

# **CUMMINS EPA 2010 DRIVER TIPS**

**Cummins Heavy-Duty and MidRange Engines with Aftertreatment**

## What's New on Your EPA 2010 Engine

### Diesel Exhaust Fluid (DEF) Lamp



#### Illuminated

An illuminated DEF lamp is an indication that the DEF level is low. This can be corrected by refilling the DEF tank.



#### Flashing

A flashing DEF lamp indicates that the DEF level has fallen below a critical level. This can be corrected by refilling the DEF tank.



#### Flashing with Warning or Check Engine Lamp

A flashing DEF lamp combined with an illuminated Warning or Check Engine lamp indicates that the DEF level is critically low and you will experience a power loss. Normal engine power will be restored after refilling the DEF tank.



#### Stop Engine Lamp with Flashing DEF and Warning or Check Engine Lamp

If the engine has been shut down or has idled for 20 hours after the DEF tank has been run dry, the Stop Engine Lamp will also be illuminated along with the flashing DEF lamp and illuminated Warning or Check Engine lamp. Engine power will continue to be reduced automatically. The vehicle will also be limited to 5 miles (8 km) per hour (MPH) speed limit. Normal engine power and vehicle speed will be restored after refilling the DEF tank.



### Malfunction Indicator Lamp (MIL)

#### ISX15 Engines 450 HP and Below Will Have a Functioning MIL Lamp

The MIL illuminates when the On Board Diagnostics (OBD) detects a malfunction related to the emissions control system. The illuminated MIL indicates that the engine needs to be serviced at the first available opportunity and can be illuminated along with any of the engine indicator lamps. It is not used to indicate an engine protection or maintenance required condition.

## Information for EPA 2007 and Later Engines

### High Exhaust System Temperature (HEST) Lamp



The HEST Lamp illuminates to indicate that high exhaust temperatures may exist due to aftertreatment regeneration. This is normal and does not signify the need for any kind of vehicle or engine service. When this lamp is illuminated, ensure that the exhaust pipe outlet is not directed at any combustible surface or material. Reference your Cummins Owners Manual for complete instructions.

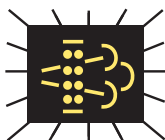
### Aftertreatment Diesel Particulate Filter (DPF) Lamp



#### Illuminated

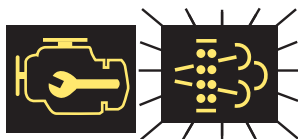
The Aftertreatment DPF Lamp indicates, when illuminated or flashing, that the Aftertreatment DPF requires regeneration. This is accomplished by the following:

1. If the vehicle is equipped with a Regeneration Inhibit Switch, ensure that the switch is not in the Inhibit position.
2. Perform a DPF regeneration by one of the following methods:
  - a. Change to a more challenging duty cycle, such as highway driving, for at least 20 minutes.Or
  - b. Perform a Parked regeneration.



### Flashing

If a regeneration is not performed in a timely manner after the DPF lamp is illuminated, the DPF lamp will begin to flash. This indicates a higher level of soot in the DPF. In addition, engine power may be reduced automatically. Note: Automatic power reduction does not apply to emergency vehicle applications.



### Flashing with Warning or Check Engine Lamp

A flashing DPF lamp combined with an illuminated Warning or Check Engine Lamp indicates that the Aftertreatment DPF needs regeneration immediately. Engine power will be reduced automatically. A Parked regeneration is required.



### Stop Engine Lamp

If a Parked regeneration is not performed, the red Stop Engine Lamp will illuminate. The vehicle should be stopped as soon as it can safely be done until it can be repaired.

## **Regeneration Inhibit Switch**

The purpose of this switch is to prevent or disable Aftertreatment DPF regeneration. Reference the Vehicle Owners Manual for complete operation and use of this switch. Unnecessary or excessive use of the Regeneration Inhibit Switch will result in a loss of fuel economy, or an increased need for Parked regeneration.

## How to Perform a Parked (Stationary) Regeneration

If the vehicle has a Manual Regeneration Switch and the DPF Lamp is flashing:

- Park vehicle in an appropriate location, set parking brake, and place transmission in Park (if provided) or Neutral, and allow at least 40 minutes for the regeneration.
- Set up a safe exhaust area. Confirm that nothing is on or near the exhaust system surfaces.
- Ensure your fast idle and PTO switches are off before starting regeneration.
- Push the Manual Regeneration Switch to begin a Parked regeneration. Note: Engine speed will increase and there may be a noticeable change to the sound of the turbocharger during the regeneration process. Once the diesel particulate filter is regenerated, the engine will automatically return to the normal idle speed.
- Monitor the vehicle and surrounding area during regeneration. If any unsafe condition occurs, shut off the engine immediately. To stop a parked regeneration, depress the clutch, brake, or throttle pedal.
- Once regeneration is complete, exhaust gas and exhaust surface temperatures will remain elevated for 3 to 5 minutes.

Reference your Cummins Owners Manual and Vehicle Owners Manual for complete operating instructions.

## Fuel, Oil and Aftertreatment System Maintenance

- Only use Ultra Low Sulfur Diesel (ULSD) fuel.
- CJ-4 (low ash) is the recommended oil.
- CI-4+ is permitted. Read your Cummins Owners Manual for specific details.
- Be sure to check DEF gauge at every refueling. DEF meeting ISO 22241-1 must be used.
- **Never put DEF in anything but the DEF tank, which has a blue cap.**

# Optimizing Fuel Economy – Shifting Techniques

## Heavy-Duty Engines with Manual Transmissions

- Maximize your time in top gear by using:
  - o Progressive Shifting, or making each upshift at the lowest possible RPM.
  - o Skip Shifting, or skipping gears and only using gears needed to move the load.  
(Note: Some transmissions will not allow skip shifting.)
- Lug back to 1200 RPM before making a shift.

## Items Driver Will Notice

### Aftertreatment System

- Under certain conditions (cold or very dry) condensation, in the form of water vapor, can be seen coming from the vehicle tailpipe. This is normal. It will clear within a few minutes of normal vehicle operation.
- **SCR-Specific:** Do not disconnect the vehicle batteries during the initial 60 seconds after turning your keyswitch off to avoid system damage. During this time, a pumping sound may be heard from underneath the vehicle. This sound is the aftertreatment Diesel Exhaust Fluid (DEF) dosing unit purging any unused DEF from the system and returning it to the tank. This is normal.

### Engine Sounds

- The 2010 ISX engines are equipped with a feature to ‘Warm Up’ the Aftertreatment system under various idle conditions. This ‘Warm Up’ feature can cause slight sound changes during idle. These sounds are perfectly normal.
- The electric-actuated Variable Geometry Turbocharger causes the engine sound to vary at different times. This is normal. A slight turbo whistle may also be observed at idle conditions.
- Compression brakes are quieter on engines with Exhaust Aftertreatment.

### Exhaust

- After prolonged idle, you may notice momentary white vapor and an odor. This is normal.
- When the High Exhaust System Temperature Lamp is illuminated, you may notice an odor. This is normal. If the odor is excessive and you also notice white vapor, have the exhaust system inspected for leaks.



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