Fluid (DEF) Tank Temperature Sensor: Rationality Low
- DTC P2002, PM Filter Efficiency Monitor, aftertreatment diesel particulate filter (DPF) efficiency fault
- D11 engine stumble with low coolant temperature and light load

**Note: A DPF Service Regeneration and Crystal Sublimation are required when programming is complete.**

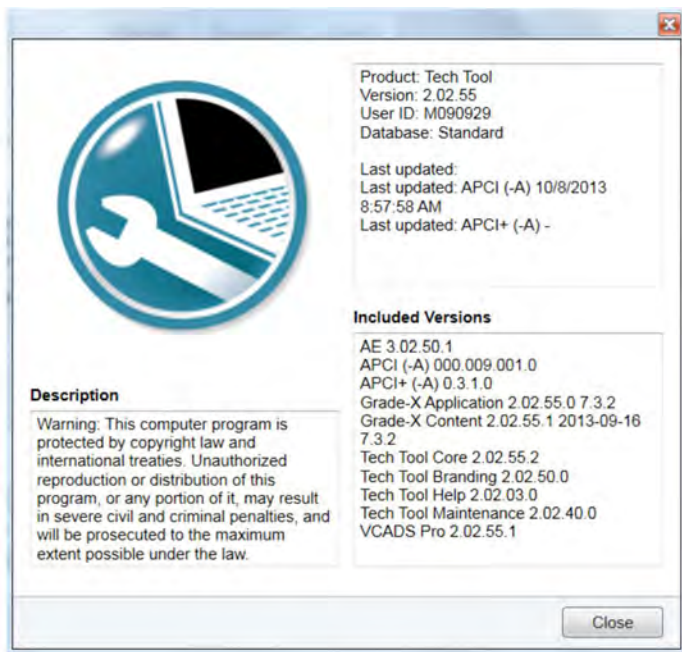
**Tools**

Premium Tech Tool version 2.02.55 or higher

Diagnostic Connector 88890304

Communication Interface 88890300 with firmware 1.12.0.2 or higher

Check Premium Tech Tool version by clicking on Help tab and then click on “About Tech Tool”.



W2085456

## Procedure



### **DANGER**

Do not attempt to repair or service this vehicle without having sufficient training, the correct service literature and the proper tools. Failure to follow this could make the vehicle unsafe and lead to serious personal injury or death.

- 1 Verify service program eligibility by checking service program status in eWarranty.
- 2 Secure the vehicle for service by parking it on a flat level surface, applying the parking brake, chocking the rear wheels, and placing the transmission in neutral.
- 3 Connect Premium Tech Tool (PTT) to the vehicle diagnostics connector using the 16 pin OBD cable 88890304 and Communication Interface 88890300. Connect the PC to a functional LAN or modem connection and a 120 Volt AC source.
- 4 Turn the ignition switch "ON".
- 5 Log in to PTT and Identify Vehicle is displayed.

- 6 Once the vehicle has been identified, enter the Work Order Number information, then click Start Work.

Work Order Number

Enter a work order number or select a recently used work order number in the list.

Enter work order number:

Select a recently used work order:

| Work Order No | User ID | Date |
|---------------|---------|------|
|---------------|---------|------|

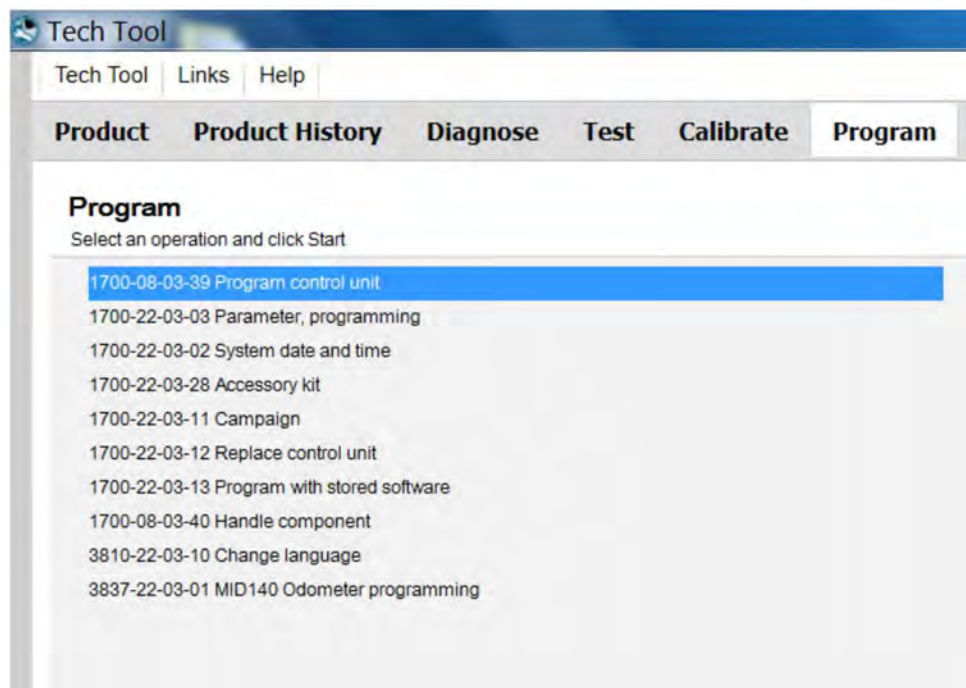
Enter Notes:

Start Work

Cancel

W2079940

- 7 From the Main Menu select Program and **then** Program Control Unit 1700-08-03-39. Then click Start.



W2085457

- 8 Select an electronic control unit from the list. For this campaign, update the engine control module (EMS) and aftertreatment control module (ACM).

Tech Tool

Tech Tool | Links | Help

Product | Product History | Diagnose | Test | Calibrate | Program | Impact

Select an Electronic Control Unit

Control Unit

Information display (MID 140)

Vehicle ECU (MID 144)

Radio (MID 206)

Gear Selector ECU (MID 223)

Aftertreatment Control Module (ACM)

Engine Control Module (EMS)

Transmission ECU (TECU)

- 9 Select Program to update the control unit with the latest software.

## Programming options

- ☒ Update control unit with latest software  
☐ Reload control unit with existing software

W2085461

- 10 Certain conditions must be met to continue with programming: battery voltage above 10v, parking brake applied, and ignition key in ON position with engine not running. When all conditions have been met, click Continue to proceed with programming.

| 1700-08-03-39 Program control unit - Update software |                                                                                                                                                                                                                                                             |                                                                                              |                                                                                     |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1                                                    |  > 10 V                                                                                                                                                                  | 12.7 V                                                                                       |  |
| 2                                                    |    |                                                                                              |  |
| 3                                                    |  On  = 0 rpm                                                                          |  On 0 rpm |  |

Automatically checked conditions:

- 1 Battery voltage above 10 V
- 2 Parking brake applied
- 3 Ignition key in ON position. Engine not running

W2080113

- 11 Select "I accept" to agree to the terms and press Continue to proceed.

1700-08-03-39 Program control unit - Update software

The following control units will be programmed

**Engine Control Module (EMS)**

Chargeable programming

The software you are about to program is chargeable. If programming is performed using the software, an invoice will be generated. Programming will be charged once even if multiple retries are needed.

The software has commercial part number

**85136079 : Engine Control Module**

The number can be used for price lookup in your local system and will be specified on the invoice.

☒ I accept

Select I accept to agree to the terms Press Continue to proceed

W2085462

- 12 When EMS programming is complete, click Exit to return to Main Menu to program the ACM.

**Note:** Engine hours will be lost once modules have been programmed.

- 13 When ACM programming is complete, select Test from the Main Menu. Select 2545-08-03-03 Diesel Particulate Filter Service Regeneration and click on Start.

Tech Tool

Tech Tool Links Help

Product Product History Diagnose Test Calibrate Program Impact

Test

Select an operation and click Start

Set by function

- 2 - Engine, Engine mounting and equipment
  - 20 - General
  - 21 - Engine
  - 22 - Lubrication and Oil System
  - 23 - Fuel system
  - 25 - Intake and exhaust system
    - 2500-08-03-02 Intake manifold pressure (IMP), Test drive
    - 2500-08-03-03 Response, test drive
    - 2500-08-03-05 Intake and exhaust system, check
    - 2530-08-03-02 Engine Brake Function
    - 2545-08-03-03 Diesel Particulate Filter Service Regeneration
    - 2545-08-03-04 Exhaust Aftertreatment System Logged Data
    - 2551-08-03-02 Variable Geometry Turbo Function
    - 2530-08-03-03 Warm-Hold Function
    - 2545-08-03-02 Exhaust Aftertreatment Diagnostics

2545-08-03-03 Diesel Particulate Filter Service Regeneration

To run this operation in simulation mode select Run as simulated

☐ Run as simulated

Purpose

- Perform a service regeneration (DPF)
- Check that the regeneration functions properly
- Prepare particulate filter for ash cleaning

Description

This operation is used to perform a "service regeneration" of the diesel particulate filter (DPF).

Operation may take approximately 20 - 30 minutes to complete

W2080634

14 Review the advisories, check the box and click on Continue.

**2545-08-03-03 Diesel Particulate Filter Service Regeneration**

Information >> Conditions >> Execution >> Result

 **WARNING**

Ensure that the vehicle is in a suitable place outdoors. The exhaust outlet must not be directed towards anything that could be damaged by high temperature. If the exhaust is directed towards the ground it is recommended to soak the ground below with water to prevent damage to the surface, or if possible position the vehicle on gravel surface. Ensure that the exhaust is not near flammable material.

A fire-extinguisher should be accessible in case of fire.

 **CAUTION**

Vehicles equipped with an exhaust aftertreatment system generate high exhaust gas temperatures during regeneration of the diesel particulate filter. If regeneration might occur while working with the vehicle, ensure that the exhaust outlet is not directed toward anything that could be damaged by high gas temperatures. Also, do not connect an exhaust vent hose to the vehicle since most exhaust vent hoses are not designed to handle high temperatures. Failure to follow this warning may result in high temperature exhaust gases overheating nearby structures or components resulting in a fire.

☒ I have read and understand the above advisory

Continue >

Cancel

W2080637

15 When all conditions are met, check the confirmed box and click on Continue.

1

(P)

2

On

3

4

5

6

2545-08-03-03 Diesel Particulate Filter Service Regeneration

Information >> Conditions >> Evaluation

Automatically checked conditions

1 Parking brake applied

2 Ignition key in ON position Engine running

3 Engine Coolant Temperature (ECT) above 122 °F

4 Accelerator pedal position below 6 %

Manual conditions

5 Gear selector in neutral position

6 Vehicle outdoors in a suitable area

☐ Confirmed

W2085464

16 When regeneration is complete, allow engine to idle until high exhaust system temperature (HEST) light goes off.



W3007444

High Exhaust System Temperature (HEST)

17 When the HEST light goes off, select Test from the Main Menu. Select 2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation and click on Start.

**Note:** Start the Crystal Sublimation process within 2 minutes of engine coming back to idle.

The screenshot shows the 'Test' menu on the left, with '2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation' highlighted. On the right, the test details are displayed, including a 'Purpose' section stating 'Perform DEF crystal sublimation' and a 'Description' section explaining that DEF crystals can form on the SCR catalyst under certain conditions, requiring manual regeneration.

W2083561

18 Review the advisories, check the box and click on Continue.

The screenshot shows the '2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation' test details. The 'Information >> Conditions >> Execution' section is expanded, showing a 'WARNING' and a 'CAUTION' advisory. The 'WARNING' states that the vehicle should be in a suitable place outdoors, and the exhaust outlet should not be directed towards anything that could be damaged by high temperature. The 'CAUTION' states that vehicles equipped with an exhaust aftertreatment system generate high exhaust gas temperatures during regeneration of the diesel particulate filter, and that the exhaust outlet should not be directed towards anything that could be damaged by high gas temperatures. At the bottom, there is a checkbox labeled 'I have read and understand the above advisory' which is checked.

W2083562

19 When all conditions are met, check the confirmed box and click on Continue.

2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation

Information \*\* Conditions \*\* Execution

Automatically verified conditions:

- 1 Parking brake applied
- 2 Ignition key in ON position. Engine running
- 3 Engine Coolant Temperature (ECT) above 122 °F
- 4 Accelerator pedal position below 5 %

Manual conditions:

- 5 Gear selector in neutral position
- 6 Reference from diagnostic tool information in Technical support
- 7 Vehicle subcooling is suitable temp

☒ Confirmed

W2085463

20 When sublimation is complete, allow engine to idle until HEST light goes off.



W3007444

High Exhaust System Temperature (HEST)

21 Clear any diagnostic trouble codes (DTC) and Finish Work.

**Reimbursement**

|                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>This repair is covered by an authorized Service Program. Reimbursement is obtained via the normal claim handling process.</b> |                             |
| <b>Claim Type (used only when uploading from the Dealer Bus. Sys.)</b>                                                           | B                           |
| <b>Recall Status</b>                                                                                                             |                             |
| Vehicle inspected, repair not required                                                                                           | 1- Inspected OK             |
| Vehicle repaired per instruction                                                                                                 | 2- Modified per instruction |
| <b>Labor Code</b>                                                                                                                |                             |
| Primary Labor Code                                                                                                               | 28438-0-02<br>— 2.3 hrs     |
| Time to take charge and determine campaign status                                                                                | 17003-0-0<br>— 0.3 hrs      |
| <b>Causal Part</b>                                                                                                               | 3092091                     |
| <b>Authorization Number</b>                                                                                                      | SP284-042                   |
| <b>Expiration Date</b>                                                                                                           | 31-OCT-2014                 |

**Note:** Take Charge Time is not included in the Labor Code for this operation. Take charge may be eligible but can only be used once per repair visit. If vehicle is having other warranty repairs performed, take charge should be charged to the warranty repair, otherwise take charge can be charged to this service program.