

Tech Tip



From your friends at New York Bus Sales

Product Effected –Units with CAT C7 engines and 2007 Emissions

AVOID COSTLY DOWNTIME AND UNNECESSARY REPAIR COST

SERVICE YOUR “ARD” SYSTEM AS INSTRUCTED BY CAT

YOU NEED TO FOLLOW THE STEPS BELOW AT THE RECOMMENDED INTERVALS!

3/24/11 - DURING SOME RECENT CAT ENGINE TRAINING WHICH OUR OWN BOB REITH ATTENDED, HE FOUND THAT ISSUES CONCERNING REGENERATION ON UNITS WAS GREATLY DECREASED WHEN THE ARD HEAD CLEANER IN THIS TECH TIP FROM LAST YEAR WAS ACTUALLY PERFORMED AT LEAST ANNUALLY AND BEST PRACTICE SEMI-ANNUALLY!

A GREAT RULE OF THUMB WOULD BE TO DO IT EVERYTIME YOUR FUEL FILTERS ARE CHANGED!

WE REALIZE IT IS A LITTLE EXTRA MAINTENANCE BUT AT \$15.95 IT’S A LOT LESS THAN A TOW TRUCK!

ARD Nozzle - Clean

The Effect of Fuel Selection on the Interval for Cleaning the Nozzle for the Aftertreatment Regeneration Device (ARD Nozzle)

Using a blend of biodiesel and ultralow sulfur diesel (ULSD) shortens the intervals between cleanings of the ARD nozzle.

Refer to this Operation and Maintenance Manual, "Refill Capacities and Recommendations" for information about the types of fuels that may be used in this Caterpillar On-highway Engine.

Use the following table to determine the correct interval for cleaning the ARD nozzle.

Table 1		
Intervals for Cleaning the ARD Nozzle ⁽¹⁾		
Engine	Biodiesel Blend ⁽²⁾	ULSD
C7 Engine with a	PM1: Every 17700 km (11000 miles) or 4150 L	Every 80500 km (50000

Shallow Sump	(1100 US gal) of fuel or 250 service hours or 6 months	miles) or 1500 service hours
C7 Engine with a Deep Sump	PM1: Every 24000 km (15000 miles) or 5700 L (1500 US gal) of fuel or 400 service hours or 6 months	Every 80500 km (50000 miles) or 1500 service hours
C9 Engine	Every 24000 km (15000 miles) or 7500 L (2000 US gal) of fuel or 400 service hours or 6 months	Every 80500 km (50000 miles) or 1500 service hours

⁽¹⁾ Use the interval that occurs first.

⁽²⁾ An acceptable biodiesel blend must consist of at least 95 percent ULSD and five percent or less of an acceptable biodiesel.

Procedure for Cleaning the ARD Nozzle

The liquid cleaner that is used to clean the nozzle for the Aftertreatment Regeneration Device (ARD) is available at your Caterpillar dealer. The cleaner is already measured into a dispenser. Contact your authorized Caterpillar dealer for the current part number for the filled bottle.

Turn off the engine.

Use an allen wrench in order to remove the access plug from the cleaning port. Inspect the access plug for damage. An undamaged plug may be reused.

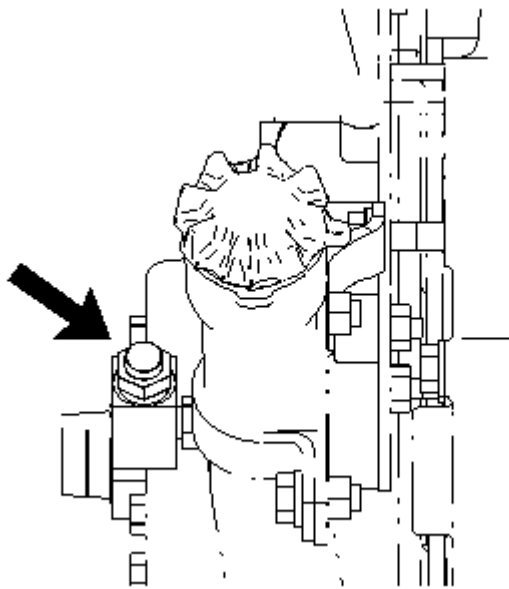


Illustration 1

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The cleaning port is located on the left side of the engine next to the oil filler tube on the C7 Engine.

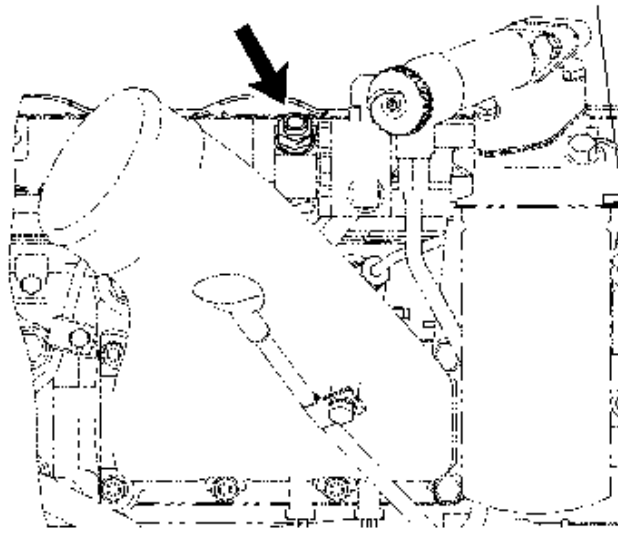


Illustration 2

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The cleaning port is located on the left side of the engine to the left of the fuel filter on the C9 Engine. The priming pump that is shown is optional.

Note: Remove the red cap from the dispenser immediately before use. Ensure that no debris is present on the dispenser. Make sure that the cleaning port is free of debris.

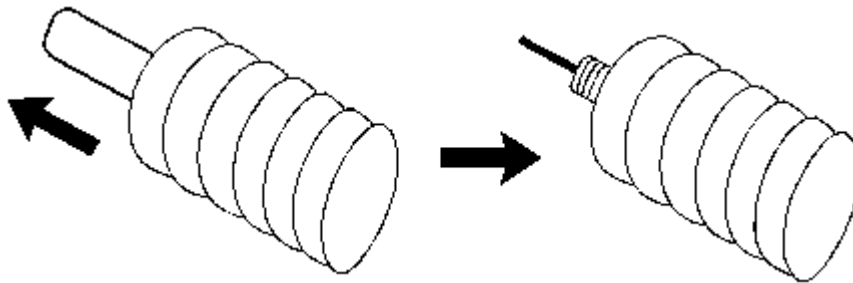


Illustration 3

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Insert the tip of the dispenser completely into the cleaning port.

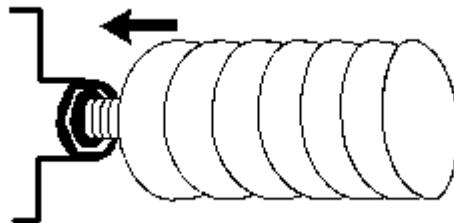


Illustration 4

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Squeeze the container in order to dispense the fluid. All of the fluid should be dispensed before the dispenser is removed from the cleaning port. Remove the dispenser and ensure that all of the liquid was dispensed. Inspect the cleaning port in order to ensure that no part of the dispenser remains in the cleaning port.

Insert an undamaged access plug into the cleaning port. Torque the plug to $10 \pm 1 \text{ N}\cdot\text{m}$ ($7.4 \pm 0.7 \text{ lb ft}$). Start the engine and run the engine for at least five minutes at low idle.



CRS NOZZLE CLEANING FLUID

Cat Regeneration System Nozzle Cleaner for new Cat On-Highway Truck Engines comes packaged in a convenient dispenser for easy “no mess, no waste” use.

Benefits:

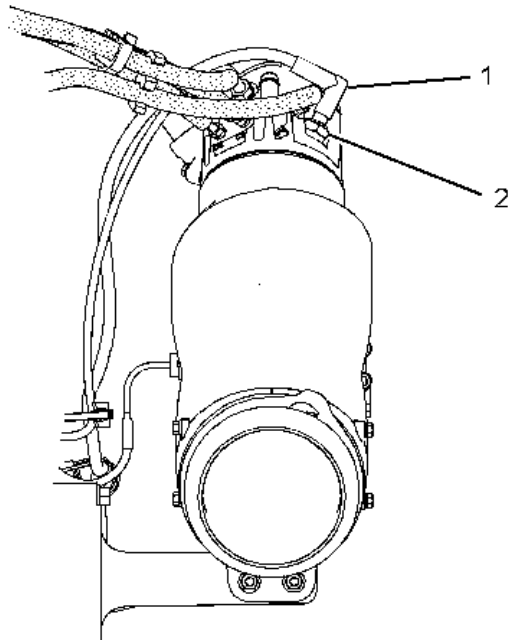
- Maintains peak performance – Helps extend life and reduce maintenance costs for Cat Regeneration Systems.
- No spills – Convenient dispenser filled with pre-measured cleaner makes injection into CRS nozzle port fast and simple.
- Works fast – Cleans the entire regeneration system within 10 minutes.

ARD Spark Plug - Inspect/Replace

Removing the Spark Plug

NOTICE

If the engine is running or the key is in the ON position the ARD plug will continue to fire. Turn the key to the OFF position before servicing the ARD plug.



(1) *WIRING HARNESS*
(2) *SPARK PLUG*

Illustration 1

1. Remove wire harness (1) from spark plug (2) .



Personal injury can result from air pressure.

Personal injury can result without following proper procedure. When using pressure air, wear a protective face shield and protective clothing.

The maximum air pressure for cleaning purposes must be reduced to 205 kPa (30 psi) when the air nozzle is deadheaded.

2. Debris may have collected in the spark plug well. Thoroughly remove any debris. Use compressed air. The maximum air pressure for cleaning purposes must be below 205 kPa (30 psi). Ensure that the area around the spark plug is clean and free of dirt and debris.
3. Use a deep well socket and a breaker bar to loosen the spark plug. If necessary, see your Caterpillar dealer for the part number of the socket. After the spark plug has been loosened, use the socket to remove the spark plug by hand in order to detect problems with the threads. After the spark plug has been removed, inspect the used spark plug and the gasket.

If the spark plug could not be removed by hand, clean the threads with a **305-2389** brush . This tool scrapes debris from the seat and from the threads.

NOTICE

Do not use a thread tap. A thread tap will remove metal unnecessarily. The threads could be stripped and the combustion group could be damaged.

Inspecting the Spark Plug

Inspect the spark plug closely for damage. The condition of the spark plug can indicate the operating condition of the engine.

The terminal post must not move. If the terminal post can be moved by hand, discard the spark plug.

Inspect the insulator for cracks. If a crack is found, discard the spark plug.

Inspect the shell for damage. Cracks can be caused by overtightening the spark plug. Overtightening can also loosen the shell. Discard any spark plug that has a shell that is cracked or loose.

Inspect the electrode for excessive wear.

Installing the Spark Plug

Note: Do not use anti-seize compound on the spark plug. Most of the heat is transferred through the threads and the seat area of the spark plug. Contact of the metal surfaces must be maintained in order to provide the heat transfer that is required.

1. Ensure that the spark plug is clean and free of dirt and oil.

NOTICE

Do not overtighten the spark plug. The shell can be cracked and the gasket can be deformed. The metal can deform and the gasket can be damaged. The shell can be stretched. This will loosen the seal that is between the shell and the insulator, allowing combustion pressure to blow past the seal. Serious damage to the engine can occur.

Use the proper torque.

2. Install the spark plug by hand until the spark plug contacts the ARD. Torque the spark plug to the proper specification. Refer to Specifications, "Spark Plug" for the proper torque specification.
3. Connect the wiring harness.

ARD NOZZLE CLEANER
PART #308-1504
\$15.95



NEW YORK BUS SALES

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Or at the New York Head Mechanic website at

<http://www.nyhma.org/viewforum.php?f=2&start=0>