

This service program bulletin replaces bulletin SP 284-042
dated 10.2013.

Date	Group	No.	Release	Page
1.2014	284	042	02	1(12)

ECM and ACM Software Updates
OBD2013, D11H, D13H, D16H
VAH, VHD, VN

SP 284-042, ECM and ACM Software Updates

(January 2014)

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
- Piston Cooling Jet (PCJ) diagnostic fault logic
- Regenerations in cold climates (below -20°C [-4°F])

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

Tools

Premium Tech Tool version 2.02.71 or higher

Diagnostic Connector 88890304

Communication Interface 88890300 with firmware 1.12.0.2 or higher

Note: Check Premium Tech Tool version by clicking on Help tab and then click on "About Tech Tool".

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:

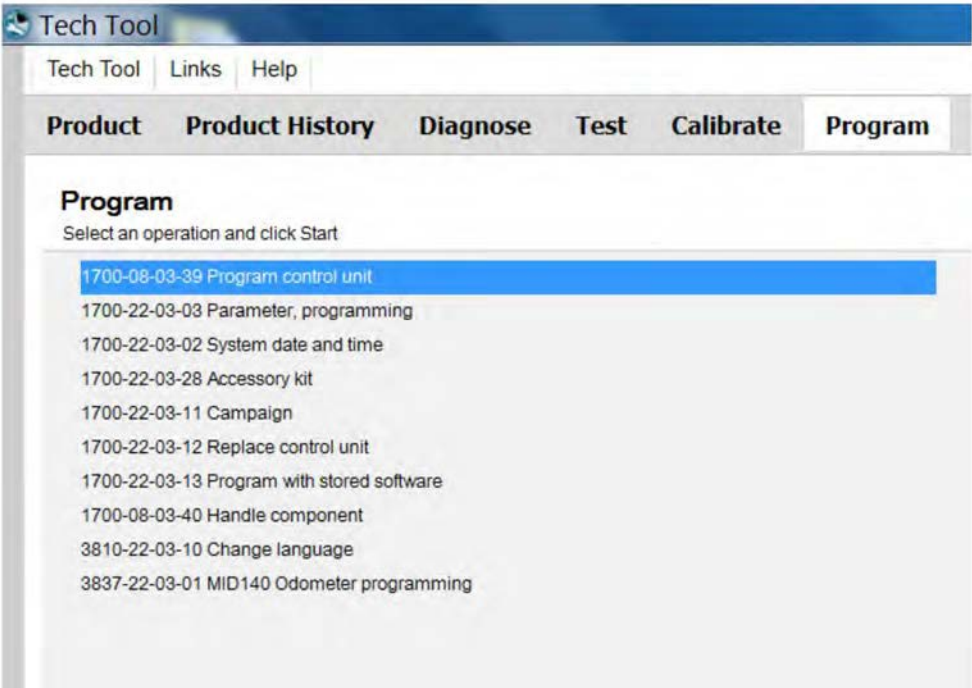
Work Order No	User ID	Date
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Enter Notes:

Start Work Cancel

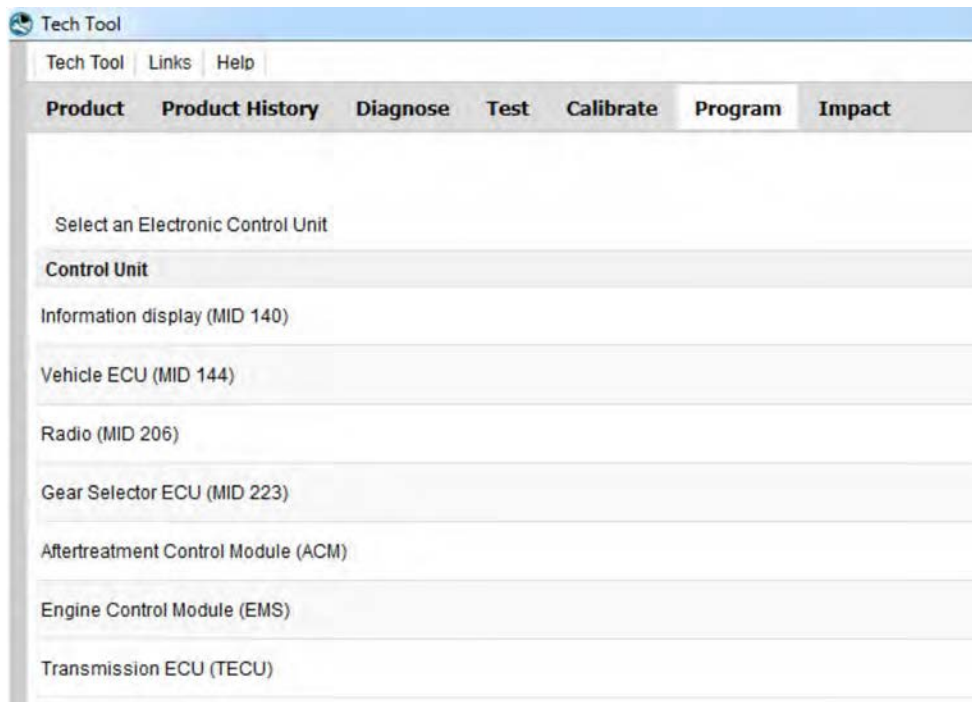
W2079940

- 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).



The screenshot shows the 'Tech Tool' application window. At the top is a blue title bar with the text 'Tech Tool'. Below it is a menu bar with 'Tech Tool', 'Links', and 'Help'. A tabbed interface is visible with tabs for 'Product', 'Product History', 'Diagnose', 'Test', 'Calibrate', 'Program' (which is selected), and 'Impact'. The main content area of the 'Program' tab contains the instruction 'Select an Electronic Control Unit' followed by a list of control units, each in a separate row with a light gray background:

- 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)

W2079943

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.

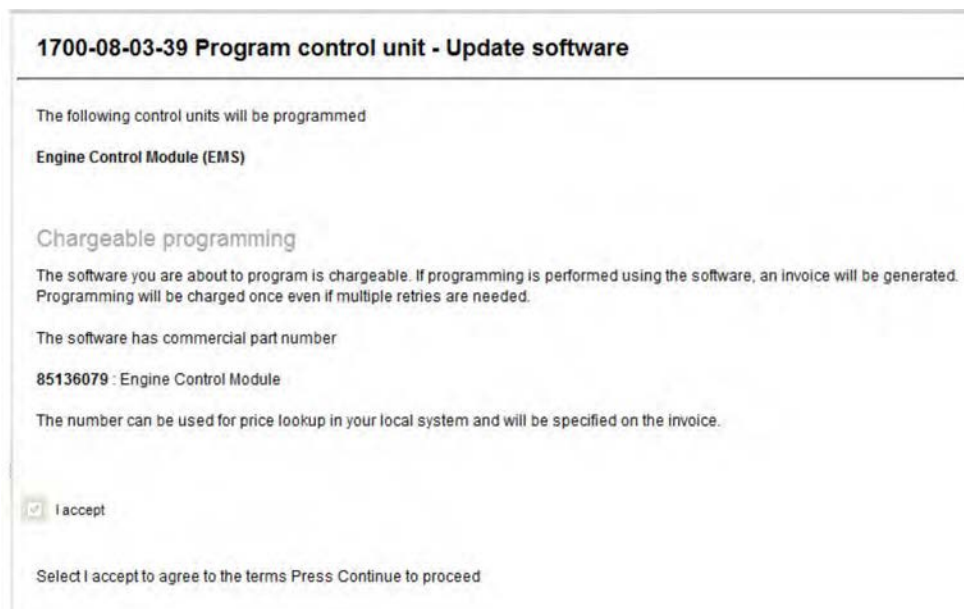
1700-08-03-39 Program control unit - Update software			
1	 > 10 V	12.7 V	
2	  		
3	  = 0 rpm	 0 rpm	

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

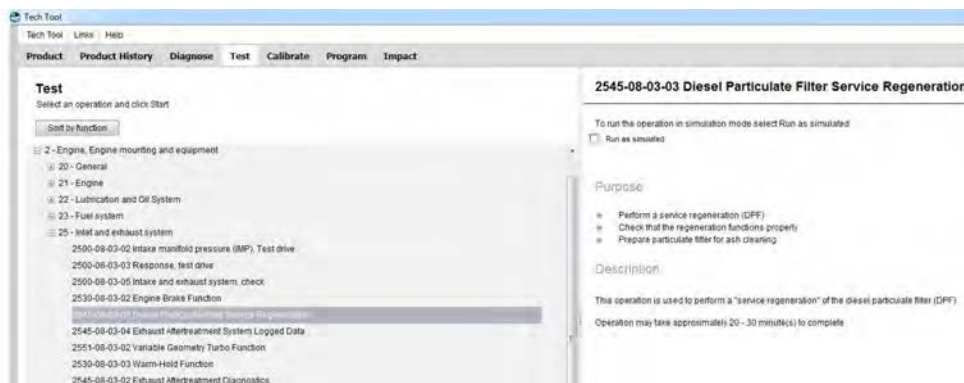
Select I accept to agree to the terms Press Continue to proceed

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

Sort 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 the 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 minute(s) 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

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

Information >> Conditions >> Exclusion

Automatically checked conditions:

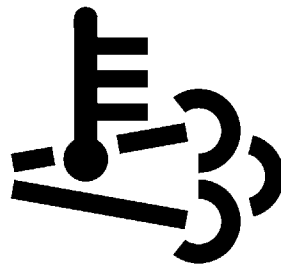
- 1 Parking brake applied
- 2 Ignition key in ON position Engine running
- 3 Engine Coolant Temperature (ECT) above 122 °F
- 4 Accelerator pedal position below 0 %

Manual conditions:

- 5 Gear selector in neutral position
- 6 Vehicle outdoors in a suitable area

☐ Confirmed

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



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.

Test

Saved an operation and click Start

Start by function group

Exhaust Aftertreatment

2545-09-03-02 Exhaust Aftertreatment Diagnostics

2545-09-03-03 Diesel Particulate Filter Service Regeneration

2545-09-03-04 Exhaust Aftertreatment System Logged Data

2589-09-03-05 Aftertreatment selective catalytic reduction (SCR) system

2589-09-03-06 SCR System Drain

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

2584-09-03-01 SCR System, forced heating

2589-09-03-03 NOx Conversion

Body Builder

Brakes

Cab

Chassis/Interface

Engine

GlobalProduct

Lighting system

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

To run the operation in simulation mode select Run as simulated

☐ Run as simulated

To run the operation with recorded values select Replay recorded values

☐ Replay recorded values

Purpose

Perform DEF crystal sublimation

Description

Under certain circumstances, the SCR catalyst may become loaded with DEF crystals. These deposits develop when the DEF is injected in cold duty cycles in which the SCR catalyst does not reach the proper temperature needed for chemical reaction. If the crystallization level becomes greater than that which can be removed by normal engine operation, manual regeneration may be needed.

Operation may take approximately 45 minutes to complete

This operation should only be used when referred by service information, Guided Diagnostics or Technical Support

W2083561

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

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

Information >> Conditions >> Execution

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

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 << Exit

Automatic any previous 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 %

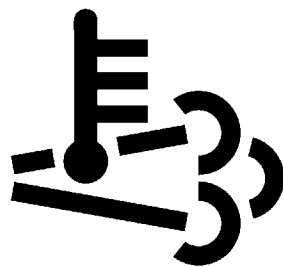
Manual conditions

5. Gear selector in neutral position
6. Reference from diagnostic/service information or Technical support
7. Vehicle outdoors in a suitable area

☐ 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

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