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1. Vehicle Setup (General Overview)

The vehicle setup feature consists of various parameters within the engine control module (ECM) which are based on the vehicle configuration.

Most parameters are pre-programmed by the original equipment manufacturer (OEM) and will not require any adjustment after the factory.

Some parameters are “customer programmable” to allow flexibility in the event that something on the vehicle has changed (e.g. the rear axle is replaced). Other parameters can only be updated at your authorized dealer.

This document will describe the vehicle setup parameters for MaxxForce® 11 and 13 engines.

1.1. Feature Codes

N/A

2. Definitions/Acronyms

The following terms are referenced in this document:

- **AIT** – Air Intake Temperature
- **ECM** – Engine Control Module
- **HP** – Horsepower
- **OEM** – Original Equipment Manufacturer
- **PPM** – Pulses Per Mile
- **RPM** – Revolutions Per Minute
- **VSS** – Vehicle Speed Sensor

3. Description and Operation

3.1. Operation

This feature reports and updates stored vehicle setup information. There are no operator interactions involved with this feature, such as switches or indicators.

3.2. Feature Interaction

This feature interacts with many of the engine features. For example, “Tire Revs Per Mile” (8001), part of vehicle setup, is used to calculate appropriate settings for gear down protection.

4. Parameters

The following programmable parameters are related to vehicle setup.

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 authorization.

Parameter Name	Description	Possible Values	Customer Programmable?	Recommended Setting
Transmission Type (8200)	This parameter indicates the type of transmission equipped on the vehicle.	6: Manual 7: Eaton Auto Shift 8: Eaton Ultra Shift 9: Allison 4000 10: Allison 3000	NO	Varies with Vehicle Application
Two Speed Axle Enable (8000)	This parameter should be enabled if the vehicle is equipped with a 2-speed axle. Note 1: This parameter can be used for a transfer case enable.	0: Disable 1: Enable	YES	Varies with Vehicle Application
Tire Revs Per Mile (8001)	This value is provided by the tire manufacturer and is used in the vehicle speed calculation.	300 to 676 (rev/mile)	YES	Varies with Vehicle Application

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VSS Mode (8900)	<p>The vehicle speed sensor (VSS) mode. This parameter specifies the correct signal for vehicle speed.</p> <p>If set to (0): The VSS is hardwired from the transmission output shaft.</p> <p>If set to (3): The VSS signal comes from the SAE J1939 transmission output shaft.</p> <p>Note 1: If operating in “Split-Shaft” PTO mode, the engine looks for a SAE J1939 message from an ABS source address module regardless of mode.</p> <p>Refer to the “Remote Engine Speed Control (PTO)” document for more information.</p>	<p>0: Enable Hardwired OSS feature</p> <p>3: Public J1939/CAN OSS</p>	NO	Varies with Vehicle Application
Output Shaft Teeth (8007)	This parameter indicates the number of teeth on the transmission output OR transfer case shaft.	5 to 255	YES	Varies with Vehicle Application
Rear Axle Ratio Low (8002)	<p>This is the application specific final drive gear ratio.</p> <p>Note 1: This is a “low speed” gear ratio if equipped a 2-speed axle.</p> <p>Note 2: If equipped with a single speed axle, then parameter (8002) AND (8003) must be programmed to the same value.</p>	2.5 to 40.00	YES	Varies with Vehicle Application
Rear Axle Ratio High (8003)	<p>This is the application specific final drive gear ratio.</p> <p>Note 1: This is a “high speed” gear ratio if equipped a 2-speed axle.</p> <p>Note 2: If equipped with a single speed axle, then parameter (8002) AND (8003) must be programmed to the same value.</p>	2.5 to 40.00	YES	Varies with Vehicle Application
Top Gear Minus 1 Gear Ratio (7729)	<p>This parameter is used by the gear down protection feature. It is the gear ratio which the “GDP Vehicle Speed Limit (Top Gear Minus 1)” will be active.</p> <p>For example, on a 10 speed transmission this is the gear ratio of 9th gear.</p>	0 – 65.5	YES	Varies with Vehicle Application
Top Gear Minus 2 Gear Ratio (7730)	<p>This parameter is used by the gear down protection feature. It is the gear ratio which the “GDP Vehicle Speed Limit (Top Gear Minus 2)” will be active.</p> <p>For example, on a 10 speed transmission this is the gear ratio of 8th gear.</p>	0 – 65.5	YES	Varies with Vehicle Application
Top Gear Ratio (8004)	The gear ratio of the highest gear in the transmission.	0.6 to 20	YES	Varies with Vehicle Application

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Low Pulses Per Mile (8005)	This parameter indicates the low axle ratio pulses per mile (PPM). This is found by multiplying the following: [Tire Revs Per Mile (8001) * Rear Axle Ratio Low (8002) * Output Shaft Teeth (8007)]	18017 to 157157 (PPM)	YES	Varies with Vehicle Application
High Pulses Per Mile (8006)	This parameter indicates the high axle ratio pulses per mile (PPM). This is found by multiplying the following: [Tire Revs Per Mile (8001) * Rear Axle Ratio High (8003) * Output Shaft Teeth (8007)]	18017 to 157157 (PPM)	YES	Varies with Vehicle Application
RPM: Low Idle (8202)	The engine speed in revolutions per minute at normal low engine idle speed.	600-750 rpm	YES	(600-750 rpm): Non Eaton Ultra-Shift transmissions. (600-650 rpm): w/ Eaton Ultra-Shift transmissions.
RPM: High Idle (8203)	The engine speed at high idle engine speed.	N/A	NO	Varies with Vehicle Application
RPM: Rated Engine Speed (8204)	The revolutions per minute (RPM) at which the engine achieves its rated horsepower.	N/A	NO	Varies with Vehicle Application
Rated HP (8205)	The maximum horsepower at the "RPM: Rated Engine Speed" (8204) parameter value.	N/A	NO	Varies with Vehicle Application
Enable for Multi Torque Rating (7745)	If enabled, this parameter allows greater torque in the upper transmission gears.	0: Disable 1: Enable	NO	Varies with Vehicle Application
AIT Sensor Location (6903)	This parameter indicates the air intake temperature sensor location. Set to (0): If leaving sensor in the intake. Set to (1): If relocating sensor to a 5 th wheel.	0: AIT – Engine Intake 1: AIT – External source	NO	Varies with Vehicle Application

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<p>Stand Alone Real Time Clock (8911)</p>	<p>If this parameter is enabled, the engine control module will record and store relevant data (e.g. diagnostics, vehicle events) for future review with a “time stamp” using the stand alone real time (SART) clock module.</p> <p>If SART hardware is installed on the vehicle, then the following parameters must be programmed:</p> <ul style="list-style-type: none"> • (8911) – Set to 1. • (8907) – Set to the source address of the SART module. 	<p>0: SART module not Installed</p> <p>1: SART module installed</p>	<p>YES</p>	<p>Set to 1 if the vehicle is equipped with a real time clock.</p>
<p>Stand Alone Real Time Clock Source Address (8907)</p>	<p>This parameter indicates the source address of the stand alone real time (SART) clock module.</p> <p>Enabling this parameter can be useful in finding specific fault information (i.e. retrieve date/time the fault occurred).</p> <ul style="list-style-type: none"> • If set to (0): Disabled – Turns off the request for date/time. • If set to (255): Enabled – Request any device for date/time. • If set (between 0 & 255): Enabled – Request a specific device for date/time. (i.e. Source Address “74” for AWARE) <p>Parameter (8911) must also be set to (1) and the vehicle must have a real time clock installed.</p> <p>If it is desired for VSL override to use the SART input, you must also program parameter (7934). See the Vehicle Speed Limiter feature document for more information.</p>	<p>0-255</p>	<p>YES</p>	<p>Varies with Vehicle Application</p>
<p>CAP Enable (9400)</p>	<p>This parameter enables or disables the cold ambient protection feature.</p> <p>If set to (0): – CAP will not be able to increase the engine speed.</p> <p>If set to (1): – CAP will increase the engine speed as required to warm up the engine.</p> <p>Refer to the MaxxForce® 11 and 13 Diesel Engines Operation and Maintenance Manual for more information about CAP.</p>	<p>0: Disable</p> <p>1: Enable</p>	<p>YES</p>	<p>(Must be set to 0): Eaton Ultra-Shift transmissions.</p> <p>(Must be set to 1): Eaton Ultra-Shift Plus and all other Transmissions.</p>

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Emergency Vehicle Configuration (7737)	This parameter is required to be set to 0 on emergency vehicles and 1 for all other vehicles.	0: Emergency Vehicle 1: Commercial Vehicle	YES	(Must be set to 0): Emergency Vehicles Only. (Must be set to 1): Non-Emergency Vehicles.
Vehicle Setup Parameter #2 (8903)	This parameter is required to be set to 0.	N/A	NO	Must be set to 0.
Vehicle Setup Parameter #3 (9200)	This parameter is required to be set to 1.	N/A	YES	Must be set to 1.
Vehicle Setup Parameter #4 (9800)	This parameter is required to be set to 0.	N/A	NO	Must be set to 0.
Vehicle Setup Parameter #5 (6900)	This parameter is required to be set to 1.	N/A	YES	Must be set to 1.
Vehicle Setup Parameter #6 (7300)	This parameter is required to be set to 1.	N/A	YES	Must be set to 1.
Vehicle Setup Parameter #7 (7301)	This parameter is required to be set to 2 seconds.	N/A	YES	Must be set to 2 seconds.
Vehicle Setup Parameter #8 (8208)	This parameter is required to be set to 6.	N/A	NO	Must be set to 6.
Vehicle Setup Parameter #9 (9700)	This parameter is required to be set to 1.	N/A	NO	Must be set to 1.
Vehicle Setup Parameter #10 (7100)	This parameter is required to be set to 1.	N/A	NO	Must be set to 1.
Vehicle Setup Parameter #11 (7007)	This parameter is required to be set to 1.	N/A	NO	Must be set to 1.
Vehicle Setup Parameter #12 (9401)	This parameter is required to be set to 1.	N/A	NO	Must be set to 1.

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Vehicle Setup Parameter #13 (8219)	This parameter is required to be set to 0.	N/A	NO	Must be set to 0.
Vehicle Setup Parameter #14 (8912)	This parameter is required to be set to 1.00	N/A	NO	Must be set to 1.00
Vehicle Setup Parameter #15 (8913)	This parameter is required to be set to 1.38	N/A	NO	Must be set to 1.38
Vehicle Setup Parameter #16 (7610)	This parameter is required to be set to 0.	N/A	NO	Must be set to 0.
Vehicle Setup Parameter #17 (7611)	This parameter is required to be set to 0.	N/A	NO	Must be set to 0.

5. Parameter Setup

N/A

6. Frequently Asked Questions

N/A