NAVISTAR ENGINE GROUP

MaxxForce® 11 and 13 (2007-2009)

Overview: *Engine Warning & Protection System*

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General Overview: Engine Warning And Protection System

The Engine Warning and Protection System (EWPS) feature is designed to protect the engine from damage by monitoring critical engine data such as engine speed, coolant temperature, oil pressure and coolant levels. This feature will alert the operator using a combination of visual and audible warnings when critical engine parameters have been exceeded.

This document will address the unique engine warning and protection system functionality for the MaxxForce® 11 and 13.

Description and Operation

Operation

The EWPS feature uses an amber warning lamp and a red stop lamp located in the gauge cluster for visual display indications that critical engine parameters have been exceeded. An audible beep is provided as an additional EWPS operator warning.

Amber Warning Lamp (AWL)

The AWL turns ON when the vehicle has exceeded either of two programmable over speed thresholds:

- Vehicle Over Speed Level 1
- Vehicle Over Speed Level 2

The vehicle should be driven to the nearest authorized dealer as soon as possible.

> *It is important that the customer, owner and driver are aware of the vehicle over speed settings and why they are getting the AWL dash light.*

Red Stop Lamp (RSL)

The RSL turns ON when a malfunction occurs which may result in vehicle damage and could affect safe vehicle operation. The vehicle should be safely pulled over and parked as soon as possible.

The EWPS is capable of providing up to two levels of protection. The second level corresponds to the highest severity. It is essential that the operators be trained to recognize and understand the warnings associated with the EWPS feature.

1st Level (Warning)

- The AWL turns ON steady
- The gauge cluster sounds 3 short audible beeps

2nd Level (Shutdown) – Optional

- The RSL flashes in the gauge cluster

- The gauge cluster sounds a continuous audible beep
- The engine shuts down 30 seconds (programmable) after the RSL begins to flash

> *The EWPS feature may also de-rate the engine to protect itself from damage. Engine speed and power may be affected during this event*
>
> *If the engine shuts down, it can be restarted by cycling the key switch; however, the engine will shut down after 30 seconds if the second level is still being exceeded*

Feature Interactions

The EWPS feature interacts with the following engine features:

- Vehicle Speed Governor – The vehicle over speed warning indication provided by EWPS may occur at different vehicle speeds depending on the accelerator vehicle.

Programmable Parameters

The following programmable parameters are available with the EWPS feature. These parameters should be programmed in a manner, which provides the appropriate level of warning and protection to meet the customer's needs.

Parameters indicated as customer programmable can be adjusted differently than the production assembly plant setting to meet the customer's needs. If the parameter is indicated as non-customer programmable, the parameter setting is preset from the factory and can't be changed without dealer authorization.

Parameter Value	Description	Possible Values	Cust Pgrm	Recommended Settings
Engine Warning And Protection System Mode (7700)	This parameter determines how the EWPS Feature reacts if critical engine operating limits are exceeded. If set to (1) – The EWPS feature provides a visual and audible indication if critical engine operating limits exceed a threshold. If set to (2) – The EWPS feature provides 2 levels of protection. ▪ (Less Severe) – A visual and audible indication occurs if critical engine operating parameters exceed the 1st threshold. ▪ (More Severe) – The EWPS feature will shut down the engine if critical engine operating parameters exceed the 2nd threshold.	**1:** 3-WayWarning (Overspeed, Overheat, Low Oil Pressure, Low Coolant) **2:** 3-Way Protection (Overspeed, Overheat, Low Oil Pressure, Low Coolant)	YES	**2:** 3-Way Protection
EWPS Fault Mode (7719)	This parameter determines how the EWPS feature reacts to sensor faults ▪ **If set to (0)** – The EWPS feature is disabled if a sensor fails. ▪ **If set to (1)** – A visual warning occurs if a sensor fails. ▪ **If set to (2)** – The engine shuts down if a sensor fails.	**0:** Sensor Faults Disable EWPS **1:** Sensor Faults Cause Warning Actions **2:** Sensor Faults Cause Protection Actions	YES	**1:** Sensor Faults Cause Warning Actions

Parameter Value	Description	Possible Values	Cust Pgrm	Recommended Settings
EWPS Shutdown Time (7731)	This parameter sets the time from which the red stop lamp (RSL) begins to flash before the engine shuts down. This allows the operator time to safely pull over and park the vehicle. For example, if set to a value of 30 the engine will shut down 30 seconds after the RSL begins to flash	30 to 3,276 seconds	YES	30 seconds
Vehicle Over Speed Level 1 (7723)	This parameter sets the speed at which the 1st vehicle over speed warning will occur. The amber warning lamp (AWL) will turn ON when the vehicle speed has exceeded this value. **Note 1:** It is recommended to set this parameter 5 mph above the Maximum Road Speed Global Limit (7937) parameter setting. See Example Programmed Values.	0 to 125 mph	YES	Customer Chosen **(See Note 1)**
Vehicle Over Speed Level 2 (7724)	This parameter sets the speed at which the 2nd vehicle over speed warning will occur. The amber warning lamp (AWL) will turn ON when the vehicle speed has exceeded this value. **Note 1:** It is recommended to set this parameter 7 mph above the Maximum Road Speed Global Limit (7937) parameter setting. See Example Programmed Values.	0 to 125 mph	YES	Customer Chosen **(See Note 1)**

Example Programmed Values for Vehicle Over Speed Parameters:

Assuming that the following parameter values are set:

- Maximum Road Speed Global Limit (7937) is set to 65 mph (Refer to the Vehicle Speed Governor document).
- Vehicle Over Speed Level 1 (7723) is set to 70 mph.
- Vehicle Over Speed Level 2 (7724) is set to 72 mph.

Ensure that the Maximum Road Speed Global Limit (7937) parameter is set at the customer's expectation in mph. The governed vehicle speed in this example will be limited to 65 mph. If the vehicle speed exceeds 70 mph (level 1) or 72 mph (level 2) then the AWL will be turned ON. The AWL will remain ON until the vehicle speed has dropped below 70 mph (level 1).

Parameter Setup

EWPS Application

This section describes one feature application and how the programmable parameters can be effectively configured for this application. This is not a comprehensive list, and does not include all possible applications that an owner/operator might encounter.

Please review the description and operation section and the programmable parameters for a better understanding of how the various engine parameters might be best configured to the vehicle.

EWPS Example

The customer desires EWPS with engine shutdown enabled and standard vehicle over speed warnings. Engine protection levels, warnings and shutdowns along with a visual warning if a sensor has failed are requested. The customer also wants the AWL to be turned ON if the vehicle speed has exceeded one or more programmable limits. Set programmable parameters to the values shown in the table below:

Parameter Name	Action Required
Engine Warning And Protection System Mode (7700)	Set to 2
EWPS Fault Mode (7719)	Set to 1
EWPS Shutdown Time (7731)	Set to 30
Vehicle Over Speed Level 1 (7723)	Set 5 mph above the Maximum Road Speed Global Limit (7937) parameter setting
Vehicle Over Speed Level 2 (7724)	Set 7 mph above the Maximum Road Speed Global Limit (7937) parameter setting

Frequently Asked Questions

Can I restart the engine immediately after the EWPS feature has shut the engine down?

Yes, just cycle the key switch and restart the engine. However, if the critical operating condition is still present then the engine will shut down again after 30 seconds (programmable time).

Definitions/Acronyms

The following terms are referenced in this document:

Acronym	Definition
AWL	Amber Warning Lamp
EWPS	Engine Warning And Protection System
RSL	Red Stop Lamp