ENGINE / DPF / DEF

DASH WARNING LIGHTS OVERVIEW

STUDY GUIDE
Presented by

Navistar® Education 2015
1.2 Course Overview

Notes:

While dash board configurations may vary by vehicle model, the warning lights are basically standard across all models. Knowing the meaning, and the action required for each light, will help you explain to the customer the proper operation of the vehicle. Customers purchasing newer models and are new to DEF and the DPF regeneration process will need to be educated to insure proper and safe operation of the vehicle. Covered in the course are the standard engine warning lights, the DPF warning lights and the regeneration process, the DEF lights along with the driver responsibilities associated with DPF and DEF.
Module 1. Engine Warning Lights
The **Low Engine Oil Pressure** light illuminates RED when the oil pressure is below the allowable minimum that has been programmed into the engine parameters. The light indicates immediate attention is required if the indicator fails to go out after starting the engine or while driving the vehicle. This is usually associated with an audible alarm. If the ambient temperature is extremely cold it may take a few minutes for the oil pressure to build. Do not rev the engine until there is at least 20 pounds of oil pressure. The driver action is to pull over and stop, or if on startup, shut off the engine and have it serviced immediately.

The **High Water Temp** illuminates RED when the engine coolant temperature gauge rises above 210 F. The light indicates immediate attention is required if the indicator fails to go out after starting the engine. This is usually associated with an audible alarm. Always verify the temperature gauge reading against the lights to verify the warning is correct. The driver action is to pull over and stop the engine, or if on startup, shut off the engine and have it serviced immediately.

The **Red Stop Lamp** illuminates RED when there is a serious engine problem. This warning is accompanied by a message on the odometer display and an AUDIBLE ALARM. The driver action is to pull over and stop immediately, shut off the engine and have it serviced. That means calling for assistance or a tow truck if necessary.
The **Malfunction Indicator Lamp (MIL)** - Illuminates when it detects a malfunction related to the emission control system. This is also associated with On-Board Diagnostics (OBD) now mandated on all 2013 or newer heavy duty trucks. The MIL light is usually not associated with an audible alarm.

The heavy duty and automotive industry has evolved, that the outline of the engine on a gauge, is related to an engine issue, but with today's technology, the truck will alert the driver whenever the engine's computer is controlling one or more of the emission sensor values to control emissions. The drivers action is to check the gauges and verify the coolant temperature is good, that the oil pressure is normal. If no degradation in the engine performance is seen or other critical engine warning lights, the driver can continue to drive the vehicle to complete the day's activities. Then at the first convenient opportunity have the truck serviced. The MIL light does have a healing feature which will reset and the light will go out if the problem resolves itself. In addition, the MIL light will attempt to reset on the third key cycle.

The **Maintenance Indicator** is used in conjunction with other Warning Indicators or General Text and Warning Messages and may be accompanied by audible alarm. The drivers actions is to seek out service assistance as soon as possible. Operating the truck may be safe, but the driver needs to pay attention to the coolant temperature, and oil pressure if this is associated with other related systems. If the driver experiences a change in engine performance, then service may be required sooner than later.
The **High Exhaust Temperature light** indicates that the exhaust system components are operating under normal conditions, but the exhaust gases and components are at extremely high temperatures. The light is usually active during a regeneration cycle. The warning light will illuminate when the vehicle speed goes below 6 miles per hour, and it will go out again when the vehicle speed goes above 6 miles per hour. The driver action is to take care not to park the vehicle under any overhanging wooden structures, trees with low hanging branches or grassy areas where it can come in contact with the exhaust. If backing into a dock to unload, make sure there are no flammable products or obstructions that may come in contact with the truck's exhaust system when the light is on.
1.5 Module 2.

Module 2.
DPF Warning Lights
&
Regeneration
1.6 Aftertreatment Diesel Particulate Filter Lamp

Notes:

The Diesel Particulate Filter (DPF) status light. Sometimes referred to as the snow cone light. The light illuminates solid or flashing to indicate the need to regenerate the Diesel Particulate Filter and maybe associated with an audible alarm. The first driver action if the DPF light is on is to drive the vehicle at highway speed for at least 20 minutes. If unable to do this before returning to the terminal, or if stuck in traffic, then additional actions will need to be taken.
1.7 Flashing DPF Lamp

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 high level of soot in the DPF.

In addition, engine power may be reduced automatically.

Notes:

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 high level of soot in the DPF. In addition, engine power may be reduced automatically. The vehicle will need to be stopped and a parked regeneration performed.
1.8 Flashing DPF Lamp with Red Stop Lamp

If a parked regeneration is not performed, the Red Stop Lamp will illuminate.

As soon as it is safe to do so, the vehicle should be stopped.

It should then be taken to a certified repair location.

Notes:

If a parked regeneration is not performed, the Red Stop Lamp will illuminate. Engine power will automatically be reduced. As soon as it is safe to do so, the vehicle should be stopped. This may involve towing if the parked regeneration cannot be performed or completed.
1.9 Regeneration Inhibit Switch

The purpose of this switch is to prevent or disable Aftertreatment DPF regeneration. Reference the Operations and Maintenance Manual for complete operation and use of this switch. Unnecessary or excessive use of the Regeneration Inhibit Switch may increase the need for parked regeneration.

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Module 3.

DEF Warning Lights
1.11 Diesel Exhaust Fluid (DEF) Lamp

An illuminated DEF Lamp indicates that the DEF level is low.

A flashing DEF Lamp indicates that the DEF level has fallen below a critical level.

Both warnings can be corrected by refilling the DEF tank.

Notes:

An illuminated DEF Lamp indicates that the DEF level is low. A flashing DEF lamp indicates the DEF level has fallen below a critical level. Both warnings can be corrected by refilling the DEF tank. Vehicles are equipped with a DEF gauge located in the dash. Note the DEF lamp symbol on the gauge face.
1.12 Flashing DEF Lamp with Red Stop Lamp

A flashing DEF Lamp combined with an illuminated Red Stop Lamp indicates that the DEF level is critically low, and a progressive power loss will be experienced.

Normal engine power will be restored after refilling the DEF tank.

The DEF tank is identified by a blue filler cap.

Notes:

Failure to address the flashing DEF lamp will cause additional vehicle operation problems. A flashing DEF Lamp combined with an illuminated Red Stop Lamp indicates that the DEF level is critically low or empty, and a progressive power loss will be experienced. If the engine has been shut down or has idled for one hour after the DEF tank has run dry, the Red Stop Lamp will also be illuminated along with the flashing DEF Lamp. Engine power will continue to be reduced automatically. The vehicle will also be limited to a speed of 5 miles (8 km) per hour. Normal engine power and vehicle speed will be restored after refilling the DEF tank. The DEF tank is usually located in front of the diesel fuel tank and can be identified by a blue filler cap.
1.15 Warning Lamp Guide

Notes:

Vehicles are equipped with a complete warning lamp guide located on the driver's sun visor. Drivers should be aware of the location and reference the guide if in doubt of the action required with an illuminated dash warning light.
Notes:

Located in new vehicles will be a placard which describes each warning light and the action required by the driver for the DPF and DEF warning lights, as well as directions on performing a parked regeneration. The placard should not be removed from the vehicle.
1.18 Summary

Notes:

The basic descriptions of the warning lights and the actions required when the lights are illuminated have been reviewed. Helping the customer know the meaning of the warning lights associated with the engine, the DPF and DEF, will insure proper operation of the vehicle and maintain a positive relationship between the customer and the dealer.
Notes: