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Title: MaxxForce 11 and 13 operating temperatures and fuel economy characteristics in cold weather climates

Applies To: All MaxxForce 11 and 13 Liter engines

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

10/27/2015 - Fixed spelling error

DESCRIPTION

MaxxForce 11 and 13 operating temperatures and fuel economy characteristics in cold weather climates

SYMPTOMS

- Concerns of low or reduced engine coolant temperature in cold weather climates
- Concerns of poor or reduced fuel economy in cold weather climates

SUMMARY

Engine Coolant Temperatures in Cold Weather Climates:

MaxxForce 11 Liter and 13 Liter engines typically operate cooler than most other big-bore diesel engines. Common coolant temperature gauge ranges when operating in cold climates or under non-fueling conditions tends to be between 140 to 165 degrees Fahrenheit when at an idle or while coasting, with the temperature rising when the engine load is increased. This is due to various factors of the engine's basic design, which include:

- The coolant temperature gauge sensor is located before the EGR cooler; this results in the gauge readings being slightly lower than the actual coolant temperature entering the cooling package.
- When at an idle or coasting, the engine is designed to consume as little fuel as possible for increased fuel economy. When less fuel is burned, less heat output exists.
- The compressed graphite iron crankcase has increased heat dissipation characteristics over common grey-iron crankcases.

Fuel Economy in Cold Weather Climates:

A reduction in total vehicle fuel economy in winter conditions is expected. A reduction of up to 1 - 1.5 mpg difference can be noticed. Fuel economy reduction can occur due to a multitude of factors, such as:

- Cold weather fuels with lower energy content (D1 vs D2), as well as addition of cold weather additives
- Increased viscosity of cold lubricating fluids (engine, transmission, differentials, etc)
- Cold air density creating greater wind drag / restriction
- Increased winds
- Increased warm up / idle time
- Wet / snow covered roads
- Slower transit speeds in inclement weather conditions

Some actions that can be performed to improve cold weather fuel economy are:

- Install block heaters to eliminate extended warm up time
- Ensure that the lubricating fluids recommended in the operators manual are used
- Avoid extended idle conditions
- Ensure tires are inflated to the proper pressures and are in good condition

OTHER RESOURCES

- Link to article explaining fuel economy loss associated with winter blend diesel:
http://www.lcbamarketing.com/why_diesel_fuel_economy_drops_in.htm

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