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Service Information Bulletin

SUBJECT	DATE
Aftertreatment Systems - DPF End Cap	February 2019

Additions, Revisions, or Updates

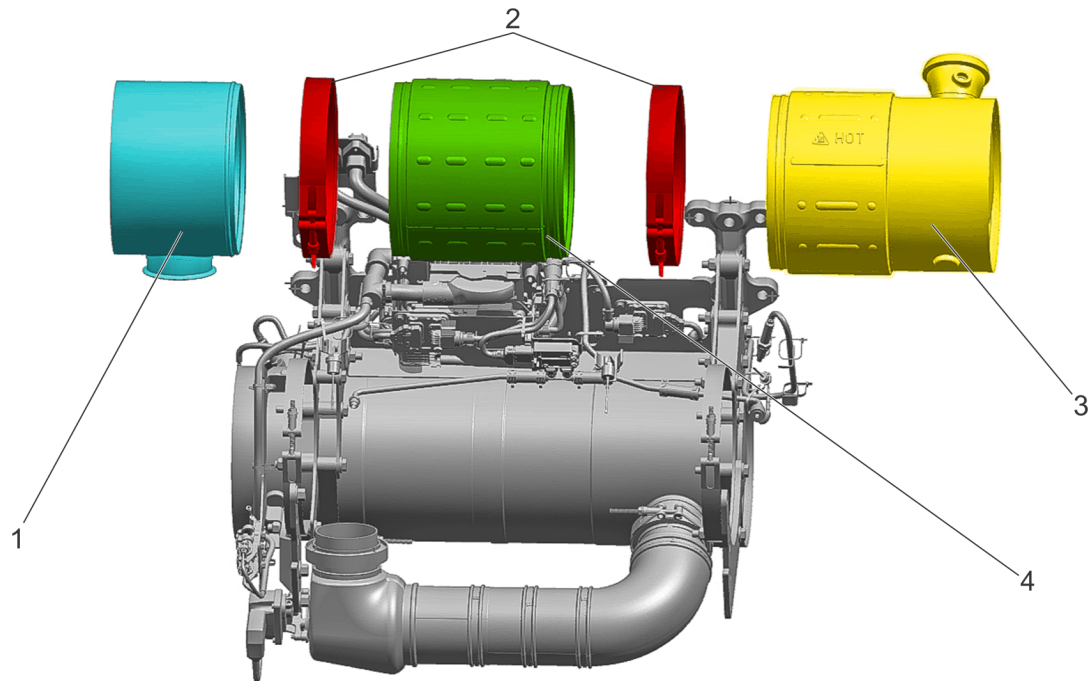
Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0201	GHG17 DD5 934914(S)	Description and Operation of the DPF End Cap	New sections added.
		Removal of the DPF End Cap - Horizontal Configuration	
		Removal of the DPF End Cap - Understep Configuration	
		Inspection of the DPF End Cap	
		Installation of the DPF End Cap - Horizontal Configuration	
		Installation of the DPF End Cap - Understep Configuration	



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2 Description and Operation of the Diesel Particulate Filter End Cap

The Diesel Particulate Filter (DPF) end cap (1) is secured to the outlet of the DPF (4). The DPF end cap directs the exhaust flow from the DPF to the SCR hydrolysis chamber.



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- 1. Diesel Particulate Filter (DPF) End Cap
- 2. DPF Clamps

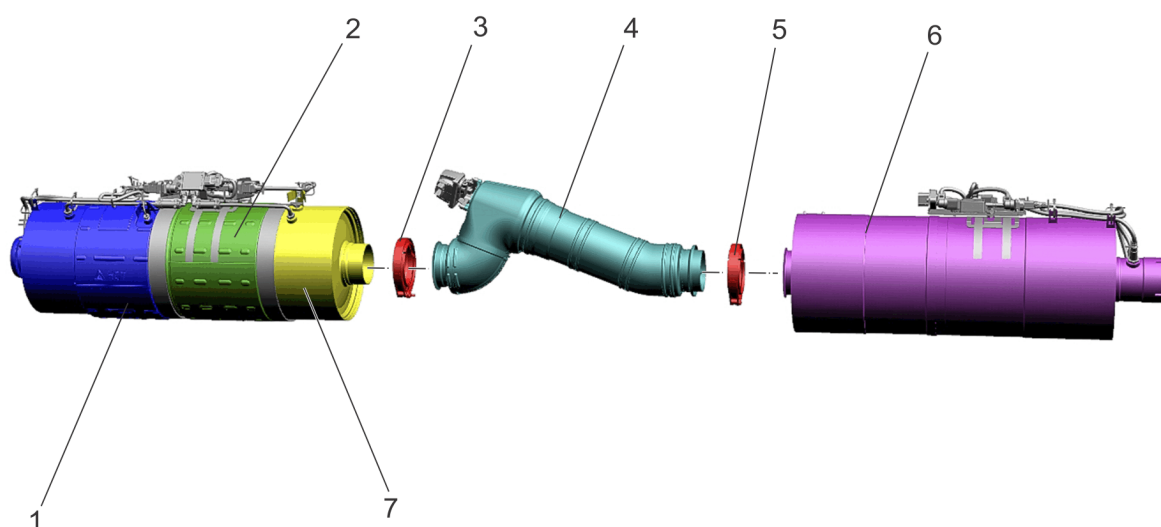
- 3. Diesel Oxidation Catalyst (DOC)
- 4. DPF

Figure 1. Diesel Particulate Filter (DPF) End Cap

3 Removal of the Diesel Particulate Filter End Cap - Horizontal Configuration

Table 1.

Service Tools Used in the Procedure		
Tool Number	Tool Name	Tool Image
Locally Sourced	ATD Lifting Device	



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- | | |
|---|-----------------|
| 1. Diesel Oxidation Catalyst (DOC) | 5. SCR Clamp |
| 2. Diesel Particulate Filter (DPF) | 6. SCR Catalyst |
| 3. DPF End Cap Clamp | 7. DPF End Cap |
| 4. Selective Catalytic Reduction (SCR) Hydrolysis Chamber | |

Removal 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.

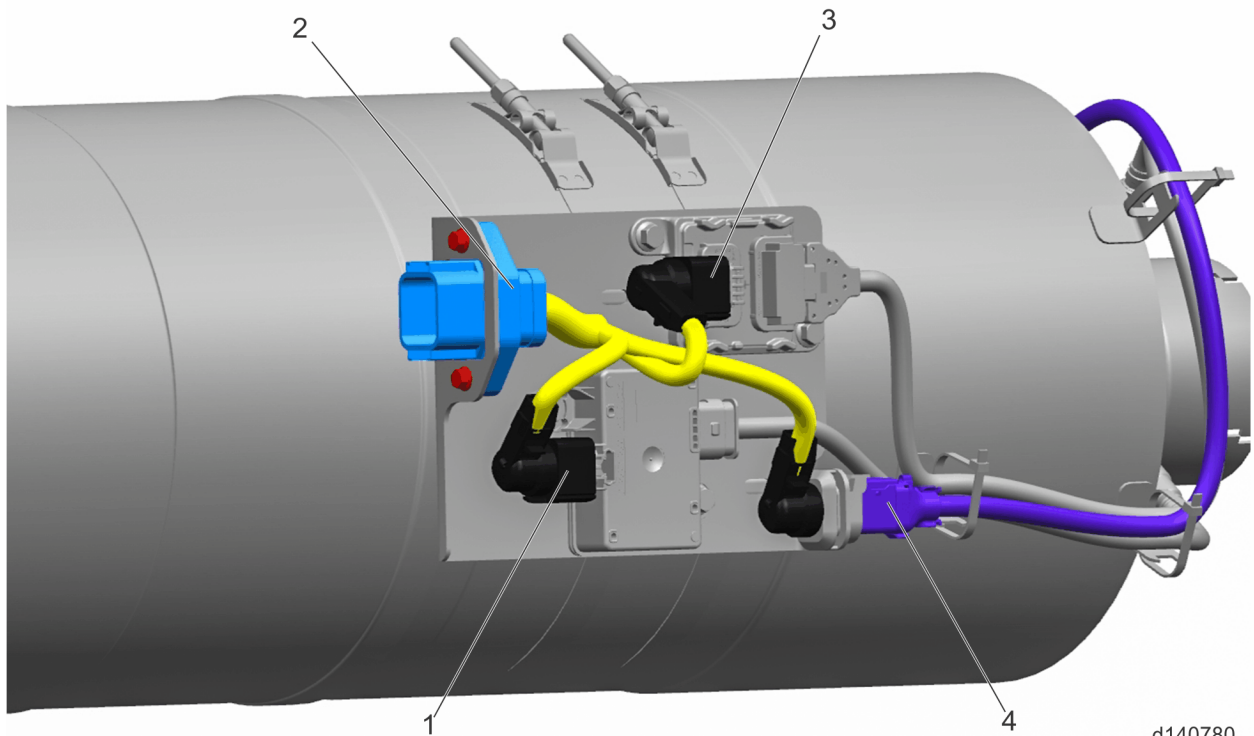
1. Shut off the engine, apply the parking brake, chock the wheels, and perform any other applicable safety steps.



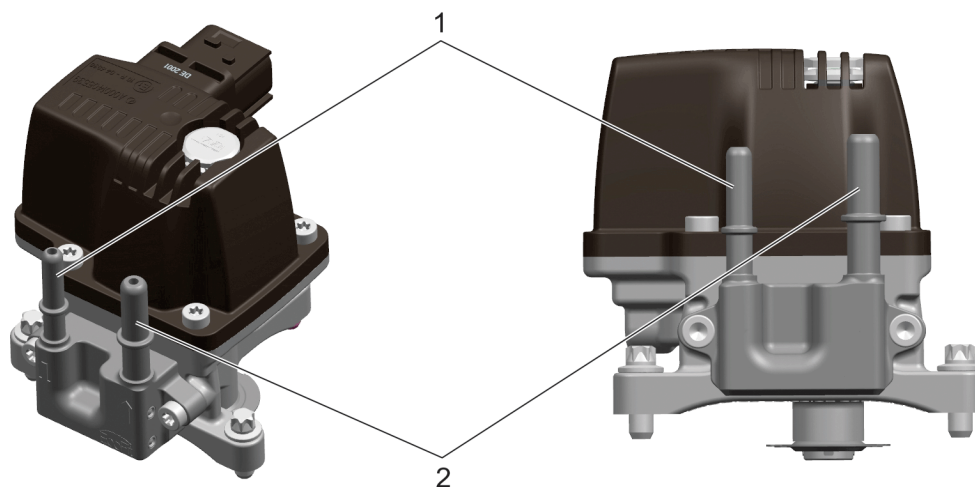
CAUTION: ELECTRICAL SHOCK

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

2. Disconnect the batteries.
3. Allow the Aftertreatment System (ATS) time to cool.
4. Note the orientation of the DPF end cap, Selective Catalytic Reduction (SCR) hydrolysis chamber and SCR catalyst and associated clamps as they will need to be installed in the same orientation.
5. Disconnect the 18-pin chassis harness electrical connector (4) from the SCR mounted aftertreatment harness.

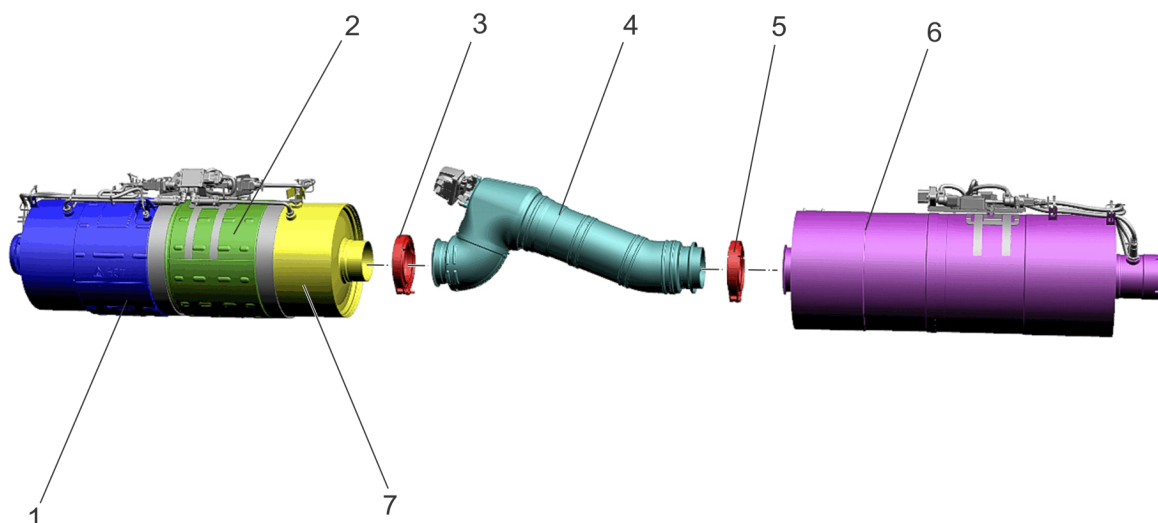


6. Lightly position the ATD lifting device under the SCR catalyst without enough force to lift the SCR or the vehicle. Attach the safety strap to the lifting device.
7. Disconnect the DEF supply and return lines from the doser inlet (1) and doser outlet (2) fittings.



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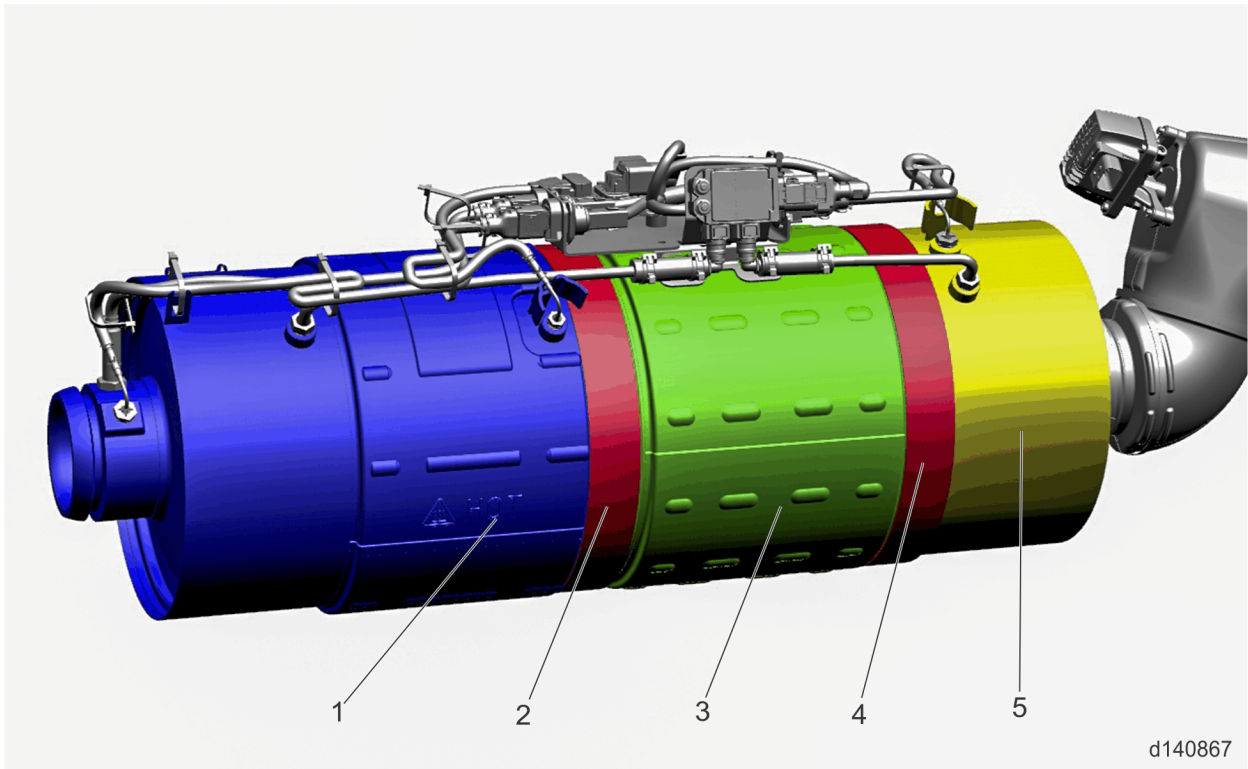
8. Disconnect the DEF dosing unit electrical connector.
9. Loosen the clamp (3) securing the DPF end cap (7) to the SCR hydrolysis chamber (4).



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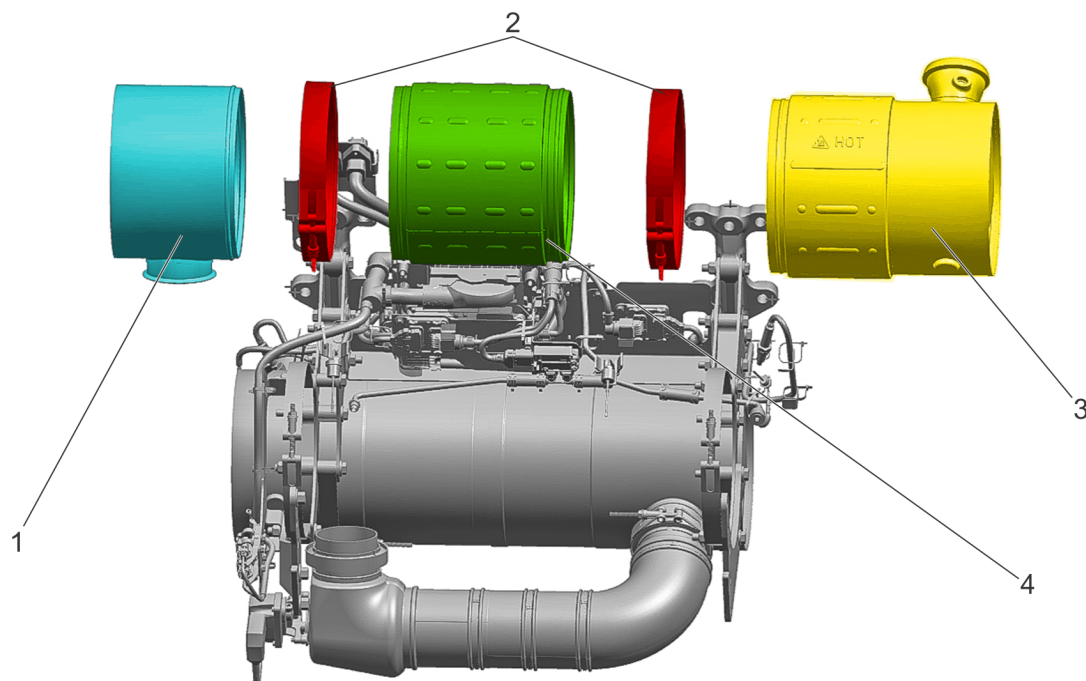
10. Disconnect the clamps securing the SCR (6) to the vehicle frame rail.
11. Carefully lower the SCR (6) with SCR hydrolysis chamber (4) attached to the ground. Ensure all exhaust, air, and electrical harness connections have been disconnected and that the SCR catalyst and SCR hydrolysis chamber are free from the vehicle.
12. Remove the SCR (6) and hydrolysis chamber (4) from the lifting device.

13. Carefully place the ATD lifting device underneath the DOC (1) and DPF (2). Attach the lifting straps.
14. Remove the DPF outlet temperature sensor. Refer to section "Removal of the Diesel Particulate Filter Outlet Temperature Sensor".
15. Remove the DPF outlet pressure tube. Refer to section "Removal of the Diesel Particulate Filter Outlet Pressure Sensor Tube".
16. Remove the DPF clamp (4) and gasket securing the DPF (3) to the DPF end cap (5). Discard the clamp and gasket.



17. Remove the clamp securing the DPF end cap to the vehicle frame rail.
18. Carefully slide the DPF end cap away from the DPF. Discard the clamps and gaskets.

4 Removal of the Diesel Particulate Filter End Cap - Understep Configuration



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- 1. Diesel Particulate Filter (DPF) End Cap
- 2. DPF Clamps

- 3. Diesel Oxidation Catalyst (DOC)
- 4. DPF

Removal 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.

1. Shut off the engine, apply the parking brake, chock the wheels, and perform any other applicable safety steps.

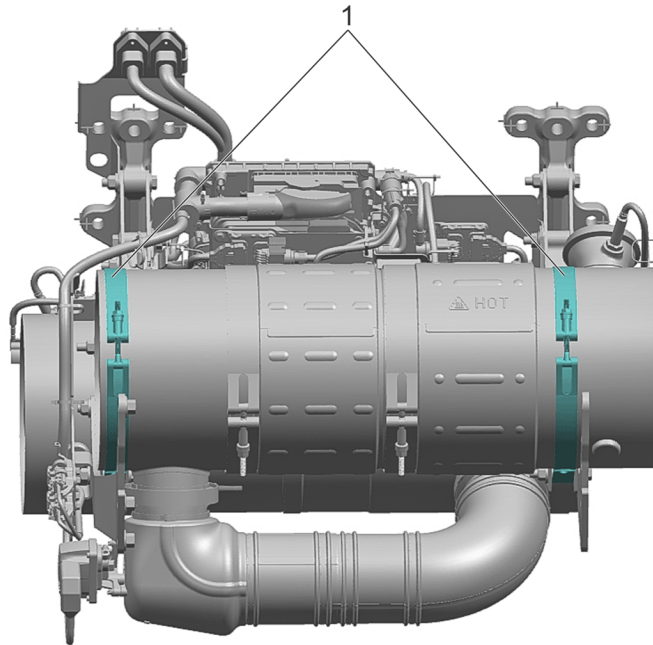


CAUTION: ELECTRICAL SHOCK

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

2. Disconnect the batteries.
3. Remove the right side fairing. Refer to the Original Equipment Manufacturer (OEM) procedures.
4. Remove the right side steps and mounting brackets.
5. Allow the Aftertreatment System (ATS) time to cool.

6. Remove the Selective Catalytic Reduction (SCR) hydrolysis chamber. Refer to section "Removal of the Selective Catalyst Reduction Hydrolysis Chamber - Understep Configuration".
7. Remove the DPF outlet temperature sensor. Refer to section "Removal of the Diesel Particulate Filter Outlet Temperature Sensor".
8. Remove the DPF outlet pressure tube. Refer to section "Removal of the Diesel Particulate Filter Outlet Pressure Tube".
9. Note the orientation of the DOC, DPF, DPF end cap and associated clamps to ensure proper installation.
10. Loosen the clamps (1) securing the DOC, DPF and DPF end cap to the frame rail mounting bracket.



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11. If needed, remove the mounting clips securing the Aftertreatment harness to the mounting brackets.
12. Remove the DPF clamp (2) securing the DPF (3) to the DPF end cap (1). Discard the clamp and gasket.


5 Inspection of the Diesel Particulate Filter End Cap

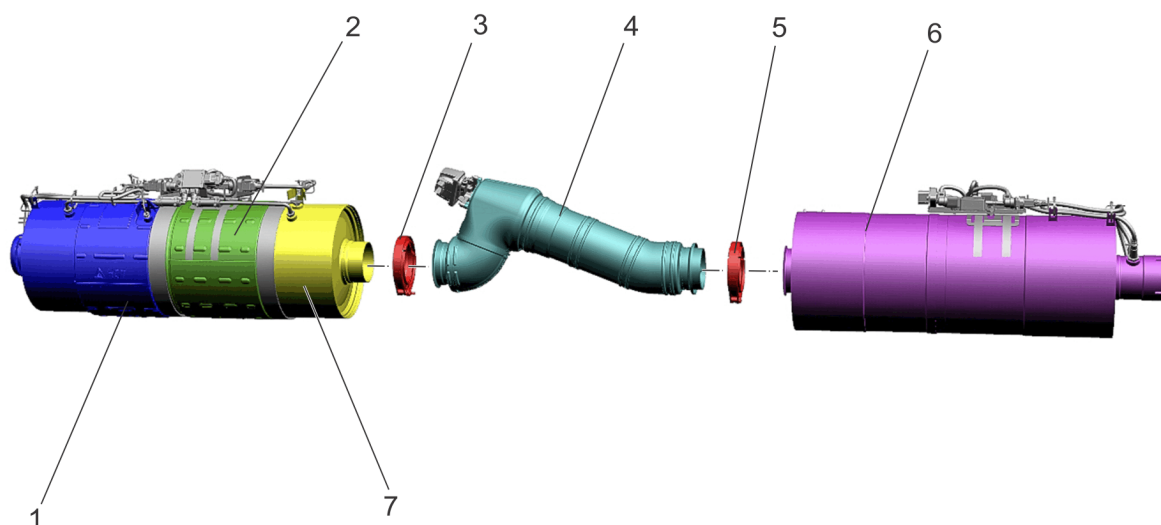
Inspect as follows:

1. Inspect the Diesel Particulate Filter (DPF) end cap for damage. Replace as necessary.

6 Installation of the Diesel Particulate Filter End Cap - Horizontal Configuration

Table 2.

Service Tools Used in the Procedure		
Tool Number	Tool Name	Tool Image
Locally Sourced	ATD Lifting Device	

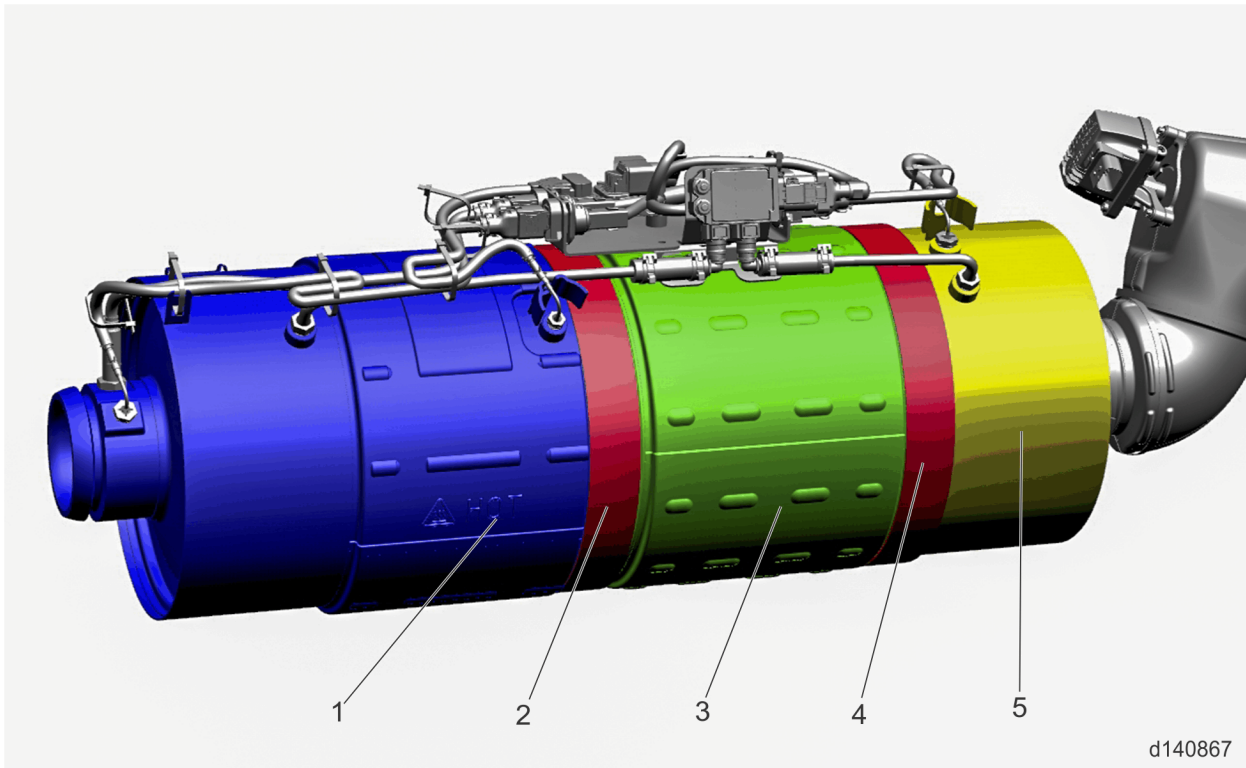


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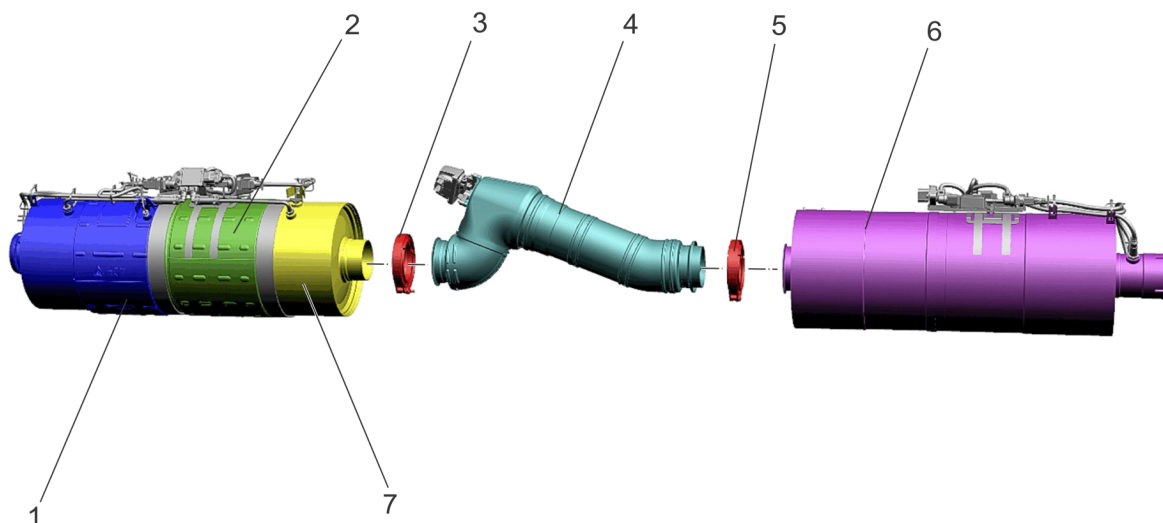
- | | |
|---|-----------------|
| 1. Diesel Oxidation Catalyst (DOC) | 5. SCR Clamp |
| 2. Diesel Particulate Filter (DPF) | 6. SCR Catalyst |
| 3. DPF End Cap Clamp | 7. DPF End Cap |
| 4. Selective Catalytic Reduction (SCR) Hydrolysis Chamber | |

Install as follows:

1. Clean the mating surfaces of the DPF end cap (5) and the inlet of the SCR hydrolysis chamber.
2. With the ATD listing device still supporting the DOC (1) and DPF (3), use a new DPF clamp (4) and gasket, install the DPF end cap (5) into the DPF. Hand-tighten the clamp.

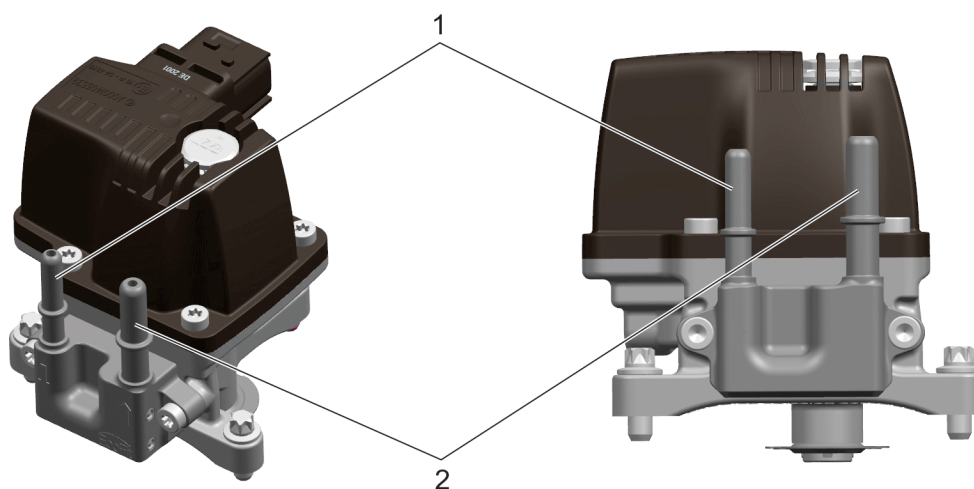


3. Install the clamp securing the DPF end clamp to the vehicle frame rail. Hand-tighten the clamp.
4. Torque the clamp (4) securing the DPF end cap (5) to the DPF (3). Torque the clamp to 20 N·m (15 lb·ft).
5. Torque the clamp securing the DPF end cap to the frame rail. Torque the clamp to 20 N·m (15 lb·ft).
6. Carefully lower the ATD lifting device.
7. Install the DPF outlet pressure tube. Refer to section "Installation of the Diesel Particulate Filter Outlet Pressure Tube".
8. Install the DPF outlet temperature sensor. Refer to section "Installation of the Diesel Particulate Filter Outlet Temperature Sensor".
9. Place the SCR catalyst with SCR hydrolysis chamber attached onto the ATD lifting device. Attach the safety straps to the lifting device.
10. Using the ATD lifting device, carefully raise the SCR catalyst with SCR hydrolysis chamber attached into place.
11. With a new clamp (3) and gasket, install the SCR hydrolysis chamber (4) into the DPF end cap (7). Hand-tighten the clamp.



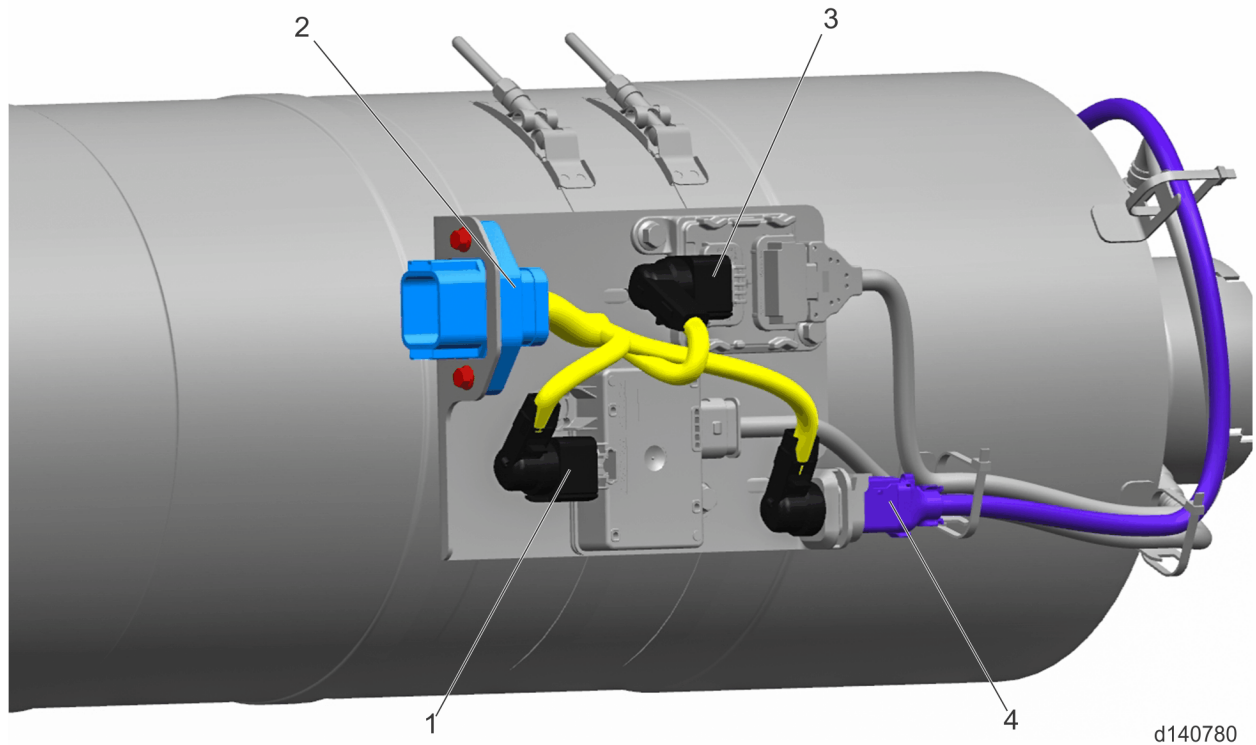
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12. Hand-tighten the clamps securing the SCR catalyst to the vehicle frame rail.
13. Torque the clamps securing the SCR catalyst to the frame rail to 40 N·m (30 lb·ft).
14. Torque the DPF end cap clamp to 20 N·m (15 lb·ft).
15. Connect the DEF pressure and DEF return lines to the DEF inlet (1) and outlet (2) fittings.



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16. Connect the DEF dosing unit electrical connector.
17. Connect the 18-pin chassis harness electrical connector (4) to the SCR-mounted aftertreatment harness.



18. Carefully lower the Aftertreatment lifting device from the vehicle.



CAUTION: ELECTRICAL SHOCK

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

19. Connect the batteries.



WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.



WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.



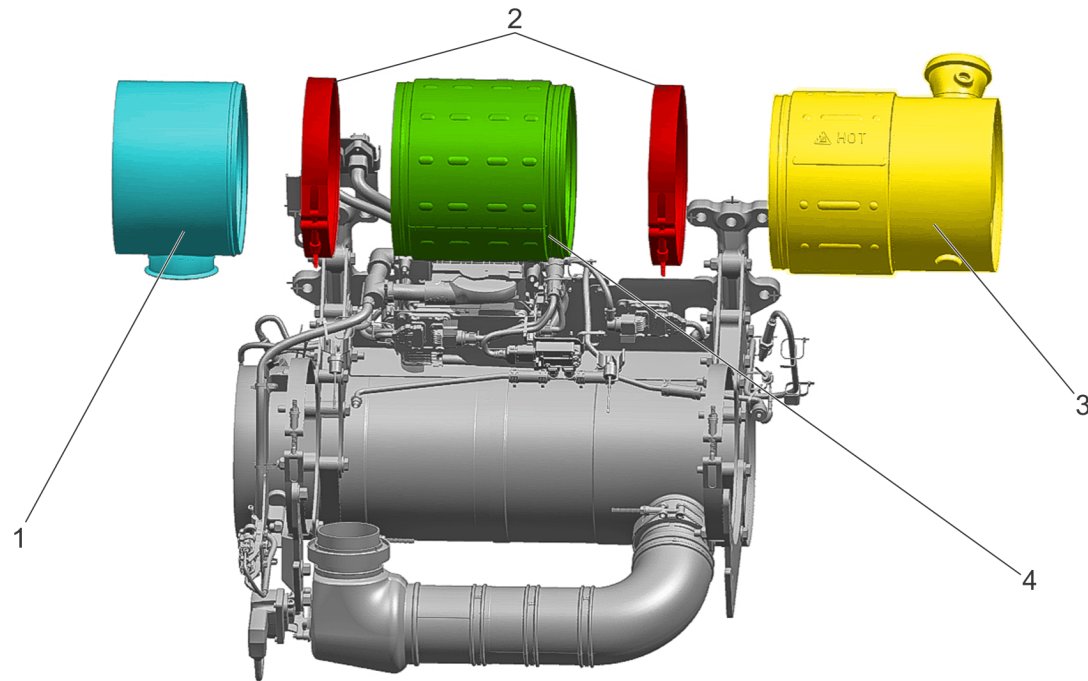
WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

20. Start the engine.

21. Check for any exhaust leaks.

7 Installation of the Diesel Particulate Filter End Cap - Understep Configuration

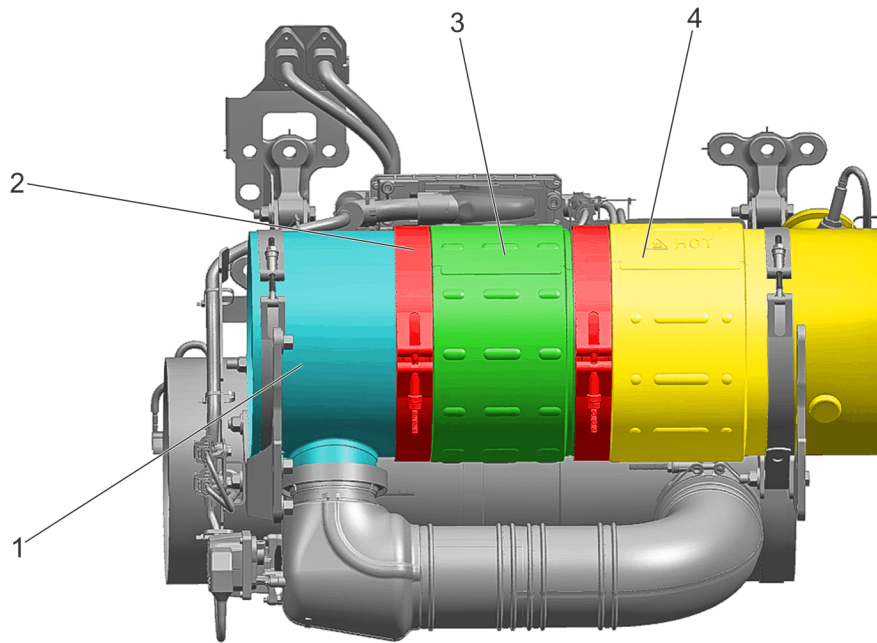


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- | | |
|--|------------------------------------|
| 1. Diesel Particulate Filter (DPF) End Cap | 3. Diesel Oxidation Catalyst (DOC) |
| 2. DPF Clamp | 4. DPF |

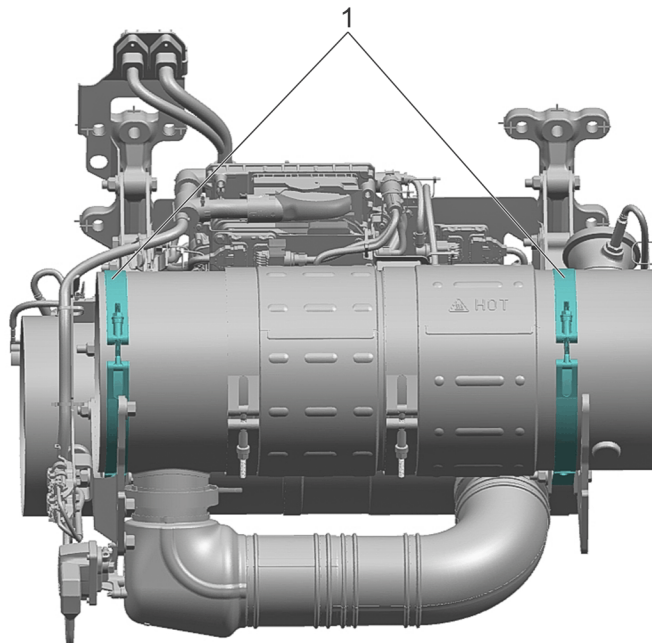
Install as follows:

1. Clean the mating surfaces of the DPF end cap.
2. Install a new clamp and gasket on the outlet of the DPF end cap.
3. Slide a new DPF clamp and gasket inward on the DPF.
4. Carefully install the DPF end cap (1) onto the DPF (3). See graphic below.



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5. Install the DPF clamp (2) and gasket securing the DPF (3) to the DPF end cap (1). Torque the clamp to 32 N·m (24 lb·ft).
6. Torque the clamps (1) securing the DOC, DPF and DPF end cap to the vehicle frame to 40 N·m (30 lb·ft).



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7. Install the DPF outlet pressure tube. Refer to section "Installation of the Diesel Particulate Filter Outlet Pressure Tube".
8. Install the DPF outlet temperature sensor. Refer to section "Installation of the Diesel Particulate Filter Outlet Temperature Sensor".

9. Install the Selective Catalytic Reduction (SCR) hydrolysis chamber. Refer to section "Installation of the Selective Catalyst Reduction Hydrolysis Chamber - Understep Configuration".
10. Install the right side steps and mounting brackets.
11. Install the right side fairing. Refer to the Original Equipment Manufacturer (OEM) procedures.

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