

DDC 2HV ATD and SCR Catalyst Removal and Installation

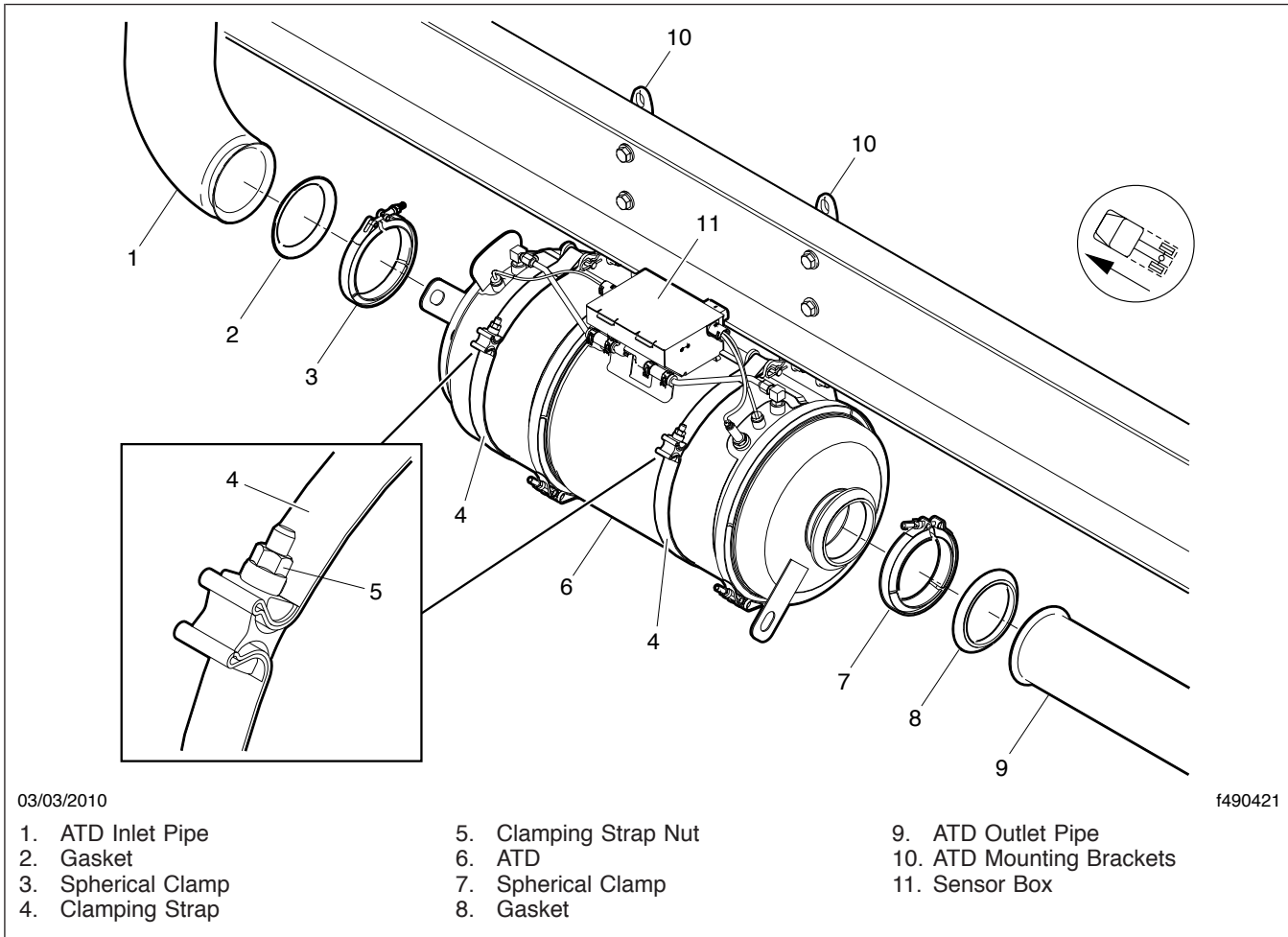


Fig. 1, ATD Installation

5. Disconnect the DEF nozzle supply line.
6. Remove the spherical clamp at the SCR catalyst inlet.
7. Disconnect the electrical harness from the SCR catalyst.
8. Make alignment marks on all parts to assist in proper assembly.
9. Position the overhead lifting device over the SCR catalyst and connect the hooks at the lifting points. Apply enough pressure to the lift points to prevent the unit from dropping when loosened.
10. Remove the two mounting straps from the SCR catalyst.

11. Move the SCR catalyst outboard away from the truck horizontally until the inlet clears the vertical mounting bracket. Then lift the SCR catalyst away from the truck.

Installation

1. Using the overhead lifting device, lower the SCR catalyst vertically until the inlet aligns vertically with the hole in the mounting bracket. Then move the SCR catalyst horizontally until the SCR catalyst is up against the mounting bracket and the inlet is through the mounting bracket hole.
2. Install the two mounting straps. Do not tighten at this time.

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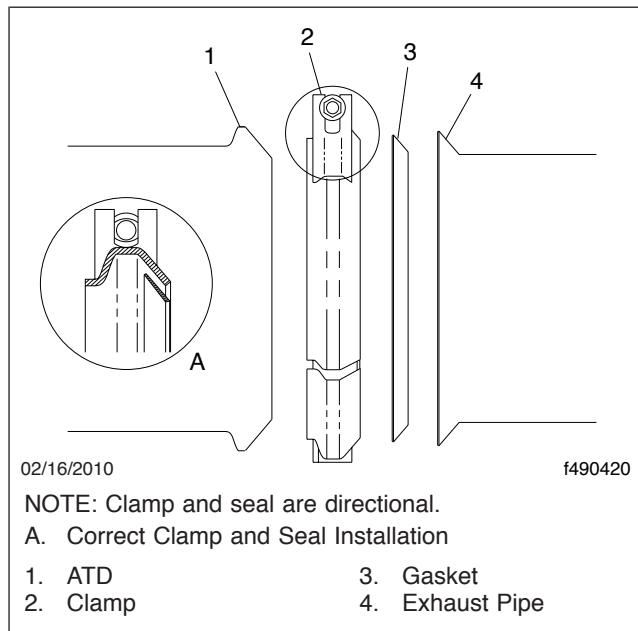


Fig. 2, Spherical Clamp Installation

- Align the SCR catalyst inlet to the exhaust pipe, and install the spherical clamp. Do not tighten at this time. See Fig. 2 for proper installation.

NOTICE

Do not allow the clamping strap to twist while tightening it. A twisted strap could lead to a strap failure and possible damage to the ATS.

- Check all alignment marks, and tighten the clamping strap nuts incrementally, first 15 lbf-ft (20 N·m), then 30 lbf-ft (40 N·m).
- Tighten the spherical clamp 114 to 126 lbf-in (1290 to 1425 N·cm).
- Connect the two temperature sensors and the NOx sensor.
- Connect and tighten the DEF nozzle supply line.
- Install the stack. Align the outlet 45 degrees out from the back of the cab. Tighten the clamp 27 to 37 lbf-ft (37 to 50 N·m).
- Install the six bolts that attach the heat shield to the SCR catalyst. Tighten 13 to 17 lbf-ft (18 to 22 N·m).
- Start the engine and check for leaks. Tighten any connections as needed.

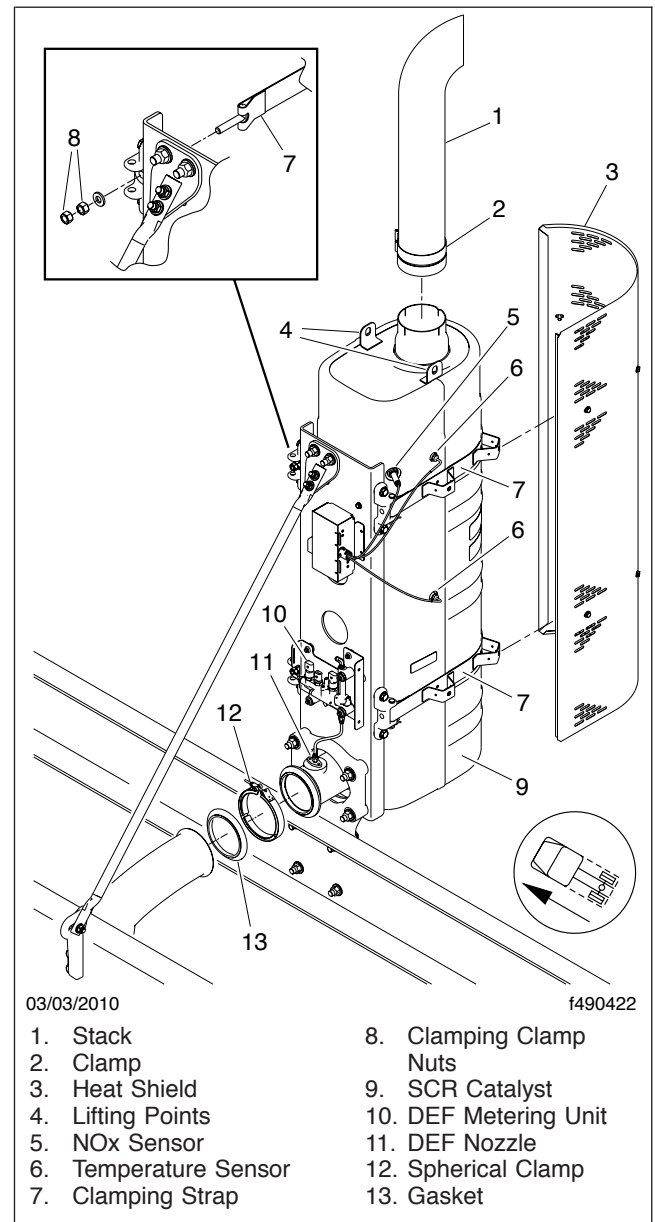


Fig. 3, SCR Catalyst Installation

Cummins Understep Switchback ATD and SCR Catalyst Removal and Installation

WARNING

Aftertreatment Device (ATD) internal temperatures can remain hot enough to cause personal injury, or ignite combustible materials, for hours after the engine is shut down.

To avoid potentially serious burns or material damage:

- Let the ATD cool before handling it; be especially careful when opening it to expose the DPF.
- Wear appropriate protective gear.
- Be careful not to place the ATD where flammable gases or other combustible materials may come into contact with hot interior parts.

NOTICE

Alignment is essential. Using a paint pen, mark every component's position prior to disassembling it on the truck. Improper assembly may result in leaks or damage to the ATS.

ATD and SCR Catalyst Assembly Removal and Installation

Daimler Trucks North America LLC does not recommend disassembling the ATD on the vehicle. Remove the component following the instructions below, and then disassemble it on a workbench following the instructions in the engine manufacturer's service literature.

Removal

Refer to [Fig. 1](#) for this procedure.

1. Shut down the engine, set the parking brakes, and chock the tires.
2. Allow the ATS time to cool.
3. Raise the hood.
4. Remove the right side steps and fairing.
5. Remove the step mounting bracket, brace, and step rails. See [Fig. 2](#).

6. Remove the spherical clamp connecting the ATD inlet pipe to the ATD.
7. Disconnect the SCR catalyst outlet pipe from the SCR catalyst.
8. Disconnect the wiring harnesses from the ATD sensor box.
9. Mark the clocking of the mixer tube to both elbows in several places. Disconnect the mixer tube from the elbows at both ends of the mixer tube, and secure the mixer tube on top of the frame rail.
10. Disconnect the wiring harness from the NOx sensor module.
11. Disconnect the wiring harness from the temperature sensor module.
12. Cut any zip ties as necessary, and free the harness from the ATS.
13. Remove the NOx sensor module from the mounting bracket on the frame rail, and secure it to the ATS.
14. Position an ATD jack, with a "one box" attachment, under the ATS and secure it to the jack with a strap. See [Fig. 3](#).
15. Remove the eight bolts and nuts that attach the ATS mounting frame to the mounting brackets on the frame rail.
16. Lower the ATS from the vehicle.

Installation

NOTE: The ATD mounting frame attaches to the forward face of the mounting brackets.

1. Using the jack, raise the ATS into position.
2. Install the eight bolts and nuts that attach the ATS mounting frame to the mounting brackets on the frame rail. Tighten the nuts 50 lbf-ft (68 N·m).
3. Position the wiring harness on the ATS. Install new zip ties as needed.
4. Install the NOx sensor module on the mounting bracket on the frame rail. Connect the wiring harness.
5. Connect the wiring harnesses to the ATD sensor box.
6. Connect the wiring harness to the temperature sensor module.

Cummins Understep Switchback ATD and SCR Catalyst Removal and Installation

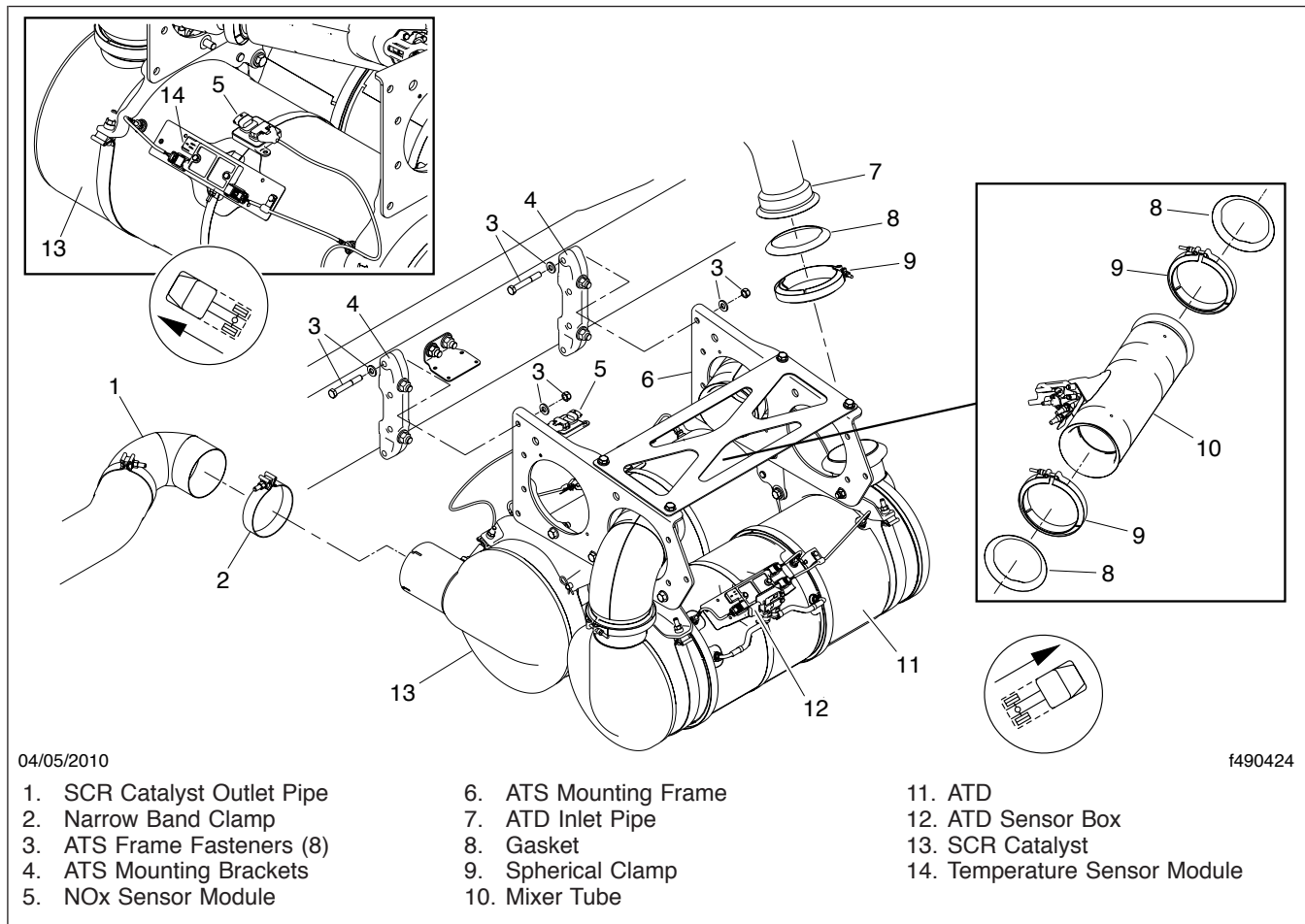


Fig. 1, ATS Installation

7. Connect the SCR catalyst outlet pipe to the SCR catalyst. Tighten the clamp 37 to 45 lbf·ft (50 to 60 N·m).
8. Using a new gasket, install the spherical clamp connecting the ATD inlet pipe to the ATD. Tighten the clamp 114 to 126 lbf·in (1290 to 1425 N·cm).
9. Position the mixer tube, and using a new gaskets install the spherical clamps that connect the mixer tube to the ATD outlet elbow and the SCR inlet elbow. Align the mixing tube using the paint pen marks applied during disassembly, then tighten the clamps 114 to 126 lbf·in (1290 to 1425 N·cm).
10. Start the engine and check for leaks. Tighten any connections as needed.

11. Install the step mounting bracket, brace, and step rails.
12. Install the steps and fairing.

ATD Removal and Installation

Daimler Trucks North America LLC does not recommend disassembling the ATD on the vehicle. Remove the component following the instructions below, and then disassemble it on a workbench following the instructions in the engine manufacturer's service literature.

Removal

Refer to [Fig. 4](#) for this procedure.

Cummins Understep Switchback ATD and SCR Catalyst Removal and Installation

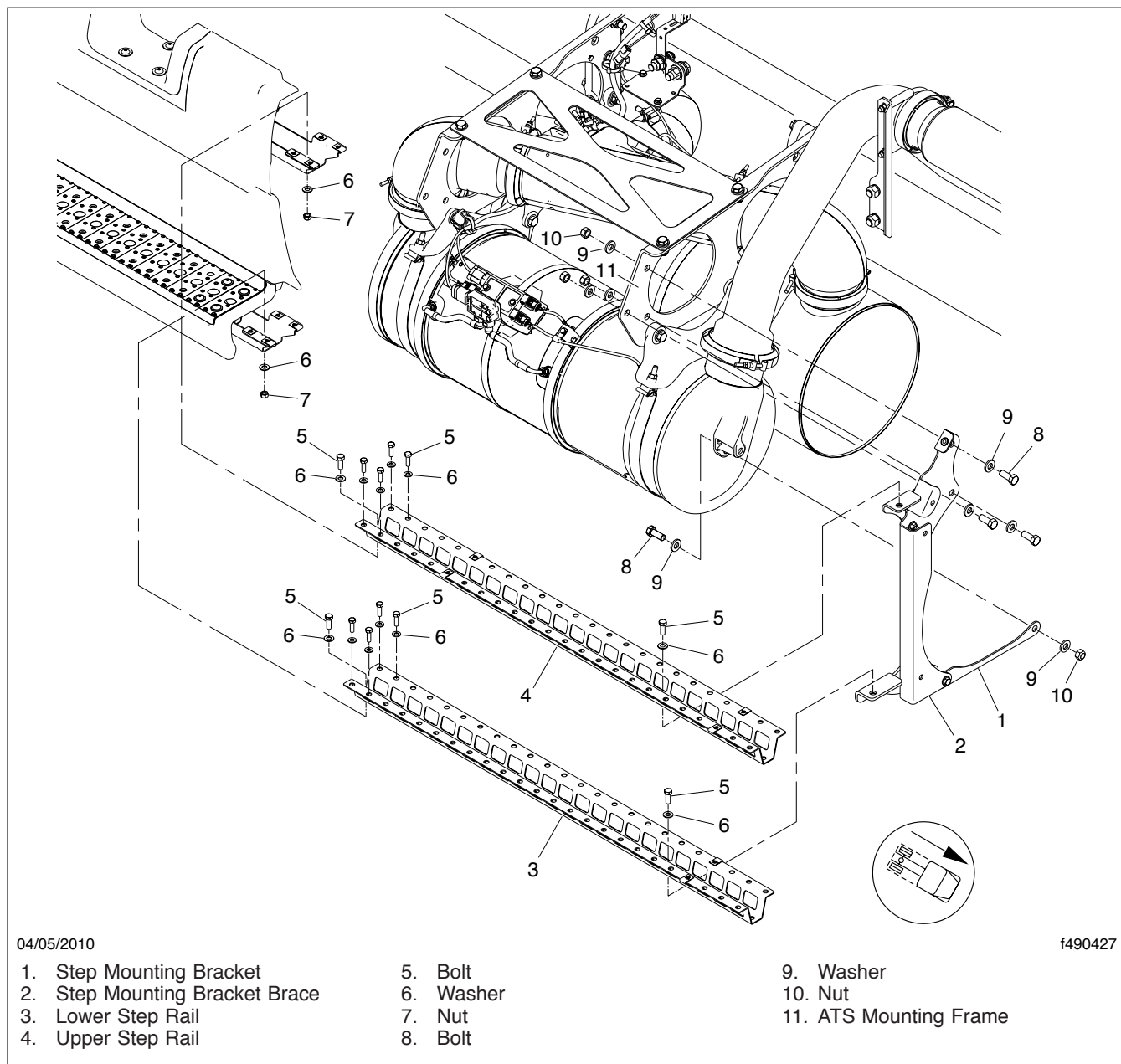


Fig. 2, Step Mounting Bracket and Step Rail Installation

1. Shut down the engine, set the parking brakes, and chock the tires.
2. Allow the ATS time to cool.
3. Raise the hood.
4. Remove the right side steps and fairing.
5. Remove the step mounting bracket, brace, and step rails. See Fig. 2.
6. Remove the spherical clamp connecting the ATD inlet pipe to the ATD.
7. Remove the spherical clamp connecting the ATD inlet pipe to the mixer tube elbow.

Cummins Understep Switchback ATD and SCR Catalyst Removal and Installation

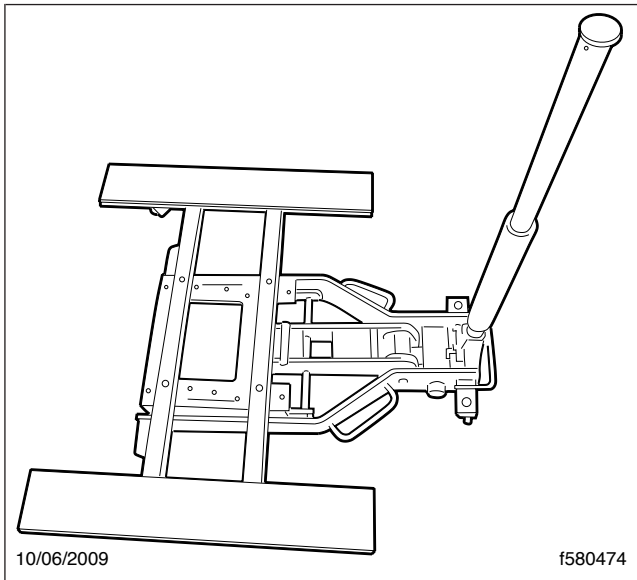


Fig. 3, ATD Jack (with "one-box" attachment)

8. Disconnect the wiring harnesses from the ATD sensor box.
 9. Cut any zip ties as necessary to free the harness from the ATD.
 10. Mark the clocking of the ATD on both mounting frames in several places for later installation.
 11. Position an ATD jack, with single unit cradles, under the ATD and secure it to the jack with a strap.
 12. Remove the nuts from the ATD clamping straps. Remove the straps, and discard the straps and hardware.
 13. Lower the ATD from the truck.
2. Install new clamping straps. Do not tighten at this time. Allow room to align the ATD in the mounting frame and with the inlet and mixer tubes.
 3. Align the ATD in the mounting frame using the paint pen marks applied during disassembly.
 4. Align the mixer tube elbow with the ATD outlet, then using a new gasket install the spherical clamp. Do not tighten at this time.
 5. Align the ATD inlet pipe to the ATD, then using a new gasket, install the spherical clamp. Do not tighten at this time.
 6. Check all alignment marks on the ATD, then tighten the clamping strap nuts incrementally, first 15 lbf-ft (20 N·m), then 30 lbf-ft (40 N·m).
 7. Tighten the spherical clamps at the ATD inlet and the mixer tube elbow 114 to 126 lbf-in (1290 to 1425 N·cm).
 8. Connect the wiring harnesses to the ATD sensor box.
 9. Start the engine and check for leaks. Tighten any connections as needed.
 10. Install the step mounting bracket, brace, and step rails.
 11. Install the steps and fairing.

Installation

IMPORTANT: Always use new gaskets when installing exhaust system components.

1. Using the ATD jack, raise the ATS into position.

NOTICE

The ATD may rotate while tightening the clamps. It is important that this is prevented. Check the alignment during and after the clamping procedure and make adjustments as needed. Improper installation may lead to component failure.

SCR Catalyst Removal and Installation

Removal

Refer to [Fig. 5](#) for this procedure.

1. Shut down the engine, set the parking brakes, and chock the tires.
2. Allow the ATS time to cool.
3. Raise the hood.
4. Remove the right side splash shield.
5. Remove the right side steps and fairing.
6. Remove the step mounting bracket, brace, and step rails. [Fig. 2](#).
7. Mark the clocking of the SCR catalyst on both mounting frames in several places for later installation.
8. Remove the marmon clamp connecting the SCR catalyst inlet to the mixer tube elbow.