



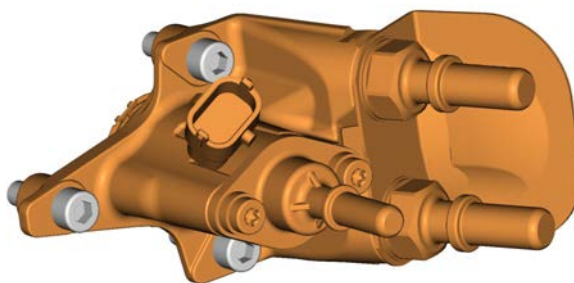
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Aftertreatment Diesel Exhaust Fluid  
(DEF) Dosing Valve

Clean

CHU, CXU, GU, LEU, MRU, TD

## Aftertreatment Diesel Exhaust Fluid (DEF) Dosing Valve, Clean



W2054160

This document provides the service procedures for the cleaning the aftertreatment diesel exhaust fluid (DEF) dosing valve on MACK vehicles.

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**Note:** Information is subject to change without notice. Illustrations are used for reference only, and may differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

# Service Procedures

## 2589-11-02-04

### Aftertreatment Diesel Exhaust Fluid (DEF) Dosing Valve, Clean




The US2010 DEF dosing valve may during the course of a repair need to have DEF crystals cleaned from its tip before installation. Some crystal build up is normal and is in itself not an issue.


**Note: The dosing valve does not have a standard service interval.**

This cleaning procedure should only be used when a fault is present. Use Guided Diagnostics for fault tracing procedures. The cleaning procedure should only be carried out when directed to by Guided Diagnostics.

Diagnostic trouble codes (DTCs) SPN 4094 FMI 18 SCR System Performance, SPN 3251 FMI 0 Aftertreatment DPF Differential Pressure, SPN 5246 FMI 15 Inducement Level 1 or 2 and SPN 5394 FMI 17 Dosing Failure may indicate DEF crystal formation. Lack of power complaints due to high backpressure can also be an indication of DEF crystal formation.

The height and width are the most important measures of crystal formation in the exhaust pipe since they contribute to backpressure, but length along flow direction is also important since it increases the risk for further growth. Height, length and width in the table are not rigid, but are intended to give an idea of maximum allowed size within each level.

<p><b>Level 0 or 1</b></p>	<p>Normal crystal formation that is caused by DEF drying on the surface of any component. These types of crystals can be wiped or rinsed off with water and do not necessarily need to be cleaned up unless it interferes with the doser valve installation or interferes with the spray holes.</p>	 <p>W2061887</p>
<p><b>Level 2</b></p>	<p>Crystals 20 x 20 x 10 mm (0.8 x 0.8 x 0.4 in) up to 80 x 80 x 30 mm (3 x 3 x 1 in) or similar measures. This is normal crystal formation. Remove all crystals from pipes and around DEF dosing valve using procedure below.</p>	 <p>W2063444</p>  <p>W2061892</p>

<p><b>Level 3</b></p>	<p>Crystals larger than 80 x 80 x 30 mm (3 x 3 x 1 in). This is abnormal crystal formation. Remove all crystals from pipes and around DEF dosing valve using procedure below. Investigate root cause of crystal formation (leaking DEF dosing valve, damaged pipe or damaged thermal wrap).</p>	 <p>W2061895</p>
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If crystal formation is suspected, perform the following procedure.

 **WARNING**

Aftertreatment DEF is an irritant. Inhaling DEF mist can cause lung irritation. Avoid DEF contact with skin and eyes. If DEF contacts skin, remove contaminated clothing and rinse skin with plenty of water. If DEF contacts eyes, rinse eyes for several minutes. Get medical help, if necessary.

 **CAUTION**

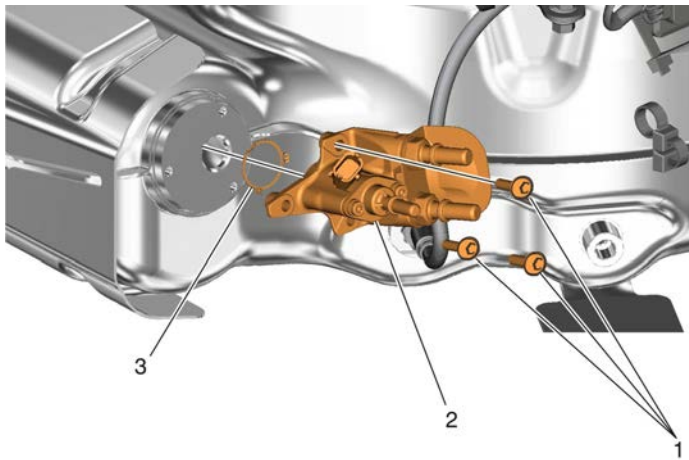
Make sure to thoroughly clean Aftertreatment DEF off of tools and clothes, so that fluid or crystals do not transfer to other components that could be damaged. DEF is highly corrosive to certain metals, including copper and aluminum.

**Note:** Do not flush DEF spillages into a regular drainage system. Dispose of DEF properly according to local regulations.

**Note:** Do not allow DEF to come into contact with other chemicals. DEF is not flammable. If it is exposed to high temperatures, it breaks down into ammonia and carbon dioxide.

You must read and understand the precautions and guidelines in Service Information, Group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

## Clean



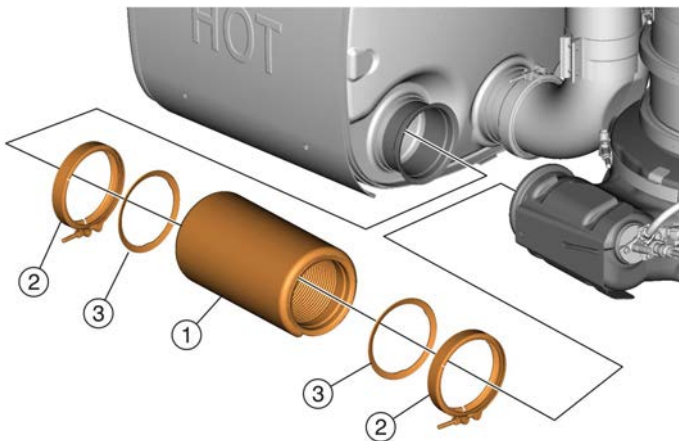
W2055450

- 1 Fasteners
- 2 DEF Dosing Valve
- 3 Gasket

- 1**  
Remove and discard the aftertreatment DEF dosing valve fasteners. Remove the aftertreatment DEF dosing valve from the aftertreatment diesel particulate filter (DPF) and place in a suitable graduated collection container. Discard the DEF dosing valve gasket.

- 2**  
Look into the pipe where the DEF dosing valve was mounted and inspect for excessive crystal formation. If excessive crystal formation exists, proceed to Step 3. If excessive crystal formation does not exist, proceed to Step 5.

- 3**  
Remove the V-band clamps connecting the flex pipe to the aftertreatment selective catalytic reduction (SCR) inlet pipe and the aftertreatment diesel particulate filter (DPF) outlet pipe. Inspect pipe and DEF dosing valve for crystal formation. Inspect piping for damage or missing insulation. Inspect for unauthorized modifications to SCR system.



W2056746

- 1 Pipe
- 2 Clamps
- 3 Gaskets

**4**

Remove large crystals from flex pipe. Small crystals will be cleaned during the sublimation process. Use new V-band clamps to connect the flex pipe to the aftertreatment SCR inlet pipe and the aftertreatment DPF outlet pipe. Tighten clamps to specification.

**Note:** Do not put DEF crystals in the DEF tank.

**5**

 **CAUTION**

**Never** use metal brushes or tools on the DEF doser tip. **DO NOT** use sharp objects (including non-metal) to clean the tip. Damage to the tip may result.

Gently clean the mounting surfaces on the aftertreatment DPF and the aftertreatment DEF dosing valve. Use a damp cloth to wipe residue from nozzle tip.

**6**

Connect Tech Tool to the vehicle and perform VCADS SCR startup test to check for leaking DEF dosing valve.

**7**

Perform VCADS high volume and low volume DEF dosing valve tests to check dosing quantity. Make sure the 3 spray holes are not blocked during this operation.

**8**

Position a new gasket on the aftertreatment DEF dosing valve and install the valve on the aftertreatment DPF using new fasteners. Tighten the fasteners to specification.

**9**

Perform VCADS operation SCR Diesel Exhaust Fluid Crystal Sublimation.

**10**

Perform VCADS operation SCR System Test, Aftertreatment DEF Dosing Valve, Check to verify proper operation.

**11**

Use Guided Diagnostics to read and clear any DTCs.

**Note:** Some DTCs may not clear using Guided Diagnostics. Several hours of driving may be required to clear some DTCs.