TECHNICAL SERVICE BULLETIN No. 22/2025

21/11/2025

Heavy Commercial Vehicles

Circulate to:	Service Manager	Warranty Manager	Parts Manager	Master Technician	Service Consultant	BMIS
	✓	✓	✓	✓	✓	✓

Subject	Urea Pump Diagnosis and Replacement
Model	All 12,7L & 9L EU6 Vehicles
Summary	Introduction of a guideline document to systematically perform the required checks prior to Urea Pump replacement

Labor Code:

For the Cheklist Steps 1-6, use the main labor F4V53 TSB2225 with the complete recipe below:

EWNG Code	Description	Labor Time (h)
F4V53 TSB2225	Urea Pump Failure Detection according to TSB-ENHCV-2225 step 1-4 (Including DTC Scan, Physical Inspection, Filter Check, and Electrical Checks)	0,65
F4V53 5J250	SCR Tank R/I	0,25
F4V53 5H297	Urea Pump R/I	0,25
F4V53 5L267	Urea Pump Back Flow Connector R/I	0,05
F4V53 SVCREGEN	Service Regeneration	0,3
	TOTAL:	**1,5**

If the 7th cheklist step is applied and urea pump replacement is required after all evaluations, use additional Urea Pump and SCR Tank R/I labor codes (F4V53 5H297 &F4V53 5H297)

EWNG Code	Description	Labor Time (h)
F4V53 5J250	SCR Tank R/I	0,25
F4V53 5H297	Urea Pump R/I	0,25
	TOTAL:	**0,5**

Note: If both labor codes are added as receipts, the EWNG System might eliminate the duplicated F4V53 5J250 and F4V53 5H297 codes since these are used in both pump replacement and backflow chart replacement. You can add these two labor codes one by one for the second time in case the SCR Pump is replaced after all evaluations (Cheklist step 7).

Parts to be used:

Part Number	Part Description
PC46-5H297-A*	Urea Pump
GC46-5L267-A*	Back Flow Connector
GC46-5L264-A*	Urea Pump Filter

Introduction

In Gen1.5 and Gen2 Vehicles, A DTC detected as P20F6-01 - P2BAA-01 - P204B-34 - P204B-00 - P204B-32 - P204B-31 - P204D-22 - P204C-21 - P204D-85 - P20E8-01 - P20F6-00 - P204D-24 - P204C-23 - P20B6-00 - P20B6-86 - P20AD-00 - P20AD-86 - P204D-12 - P204C-11 - P204D-00 - P204C-00 - P20A3-00 - P20A2-00 - P06F1-02 - P06F1-00 - P06F1-03 - P24FE-00 - P20AD-31 - P20AD-24 - P20AD-02 - P20C1-00 - P20C4-00 - P208B-01 - P20C3-00 - P208B-24 - P208B-31 - P208A-00 - P208B-4B - P208D-00 - P208C-00 - P20A0-00 - P249C-00- P24FF-00

Customers may report that the Malfunction Indicator Lamp (MIL) on the dashboard is illuminated or that there is a reduction in engine power. During the initial inspection, one or more of the Diagnostic Trouble Codes (DTCs) listed above may be present. The purpose of this bulletin is to implement a standardized and documented fault diagnosis process before replacing the Urea Pump Module. This process is designed to prevent inefficient urea pump replacements and ensure accurate identification of the root cause of the fault.

Records for each step of this procedure (reports, measurement values, photos) must be uploaded to the Export Warranty Claim.

For details on the actions to be performed, please refer to the ‘Service Implementation’ section.

Service Implementation:

For vehicles that arrive with the DTCs listed at the beginning of the procedure or with related urea system complaints, the complete repair procedure to be followed is described in Table 1: Urea Pump Replacement Checklist.

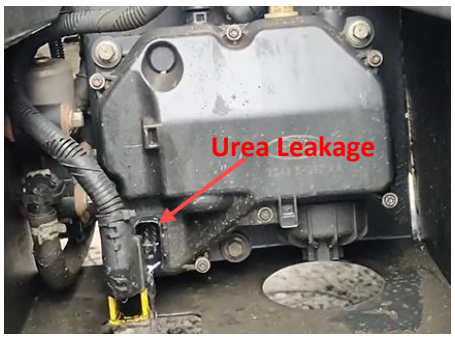
Table 1 Urea Pump Replacement Checklisst

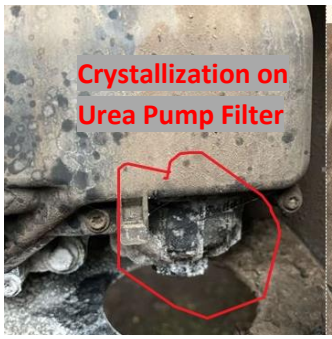
Urea Pump Replacement Checklisst		
No	Control	Explanation
1	Initial Check and DTC Scan	* Connect the FODIT tool and perform a full DTC scan. Save the report including all active and stored fault codes in the ECM. * [LOG 1] Save the complete DTC report as a PDF to be submitted with the warranty claim ticket. * If there is a fault related to the urea pump, proceed to the next step.
2	Physical Inspection for Damage and Leaks	* Visually inspect all urea lines connected to and from the pump module for signs of crushing, bending, leakage, or physical damage. * Inspect the pump module housing for any cracks or damage (Sample damage and leakage images - Image 1). * LOG 2] Save photos of the detected damages to be submitted with the warranty claim ticket. If the damage is repaired, proceed to Step 6: DPF Regeneration Test and Functional Checks. * If the fault still persists, proceed to the next step.
3	Urea Filter Contamination Check	* Remove the urea filter (5L264) from the pump module. Inspect it for crystallization, contamination, oil/diesel ingress, or clogging (see “Contamination in Urea Filter” - Image 2). * [LOG 3] Attach a photo of the removed filter to the warranty claim ticket. * If contamination is observed in the filter, proceed to Step 6: DPF Regeneration Test and Functional Checks. * If the filter appears clean, replace the filter and move on to the next step.
4	Pump Module and Harness Electrical Checks	* With the ignition off, disconnect the ECM (C1E115-C1) and Urea Pump Module (C1E348) connectors. Using a multimeter, perform wiring harness and component resistance checks. Expected values can be found in Table 1. * [LOG 4] Complete the “Electrical Measurement Table” in Table 2 with all pre-repair and post-repair values and save it as a document. Attach this document to the warranty claim ticket. (See Urea Pump Pin diagram - Image 3). * If a wiring fault is found and repaired, proceed to Step 6: DPF Regeneration Test and Functional Checks. * If no electrical problem is found, move on to the next step.
5	BackFlow Connector Replacement	* For this step, you need to remove the Urea Tank. Then, replace the backflow valve (5L267) connector located on the urea pump as shown in Image 4. Damage in this connector is usually internal and not visible. Tightening torque: 4.5 Nm ± 0.5. * This step is a critical, low-cost action that often resolves “pressure” faults and prevents unnecessary pump replacement.
6	DPF Regeneration Test and Functional Checks	* Reconnect all components. Initiate the DPF regeneration. * During the test, ensure there are no leaks or abnormal noise, and system pressure on the AFFT screen (RAP) approx. 9000 hPa (Image 5). * [LOG 5] Take a screenshot of the AFFT screen and, after regeneration is complete, perform a new full DTC scan and attach it to the warranty claim ticket.
7	Final Decision and Pump Replacement Authorization	* After all the above steps are completed and all records ([LOG 1] through [LOG 5]) have been attached to the document, if the issue is still not resolved, the pump replacement can be performed. * After replacing the pump, initiate the DPF regeneration again. Ensure that no fault codes reappear after regeneration.

Table 1 Electrical Measurements

Check Point	Pins at C1E348	Pins at C1E115 (ECM) C1	Expected Value (Limit)	Measured Value (Pre-Repair)	Measured Value (Post-Repair)
Component Resistance Checks					
Return Valve (RVV) Coil Resistance	11 & 12		19 - 23 Ω (at 20°C)		
Heater Element Resistance	5 & 6		5 - 8 Ω (at 20°C)		
Wiring Harness Continuity (ECM to C1E348)					
Pressure Sensor Supply (+)	2	23	< 1.0 Ω		
Pressure Sensor Signal	3	32	< 1.0 Ω		
Pressure Sensor Ground (-)	4	31	< 1.0 Ω		
Heater Circuit	6	18	< 1.0 Ω		
Heater Circuit	5 to power distrubition box (BB01) / R09-05		< 1.0 Ω		
Pump Motor Circuit	8	22	< 1.0 Ω		
Pump Motor Circuit	9	8	< 1.0 Ω		
Pump Signal (SIG PMP)	10	2	< 1.0 Ω		
RVV Circuit	11	5	< 1.0 Ω		
RVV Circuit	12	4	< 1.0 Ω		
Short Circuit Checks (All pins to Ground)	All pins (one by one)		OL (Open Circuit)		
Live Voltage Checks (Connectors plugged in, Key ON/Engine ON as required)					
Pressure Sensor Supply Voltage	2 (+) & 4 (-)	23 & 31	4.75 - 5.25 V		
Pump Motor Voltage (during UDST)	8 (+) & 9 (-)	22 & 8	> 19 V (during dosing) 4.75 - 5.25 V (no dosing)		
Heater Voltage (when active)	5 (+) & 6 (-)	18	> 20 V 0V (not in heating mode)		

Picture 1 Physical Inspection for Damage and Leaks



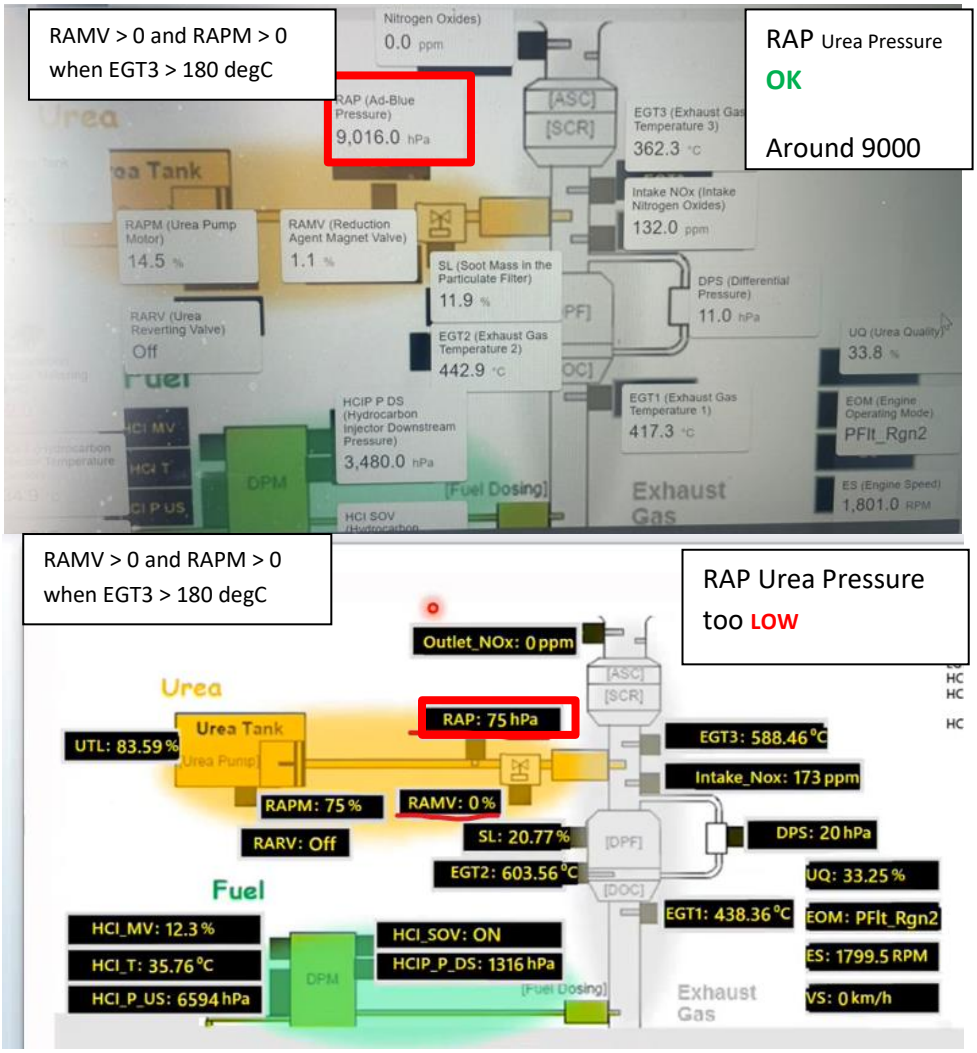


Picture 2 Contaminated Urea Filter..

Picture 3 Urea Pump Pin Layout.

Picture 4 Back Flow Connector

Picture 5 AFFT Screen



Note: The DPF Regen application on step 6 can be performed via Manuel Regen (25 min). Extended service regeneration is not required for the parameter check.

- Further images and explanations are in the Appendix 1.

Note: During each inspection step, capture clear photos and/or videos. All visual evidence, along with the full DTC (Diagnostic Trouble Code) data, must be compiled and saved for this work order.

This collection of evidence must be retained and made available to the warranty engineer upon request.

Kindly bear in mind that warranty claims for newly opened work orders that do not have all the required evidence will not be approved for Urea Pump Module failures.

Best regards,

Ford Trucks Service Engineering
Ford Otomotiv Sanayi A.Ş.