# Rain Water Entering Thermal Regenerator, Non-Catalyzed DPF

## M-258-000

(September 2008)

## Valid for

All MRU, LEU models equipped with a non-catalyzed DPF.

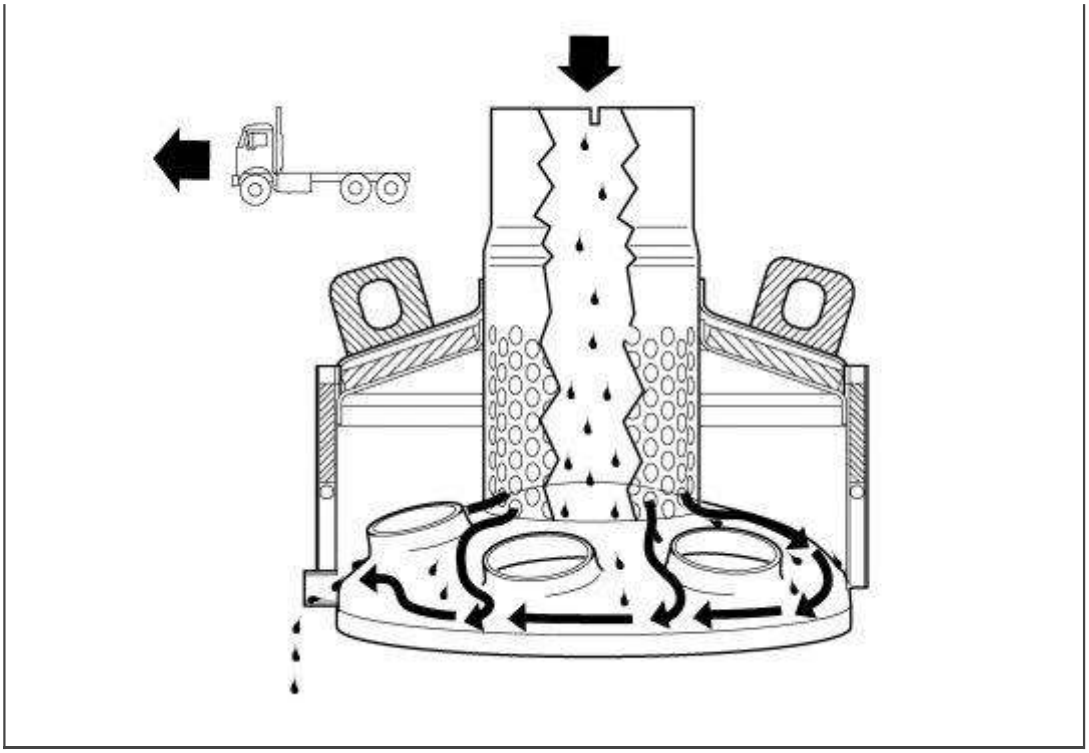
## Case description

On MRU and LEU model chassis equipped with the non-catalyzed diesel particulate filter (DPF), the possibility exists for rain water to enter the DPF unit and collect in the thermal regenerator. This condition would be made evident by any of the following:

- Water drains from the thermal regenerator through the ignitor plug holes or nozzle hole when either of these components are removed
- Repeated problems with regeneration due to the following:
  - – Rusty igniter tips
  - – Plugged injector nozzle
  - – Failed flame detection due to a water-filled combustion air line
- Cracked filter (usually occurs during periods of rain, or after washing the vehicle, followed by cold weather) made evident by black smoke

Rain water enters the DPF outlet housing through the exhaust stack where it flows down the baffle to the channel around the outside circumference (formed where the baffle is welded to the wall of the outlet housing). The water will then flow around the channel and exit the DPF unit through the drain fitting located on the side of the unit.

**Rain Water Path to DPF Drain Fitting**



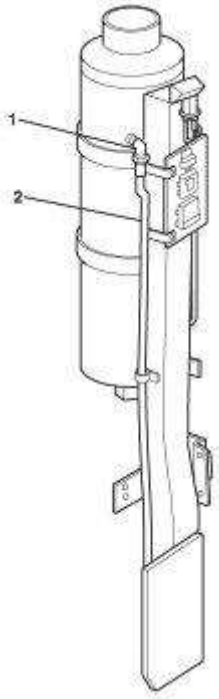
*Note: Not applicable to Mack Trucks Australia.*

## Repair

The following conditions can result in the DPF unit not draining properly:

- Plugged drain fitting/drain tube — A plugged drain fitting or drain tube will not allow rain water to drain from the DPF outlet housing. If water infiltration into the thermal regenerator is evident, check the drain fitting and drain tube to ensure they are not plugged.

**DPF Outlet Housing Drain Fitting and Tube**

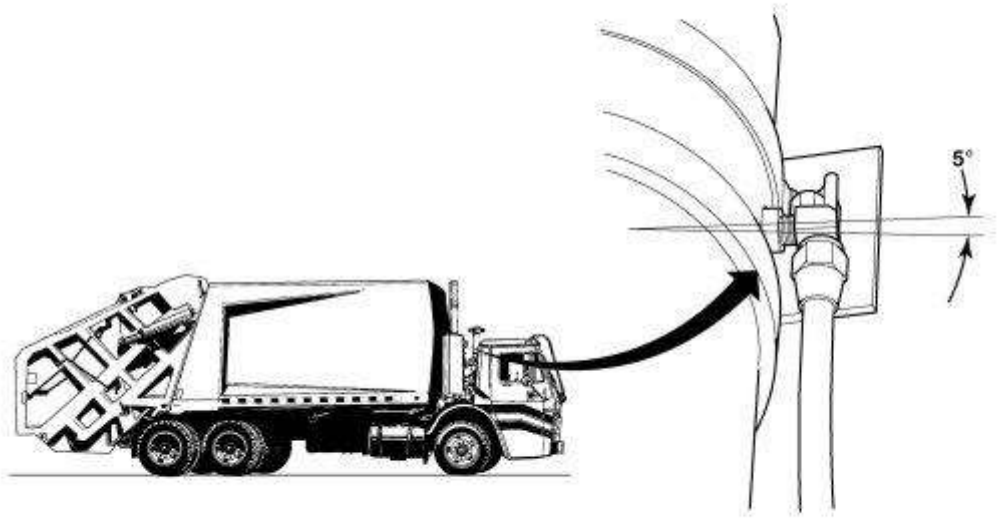



| | |
|---|---|
| 1. Drain Fitting | 2. Drain Tube |

*Note: When checking for a plugged drain port (with the 90-degree drain fitting removed), note that the corner of the baffle flange will be visible in the drain port opening. Do not mistake this as being a blocked drain port.*

- Vehicle parked on an incline — The drain fitting is located on the front-side of the DPF outlet housing, facing the front of the vehicle. Water will not adequately drain from the outlet housing if the drain fitting is at an angle greater than 5-degrees above the level horizontal plane. If the vehicle is parked with the front end higher than the rear (either by being parked on a slope, hooked to a tow truck or decked for shipment) during periods of heavy rain, rain water will not drain from the outlet housing. To avoid water infiltration, the vehicle should be parked (or stored) as close to level as possible, or the exhaust stack should be covered to prevent rain water from entering the outlet housing.

**Park Vehicle on Level Surface**



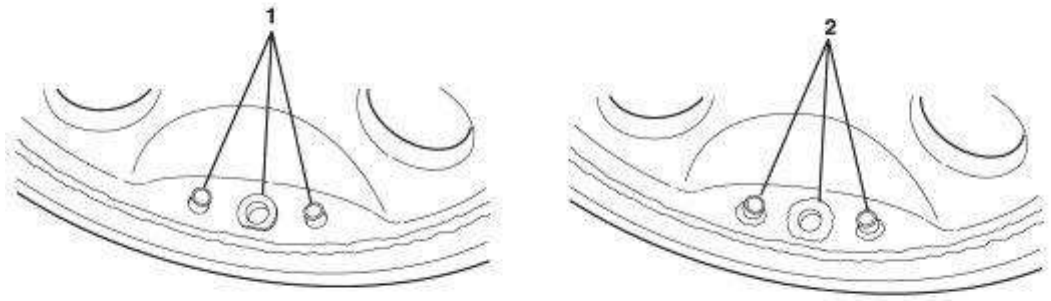

- Leaking Sensor Spuds — The spuds for the NOx sensor, delta pressure tube and the filter outlet temperature sensor are not welded to the baffle on the inside of the housing. Consequently, the possibility exists for rain water to leak past the spuds, into the filter unit and eventually collect in the thermal regenerator. Effective with chassis manufactured January 12, 2008 and later (DPF unit part number 21031269 beginning with serial No. 02068809), the spuds for the NOx sensor, delta pressure tube and filter outlet temperature sensor are welded inside the housing to seal the spud to the baffle.

Should rain water infiltration in the thermal regenerator be encountered that is not the result of a plugged drain fitting/tube or having the vehicle parked on an incline during periods of rain, the outlet housing should be removed, inspected and tested as follows:

*Note: The following procedure should only be performed if the DPF assembly part number is 21031269 and the serial number is 02068808 or lower. The DPF assembly part number and serial number can be found on the part number plate which is located on the back-side of the unit on the lower filter housing.*

1. Remove the outlet housing from the DPF unit.
2. Inspect the welds around the spuds on the inside of the housing. There should be a solid bead of weld around the circumference of each of the spuds, and there should not be any gaps in the welds.

**Inspect Spud Welds**




| | |
|---|---|
| 1. Spuds NOT Welded to Baffle | 2. Spuds Welded to Baffle |

3. Place the outlet housing on the edge of a workbench with the area where the sensor spuds are located hanging over the edge of the bench as shown in the illustration below.

**Place Outlet Housing on Edge of Workbench**

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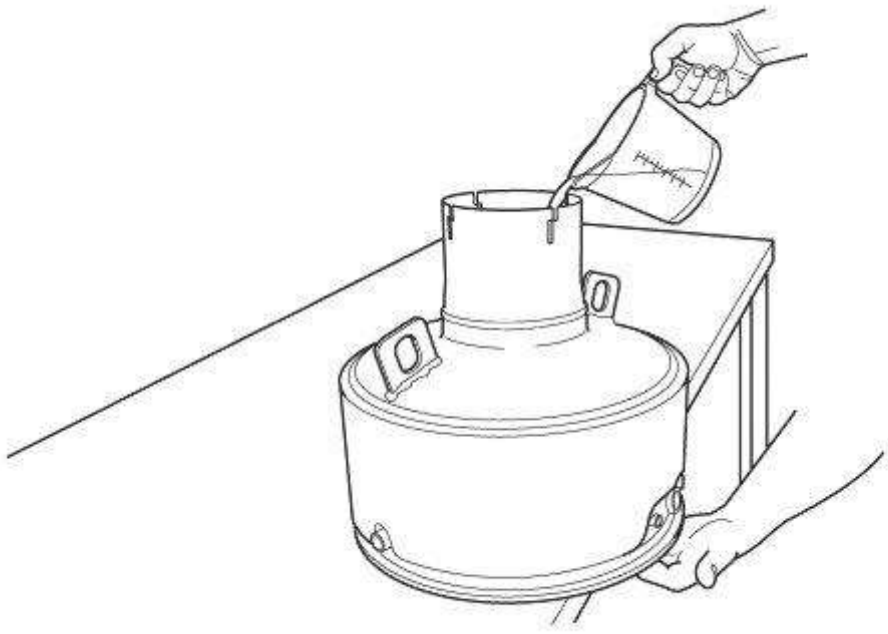
4. Slowly pour a small container of water into the exhaust stack, and then check for water leaking past the studs on the inside of the housing. This can be accomplished by holding your hand under the area of the spuds and feeling for dripping water, or by looking up into the housing to see if water is leaking around the spuds.

**Checking for Water Leaking Past Spuds**



If water is leaking past the spuds, replace the outlet housing with outlet module kit part number 21277855. This kit contains outlet housing part number 21246965, a gasket and a V-band clamp. The outlet housing part number can be verified by checking the part number plate located on the side of the housing.

*Note: The outlet module kit includes two different gaskets; a spiral wound gasket and a flat gasket. The flat gasket is used for the DPF outlet housing on all MRU and LEU model chassis. (The spiral wound gasket is used on certain MR and LE models equipped with ASET™ engines and non-catalyzed DPF units.)*

Torque specification for the V-band clamp is 17 N•m (150 lb-in).

## Issued by

Technical Service

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