

# Installation of the Diesel Exhaust Fluid (DEF) Service Kit

Service Parts Used in the Procedure			
Part Description	Part Number	Quantity	Notes
DEF Service Kit - RS Supply Kit	DDE A0001408678	1	Kit includes: DEF pump filter cap with filter and frost membrane, DEF pump inlet fitting, DEF pump inlet screen, Pressure Relief Valve (PRV), PRV screw plug, DEF doser flange screws, DEF doser flange connectors, DEF doser inlet screen, DEF doser screws, DEF doser gasket

Replace as follows:

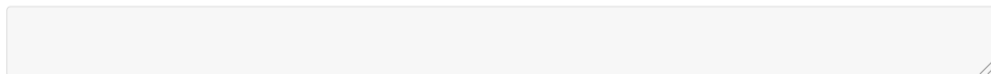
**ⓘ Warning: PERSONAL INJURY**

To avoid injury, never remove any engine component while the engine is running.

**ⓘ Warning: PERSONAL INJURY**

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

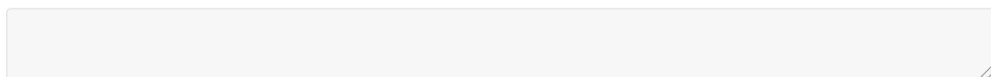
- Turn ignition OFF, apply parking brake, chock wheels, and perform any other applicable safety steps.



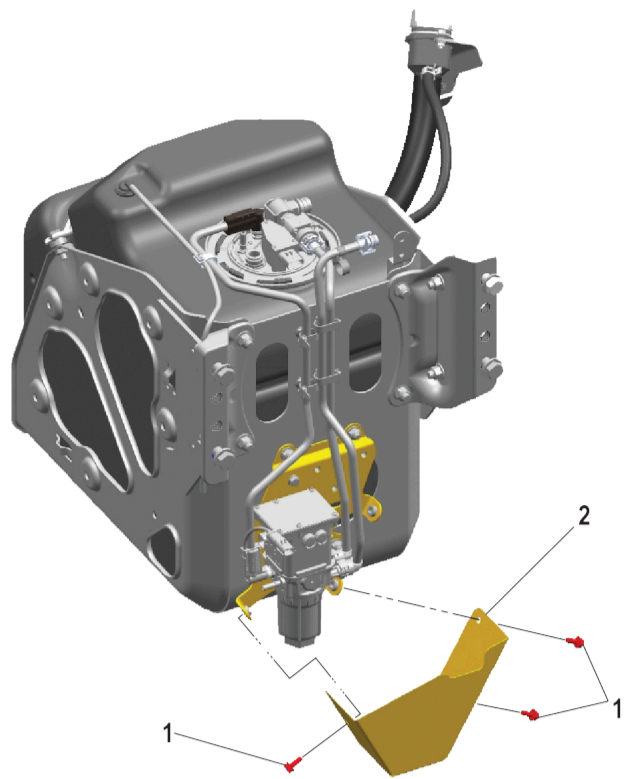
**ⓘ Caution: ELECTRICAL SHOCK**

To avoid injury from electrical shock, use care when connecting battery cables. The magnetic switch studs are at battery voltage.

- Connect batteries.



- Remove the mounting bolts (1) that secure the DEF pump protective cover (2) and remove the DEF pump cover. See below graphic.



d141122

4.  Turning counterclockwise, unscrew and remove the DEF pump filter cap (4) from the DEF pump (1). See below graphic. Cap is a single use part.



d141140

5.  Remove the frost compensation membrane (3), which is a single use part. The frost compensation membrane is the rubber membrane that resides between the DEF pump filter (2) and the DEF filter cap (4). See above graphic.

6.  Remove the DEF pump filter (2) from the DEF pump (1) by slightly turning and pulling the filter counterclockwise. See above graphic. DEF pump filter is a single use part.

7.  Clean the DEF pump mating surface. See above graphic.

8.  Install a new DEF pump filter (2) by twisting and pushing the filter clockwise into the aluminum pump orifice in the DEF pump housing. See above graphic. The filter must be fully seated in order for the frost compensation membrane to fit over it. Use DEF to lubricate the filter cartridge O-ring. Do not use Bio-lube on the filter cartridge O-ring.

9.  Install a new frost compensation membrane (3) over the DEF pump filter (2). See above graphic.

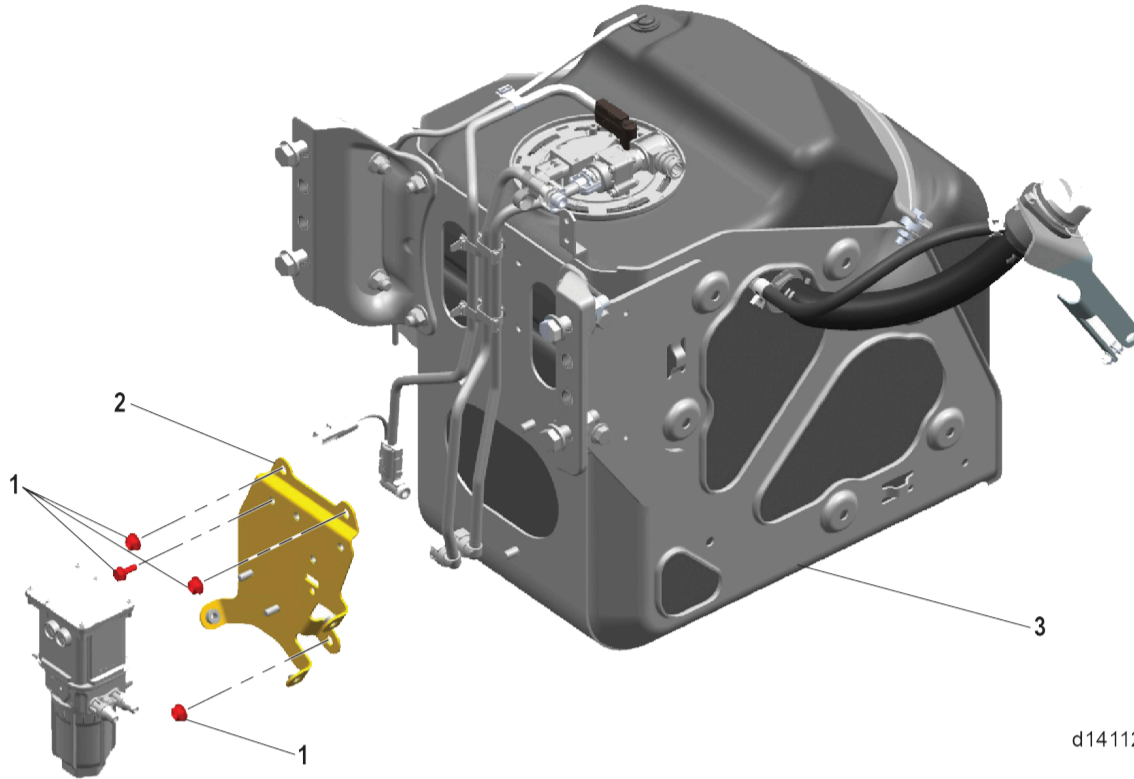
10.  Verify the sealing bead of the frost compensation membrane is fully seated in the pump housing groove.

11.  Lubricate the sealing bead of the frost compensation membrane with the Bio-lube supplied with the parts kit.

12.  Lubricate the threads on the DEF pump (1) and filter housing with Bio-lube. See above graphic.

13.  Lubricate a new filter cap O-ring with Bio-lube and install the DEF filter cap (4) and cap O-ring onto the DEF pump by turning the cap clockwise. See above graphic. Torque to 80 N·m (59 lb·ft).

14.  Remove the bolt and nuts (1) securing the DEF pump mounting bracket (2) to the DEF tank bracket (3). See below graphic.



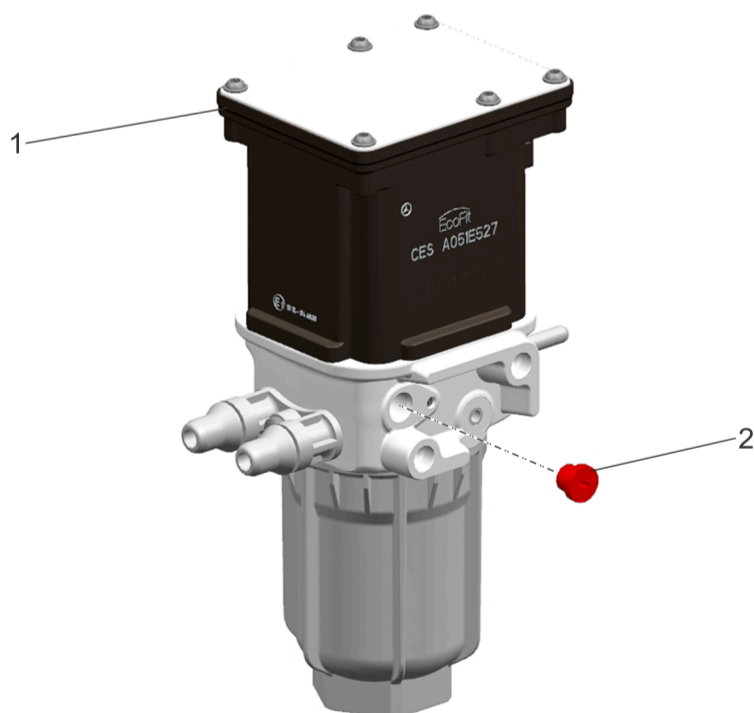
d141123

15.  Remove the two bolts that fasten the DEF pump to the mounting bracket.

16.  Rotate the DEF pump upward to gain access to the pressure relief valve.

17.  The outer area of the DEF pump must be free of dirt and any contaminants before removing the valve.

18.  Remove the screw plug (2) from the DEF pump (1) (see below graphic). Screw plug is a single use part.



d141000

19.  Use the special tool supplied in the parts kit to remove the pressure relief valve from its cavity. Thread the tool into the rear of the pressure relief valve and pull to remove. Pressure relief valve is a single use part.

20.  Wet a new pressure relief valve O-ring with DEF before installing into the DEF pump to prevent seal damage.

21.  Press the new pressure relief valve into the DEF pump (1). See above graphic.

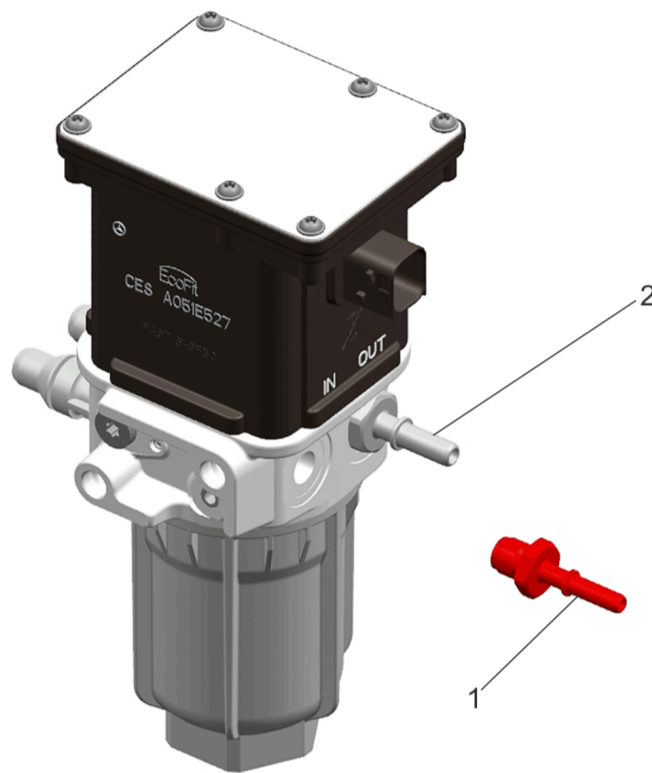
22.  Install a new screw plug (2) and hand-tighten (see above graphic). Do not use power tools on the screw plug.

23.  Torque screw plug to 5 N·m (44 lb·in.).

**Notice:** To disconnect a DEF line, push the line coupling in towards the male connector to move the holding clip to the unlocked position, then compress the prongs of the holding clip and pull the line off of the male connector.

24.  Disconnect the DEF return line from the DEF header.

25.  Remove the DEF supply line from the DEF pump inlet fitting (1). See below graphic.



d141001

26.  Remove the DEF inlet fitting from the DEF pump. Inlet fitting is a single use part.

27.  Using a small pick, remove the inlet screen from the DEF pump. The DEF inlet filter screen, which is a single use part, is a pressed fit.

28.  Wet the new DEF pump inlet screen O-ring with DEF before installing into the DEF pump to prevent seal damage.

29.  Press in the new DEF pump inlet screen into the inlet port.

30.  Install the new DEF line inlet fitting (1) into the pump and hand tighten the DEF line inlet fitting. See above graphic. Do not use power tools on the DEF pump inlet fitting.

31.  Torque DEF line inlet fitting to 14 N·m (10 lb·ft).

**Notice:** To connect a DEF line, push the line coupling onto the DEF port male connector, then pull back gently on the coupling to engage the holding clip in the locked position.

32.  Verify the DEF supply line and inlet fitting are free of dirt and DEF crystals and connect DEF supply line.

33.  Connect the DEF return line to the DEF header.

34.  Install the two bolts that fasten the DEF pump to the mounting bracket. Torque to 18 N·m (13 lb·ft).

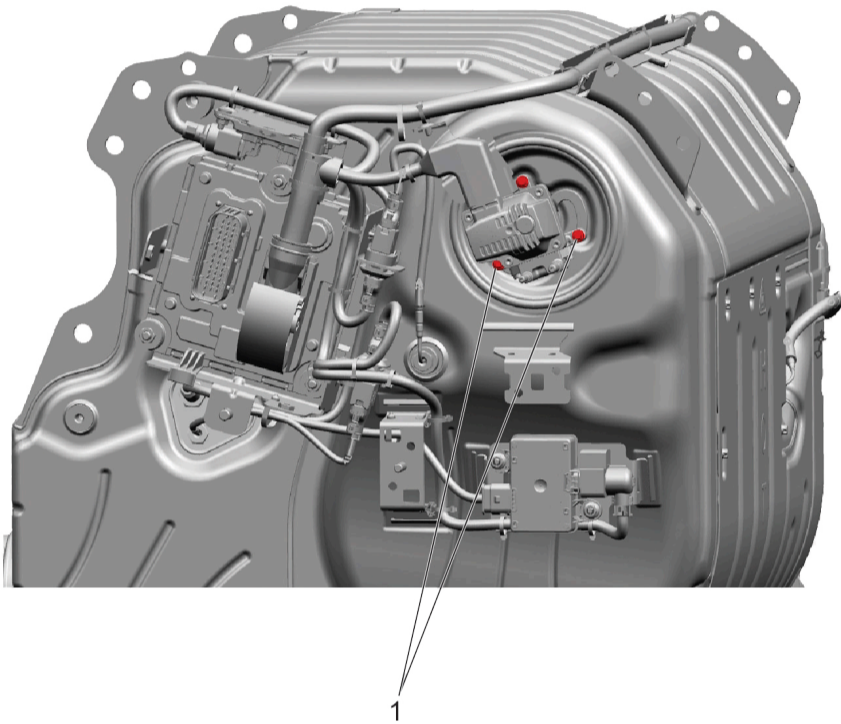
35.  Install the bolt and nuts securing the DEF pump mounting bracket to the DEF tank bracket. Torque to 31 N·m (23 lb·ft).

36.  If necessary, remove the passenger side steps. Refer to Original Equipment Manufacturer (OEM) procedures.

37.  Disconnect the DEF pressure and return lines from the dosing unit. Using a cable tie, secure the DEF lines to the bottom of the cab to prevent DEF from draining out of the DEF system.

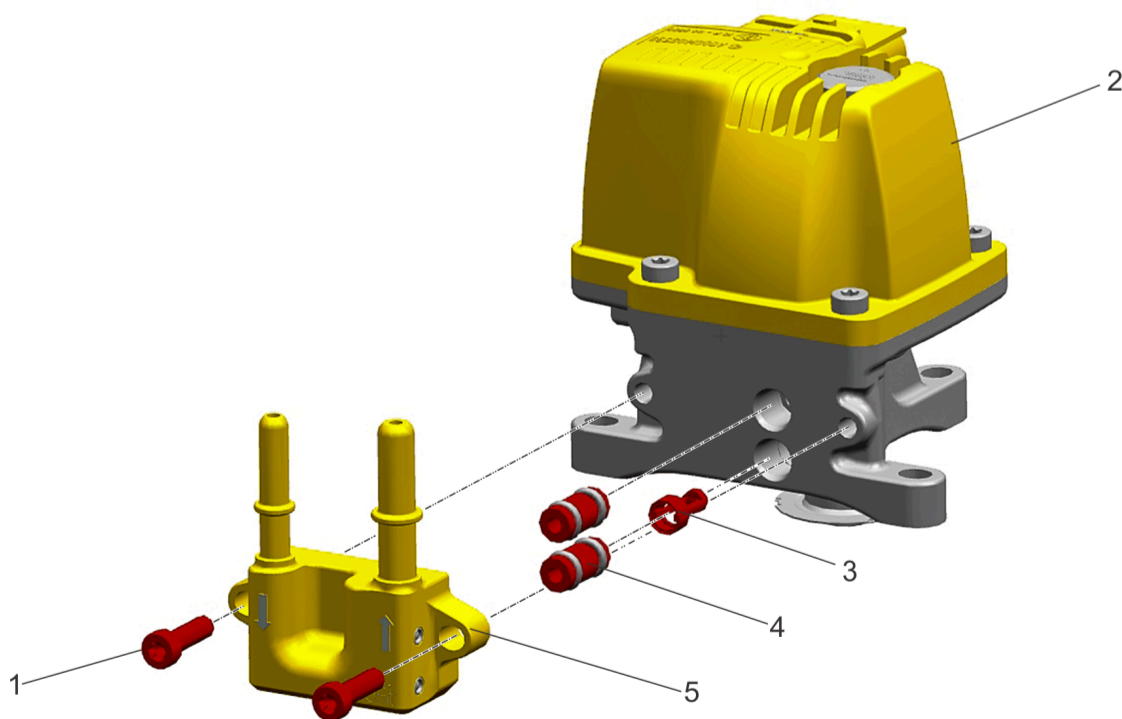
38.  Disconnect the DEF doser electrical connector.

39.  Remove the three screws (1) securing the DEF dosing unit to the mounting plate. Screws and gasket are single use parts. See below graphic.



d141021

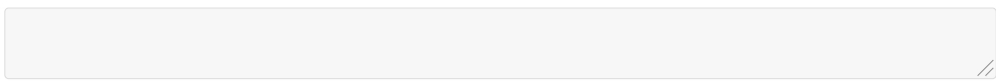
40.  Remove the two screws (1) fastening the DEF flange (5) to the dosing unit (2) and remove DEF flange. Screws are single use parts. See below graphic.



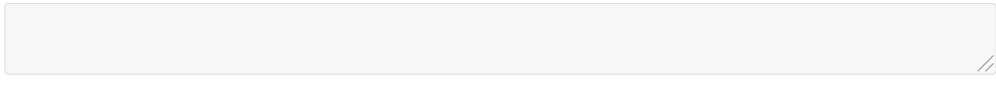
d140929

41.  Remove the two DEF flange connectors (4). Flange connectors are single use parts. See above graphic.

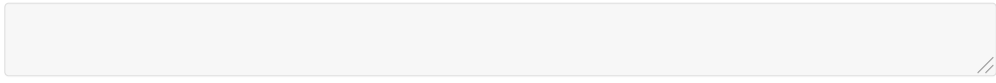
42.  Using a small pick, remove the DEF doser inlet screen (3) from the dosing unit. See above graphic. The DEF doser inlet screen, which is a single use part, is pressed, not screwed, into its bore.



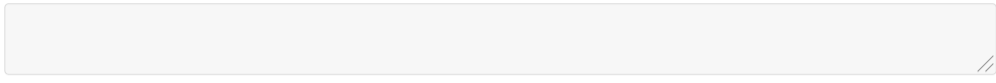
43.  Press the new DEF dosing unit inlet screen (3) into its bore. See above graphic.



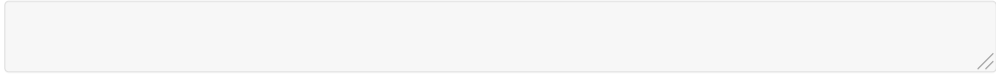
44.  Wet the new DEF flange connector (4) and O-rings with DEF before installing into the DEF flange (5) or dosing unit (2) to prevent seal damage. See above graphic.



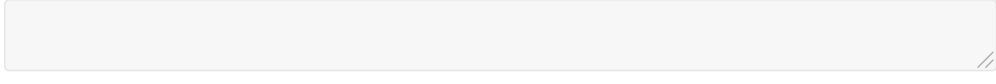
45.  Install two new DEF flange connectors (4) into DEF flange (5). See above graphic.



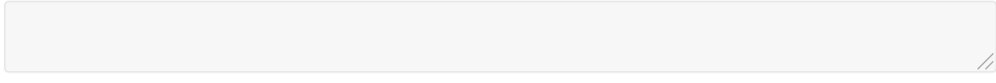
46.  Install the DEF flange (5) to the DEF dosing unit (2). See above graphic.



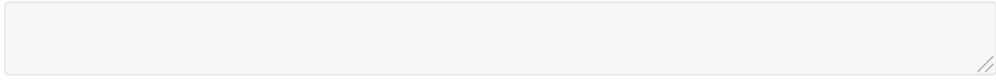
47.  Install two new screws (1) to fasten DEF flange. See above graphic. Torque between 7 and 8 N·m (5 and 6 lb·ft).



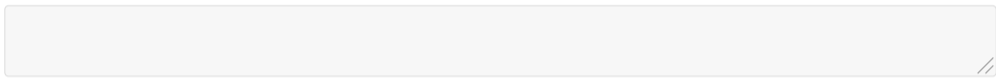
48.  Install a new gasket onto the DEF dosing unit with the gasket legs facing outward.



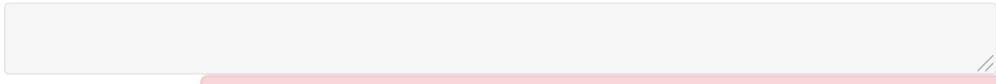
49.  Install the DEF dosing unit onto the mounting plate by installing three new 16mm length mounting screws. Torque to 10 N·m (7 lb·ft). Over-torquing or using the wrong length DEF doser screws will create exhaust or DEF leaks.



50.  Connect the DEF doser electrical connector.



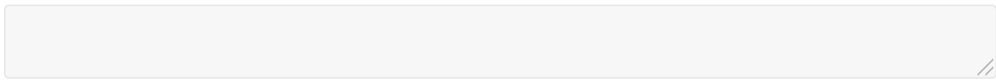
51.  Connect the DEF pressure and return lines to the DEF dosing unit.



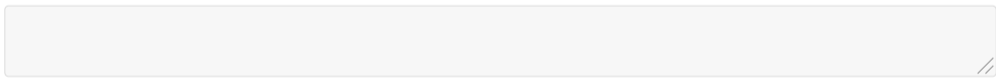
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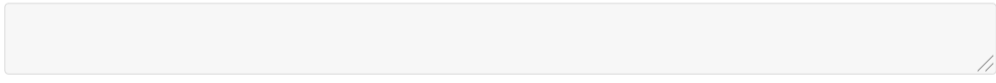
52.  Connect batteries.



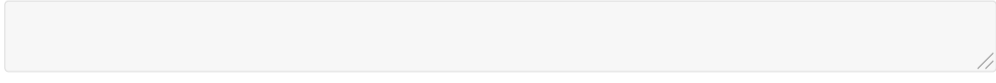
53.  Using DiagnosticLink<sup>®</sup>, perform an ADS Priming Function to prime the DEF system and check for leaks.



54.  Steam clean the area of repair to remove any residual fluids.



55.  If removed, install the side fairing. Refer to the OEM procedures.



**NOTE:**

Component Code /VMRS = 043-007-224 Service Kit – DEF Doser

**Note:**

043-007-224  
INSTALL  
EA5,EB6,EC3

Parent topic: [Diesel Exhaust Fluid \(DEF\) Service Kit](#)

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