SP18-35H

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Revision: H

Procedure updated

11/04/2021

## P20EE (diagnostic troubleshooting code) SOLUTION - NOX CONVERSION EFFICIENCY

Prevost vehicles

B13R (9700 us/can)

## **MODEL YEAR(S) AND VEHICLES INVOLVED**

### NOTICE TO SERVICE CENTERS

Verify vehicle eligibility by checking warranty bulletin status with **SAP** or via **ONLINE WARRANTY SYSTEM** available on Service / Warranty tab of Prevost website.

available on Service / Warranty tab of Prevost website.		
H3-41, H3-45 coaches	GHG17 or OBD18 compliant vehicles	
Model Year: 2017 - 2019	From 2PCH33494 <u>H</u> C71 <u>3735</u> up to 2PCH33492 <u>K</u> C71 <u>0467</u> (not inc	
H3-45 VIP motorhomes	GHG17 or OBD18 compliant vehicles	
Model Year: 2017 - 2019	From 2PCVS3493 <u>H</u> C71 <u>3747</u> up to 2PCVS3491 <u>K</u> C72 <u>0591</u> (not incl.)	
X3-45 coaches	GHG17 or OBD18 compliant vehicles	
Model Year: 2017 - 2019	From <b>4RK</b> G33491 <u>H</u> 973 <u>7417</u> up to <b>4RK</b> G33490 <u>K</u> 973 <u>7576</u> (not incl.)	
X3-45 coaches	GHG17 or OBD18 compliant vehicles	
Model Year: 2017 - 2019	From 2PCG33490 <u>H</u> C73 <u>6182</u> up to 2PCG33494 <u>K</u> C73 <u>6404</u> (not incl.)	
X3-45 VIP commercial use		
Model Year: 2017 - 2019	GHG17 or OBD18 compliant vehicles	
X3-45 VIP motorhomes	From 2PCCS3495 <u>H</u> C73 <u>6180</u> up to 2PCBS3491 <u>K</u> C73 <u>6437</u> (not incl.)	
Model Year: 2017 - 2019		
VOLVO 9700	GHG17 or OBD18 compliant vehicles	
Model Year: 2017 - 2019	From 3CET2V927 <u>H</u> 5 <u>184392</u> up to 3CET2V926 <u>K</u> 5 <u>194709</u> incl.	

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### **DESCRIPTION**

For the vehicles <u>on which a notification</u> for SP18-35 <u>exists</u>, perform the following checklist and operations. It has been determined that these vehicles had the code (DTC) P20EE activated.

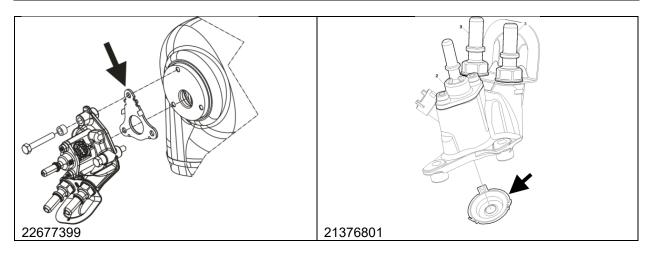
DO NOT perform this special bulletin on a specific vehicle unless a notification exists, otherwise, no reimbursement will be awarded.

You can request a vehicle to be notified, to do so, send a request to the Technical Publications functional mailbox: *technicalpublications\_prev@volvo.com* and include a screen capture of diagnostic troubleshooting code P20EE.

#### **MATERIAL**

#### Part required

Part No.	Description	Qty
22677399	GASKET, DEF INJECTION NOZZLE	1
21376801	SEALING PLATE	1



#### NOTE

Material can be obtained through regular channels.

Other parts that may be required. Note that these parts are not covered by this bulletin.

Part No.	Description	Qty
22303390	NOx SENSOR, PRE	1
22303391	NOx SENSOR, POST	1

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Park vehicle safely, apply parking brake, stop the engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

## **IMPORTANT NOTES**



<u>DO NOT perform</u> WB18-04 or WB18-84 EMS & ACM SOFTWARE UPDATE <u>before</u> the following checklist, otherwise useful diagnostic codes and monitor data could be erased.

Wb18-04 for Prevost coaches, Wb18-84 for Volvo 9700



Any troubleshooting labor of active DTCs (Diagnostic Troubleshooting Codes) other than P20EE is considered as a separate operation of the RO (repair order) and cannot be charged to this special bulletin.



Perform the steps in the same order as they appear. If this recommendation is not followed, required diagnostic information might not be recoverable after the software update.

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Vehicle identification				
H3 X3 9700		V.I.N (short) :		
OPERATIONS TO BE PERFORMED IN ADVANCE BY THE SERVICE ADVISOR				
Ask the customer whether he/she noticed an abnormal consumption of oil or coolant.				
Search all relevant information concerning the aftertreatment system or severe turbo failure in the history of repairs of the vehicle and record. Attach to the repair order.				
Also check if SP18-35 has already been performed on that particular coach. If this is the case, do not perform SP18-35 once again, contact the Technical Publications for instructions. You can send a message to the Technical Publications functional mailbox: technicalpublications_prev@volvo.com				
NOTE/RESULTS:				

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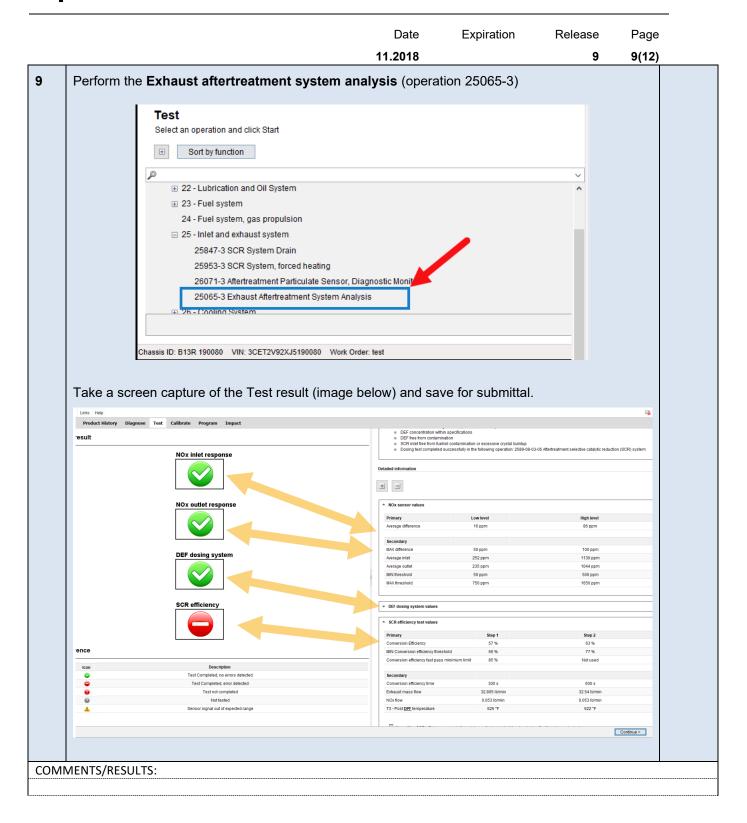
Date Expiration Page Release 11.2018 5(12) # checklist INITIALS & DATE 1 Before performing any engine ECM software update, connect PTT and check the diagnostic codes related to EMS and ACM. Confirm that code P20EE is present (whether active or inactive). Take a screen capture of the DTCs and save for submittal. Is the code P20EE present? YES □ NO COMMENTS/RESULTS: 2 Before performing any engine ECM software update, take a screen capture of the five most recent SCR efficiency evaluations and save for submittal. Test screen 2589-08-03-05 on PTT with software version prior to 2.8 Operation 25846-3 option D on PTT with newest software version (see next image) Test Select an operation and click Start Sort by function ⊕ 22 - Lubrication and Oil System ⊕ 23 - Fuel system 24 - Fuel system, gas propulsion □ 25 - Inlet and exhaust system 25003-3 Boost Pressure Test Drive 25005-3 Response, Test Drive 25006-3 Intake and Exhaust Systems, Checks 25336-3 Engine Brake Function 25340-3 Warm Hold Function 25456-3 Exhaust Aftertreatment Diagnostics 25920-3 Exhaust Aftertreatment System, Service Regeneration 25463-3 NOx Conversion 25464-3 Exhaust Aftertreatment System Logged Data 25537-3 Variable Geometry Turbo Function 25846-3 Aftertreatment selective catalytic reduction (SCR) system 25847-3 SCR System Drain 25953-3 SCR System, forced heating 26071-3 Aftertreatment Particulate Sensor, Diagnostic Monitor 25065-3 Exhaust Aftertreatment System Analysis ■ 26 - Cooling System Chassis ID: B13R 190080 VIN: 3CET2V92XJ5190080 Work Order: test OPERATION 25846-3 OPTION D ON PTT WITH NEWEST SOFTWARE VERSION

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	Example of SCR efficiency evaluations			
	DTC P20EE			
	Test Values - NOx/SCR Monitor Data			
	80 % Minimum fault limit			
	79 % Evaluation (Most recent)			
	77 % Evaluation 2			
	76 % Evaluation 3			
	80 % Evaluation 4			
	81 % Evaluation (Oldest)			
CON	MMENTS/RESULTS:			
3				
COV	MMENTS/RESULTS:			
	THE THE TENT OF TH			
4	Check and record the engine ECU (a.k.a. Engine Control Module ECM) software number.			
	To do so, check in the dashboard DID. Select DIAGNOSTICS > PART NUMBER > ENGINE ECU			
	To do so, shook in the dashboard Bib. colost Birtonochico vi yaki incimber vi Enterne Esc			
	Diagnostics 1/6			
	View Active Faults			
	View Inactive Faults Cluster selftest			
	Part Number			
	Reset Inactive Faults Vehicle Tests Transmission ECU Hardware number:			
	Instrument Cluster   22581011P01			
	Vehicle ECU 12345678 Software number:			
	Aftertreatment ECU 23398790P01			
	Battery monitor ECU			
	Brake ECU			
	Engine ECU software number:			
CON	COMMENTS/RESULTS:			
5	Engine ECU (a.k.a. Engine Control Module ECM) software update.			

Date Expiration Release Page 11.2018 7(12) If the engine ECU software is not up to date, perform an update to the latest version (software version should be 23766686 or higher). COMMENTS/RESULTS: 6 Remove DEF doser, perform the dosing test (operation 25846-3 option B) and record the results Expected values: small dosing: 49 - 60 ml large dosing: 196 - 240 ml Dosing amount: small ml large \_\_ Tech Tool ð Tech Tool Links Help = Product Product History Diagnose Test Calibrate Program Impact Maidcom VBC Remote 25846-3 Aftertreatment selective catalytic reduction (SCR) system Simulation Check that a newly installed, repaired, overhauled or replaced SCR system works correctly Description It will be necessary to remove the dosing valve from the inlet pipe in one of the tests Selections Select the illustration corresponding to the method or test to be performed A - System pressure build up Check function/leakage of pump and hoses B - Dosing test Check function/leakage of dosing valve Perform the Dosing test after the dosing valve has been replaced in order to exit inducement and clear <u>DTC</u> P208E or P103B COMMENTS/RESULTS: Test the concentration of DEF and record the result below. Tool: refractometer # 88890105. 7 DEF GOOD range °C|°F -40 -40 -30 --20 - 4 ETHYLENE 88890105 Apply a drop of DEF on the viewer of the refractometer. If the level is above the word "DEF" or below the word "AdBlue" the DEF is contaminated. If no level is shown, it may indicate chemical residue, such as pure water or diesel Is the DEF of proper concentration? YES NO□

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8	Check inside the pipe downstream of the DEF injector for any a DEF, attach pictures of crystal accumulations if applicable. Reinseals.			
	NOTE: A small amount of crystal accumulation is normal.			
	Is there significant/excessive DEF crystal buildup?	YES 🗆	NO□	
CON	MMENTS/RESULTS:			



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10 Authorization for the replacement of the SCR converter An analysis of this checklist with the comments/results must be done in order to allow the replacement of the SCR converter. Scan and send this checklist with all the relevant documents, screen captures, etc. to the Technical Publications functional mailbox: technicalpublications prev@volvo.com Please indicate in the "subject line": <u>SP18-35</u> and the <u>short V.I.N</u>. as in the example below... = • То... Function Prevost Technical Publications Send Cc... Cc<u>i</u>... Subject: sp18-35 F-1234 COMMENTS/RESULTS:

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#### PARTS / WASTE DISPOSAL

Discard waste according to applicable environmental regulations (Municipal/State [Prov.]/ Federal)

### WARRANTY

This diagnostic is covered by Prevost's normal warranty. We will reimburse you the parts and labor upon receipt of a warranty claim according to the following:

#### PARTS COVERED BY THIS BULLETIN

22677399 DEF injection nozzle gasket Qty: 1 21376801 sealing plate Qty: 1

Any other parts such as parts installed to correct exhaust leaks or for the replacement of sensors cannot be charged to this bulletin. These are covered by the normal warranty when applicable and must be charged on a different operation.

#### LABOR COVERED BY THIS BULLETIN

The time allowed to complete this bulletin in its entirety is 2.25 hours

This allowed time covers the execution of the procedure described in this document only. Any corrective work such as replacing the DEF injector, correcting exhaust leaks or any diagnostic work of active DTCs codes other than P20EE is considered a separate operation on the repair order and cannot be charged to this special bulletin.

Please submit claim via our Online Warranty System, available at <a href="www.prevostcar.com">www.prevostcar.com</a> (under Service \ Warranty section). Use Claim Type: "Bulletin/Recall" and select "Warranty Bulletin SP18-35".

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## **OTHER**

VBC Bulletin	N/A
Fail Code	04.04-1
Defect Code	9
Syst. Cond	В
Causal Part	21970125

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