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EMS & ACM SOFTWARE UPDATE  
9700 (B13R)

## APPLICATION

<b>NOTICE TO SERVICE CENTERS</b>	
<i>Verify vehicle eligibility by checking warranty bulletin status with <b>SAP</b> or via <b>ONLINE WARRANTY SYSTEM</b> available on Service / Warranty tab of Prevest website.</i>	
Model	VIN
Volvo 9700 B13R Model Year : 2013- 2014	From 3CET2S226 <u>D5156182</u> , up to 3CET2S224 <u>E5163729</u> incl.
<b>This bulletin does not necessarily apply to all the above-mentioned vehicles, some vehicles may have been modified before delivery. The owners of the vehicles affected by this bulletin will be advised by a letter indicating the Vehicle Identification Number (VIN) of each vehicle concerned.</b>	

## DESCRIPTION

Software updates with enhancements are available for the engine control module (ECM) and aftertreatment control module (ACM) for the vehicles affected by the bulletin.

All vehicles require a DPF Service Regeneration *and* Crystal Sublimation when programming is completed.

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

## MATERIAL

No parts required for the bulletin.

## REQUIRED 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 TechTool".

## PROCEDURE





## DANGER

Park vehicle safely, apply parking brake and stop engine prior to working on the vehicle.

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. 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.
2. 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.
3. Turn the ignition switch "ON".
4. Log in to PTT and Identify Vehicle is displayed.
5. 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:

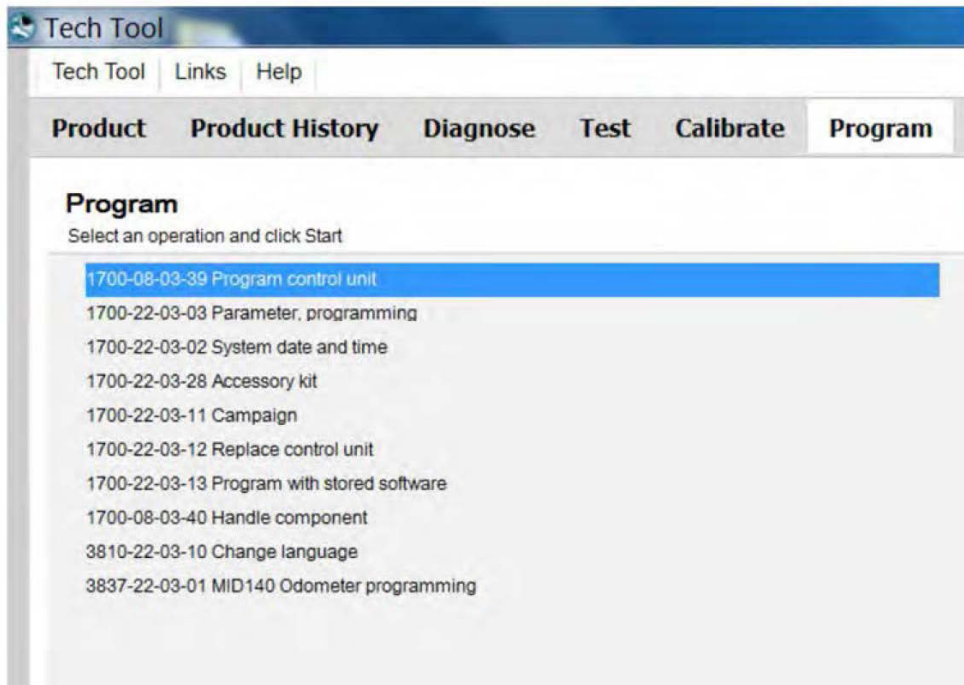
Select a recently used work order:

Work Order No	User ID	Date
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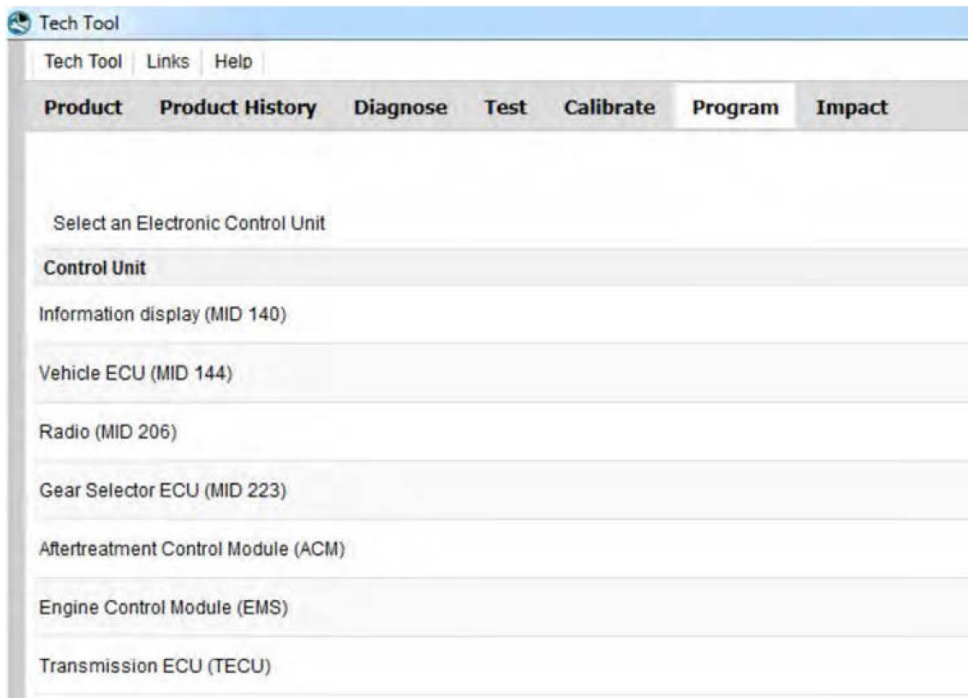
Enter Notes:

Start Work Cancel

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



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



8. 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

9. 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

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

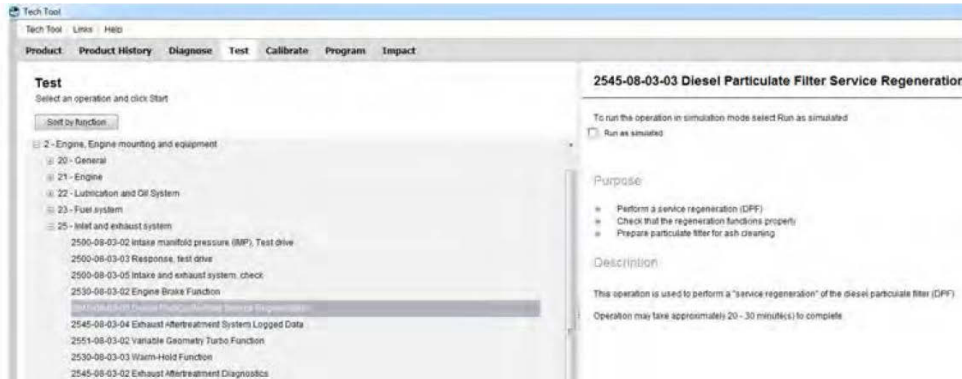
1700-08-03-39 Program control unit - Update software
The following control units will be programmed
<b>Engine Control Module (EMS)</b>
<b>Chargeable programming</b>
The software you are about to program is chargeable. If programming is performed using the software, an invoice will be generated. Programming will be charged once even if multiple retries are needed.
The software has commercial part number
<b>85136079</b> : Engine Control Module
The number can be used for price lookup in your local system and will be specified on the invoice.
<input checked="" type="checkbox"/> I accept
Select I accept to agree to the terms Press Continue to proceed

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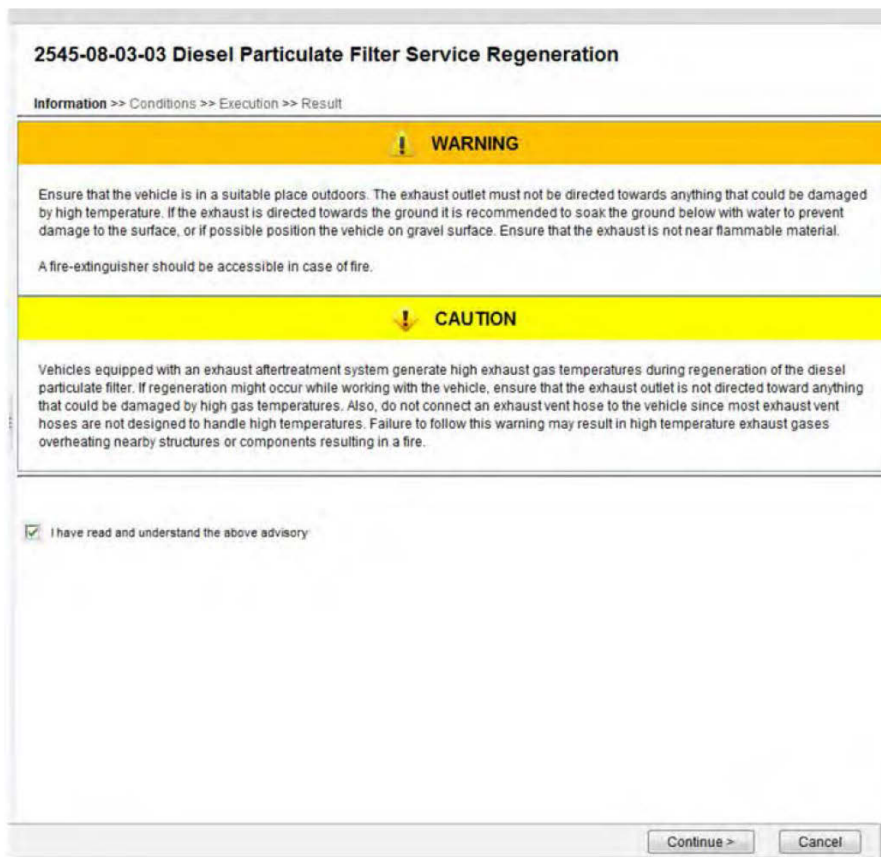
11. When EMS programming is complete, click Exit to return to Main Menu to program the ACM.

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

12. 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.



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



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

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The screenshot displays a diagnostic interface for Diesel Particulate Filter (DPF) Service Regeneration. On the left, a list of six conditions is shown, each with a status indicator (green checkmark or red X):

- 1. Parking brake applied (P icon) - Green checkmark
- 2. Ignition key in ON position, Engine running (On icon) - Green checkmark
- 3. Engine Coolant Temperature (ECT) above 122 °F (129.2 °F) - Green checkmark
- 4. Accelerator pedal position below 2% (< 0 %) - Green checkmark
- 5. Gear selector in neutral position (N icon) - Green checkmark
- 6. Vehicle outdoors in a suitable area (Garage icon) - Green checkmark

On the right, the title is "2545-08-03-03 Diesel Particulate Filter Service Regeneration". Below it, there are sections for "Automatically checked conditions" (listing items 1-4) and "Manual conditions" (listing items 5-6). A "Continue" button is visible at the bottom of the manual conditions section.

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



High Exhaust System Temperature (HEST)

16. 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 diagnostic tool interface for the "2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation" test. On the left, a "Test" menu is visible with a list of operations. The selected operation is "2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation". On the right, the test details are displayed:

- Test:** 2585-11-03-03 SCR, Diesel Exhaust Fluid, Crystal Sublimation
- Run as simulated:**
- 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, Dished Diagnostics or Technical Support.

17. 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

18. 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 prechecked 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
7. Vehicle outdoors in a suitable area

Confirmed

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



High Exhaust System Temperature (HEST)

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

## PARTS / WASTE DISPOSAL

DO NOT RETURN THE REPLACED PARTS. Discard waste according to applicable environmental regulations (Municipal/State[Prov.]/ Federal)

## WARRANTY

This modification is covered by Prevo's normal warranty.

We will reimburse you two hours (2 h) of labor upon receipt of a warranty claim.

Please submit claim via our Online Warranty System, available at [www.prevo.com](http://www.prevo.com) (under Service \ Warranty section). Use Claim Type: "Bulletin/Recall" and select "Warranty Bulletin WB13-85".

## OTHER

VBC Bulletin	
Fail Code	01.00-2
Defect Code	49
Syst.Cond.	B
Causal Part	3092091

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in the subject to receive our warranty bulletins by e-mail.

