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The following excerpt from the Van Hool Operating Manual is reprinted here for your convenience to inform you of the EPA '07 Regeneration Process for the Cummins ISM07 Engine.

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Driving



Exhaust aftertreatment

Introduction

Your vehicle has been equipped with an exhaust aftertreatment device. It consists of an oxidation catalyst (DOC) and a particulate filter (DPF).

Most of the soot particles containing carbon and ash are captured in the DPF. The accumulated carbon disappears if the particulate filter is heated to the self-cleaning temperature (approx. 570°F). Once this temperature is reached, the carbon reacts with the nitrogen dioxide and burns to become carbon dioxide. This process is called regeneration.

If the regeneration happens while driving, it is called automatic regeneration. However, if the self-cleaning temperature is not reached while driving (e.g. due to frequent stopping), you have to intervene to make the regeneration take place. To this end, go for a ride driving at high speed (highway) during at least 20 minutes or carry out a stationary regeneration.




A symbol appears on the multifunctional display if you have to intervene to make the regeneration take place.



WARNING!

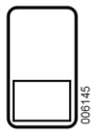
During a regeneration, the exhaust temperature can amount to 1500°F. The high exhaust temperature can cause material in the flow of the exhaust pipe to start burning. Stay clear of the exhaust, burns hazard!

Messages on multifunctional display

Symbol	Message
	<p>DPF regeneration required</p> <ul style="list-style-type: none"> Phase 1: The symbol appears to indicate that the particulate filter has to be regenerated at the next opportunity. Phase 2: If you continue driving without carrying out a regeneration, the symbol will start to flash after a while. Carry out the regeneration immediately. Phase 3: If you still do not carry out the regeneration, the "CHECK ENGINE" message also appears after a while. Immediately carry out a stationary regeneration, if you do not, engine power will be reduced. Phase 4: If you still do not carry out the stationary regeneration, the "STOP ENGINE" message will appear after a while. Immediately carry out a stationary regeneration, if you do not, the engine will be shut off. <p><i>NOTE: Also appears for a few seconds when ignition is switched on.</i></p>
	<p>High exhaust temperature.</p> <p>The fact that this symbol appears does not mean that there is an engine problem. It only warns you of a high exhaust temperature due to a regeneration.</p> <p>Make sure the exhaust pipe is not directed toward a surface that will burn or melt at high temperature (grass, ..., asphalt!)</p> <p><i>NOTE: Only appears at low vehicle speed.</i></p> <p><i>NOTE: Also appears for a few seconds when ignition is switched on.</i></p>
	<p>Detroit Diesel engine: failure implying that the exhaust gas emission standard is no longer guaranteed.</p> <p>Ask for technical assistance.</p> <p><i>NOTE: Also appears for a few seconds when ignition is switched on.</i></p>
DPF REGENERATION ACTIVE	The particulate filter goes through a stationary regeneration.
DPF REGENERATION INHIBITED	DPF regeneration switch in regeneration inhibited position

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Dash switch

Switch	Function
<p>REGENERATION INHIBIT</p>  <p>006145</p> <p>FORCE REGENERATION</p>	<p>DPF regeneration switch</p> <ul style="list-style-type: none"> • Upper part pressed: regeneration inhibited • Middle position: off • Lower part pressed: to request a stationary regeneration

To request a stationary regeneration




WARNING!

During regeneration, engine speed can increase up to 1 000 to 1 500 rpm.

NOTE: Only carry out stationary regeneration with warm engine (coolant temperature above 185°F).

Step	Action
1	Select an appropriate location to park the vehicle. Refer to "Appropriate location for stationary regeneration".
2	Apply the parking brake.
3	Make sure the transmission is in neutral position.
4	Put chocks in front of and behind the wheels.
5	Set up a safety area around the exhaust. Refer to "Safety area around exhaust".
6	<p>Carry out the actions below within a 35 seconds time limit.</p> <ul style="list-style-type: none"> • Release the parking brake and reapply it. • Put transmission from N to D and back to N. • Press the lower part of the DPF regeneration switch during 5 to 10 seconds. <p>If allowed by engine electronics, the stationary regeneration is started. The engine speed increases. The "DPF-regeneration" symbol disappears from the multifunctional display of the dashboard and the "DPF REGENERATION ACTIVE" message appears.</p>

Step	Action
7	<div style="display: inline-block; vertical-align: top;">  </div> <p>WARNING!</p> <p>If an unsafe situation occurs, stop the regeneration process immediately by pushing the brake pedal or by switching off the engine. Regeneration is also stopped if you put the “DPF regeneration” switch in the “INHIBIT REGEN” position.</p> <p>Observe the vehicle and its immediate surroundings during regeneration.</p> <p>The regeneration process takes 20 to 40 minutes. The regeneration has succeeded if the engine speed automatically returns to idling speed and if the "DPF regeneration" symbol does not reappear.</p> <p>If the "DPF regeneration" symbol reappears, the regeneration process has failed. In that case, ask for technical assistance.</p>

To inhibit/ interrupt regeneration

If regeneration causes hazardous situations (e.g. at a stop), you can inhibit/ interrupt the regeneration process. To this end, press the upper part of the DPF regeneration switch.

Appropriate location for stationary regeneration

- Surface that will not start to burn or to melt under high temperatures (such as clean concrete; no grass or asphalt!);
- Away from anything that can burn, melt or explode;
- Not near gas or vapors that can ignite, explode or contribute to a fire (such as LPG, diesel vapors, ...).

Safety area around exhaust

- If bystanders can access the area, set up barriers at least 5 ft away from the exhaust.
- If regeneration takes place in a confined space, connect an exhaust gas evacuation system to the exhaust pipe. The evacuation system has to resist temperatures of at least 1500°F.
- Keep a fire extinguisher nearby.

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Operating manual



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