PACCAR

Programming Guide

PG034-006v6.7

(05/ 19)

2018 Multiplex Electrical System

Version 6.7

Contents

Chapter 1 | INTRODUCTION

About this Programming Guide

This programming guide is designed to help dealers and technicians understand some of the programming options available for Kenworth and Peterbilt trucks, as well as how to update those parameters.

How to Read This Document

The programming guide is divided into several chapters. Each chapter covers either the parameters that can be programmed, or procedures used to program the parameters.

Each parameter detailed includes an explanation of the parameter, any related or connected parameters, and a table detailing the parameter. The columns in each of these parameter tables are described in the following table.

Table 1: Parameter Table Explanation

Column Name	Explanation
Sel Code	Parameter's sel code number
Default Value	Default value entered in the parameter
Minimum Value	Minimum value that can be entered
Maximum Value	Maximum value that can be entered
Unit Type	Unit value of parameter, such as 'mph' or 'seconds'

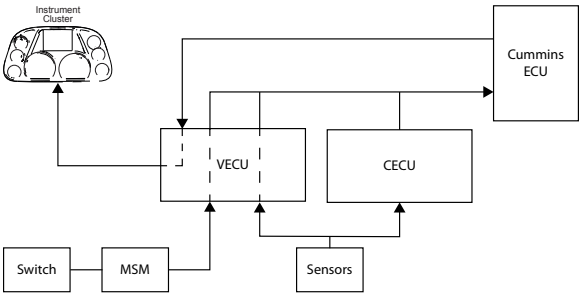
NOTE

Some parameters are visible to customers but cannot be modified by them. These parameters will be noted as either nonprogrammable (cannot be changed) or only modifiable by PACCAR employees.

Cummins Engine Integration on Vehicles with VECU

Vehicle Electronic Control Unit (VECU) BUS communication is different for vehicles with a Cummins engine versus those with an MX engine. On vehicles equipped with a Cummins engine, most engine parameters are controlled by the Cummins *Electronic Control Unit (ECU)*. The *VECU* is not used to control or program these functions. Instead, the *VECU* works as a pass-through router, sending signals from sensors or switches to the Cummins *ECU*, and notifications from the Cummins *ECU* to the instrument panel. The *VECU* does not make any decisions on the signal being sent.

Figure 1: Cummins Integration Block Diagram



Many of the parameters covered in this document are for MX engines only. If your vehicle has a Cummins engine, these settings will not be shown in the *PACCAR Vehicle Pro (PVP)* system, and cannot be modified using *PVP*. *Fast Idle Control (FIC)* must instead be programmed on the Cummins *ECU* using Cummins INSITE ™ . PTO function has to be programmed using Cummins INSITE ™ and *PVP* if the *Power Take Off (PTO)* is air actuated. The *Multiplex Solenoid Bank (MSB)* would need to be programmed for the air solenoid to assign a function to the solenoid that activates the *PTO*. *DAVIE4* is required to update the software parameters in addition to performing a "switch learn" for the *PTO* switch being assigned for the function.

Please refer to the Cummins manual for information on adjusting these variables.

NOTE
The *Cab Electronic Control Unit (CECU)* still handles its functions and settings on vehicles with a Cummins engine.

Chapter 2 | APPLIES TO

Build Information for Models with VECU

The *CECU VECU Multiplex (CVMux)* architecture includes both a *CECU* and the new *VECU* to control various systems on the truck.

Full *VECU* system installation began October 08, 2018 (although some trucks were built and released before this date) on PACCAR Heavy Duty vehicles with 2.1m cabs and either EPA17 Diesel or EPA18 Natural Gas engines. The tables below may help identify trucks equipped with the *VECU* system.

Table 2: Kenworth Trucks

Models	Production Build Dates	Engine Emissions Level	Control Unit	Hardware Part Number	Software Version
T680, T880	Oct 08, 2018 - Present	EPA18 (Natural Gas), EPA17 (Diesel)	VECU, CECU3-500	CECU3-500: Q21-1128-XXX-XXX VECU: Q21-1126-XXX-XXX	CECU3-500: P30-1041-XXX VECU: 2188275 [1]

Table 3: Peterbilt Trucks

Models	Production Build Dates	Engine Emissions Level	Control Unit	Hardware Part Number	Software Version
579, 567	Oct 08, 2018 - Present	EPA18 (Natural Gas), EPA17 (Diesel)	VECU, CECU3-500	CECU3-500: Q21-1128-XXX-XXX VECU: Q21-1126-XXX-XXX	CECU3-500: P30-1041-XXX VECU: 2188275 [2]

Identifying Control Units

Control Units can be identified using any of the methods below:

- *Menu Control Switch (MCS)* and Driver Information Center
- *DAVIE4*
- *Electronic Catalog (ECAT)*
- *Electronic Service Analyst (ESA)*

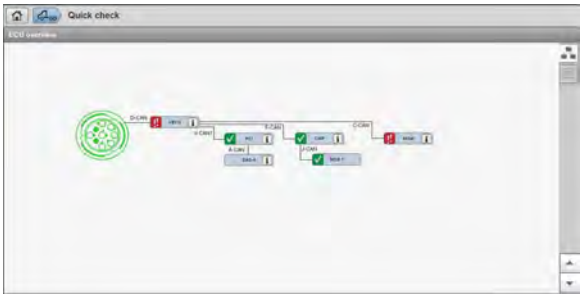
NOTE
Using *MCS* is the recommended method for determining the type of control unit in the truck.

Identifying System Using DAVIE4

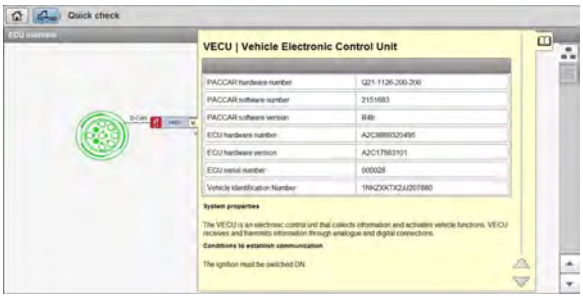
[1] This is the value that is displayed in the Truck Settings of the instrument cluster for software number.
[2] This is the value that is displayed in the Truck Settings of the instrument cluster for software number.

1. Connect to the vehicle with *DAVIE4*.
2. Once the truck is identified select **Quick Check**.

If the truck is equipped with a *VECU*, it will be displayed on the *ECU* Overview screen.



3. To view the software and hardware part numbers, click on the *VECU* **i-pane**.



Chapter 3 | SPECIAL TOOLS

Special Tools

You need special tools to program and update the *VECU*.

PACCAR Vehicle Pro (PVP) - Formerly called *PACCAR Engine Pro (PEP)*, *PVP* is a North American software application used for making changes or adjusting engine parameters.

DAVIE4 - DAVIE4 is the diagnostic tool used for programming and troubleshooting the *VECU* and the functions it controls. Connecting to the *VECU* with *DAVIE4* requires content version 18.29.5 or higher and toolset version 6.2.8 or higher. Refer to ePortal for the latest release.

Chapter 4 | PACCAR VEHICLE PRO

Accessing PACCAR Vehicle Pro

You will need a username and password set up for the *PVP* system.

Use this procedure to access the *PVP* system. The *PVP* system is used to see current settings for a chassis and to make changes to the system.

1. Sign in to ePortal using your ePortal username and password.
   The PVP ePortal website is *https://eportal.paccar.com/PVP*.
2. From ePortal, click on the **Service** tab.
3. Click on the **Software** link.
   The Software link is found on the left hand menu.
4. Click on the **PACCAR Vehicle Pro** link.
   The Home Page opens to the Chassis Lookup section.

5. Enter the eight character chassis number in the Chassis Lookup field and press **Search**.
   The chassis number is the last 8 of the truck's *Vehicle Identification Number (VIN)*.
   The *Edit Current Engine Parameters for Chassis* page appears.
   If the chassis number entered is not found, the page indicates the chassis number is not found. Check the chassis number entered and try again. If you are still unable to access the chassis, contact your support representative.

Programming Modules on a Truck

WARNING

The vehicle's battery should be fully charged or connected to an external power source before beginning this procedure. Failure to do so could cause the vehicle to lose power during the procedure, which can damage the module.

WARNING

The service computer connected to the diagnostic connector should be fully charged or connected to an external power source before beginning this procedure. Failure to do so could cause the computer to lose power during the procedure, which can damage the module.

NOTE

All parameter changes must be made using *PVP* before beginning this procedure.

NOTE

This procedure does not apply to programming new/blank modules.

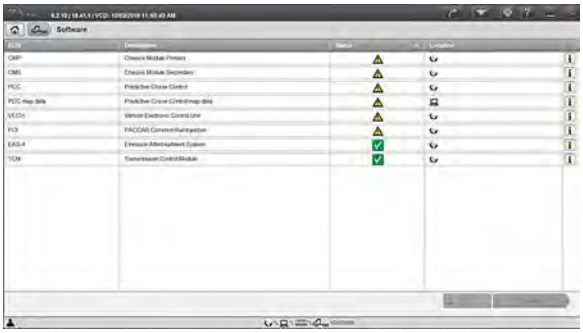
This procedure describes programming a VECU as an example, but can be used to program any component listed in DAVIE4.

1. Open *DAVIE4* and select **Identify Vehicle**.

2. Click on **Software**.

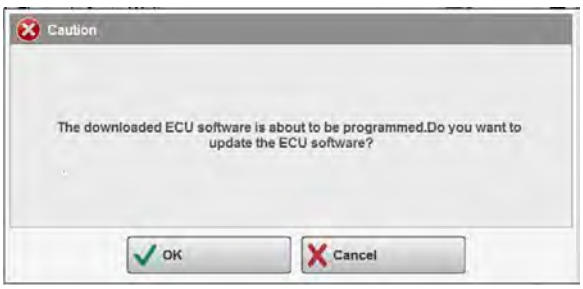
3. Select the module that needs to be programmed, then click **Retrieve Software**.

NOTE
Modules with out of date software will display a yellow triangle in the status column.



The new software downloads. If the download is successful an expiration date displays in the **Location** column to the right of the **Status** column.

4. Select the module, then click **Update**.
5. Confirm that you would like to proceed with programming.



6. Verify that the conditions are fulfilled, then click the arrow to proceed.

7. Follow the instructions on the screen.

Programming is successful. Click the arrow to go back to the software screen. From there you may exit or program another module.

Programming a new Multiplex Switch

1. Turn off the engine and set all switches to OFF.
2. Connect computer to *On Board Diagnostics (OBD)* connector.
3. Login to the *DAVIE4* application.

   The username and password for the *DAVIE4* application is the same as for ePortal.
4. Run **Quick Check** before adding a switch to show the current configuration.
5. Select the *Repair Support* tab.
6. Select the *Learn Dash Switches*.
7. Cycle the key when prompted by *DAVIE4*.
8. Run *Quick Check* and verify new switch is included in system.
9. Clear any inactive *Diagnostic Trouble Code (DTC)*.

Chapter 5 | FAST IDLE CONTROL

Fast Idle Control (FIC)

FIC is a function that allows the operator to increase the engine rpm during stationary operations with the park brake engaged. The function receives input from steering wheel switches, dash switches, cab throttle, service brake and clutch pedal. This function has preprogrammed minimum and maximum values. This allows the driver to adapt to changing engine speed requirements. Examples include:

- Raising engine speed for faster engine warm-up on cold days.
- Raising engine speed to improve *Heating, Ventilation and Air Conditioning (HVAC)* performance in extreme conditions while parked.
- Improving service operations, such as charging of the batteries or air system.

FIC will become active and allow the operator to control the engine speed with the Set/Accel and Resume/Decel switches once all of the following conditions are met:

- The Cruise Control switch is in the ON position.
- The vehicle is stationary.
- The transmission is in neutral.
- The parking brake is set.

FIC is overridden if the accelerator is pressed down and exceeds the value that is set by the *FIC* setting. *FIC* will automatically deactivate if the clutch pedal or the service brake pedal are depressed and the engine will return to base idle speed.

Fleet managers may find that adjusting some of the *FIC* settings yields better fuel economy when an application requires extended idle operations. The FIC module allows a fleet owner to set limits in order to enhance overall operating economy. FIC is a standard feature of the engine, but can be disabled to ensure that engine idle speed cannot be altered.

NOTE

The default *FIC* settings are useful for the majority of applications, so modifications of the default settings typically are not necessary. Before changing the default parameters, it is strongly recommended to consult the customer and/or body builder to determine the specific vehicle application.

Maximum target engine speed in fast idle control (N726)

This setting controls the maximum engine speed available during *FIC* mode. While engine idle speed can be controlled during *FIC*, engine speed will not exceed the value listed in this setting except if controlled by the accelerator pedal.

NOTE

This parameter is for MX engines only.

Table 4: Maximum Target Engine Speed in FIC (N726)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N726	1900	650	1900	RPM

Increase in FIC Target Engine Speed on a Long Press of the SET/ACCEL SWITCH (N727)

This setting controls the amount engine speed is increased during *FIC* mode when the Set/Accel switch is pressed and held.

NOTE
This parameter is for MX engines only.

Table 5: Increase in FIC Target Engine Speed on a Long Press of the SET/ACCEL SWITCH (N727)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N727	250	10	1000	RPM/S

Decrease in FIC Target Engine Speed on a Long Press of the RESUME/DECEL SWITCH (N728)

This setting controls the amount engine speed is decreased during *FIC* mode when the Resume/Decel switch is pressed and held.

NOTE
Briefly pressing the Resume/Decel switch reduces engine speed by the amount entered in *Decrease in FIC Target Engine Speed on a Bump of the RESUME/DECEL SWITCH (N729)* on page 25 .

NOTE
This parameter is for MX engines only.

Table 6: Decrease in FIC Target Engine Speed on a Long Press of the RESUME/DECEL SWITCH (N728)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N728	250	10	1000	RPM/S

Decrease in FIC Target Engine Speed on a Bump of the RESUME/DECEL SWITCH (N729)

This setting controls the amount engine speed is decreased during *FIC* mode when the Resume/Decel switch is briefly pressed.

NOTE

Pressing and holding the Resume/Decel switch reduces engine speed by the amount entered in *Decrease in FIC Target Engine Speed on a Long Press of the RESUME/DECEL SWITCH (N728)* on page 25 .

NOTE

This parameter is for MX engines only.

Table 7: Decrease in FIC Target Engine Speed on a Bump of the RESUME/DECEL SWITCH (N729)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N729	100	10	1000	RPM

Increase in FIC Target Engine Speed on a Bump of the SET/ACCEL SWITCH (N730)

This setting controls the amount engine speed is increased during *FIC* mode when the Set/Accel switch is briefly pressed.

NOTE

Pressing and holding the Set/Accel switch increases engine speed by the amount entered in *Increase in FIC Target Engine Speed on a Long Press of the SET/ACCEL SWITCH (N727)* on page 25 .

NOTE

This parameter is for MX engines only.

Table 8: Increase in FIC Target Engine Speed on a Bump of the SET/ACCEL SWITCH (N730)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N730	100	10	1000	rpm

Chapter 6 | MISC

Miscellaneous Options

This section covers the miscellaneous parameters options available in *PVP*.

Brake Lamps with Engine Retarder (S939)

This setting controls whether the brake lamps activate when the engine retarder is active.

Table 9: Brake Lamps with Engine Retarder (S939)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S939	OFF	ON	ON	FLAG

Chapter 7 | SPEED CONTROL MANAGEMENT

Speed Control Management (SCM)

The *Speed Control Management (SCM)* feature is intended to help encourage fuel-efficient shifting habits by reducing engine acceleration or restricting vehicle speed at elevated engine speeds. Speed Control Management consists of two control strategies: *Progressive Shift (PGS)* and *Gear Down Protection (GDP)*, which may be enabled separately or in combination.

PACCAR offers pre-approved and validated *PGS* and *GDP* settings for most manual and automated-manual transmission powertrain configurations. Upon selection of at least one of the *SCM* features, optimized gear and shift point selections are identified by PACCAR and programmed into the vehicle. These selections are based on the customer's powertrain configuration and requested performance optimization goals.

Standard Feature

- Without *SCM*

Feature Options

- *PGS*
- *GDP*
- *PGS* and *GDP*

Progressive Shift (PGS)

The *PGS* module is typically used to improve fuel economy by encouraging the driver to upshift earlier in lower gears. By shifting earlier, engine speed is reduced, resulting in improved fuel economy. *PGS* is a "soft" RPM limit that restricts engine acceleration when the engine speed is above a predefined engine speed limit. This provides a balance between encouraging a driver to shift at lower engine speeds and the driver's needs to remain in a gear longer to execute a shift under heavy load. The driver's perception of the restricted engine acceleration gives a clear indication to execute an upshift. Along with limiting engine acceleration, PGS also provides a visual notification to the driver to shift via the driver display. Full engine acceleration is restored after the driver executes a shift and the engine speed falls below the customer-defined *PGS* engine speed limit.

The *PGS* module will provide up to two engine speed limits, allowing customers to use a more aggressive limit in lower gears and a less aggressive limit in higher gears. 9 to 13-speed transmissions will receive a two-step engine speed limit, and 18-speed transmissions will receive a single step. The first and last gear in which each progressive shift range is programmed ensuring it is properly configured to the customer's application and for the specified powertrain components.

Minimum gear for PGS Step 1 (N861) on page 34 indicates the first gear number in which *PGS* will become active and *Maximum gear for PGS Step 1 (N860)* on page 34 indicates the last gear the first *PGS* step will be active.
Maximum gear for PGS Step 2 (N858) on page 33 specifies the last gear that the second step of *PGS* will be active.
While *PGS* is active, engine speed will be "soft" limited to *Engine Speed Soft Limit for PGS Step 1 (N862)* on page 35 or *Engine Speed Soft Limit for PGS Step 2 (N863)* on page 35 depending on the currently selected gear and the defined gear ranges for each step.

Gear Down Protection (GDP)

The *GDP* module encourages the driver to shift into top gear when operating the vehicle at the target operating speed. This is done by restricting the road speed in gears below top gear. When enabled, *GDP* restricts operation of the vehicle at the target operating speed when not in top gear. This effectively prevents engine operation at excessive RPMs and, as a result, helps to improve fuel economy. *GDP* is a “hard” limit. The engine RPM, and therefore vehicle speed, will be limited to a specified value in the specified gears. Along with limiting engine RPM and vehicle speed, this function also provides a visual notification to the driver to shift via the driver display.

The *GDP* module offers a single programmable engine speed limit. Selection of the *GDP* module will automatically set the engine speed limit at one or two gears below top gear depending upon the combination of transmission, rear axle ratio, and equipped tires. Changes to the factory settings can be made post-delivery via a PRS file from the PACCAR Engine Support Center.

Minimum gear to enable GDP (N850) on page 32 specifies the first selected gear in which the *GDP* “hard” engine speed limiter will become active, while *Maximum gear for GDP to be enabled (N856)* on page 33 specifies the last selected gear that the *GDP* engine speed limiter will remain active.

Application Guidelines

The *SCM* features are intended to be used with manual and automated-manual transmissions while operating in manual mode. The *SCM* feature is not available with 2-speed rear axles, auxiliary transmissions, Allison transmissions, or multi-speed transfer cases. A full list of application guidelines includes:

- Transmissions
  - Available on chassis equipped with Eaton 9, 10, 11, 13, or 18-speed manual transmissions
  - Available on chassis equipped with Eaton Ultrashift automated manual transmissions (while operating in manual mode)
  - Not available on chassis equipped with Allison transmissions
  - Not available on chassis with auxiliary transmissions
- Rear Axle Ratio
  - Available on chassis with 2.53 to 4.33 rear axle ratios
  - Not available on chassis equipped with multi-speed rear axles

Enable the gear down protection feature (S864)

This setting enables the gear down protection.

NOTE
This parameter is for MX engines only.

Table 10: Enable the gear down protection feature (S864)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S864	NONE	NONE	ON	FLAG

Enable the progressive shift feature (S865)

This setting enables the progressive shift feature.

NOTE

This parameter is for MX engines only.

Table 11: Enable the progressive shift feature (S865)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S865	NONE	NONE	ON	FLAG

Minimum gear to enable GDP (N850)

This setting controls the minimum gear the vehicle can be in to enable *GDP*.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 12: Minimum gear to enable GDP (N850)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N850	9	0	18	GEAR

GDP Engine Speed Limit (N851)

This setting controls the engine speed limit when the vehicle is in *GDP*.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 13: GDP Engine Speed Limit (N851)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N851	1680	1330	1930	RPM

Maximum gear for GDP to be enabled (N856)

This setting controls the maximum gear the vehicle can be in to enable *GDP*.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 14: Maximum gear for GDP to be enabled (N856)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N856	9	0	18	GEAR

Maximum gear for PGS Step 2 (N858)

This setting controls the maximum gear the vehicle can be in for *PGS* step 2.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 15: Maximum gear for PGS Step 2 (N858)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N858	8	0	18	GEAR

Minimum gear for PGS Step 2 (N859)

This setting controls the minimum gear the vehicle can be in for *PGS* step 2.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 16: Minimum gear for PGS Step 2 (N859)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N859	7	0	18	GEAR

Maximum gear for PGS Step 1 (N860)

This setting controls the maximum gear the vehicle can be in for *PGS* step 1.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 17: Maximum gear for PGS Step 1 (N860)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N860	6	0	18	GEAR

Minimum gear for PGS Step 1 (N861)

This setting controls the minimum gear the vehicle can be in for *PGS* step 1.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 18: Minimum gear for PGS Step 1 (N861)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N861	2	0	18	GEAR

Engine Speed Soft Limit for PGS Step 1 (N862)

This setting controls the "soft" engine speed limit when the vehicle is in *PGS* step 1.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 19: Engine Speed Soft Limit for PGS Step 1 (N862)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N862	1500	0	4000	RPM

Engine Speed Soft Limit for PGS Step 2 (N863)

This setting controls the "soft" engine speed limit when the vehicle is in *PGS* step 2.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 20: Engine Speed Soft Limit for PGS Step 2 (N863)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N863	1500	0	4000	RPM

Chapter 8 | DRIVER REWARD

Driver Reward

The Driver Reward feature is designed to improve fuel economy by providing incentive for drivers to meet customer-defined goals for fuel economy and idle time. The vehicle speed limit may be lowered when goals are not met, or increased to reward drivers for meeting the goals.

> **NOTE**
>
> The Driver Reward feature is only available vehicles equipped with PACCAR MX engines manufactured after June 2015, and is not compatible with vehicles equipped with early model year 2015 or prior engines.

Standard Feature

- Without Driver Reward

Feature Options

- Fuel Economy Evaluation
- Idle Time Evaluation

The Driver Reward feature provides the driver with increased vehicle speed for meeting customer-defined fuel consumption and idle time goals. The customer has the option of evaluating driver performance based on Fuel Economy, Idle Time Percentage, or both. *Offset Mode (N632)* on page 43 may also be configured to apply vehicle speed rewards to the cruise control vehicle speed limit, the accelerator pedal vehicle speed limit, or both.

The Fuel Economy option allows the engine to monitor and compare actual fuel economy to *Idle percentage threshold for EXPECTED driver reward state (N630)* on page 42 , which is the threshold at which neither a reward nor penalty will be imposed on the driver. The *Maximum Vehicle Speed Bonus (N618)* on page 39 will be applied if the measured fuel economy is greater than or equal to *Fuel consumption threshold for BONUS driver reward state (N625)* on page 40 . The *Maximum Vehicle Speed Penalty (N621)* on page 40 will be applied if the measured fuel economy is less than or equal to *Idle percentage threshold for PENALTY driver reward state (N631)* on page 43 . As the driver improves the measured fuel economy, the maximum vehicle speed will increase with the driver's performance, until the *Maximum Vehicle Speed Bonus (N618)* on page 39 has been reached. As the driver decreases the measured fuel economy, the vehicle speed penalty will gradually increase with the driver's performance, until the *Maximum Vehicle Speed Penalty (N621)* on page 40 has been reached.

The Percent Idle Time option allows the engine to monitor the percentage of engine idle time and compare it to *Idle percentage threshold for EXPECTED driver reward state (N630)* on page 42 , which is the threshold at which neither a reward nor penalty will be imposed on the driver. The *Maximum Vehicle Speed Bonus (N618)* on page 39 will be applied if the recorded percentage of idle time is less than or equal to *Idle percentage threshold for BONUS driver reward state (N629)* on page 42 . The *Maximum Vehicle Speed Penalty (N621)* on page 40 will be applied if the recorded percentage of idle time is greater than or equal to *Idle percentage threshold for PENALTY driver reward state (N631)* on page 43 . As the driver decreases the recorded percentage of idle time, the maximum vehicle speed will increase until the *Maximum Vehicle Speed Bonus (N618)* on page 39 has been reached. As the driver decreases the recorded percentage of idle time, the vehicle speed penalty will gradually increase until the *Maximum Vehicle Speed Penalty (N621)* on page 40 has been reached.

If Fuel Economy and Percent Idle Time are both enabled, the Driver Reward performance criteria are evaluated individually and the overall vehicle speed bonus or penalty will be determined from the lowest individual bonus or penalty.

On Greenhouse Gas (GHG) compliant vehicles, *Standard Maximum Speed Limit (LSL) (N718)* on page 72 will limit the overall maximum speed of the vehicle, until the *Vehicle Speed Limiter (VSL)* expiration distance has been exceeded. The *VSL* expiration distance is available in the chassis information within *PEP*, and may not be changed. For vehicles which have exceeded the *VSL* expiration distance, the *Standard Maximum Speed Limit (LSL) (N718)* on page 72 will be ignored. In order to provide a speed bonus on vehicles subject to the GHG *VSL*, the *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 or *Max limit for cruise control vehicle speed (N504)* on page 51 must be lower than *Standard Maximum Speed Limit (LSL) (N718)* on page 72 .

The six parameters which control the bonus, expected, and penalty thresholds of fuel economy and idle time evaluations are configurable using ONLY the *PVP* interface, and the default values listed in Programmable Parameters will be applied automatically during the ordering process. As the engine progresses in mileage or changes duty-cycles, these parameters may be altered to more appropriately fit the engine's expected behavior.

Enable the Driver reward speed limiter functionality. (S615)

This setting is used to enable Driver Reward speed limiter functionality. This setting must be enabled first before the other Driver Reward functions can be enabled and/or changed.

NOTE
This parameter is for MX engines only.

Table 21: Enable the Driver reward speed limiter functionality. (S615)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S615	NONE	NONE	ON	FLAG

Maximum Vehicle Speed Bonus (N618)

This setting controls the maximum speed bonus that can be applied through the Driver Reward system.

NOTE
This parameter is for MX engines only.

Table 22: Maximum Vehicle Speed Bonus (N618)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N618	5	0	10	MPH

Maximum Vehicle Speed Penalty (N621)

This setting controls the maximum speed penalty that can be applied through the Driver Reward system.

> NOTE
>
> This parameter is for MX engines only.

Table 23: Maximum Vehicle Speed Penalty (N621)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N621	-5	-10	0	MPH

Enable the Driver Fuel Efficiency part of the Driver Reward Speed Limiter (S624)

This setting enables the Driver Reward system to use fuel efficiency as a control for increasing or decreasing maximum vehicle speed.

> NOTE
>
> This parameter is for MX engines only.

Table 24: Enable the Driver Fuel Efficiency part of the Driver Reward Speed Limiter (S624)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S624	Disabled	Disabled	Enabled	FLAG

Fuel consumption threshold for BONUS driver reward state (N625)

This setting controls the MPG at which the maximum vehicle speed bonus is applied. The vehicle speed limit is gradually increased as the MPG approaches this limit.

> NOTE
>
> The *Enable the Driver Fuel Efficiency part of the Driver Reward Speed Limiter (S624)* on page 40 setting must be enabled for this setting to be used.

> NOTE
>
> This parameter is for MX engines only.

Table 25: Fuel consumption threshold for BONUS driver reward state (N625)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N625	6.49	0	63	MPG

Fuel consumption threshold for EXPECTED driver reward state (N626)

This setting controls the expected mpg of the vehicle for the Driver Reward system. This is the fuel economy at which no vehicle speed bonus or penalty is applied.

NOTE

The *Enable the Driver Fuel Efficiency part of the Driver Reward Speed Limiter (S624)* on page 40 setting must be enabled for this setting to be used.

NOTE

This parameter is for MX engines only.

Table 26: Fuel consumption threshold for EXPECTED driver reward state (N626)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N626	6	0	63	MPG

Fuel consumption threshold for PENALTY driver reward state (N627)

This setting controls the MPG at which the maximum vehicle speed penalty is applied. The vehicle speed limit is gradually decreased as the MPG approaches this limit.

NOTE

The *Enable the Driver Fuel Efficiency part of the Driver Reward Speed Limiter (S624)* on page 40 setting must be enabled for this setting to be used.

NOTE

This parameter is for MX engines only.

Table 27: Fuel consumption threshold for PENALTY driver reward state (N627)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N627	5.5	0	63	MPG

Enable the Vehicle Idle Time Percentage (S628)

This setting enables the Driver Reward system to use the percentage of vehicle idle time as a control for increasing or decreasing maximum vehicle speed.

> NOTE
>
> This parameter is for MX engines only.

Table 28: Enable the Vehicle Idle Time Percentage (S628)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S628	None	None	Enabled	FLAG

Idle percentage threshold for BONUS driver reward state (N629)

This setting controls the idle time percentage at which the maximum vehicle speed bonus is applied. The vehicle speed limit is gradually increased as the idle time percentage approaches this limit.

> NOTE
>
> The *Enable the Vehicle Idle Time Percentage (S628)* on page 42 setting must be enabled for this setting to be used.

> NOTE
>
> This parameter is for MX engines only.

Table 29: Idle percentage threshold for BONUS driver reward state (N629)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N629	5.00	0	100	%

Idle percentage threshold for EXPECTED driver reward state (N630)

This is the idle time percentage at which no vehicle speed bonus or penalty is applied.

> NOTE
>
> The *Enable the Vehicle Idle Time Percentage (S628)* on page 42 setting must be enabled for this setting to be used.

> NOTE
>
> This parameter is for MX engines only.

Table 30: Idle percentage threshold for EXPECTED driver reward state (N630)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N630	10.00	0	100	%

Idle percentage threshold for PENALTY driver reward state (N631)

This setting controls the idle time percentage at which the maximum vehicle speed penalty is applied. The vehicle speed limit is gradually decreased as the idle time percentage approaches this limit.

NOTE

The *Enable the Vehicle Idle Time Percentage (S628)* on page 42 setting must be enabled for this setting to be used.

NOTE

This parameter is for MX engines only.

Table 31: Idle percentage threshold for PENALTY driver reward state (N631)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N631	15.00	0	100	%

Offset Mode (N632)

This setting controls whether the bonuses and penalties from the Driver Reward system apply to driving using pedals, cruise control, or both.

The possible values for this setting are:

NONE - No Reward
PEDAL - Pedal
CRUZ - Cruise
BOTH - Both

Table 32: Offset Mode (N632)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N632	BOTH	NONE	BOTH	DISCRETE

Chapter 9 | DRIVER SHIFT AID

Driver Shift Aid

Driver Shift Aid (DSA) helps reduce engine fuel consumption by informing the driver to upshift in order to reduce engine speed. It provides visual notifications through the driver display, encouraging the operator to perform upshifts at predefined engine speeds. *DSA* is compatible with vehicles equipped with manual transmissions or automatic transmissions operating in manual mode.

Enables driver shift aid functionality (S636)

This setting enables *DSA* functionality.

NOTE
This parameter is for MX engines only.

Table 33: Enables driver shift aid functionality (S636)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S636	NONE	NONE	ON	FLAG

Min Vehicle Speed for Driver Shift Aid Active (N637)

This setting controls the minimum vehicle speed needed to enable *DSA*. DSA will not activate unless the vehicle is traveling at or above the speed entered in this option.

NOTE
This parameter is for MX engines only.

Table 34: Min Vehicle Speed for Driver Shift Aid Active (N637)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N637	3.11	0	124.27	MPH

Highest transmission gear ratio that DSA will be active(Lowest Gear) (N638)

This setting indicates the lowest transmission gear available to maintain active *DSA*. If the current gear is lower than the entry in in this setting, then DSA is not active.

NOTE

This parameter is for MX engines only.

Table 35: Highest transmission gear ratio that DSA will be active(Lowest Gear) (N638)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N638	10	1	30	DISCRETE

Lowest transmission gear ratio that DSA will be active(Highest Gear) (N639)

This setting indicates the highest transmission gear available to maintain active *DSA*. If the current gear is higher than the entry in in this setting, then DSA is not active.

NOTE

This parameter is for MX engines only.

Table 36: Lowest transmission gear ratio that DSA will be active(Highest Gear) (N639)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N639	1	1	30	DISCRETE

Trans gear ratio (S642)

This setting determines the gear number for the vehicle's top gear. For example, on trucks with 16 gear speeds this would be the 16th gear, while on trucks with 10 speeds this would be the 10th gear.

NOTE

This parameter is for MX engines only.

Table 37: Trans gear ratio (S642)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S642	1	1	18	GEAR

Chapter 10 | CRUISE CONTROL

Cruise Control (CC)

The *Cruise Control (CC)* feature allows the operator to set and maintain a target vehicle speed, as well as adjust it when necessary, within programmable limits. This allows the driver to keep the vehicle at a constant vehicle speed, but still easily adapt to changing vehicle speed requirements. The *CC* module also allows a fleet owner to set preprogrammed limits in order to enhance overall operating economy.

NOTE
CC is a standard feature of the engine, and the default *CC* settings are useful for a majority of applications. Before changing the default parameters, it is strongly recommended to consult the customer and/or body builder to review the *CC* options.

CC is controlled using the:

- ON/OFF switch.
- Set/Accel switch.
- Resume/Decel switch.

The ON/OFF switch is used to activate and deactivate *CC*. When the switch is in the ON position, the operator can use the Set/Accel switch and Resume/Decel switch to control *CC* functions. When the switch is in the OFF position, *CC* is deactivated and the engine does not automatically maintain an operator-desired vehicle speed.

When *CC* is on, the Set/Accel switch allows the operator to activate *CC* and assign the current vehicle speed as the Cruise Control target speed. While *CC* is active, the operator is free from having to control the vehicle speed using the accelerator pedal. While *CC* is actively controlling vehicle speed, the Set Accel switch can be used two ways:

1. Briefly pressing the Set/Accel switch will cause the vehicle speed to increase by the value in the *Increment step for brief operation of switch (N503)* on page 51 setting.
2. Pressing and holding the Set/Accel switch accelerates vehicle speed until the switch is released or the speed entered in the *Max limit for cruise control vehicle speed (N504)* on page 51 setting is reached.

When *CC* is on, the Resume/Decel switch allows the operator to activate *CC* and resume maintaining a previously set vehicle cruise speed. The stored target vehicle speed is reset with an ignition key cycle. While *CC* is actively controlling vehicle speed, the Set/Resume switch can be used two ways:

1. Briefly pressing the Resume/Decel switch will cause the vehicle speed to decrease by the value in the *Decrement step for brief operation of switch (N502)* on page 50 setting.
2. Pressing and holding Resume/Decel switch decreases vehicle speed until the switch is released or the speed entered in the *Offset to enable cruise control (N506)* on page 52 setting is reached.

Decrement step for brief operation of switch (N502)

This setting controls the amount vehicle speed is decreased during *CC* mode when the Resume/Decel switch is briefly pressed.

NOTE

Pressing and holding the Resume/Decel switch reduces vehicle speed by the amount entered in *Large decrement step for the cruise target speed (N510)* on page 52 .

NOTE

This parameter is for MX engines only.

Table 38: Decrement step for brief operation of switch (N502)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N502	1	.62	6.21	MPH

Increment step for brief operation of switch (N503)

This setting controls the amount vehicle speed is increased during *CC* mode when the Set/Accel switch is briefly pressed.

NOTE

Pressing and holding the Set/Accel switch increases vehicle speed by the amount entered in *Large increment step for the cruise target speed (N511)* on page 53 .

NOTE

This parameter is for MX engines only.

Table 39: Increment step for brief operation of switch (N503)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N503	1	.62	6.21	MPH

Max limit for cruise control vehicle speed (N504)

This setting controls the maximum vehicle speed available during *CC* mode.

NOTE

For vehicles with Cummins engine, the default value for this setting is 100.04 mph.

NOTE

This setting cannot be higher than the maximum vehicle speed.

Table 40: Max limit for cruise control vehicle speed (N504)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N504	64	24.85	100.04	MPH

Offset to enable cruise control (N506)

This setting controls the minimum speed required to activate *CC*. If the vehicle is not traveling at or above this speed, then CC mode cannot be activated.

NOTE

This parameter is for MX engines only.

Table 41: Offset to enable cruise control (N506)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N506	10	10	40.39	MPH

Enable the Dynamic Cruise Control function (N509)

This setting is used to enable *Dynamic Cruise Control (DCC)*. *DCC* improves fuel economy by automatically adjusting the cruising speed while on uphill grades or in other high-load scenarios.

NOTE

This parameter is for MX engines only.

Table 42: Enable the Dynamic Cruise Control function (N509)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N509	OFF	OFF	ON	FLAG

Large decrement step for the cruise target speed (N510)

This setting controls the amount vehicle speed is decreased during *CC* mode when the Resume/Decel switch is pressed and held.

NOTE

Briefly pressing the Resume/Decel switch reduces vehicle speed by the amount entered in *Decrement step for brief operation of switch (N502)* on page 50 .

NOTE

This parameter is for MX engines only.

Table 43: Large decrement step for the cruise target speed when the km/h - mph switch is set to km/h. (N510)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N510	1	0	6.21	MPH

Large increment step for the cruise target speed (N511)

This setting controls the amount vehicle speed is increased during *CC* mode when the Set/Accel switch is pressed and held.

NOTE

Briefly pressing the Set/Accel switch increases vehicle speed by the amount entered in *Increment step for brief operation of switch (N503)* on page 51 .

NOTE

This parameter is for MX engines only.

Table 44: Large increment step for the cruise target speed (N511)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N511	2	0	6.21	MPH

Enable or disable the corrective braking functionality (N512)

This setting controls whether corrective braking functionality is enabled during *CC* mode. Corrective braking allows the driver to apply the service brakes while above the current cruising speed, without canceling cruise control.

NOTE

This parameter is for MX engines only.

Table 45: Enable or disable the corrective braking functionality (N512)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N512	Disable	Disable	Enable	FLAG

Engine brake uninterrupted if cruise control is 'set' while engine brakes are active (N923)

This setting determines whether the engine brake is interrupted if the vehicle's cruise control setting is on and a cruise speed is set.

Table 46: Engine brake uninterrupted if cruise control is 'set' while engine brakes are active. (N923)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N923	1	0	1	FLAG

TSC1 Checksum Enable for P2 Cruise (N953)

This setting enable the *Torque Speed Control Message (TSC1)* P2 (Cruise) message checksum. The checksum is used to determine if an error occurred during the transmission of the P2 message from one *ECU* to another.

CAUTION

This parameter is for internal use only and should not be changed.

NOTE

This parameter is for MX engines only.

Table 47: TSC1 Checksum Enable for P2 Cruise (N953)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N850	Disabled	Disabled	Enabled	FLAG

Chapter 11 | ENGINE RETARDER CONTROL

PACCAR Engine Brake

The PACCAR Engine Brake is a fully integrated engine compression brake that provides braking forces through the driveline. It reduces wear on the service brakes and improves vehicle control in deceleration events when active. The PACCAR Engine Brake operates using a *Right Hand Stalk (RHS)* , and is customizable to meet the requirements of the driver or fleet.

Standard Feature

- PACCAR Engine Brake *RHS*
- Manual Mode (both with *CC* turned ON and OFF)

The PACCAR Engine Brake *RHS* allows the driver to turn retarder ON and OFF.

The default setting for the PACCAR Engine Brake is Manual Mode. Manual Mode allows the engine to provide braking when the PACCAR Engine Brake *RHS* is in the ON position, the engine is not being fueled, and the *CC* is inactive. The driver may use the *RHS* to select from three or four levels of braking power: Low (33%), Medium (66%), High (100%), and Max Mode (100%) (AMT ONLY).

When the PACCAR Engine Brake *RHS* is in the ON position, the driver will be notified by an indicator on the driver display.

Feature Options

- Engine Brake Engagement Delay
- Engine Brake Behavior When *CC* is ON:
  - Manual Mode
  - Coast Mode
  - Latch Mode
- *Downhill Speed Control (DSC)* (Auto-Retard in *CC*)
- *Downhill Speed Limiter (DSL)*

The customer has the option to select from three operating modes for the PACCAR Engine Brake when the PACCAR Engine Brake *RHS* is ON and *CC* is ON and inactive. The three operating modes are mutually exclusive of one another:

- Manual Mode is the default setting for the PACCAR Engine Brake when the PACCAR Engine Brake *RHS* is ON and *CC* is ON and inactive. It behaves the same way as the Manual Mode described in Standard Features portion of this section.
- Coast Mode allows the engine to provide braking when the PACCAR Engine Brake *RHS* is ON, the *CC* is ON and inactive, and the service brake is applied. The PACCAR Engine Brake will deactivate in Coast Mode when the service brake pedal is released or *CC* is activated.
- Latch Mode allows the engine to provide braking when the PACCAR Engine Brake *RHS* is ON, *CC* is ON and inactive, and the service brake pedal is applied. Latch Mode will continue to provide braking after the service brake pedal is released and will deactivate when the accelerator pedal is applied or *CC* is activated.

The engine can be programmed to delay the activation of the engine brake, if needed, using *Delay time (in seconds) before the engine brakes become active when engaged by the driver (N874)* on page 58 . For example, the driver may wish to deactivate *CC* by quickly pressing the brake pedal without activating the engine brake when using Coast or Latch mode. Specifying a delay would allow this to occur, but still provide engine braking when the driver presses the brake pedal for a prolonged period during a braking event.

DSC allows the engine to provide braking when the PACCAR Engine Brake *RHS* is ON, *CC* is active and the vehicle speed exceeds the *CC* target speed plus the *(Auto-Retarder) Target Vehicle Speed Offset (N871)* on page 58 . A large offset will reduce engine brake usage, while a lower offset will increase engine brake usage. A lower offset is recommended for vehicles operating in steep terrain. *DSC* will deactivate when the vehicle speed has been reduced to the *CC* target speed or when *CC* is deactivated. *DSC* will function independently of all other PACCAR Engine Brake parameters.

The *DSL* allows the engine to provide braking when the PACCAR Engine Brake *RHS* is ON and the vehicle speed exceeds the *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 plus the *DSL target vehicle speed offset (N870)* on page 58 . The *DSL* will function independently of all other PACCAR Engine Brake parameters.

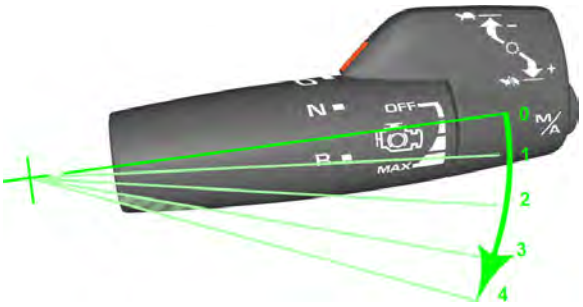
In Manual Mode, the *DSL* will activate if the vehicle speed exceeds the *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 plus the *DSL target vehicle speed offset (N870)* on page 58 . If the *DSL* is already active, the PACCAR Engine Brake power will be increased, but if the *DSL* is already at maximum capacity, the *DSL* will have no effect on the PACCAR Engine Brake. The *DSL* will automatically deactivate when the vehicle speed has been reduced to the *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 .

There are two versions of the *RHS*, depending on the transmission configuration.

The *RHS* for Automated Manual Transmission Configurations has five vehicle retarder positions. They are defined as:

- Position 0 is retarder OFF (0% requested retarder).
- Position 1 is retarder ON and 33% requested retarder.
- Position 2 is retarder ON and 66% requested retarder.
- Position 3 is retarder ON and 100% requested retarder.
- Position 4 is retarder ON and Max Mode, or the maximum amount of engine retarder torque (100% requested retarder)

Figure 2: AMT RHS Retarder Positions



The *RHS* for Manual and Allison Transmission Configurations has four retarder positions. They are defined as:

- Position 0 is retarder OFF (0% requested retarder).
- Position 1 is retarder ON and 33% requested retarder.
- Position 2 is retarder ON and 66% requested retarder.
- Position 3 is retarder ON and 100% requested retarder.

Figure 3: Manual and Allison RHS Retarder Positions

DSL target vehicle speed offset (N870)

This settings controls the vehicle offset speed for the *DSL* system.

NOTE
This parameter is for MX engines only.

Table 48: DSL target vehicle speed offset (N870)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N870	4.04	1.86	6.21	MPH

(Auto-Retarder) Target Vehicle Speed Offset (N871)

This setting controls the vehicle offset speed for the *DSC* system.

NOTE
This parameter is for MX engines only.

Table 49: (Auto-Retarder) Target Vehicle Speed Offset (N871)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N871	2.02	1.86	6.21	MPH

Delay time (in seconds) before the engine brakes become active when engaged by the driver (N874)

This setting controls the time delay from when the driver engages the engine brakes and when the brakes activate.

NOTE
This parameter is for MX engines only.

Table 50: Delay time (in seconds) before the engine brakes become active when engaged by the driver (N874)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N874	0.1	0.1	3	SEC

Retarder mode when cruise control switch on but not active (S875)

This setting controls the retarder mode type when cruise control is turned on but not being actively used.

The possible values for this setting are:

0 - Manual Retarder Control
1 - Coast Retarder Mode
2 - Latch Retarder Mode

> NOTE
>
> This parameter is for MX engines only.

Table 51: Retarder mode when cruise control switch on but not active (S875)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S875	0	0	2	DISCRETE

Chapter 12 | ENGINE IDLE SHUTDOWN TIMER

Engine Idle Shutdown Timer (EIST)

The *Engine Idle Shutdown Timer (EIST)* allows fleet owners to impose limits on engine idling time for MX-powered vehicles. EIST initiates when engine speed is constant, the vehicle is stationary or at standstill, and the accelerator pedal is motionless. EIST has several customizable options to meet the needs of any application, including:

- Overruling EIST by fuel, engine coolant, and/or oil temperatures, allowing uninterrupted engine warm-up intervals.
- Overruling EIST during low battery voltage, allowing uninterrupted battery recharging.
- Separate timer intervals depending on if the parking brake is engaged or not.
- Separate timer intervals during, or completely disabling EIST, while engine is in *PTO* mode.

EIST Enable Park brake reset (N681)

This setting enables using the parking brake as a reset timer for *EIST*. If this setting is enabled, the timers are reset when switching from Park to Standstill or vice versa.

Table 52: EIST Enable Park brake reset (N681)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N681	ON	OFF	ON	FLAG

Enable Engine Idle Shutdown Timer (S682)

This setting is used to enable *EIST*.

NOTE
This parameter is for MX engines only.

Table 53: Enable Engine Idle Shutdown Timer (S682)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S682	ENABLED	DISABLED	ENABLED	FLAG

Enable Air temperature idle timer override (S683)

This setting is used to enable the air temp idle timer override for *EIST*. When enabled, the engine will continue operation whenever the air temperature is below the setting in *Ambient temp above which the idle timer will be overridden (N686)* on page 63 or above the setting in *Ambient temp below which the idle timer will be overridden (N687)* on page 64 . Additionally the timer will

continue to count down until *Time remaining to shutdown from the moment of EIST warning (N696)* on page 67 is reached and pause there.

NOTE

This parameter is for MX engines only.

Table 54: Enable Air temperature idle timer override (S683)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S683	NONE	NONE	ENABLE	FLAG

Engine load above which the idle timer will reset (N685)

This setting is used to determine the maximum engine load before *EIST* can be reset. If the engine load exceeds the value entered in this setting, then the engine idle timer will either reset if *Enable engine load as idle time reset condition (N692)* on page 66 is enabled, or EIST will be overridden if *Enable engine load as idle timer override condition (N693)* on page 66 is enabled.

NOTE

This parameter is for MX engines only.

Table 55: Engine load above which the idle timer will reset (N685)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N685	664	0	1903	LB-FT

Ambient temp above which the idle timer will be overridden (N686)

This setting is used to set the maximum ambient air temperature needed to override *EIST*. If the *Enable Air temperature idle timer override (S683)* on page 62 setting is enabled, then the EIST is overridden whenever the ambient air temperature is above the value entered in this setting.

NOTE

The value entered in this setting must be above the value entered in *Ambient temp below which the idle timer will be overridden (N687)* on page 64 .

NOTE

This parameter is for MX engines only.

Table 56: Ambient temp above which the idle timer will be overridden (N686)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N686	80.3	-40.3	490.7	FAHRENHEIT

Ambient temp below which the idle timer will be overridden (N687)

This setting is used to set the minimum ambient air temperature needed to override *EIST*. If the *Enable Air temperature idle timer override (S683)* on page 62 setting is enabled, then the EIST is overridden whenever the ambient air temperature is below the value entered in this setting.

NOTE

The value entered in this setting must be below the value entered in *Ambient temp above which the idle timer will be overridden (N686)* on page 63 .

NOTE

This parameter is for MX engines only.

Table 57: Ambient temp below which the idle timer will be overridden (N687)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N687	38.9	-40.3	490.7	FAHRENHEIT

Idle time in PTO mode (N688)

This setting controls the maximum engine idle time when the vehicle is in *PTO* Mode.

NOTE

This parameter is for MX engines only.

Table 58: Idle time in PTO mode (N688)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N688	5	1	1092	MINUTE

Idle time with park brake set (N689)

This setting controls the maximum engine idle time when the vehicle is in *EIST* mode and the parking brake is set.

NOTE

This parameter is for MX engines only.

Table 59: Idle time with park brake set (N689)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N689	5	1	1092	MINUTE

Idle time with park brake not set (N690)

This setting controls the maximum engine idle time when the vehicle is in *EIST* mode and the parking brake is not set.

NOTE

The *Enable EIST timer when the parking brake is not set (N694)* on page 67 setting must be enabled to allow engine idle operation when the parking brake is not set.

NOTE

This parameter is for MX engines only.

Table 60: Idle time with park brake not set (N690)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N690	5	1	1092	MINUTE

Enable EIST in PTO mode (S691)

This setting is used to enable *EIST* during *PTO* mode. If this setting is enabled, then EIST can be activated while the vehicle is in PTO mode.

NOTE

This parameter is for MX engines only.

Table 61: Enable EIST in PTO mode (S691)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S691	NONE	NONE	ENABLE	FLAG

Enable engine load as idle time reset condition (N692)

This setting enables using the engine load as a reset timer for *EIST*. When this setting is enabled and engine load exceeds the value entered in *Engine load above which the idle timer will reset (N685)* on page 63 , then EIST is reset and engine shutdown is delayed by either *Idle time in PTO mode (N688)* on page 64 , *Idle time with park brake set (N689)* on page 64 , or *Idle time with park brake not set (N690)* on page 65 , dependent on park brake status and PTO status.

This setting enables using the engine load as a reset timer for *EIST*. When this setting is enabled, engine load requirements that exceed the value entered in *Engine load above which the idle timer will reset (N685)* on page 63 while EIST is active, then engine shutdown is delayed by the amount of time entered in Set Time to Engine Shutdown After EIST Warning.

NOTE

If the *Enable engine load as idle timer override condition (N693)* on page 66 setting is enabled, then this setting must be disabled.

NOTE

This parameter is for MX engines only.

Table 62: Enable engine load as idle time reset condition (N692)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N692	Enabled	Disabled	Enabled	FLAG

Enable engine load as idle timer override condition (N693)

This setting is used to override *EIST* if the load on the engine exceeds the value entered in the *Engine load above which the idle timer will reset (N685)* on page 63 . Engine shutdown is delayed by the amount of time entered in *Time remaining to shutdown from the moment of EIST warning (N696)* on page 67 .

NOTE

If the *Enable engine load as idle time reset condition (N692)* on page 66 setting is enabled, then this setting must be disabled.

NOTE

This parameter is for MX engines only.

Table 63: Enable engine load as idle timer override condition (N693)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N693	Disabled	Disabled	Enabled	FLAG

Enable EIST timer when the parking brake is not set (N694)

This setting is used to enable *EIST* when the parking brake is not set. If this setting is enabled, then EIST mode can be activated when the parking brake is not set. Otherwise, the parking brake must be set for EIST mode to be activated.

NOTE
This parameter is for MX engines only.

Table 64: Enable EIST timer when the parking brake is not set (N694)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N694	Enabled	Disabled	Enabled	FLAG

Time remaining to shutdown from the moment of EIST warning (N696)

This setting is used to set how long after an *EIST* shutdown warning message is displayed before the engine shuts down. When a shutdown warning message is sent from *EIST*, the engine will continue operating for the amount of time entered in this setting unless an *EIST* override occurs.

For example, if the value entered in this setting is '60,' then the engine will shut down 60 seconds (1 minute) after a shutdown warning timer begins. If an *EIST* override occurs during this time, then the timer returns to the value entered in this setting until the override disappears.

Shutdown override conditions include:

- Ambient air temperature
- Battery *State of Charge (SoC)*
- Coolant temperature
- Engine Load Interrupt
- Fuel temperature
- Oil temperature
- *PTO* Mode Interrupt

NOTE
This parameter is for MX engines only.

Table 65: Time remaining to shutdown from the moment of EIST warning (N696)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N696	60	30	255	SEC

Enable accelerator position as timer reset condition (N699)

This setting enables using the accelerator pedal as a reset timer for *EIST*. If this setting is enabled, depressing the accelerator pedal will reset to base timer of *Idle time in PTO mode (N688)* on page 64 , *Idle time with park brake set (N689)* on page 64 , or *Idle time with park brake not set (N690)* on page 65 .

NOTE
This parameter is for MX engines only.

Table 66: Enable accelerator position as timer reset condition (N699)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N699	Enabled	Disabled	Enabled	FLAG

Enable foot brake position as timer reset condition (N700)

This setting enables using the foot brake as a reset timer for *EIST*. If this setting is enabled, depressing the foot brake will reset to base timer of *Idle time in PTO mode (N688)* on page 64 , *Idle time with park brake set (N689)* on page 64 , or *Idle time with park brake not set (N690)* on page 65 .

NOTE
This parameter is for MX engines only.

Table 67: Enable foot brake position as timer reset condition (N700)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N700	Enabled	Disabled	Enabled	FLAG

Enable clutch pedal position as timer reset condition (N701)

This setting enables using the clutch pedal as a reset timer for *EIST*. If this setting is enabled, depressing the clutch pedal will reset to base timer of *Idle time in PTO mode (N688)* on page 64 , *Idle time with park brake set (N689)* on page 64 , or *Idle time with park brake not set (N690)* on page 65 .

NOTE
This parameter is for MX engines only.

Table 68: Enable clutch pedal position as timer reset condition (N701)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N701	Enabled	Disabled	Enabled	FLAG

Enables to overrule EIST to recharge vehicle batteries (S703)

This setting allows *EIST* to be overridden when the vehicle's batteries need to be recharged. When enabled, if the vehicle is in engine idle mode and the vehicle's batteries have a low level of charge, the vehicle will stay idling to help recharge the batteries. It will also delay engine shutdown by the amount of time entered in *Time remaining to shutdown from the moment of EIST warning (N696)* on page 67 .

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 69: Enables to overrule EIST to recharge vehicle batteries (S703)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S703	NONE	NONE	ON	FLAG

Enable EIST park brake timer (N705)

This setting enables the parking brake to be used to start the *EIST* timer. When enabled, the *EIST* Park Brake Timer will activate when the vehicle is stationary and the barking brake is engaged.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 70: Enable EIST park brake timer (N705)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N705	Enabled	Disabled	Enabled	FLAG

Enable Override Conditions In PTO Mode (N702)

This setting is used to allow *EIST* to be overridden during *PTO* mode. When this setting is enabled, *EIST* timers will interrupt while *PTO* mode is active.

If both this setting and *Enable engine load as idle timer override condition (N693)* on page 66 are true, both conditions must be met before the interrupt occurs. This combined setting allows fleet

managers to prevent mis-use of the PTO interrupt by also requiring a specific engine load to also be met.

Table 71: Enable Override Conditions In PTO Mode (N702)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N702	Enabled	Disabled	Enabled	FLAG

Resets EIST on PTO change (N704)

This setting controls whether *EIST* resets when the vehicle either enters into or leaves *PTO* Mode.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 72: Resets EIST on PTO change (N704)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N704	NON GHG CHASSIS	GHG CHASSIS	NON GHG CHASSIS	FLAG

Chapter 13 | VEHICLE SPEED LIMITER - SSL/GHG

Vehicle Speed Limiter (VSL)

The *VSL* is designed to improve fuel economy by reducing the maximum vehicle speed.

Standard Feature

- Without *VSL*

The speed of the vehicle will be limited to the maximum value of *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 or *Max limit for cruise control vehicle speed (N504)* on page 51 .

Feature Options

- *VSL*

On Greenhouse Gas (GHG) compliant vehicles, *Standard Maximum Speed Limit (LSL) (N718)* on page 72 will limit the overall maximum speed of the vehicle. For example, if *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 is set to 55 mph, *Max limit for cruise control vehicle speed (N504)* on page 51 is set to 70 mph, and *Standard Maximum Speed Limit (LSL) (N718)* on page 72 is set to 64 mph, the vehicle can be driven to a maximum speed of 55 mph with the pedal. If *CC* is enabled the vehicle speed may be increased to a maximum of 64 mph, as the vehicle will not exceed the value of *Standard Maximum Speed Limit (LSL) (N718)* on page 72 when the engine is fueled.

For non-GHG compliant vehicles, *Standard Maximum Speed Limit (LSL) (N718)* on page 72 is ignored, allowing *Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)* on page 72 and *Max limit for cruise control vehicle speed (N504)* on page 51 to determine the overall maximum speed of the vehicle.

Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)

This setting controls the top vehicle speed using the accelerator pedal. When driving using the accelerator pedal, the vehicle will not go faster than the speed entered in this setting.

NOTE
For vehicles with Cummins engine, the default setting for this value is 155.34 mph.

Table 73: Maximum Accelerator Pedal Vehicle Speed (Vmax, non-GHG) (N711)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N711	64	24.85	155.34	MPH

Standard Maximum Speed Limit (LSL) (N718)

This setting controls the *Legal Speed Limit (LSL)*. The LSL is the vehicle's normal maximum speed, except in special circumstances, such as speed bonuses received through the Driver Reward system.

NOTE

For vehicles with Cummins engine, the default setting for this value is 155.34 mph.

Table 74: Standard Maximum Speed Limit (LSL) (N718)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N718	155.34	0	155.34	MPH

TSC1 Checksum Enable for P4 Speed Limiter (N954)

This setting enable the *TSC1* P4 (Speed Limiter) message checksum. The checksum is used to determine if an error occurred during the transmission of the P4 message from one *ECU* to another.

CAUTION

This parameter is for internal use only and should not be changed.

NOTE

This parameter is for MX engines only.

Table 75: TSC1 Checksum Enable for P4 Speed Limiter (N954)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N850	Disabled	Disabled	Enabled	FLAG

VSL Offset to enable the torque limit (N955)

This setting controls the offset amount from the *VSL* that enables engine torque limit while the vehicle speed is increasing.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 76: VSL Offset to enable the torque limit (N955)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N850	4.34	1.25	4.34	MPH

Chapter 14 | ELECTRIC OVER AIR

Air Solenoids

Air solenoids are the devices that translate the electrical signal into physical change that controls the air pressure in various circuits. The air solenoids are mounted to a *MSB* in the frame rail. The solenoids are designed to stack on each other so that they share a common air supply rail which reduces the amount of air lines on the vehicle.

Table 77: Air Solenoid Types

Type	Description
Latching (*MSB*)	Requires a signal voltage to close or open a solenoid. Will remain in position if power is disconnected.
Non-latching	Requires 12v to change a valve from its normal position. Will revert back to its normal position if power is disconnected.

For safety reasons, certain circuits are designed with non-latching type solenoids. Since the *MSB* only contains latching solenoids, all non-latching air solenoid functions are not controlled by the *MSB*. These circuits include but are not limited to Lift Axles, Tag Axle Lock, *Engine Over-speed Air Shutdown (EOAS)*, Inside/Outside Air Intake and *Hill Start Aid (HSA)*.

Multiplexed Solenoid Bank (MSB) System

The *MSB* are *Controller Area Network (CAN)* driven modules mounted either in passenger side frame rail behind the cab, or on the rearward crossmember behind the cab. It communicates to the *Chassis Module Primary (CMP)* via *Frame CAN (F-CAN)* to control the multiplexed air solenoids. This reduces the amount of wires needed to run up to 6 air solenoids per bank. The air supply connects directly to the *MSB*, distributing air to each solenoid.

NOTE
Solenoid functions and positions are assigned through PACCAR Vehicle Pro (PVP), then programmed using *DAVIE4*.

The Multiplexed Air Solenoids are mounted directly to the *MSB*. When commanded, the solenoids apply or remove air pressure from its respective circuit. All multiplexed solenoids are latching solenoids, meaning they require signal voltage to open or close a solenoid. The solenoid will remain in position if power is disconnected.

Figure 4: MSB Identification

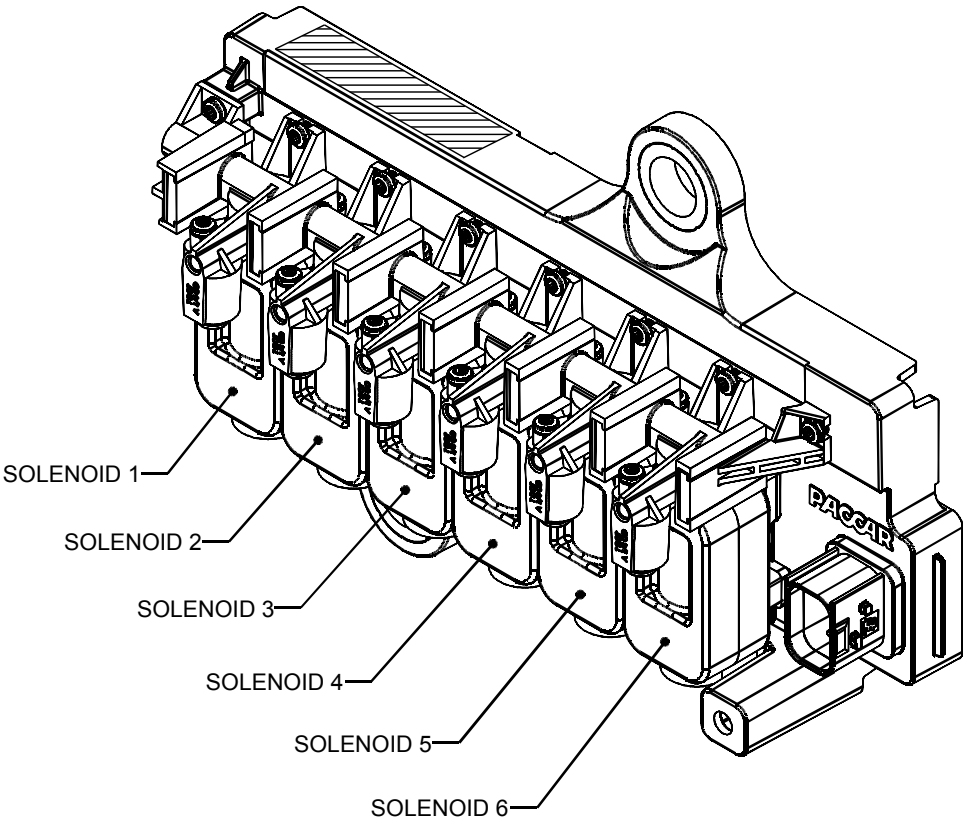


Figure 5: Multiplex Solenoid Bank Architecture

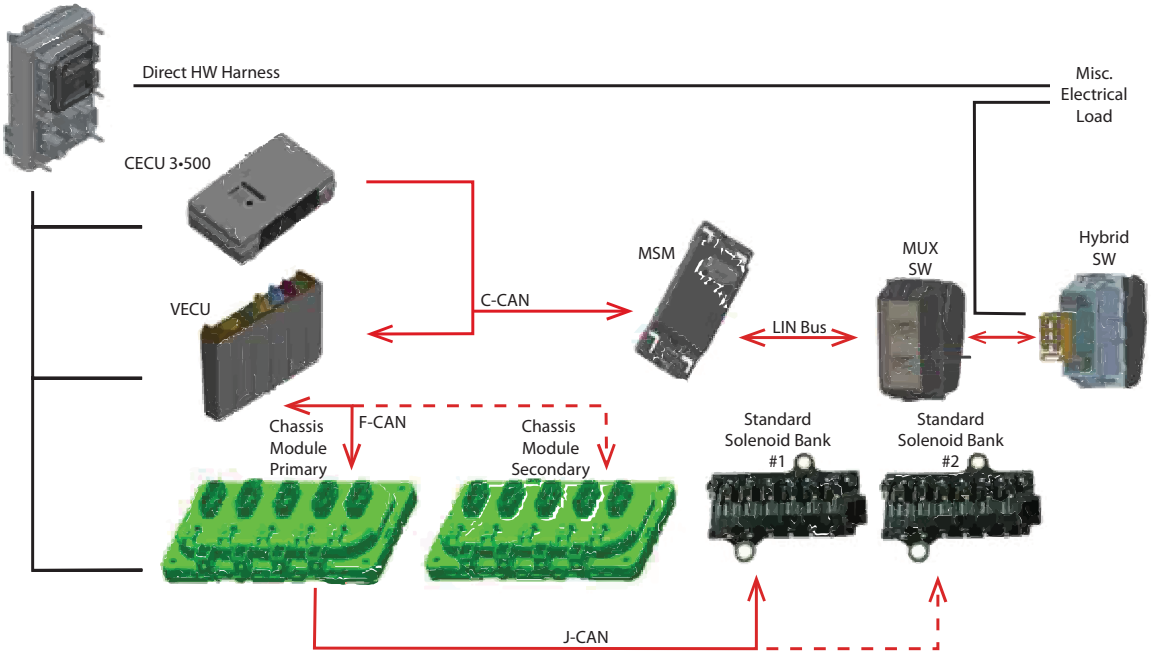
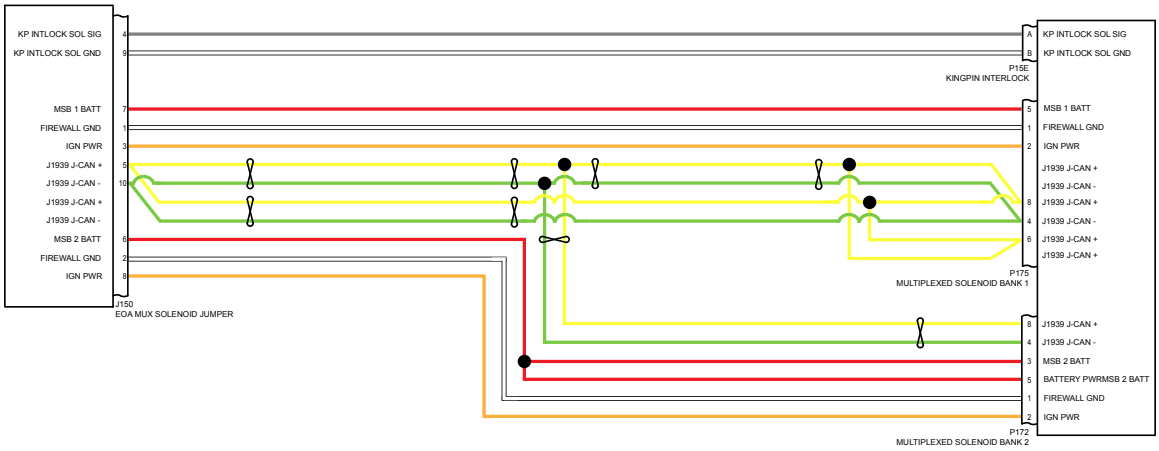


Figure 6: MSB Harness Schematic



Multiplex Solenoid Bank (MSB) Functions

The following section details the *Electric Over Air (EOA)* parameters related to the *MSB*.

Defines the function assignment for bank 1 valve 1 (N755)

This setting controls what option is assigned to *EOA* function 1. EOA function 1 is located at *MSB* 1, valve 1.

> NOTE
>
> See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

> NOTE
>
> Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 78: Defines the function assignment for bank 1 valve 1 (N755)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N755	0	0	111	DISCRETE

Defines the function assignment for bank 1 valve 2 (N756)

This setting controls what option is assigned to *EOA* function 2. EOA function 2 is located at *MSB* 1, valve 2.

> NOTE
>
> See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 79: Defines the function assignment for bank 1 valve 2 (N756)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N756	0	0	111	DISCRETE

Defines the function assignment for bank 1 valve 3 (N757)

This setting controls what option is assigned to *EOA* function 3. EOA function 3 is located at *MSB* 1, valve 3.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 80: Defines the function assignment for bank 1 valve 3 (N757)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N757	0	0	111	DISCRETE

Defines the function assignment for bank 1 valve 4 (N758)

This setting controls what option is assigned to *EOA* function 4. EOA function 4 is located at *MSB* 1 valve 4.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 81: Defines the function assignment for bank 1 valve 4 (N758)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N758	0	0	111	DISCRETE

Defines the function assignment for bank 1 valve 5 (N759)

This setting controls what option is assigned to *EOA* function 5. EOA function 5 is located at *MSB* 1 valve 5.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 82: Defines the function assignment for bank 1 valve 5 (N759)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N759	0	0	111	DISCRETE

Defines the function assignment for bank 1 valve 6 (N760)

This setting controls what option is assigned to *EOA* function 6. EOA function 6 is located at *MSB* 1 valve 6.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 83: Defines the function assignment for bank 1 valve 6 (N760)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N760	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 1 (N761)

This setting controls what option is assigned to *EOA* function 7. EOA function 7 is located at *MSB* 2 valve 1.

> NOTE
>
> See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

> NOTE
>
> Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 84: Defines the function assignment for bank 2 valve 1 (N761)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N761	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 2 (N762)

This setting controls what option is assigned to *EOA* function 8. EOA function 8 is located at *MSB* 2 valve 2.

> NOTE
>
> See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

> NOTE
>
> Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 85: Defines the function assignment for bank 2 valve 2 (N762)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N762	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 3 (N763)

This setting controls what option is assigned to *EOA* function 9. EOA function 9 is located at *MSB* 2 valve 3.

> NOTE
>
> See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 86: Defines the function assignment for bank 2 valve 3 (N763)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N763	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 4 (N764)

This setting controls what option is assigned to *EOA* function 10. EOA function 10 is located at *MSB* 2 valve 4.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 87: Defines the function assignment for bank 2 valve 4 (N764)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N764	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 5 (N765)

This setting controls what option is assigned to *EOA* function 11. EOA function 11 is located at *MSB* 2 valve 5.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 88: Defines the function assignment for bank 2 valve 5 (N765)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N765	0	0	111	DISCRETE

Defines the function assignment for bank 2 valve 6 (N766)

This setting controls what option is assigned to *EOA* function 12. EOA function 12 is located at *MSB* 2 valve 6.

NOTE

See *EOA Parameter Options* on page 83 for the list of options available for this parameter.

NOTE

Entries in the 12 *EOA* functions (*Defines the function assignment for bank 1 valve 1 (N755)* on page 78 through *Defines the function assignment for bank 2 valve 6 (N766)* on page 83) must all have different values entered. There cannot be any duplicate parameter options entered.

Table 89: Defines the function assignment for bank 2 valve 6 (N766)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N766	0	0	111	DISCRETE

EOA Parameter Options

Kenworth EOA Parameter Options

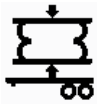
This table includes the options available for *EOA* parameters for Kenworth trucks.

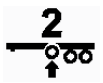
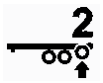
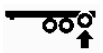
Table 90: EOA Functions

Function Description	Function Number	Icon
2 (Two) Speed Rear Axle	10	
2 (Two) Speed Rear Axle With Park Brake Interlock	9	
Air Accessory Control 1	62	

Function Description	Function Number	Icon
Air Accessory Control 1 With Park Brake Interlock	63	
Air Accessory Control 2	92	
Air Accessory Control 2 With Park Brake Interlock	93	
Air Accessory Control 3	94	
Air Accessory Control 3 With Park Brake Interlock	95	
Air Accessory Control 4	96	
Air Accessory Control 4 With Park Brake Interlock	97	
Air Suspension Dump With Park Brake Interlock	1	
Air Suspension Dump With Speed Interlock	2	
Air Suspension Overinflation With Speed Interlock	8	
Auxiliary Transmission 3 (Three) Position Control (High)	35	
Auxiliary Transmission 3 (Three) Position Control (Neutral)	86	
Auxiliary Transmission 3 (Three) Position Control With Park Brake Interlock (High)	17	

Function Description	Function Number	Icon
Auxiliary Transmission 3 (Three) Position Control With Park Brake Interlock (Neutral)	87	
Fifth Wheel Slide With Speed Interlock	11	
Front Drive Axle Declutch With Speed Interlock	12	
Interaxle *Differential lock (Diff lock)* With Speed Interlock	13	
Interaxle *Differential lock (Diff lock)* With Speed Interlock and Auto Engagement	111	
Kingpin Release With Park Brake Interlock	14	
PTO #1	37	
PTO #1 With Park Brake Interlock	20	
PTO #2	38	
PTO #2 With Park Brake And *PTO* #1 Interlock	79	
PTO #2 With Park Brake Interlock	21	
PTO #2 With *PTO* #1 Interlock	80	

Function Description	Function Number	Icon
PTO Speed High Low	91	
PTO 2 (Two) Position (Fwd/Rev) (Valve 1)	36	
PTO 2 (Two) Position (Fwd/Rev) (Valve 2)	90	
PTO 2 (Two) Position (Fwd/Rev) With Park Brake Interlock (Valve 1)	19	
PTO 2 (Two) Position (Fwd/Rev) With Park Brake Interlock (Valve 2)	89	
Rear Axle Declutch With Park Brake Interlock (Valve 1)	15	
Rear Axle Declutch With Park Brake Interlock (Valve 2)	88	
Trailer Air Suspension Dump With Park Brake Interlock	4	
Trailer Air Suspension Dump With Speed Interlock	3	
Trailer Belly Dump Gate (Forward) With Speed Interlock	24	
Trailer Belly Dump Gate (Rear) With Speed Interlock	25	
Trailer Dump Gate	39	
Trailer Dump Gate (Forward)	41	

Function Description	Function Number	Icon
Trailer Dump Gate (Rear)	42	
Trailer Dump Gate With Speed Interlock	22	
Trailer Lift Axle (Forward)	6	
Trailer Lift Axle (Rear)	7	
Trailer Lift Axle (Single)	5	
Trailer Tow / Pintle Hook	43	
Transfer Case (Hi/Low) With Speed Interlock	16	
Truck Dump Gate	44	
Truck Dump Gate With Speed Interlock	26	
Wheel *Differential lock (Diff lock)* (Ctr Rear)	47	
Wheel *Differential lock (Diff lock)* (Ctr Rear) With Speed Interlock	29	
Wheel *Differential lock (Diff lock)* (Ctr Rear) With Two Speed Interlock	100	
Wheel *Differential lock (Diff lock)* (Dual Rear)	49	

Function Description	Function Number	Icon
Wheel *Differential lock (Diff lock)* (Dual Rear) With Speed Interlock	31	
Wheel *Differential lock (Diff lock)* (Dual Rear) With Two Speed Interlock	102	
Wheel *Differential lock (Diff lock)* (Front Axle)	50	
Wheel *Differential lock (Diff lock)* (Front Axle) With Speed Interlock	32	
Wheel *Differential lock (Diff lock)* (Front Axle) With Two Speed Interlock	103	
Wheel *Differential lock (Diff lock)* (Fwd Rear)	46	
Wheel *Differential lock (Diff lock)* (Fwd Rear) With Speed Interlock	28	
Wheel *Differential lock (Diff lock)* (Fwd Rear) With Two Speed Interlock	99	
Wheel *Differential lock (Diff lock)* (Rr Rear)	48	
Wheel *Differential lock (Diff lock)* (Rr Rear) With Speed Interlock	30	
Wheel *Differential lock (Diff lock)* (Rr Rear) With Two Speed Interlock	101	
Wheel *Differential lock (Diff lock)* (Single Rear)	45	

Function Description	Function Number	Icon
Wheel *Differential lock (Diff lock)* (Single Rear) With Speed Interlock	27	
Wheel *Differential lock (Diff lock)* (Single Rear) With Two Speed Interlock	98	

Peterbilt EOA Parameter Options

This table includes the options available for *EOA* parameters for Peterbilt trucks.

Table 91: EOA Functions

Function Description	Function Number	Icon
2 (Two) Speed Rear Axle	10	
2 (Two) Speed Rear Axle With Park Brake Interlock	9	
Air Accessory Control 1	62	
Air Accessory Control 1 With Park Brake Interlock	63	
Air Accessory Control 2	92	
Air Accessory Control 2 With Park Brake Interlock	93	
Air Accessory Control 3	94	
Air Accessory Control 3 With Park Brake Interlock	95	
Air Accessory Control 4	96	

Function Description	Function Number	Icon
Air Accessory Control 4 With Park Brake Interlock	97	
Air Suspension Dump With Park Brake Interlock	1	
Air Suspension Dump With Speed Interlock	2	
Air Suspension Overinflation With Speed Interlock	8	
Auxiliary Transmission 3 (Three) Position Control (High)	35	
Auxiliary Transmission 3 (Three) Position Control (Neutral)	86	
Auxiliary Transmission 3 (Three) Position Control With Park Brake Interlock (High)	17	
Auxiliary Transmission 3 (Three) Position Control With Park Brake Interlock (Neutral)	87	
Fifth Wheel Slide With Speed Interlock	11	
Front Drive Axle Declutch With Speed Interlock	12	
Interaxle *Differential lock (Diff lock)* With Speed Interlock	13	
Kingpin Release With Park Brake Interlock	14	
PTO #1	37	

Function Description	Function Number	Icon
PTO #1 With Park Brake Interlock	20	
PTO #2	38	
PTO #2 With Park Brake And *PTO* #1 Interlock	79	
PTO #2 With Park Brake Interlock	21	
PTO #2 With *PTO* #1 Interlock	80	
PTO 2 (Two) Position (Fwd/Rev) (Valve 1)	36	
PTO 2 (Two) Position (Fwd/Rev) (Valve 2)	90	
PTO 2 (Two) Position (Fwd/Rev) With Park Brake Interlock (Valve 1)	19	
PTO 2 (Two) Position (Fwd/Rev) With Park Brake Interlock (Valve 2)	89	
Trailer Air Suspension Dump With Park Brake Interlock	4	
Trailer Air Suspension Dump With Speed Interlock	3	
Transfer Case (Hi/Low) With Speed Interlock	16	

Function Description	Function Number	Icon
Wheel *Differential lock (Diff lock)* (Ctr Rear)	47	
Wheel *Differential lock (Diff lock)* (Ctr Rear) With Speed Interlock	29	
Wheel *Differential lock (Diff lock)* (Ctr Rear) With Two Speed Interlock	100	
Wheel *Differential lock (Diff lock)* (Dual Rear)	49	
Wheel *Differential lock (Diff lock)* (Dual Rear) With Speed Interlock	31	
Wheel *Differential lock (Diff lock)* (Dual Rear) With Two Speed Interlock	102	
Wheel *Differential lock (Diff lock)* (Front Axle)	50	
Wheel *Differential lock (Diff lock)* (Front Axle) With Speed Interlock	32	
Wheel *Differential lock (Diff lock)* (Front Axle) With Two Speed Interlock	103	
Wheel *Differential lock (Diff lock)* (Fwd Rear)	46	
Wheel *Differential lock (Diff lock)* (Fwd Rear) With Speed Interlock	28	
Wheel *Differential lock (Diff lock)* (Fwd Rear) With Two Speed Interlock	99	

Function Description	Function Number	Icon
Wheel *Differential lock (Diff lock)* (Rr Rear)	48	
Wheel *Differential lock (Diff lock)* (Rr Rear) With Speed Interlock	30	
Wheel *Differential lock (Diff lock)* (Rr Rear) With Two Speed Interlock	101	
Wheel *Differential lock (Diff lock)* (Single Rear)	45	
Wheel *Differential lock (Diff lock)* (Single Rear) With Speed Interlock	27	
Wheel *Differential lock (Diff lock)* (Single Rear) With Two Speed Interlock	98	
Work Brake (Winch Brake)	53	
Work Brake (Winch Brake) With Speed Interlock	52	

Dump Functions

The following section details the *EOA* truck and trailer dump parameters.

Defines the speed threshold for Truck Dump Gate function (N767)

This setting controls the maximum speed the vehicle can be traveling and still allow the truck dump gate to be engaged. If the vehicle is traveling faster than the speed listed in this setting, then the truck dump gate cannot be engaged.

Table 92: Defines the speed threshold for Truck Dump Gate function (N767)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N767	24.85	0	40.39	MPH

Defines the speed threshold for Trailer Dump Single function (N768)

This setting controls the maximum speed the vehicle can be traveling and still allow the trailer dump single function to be engaged. If the vehicle is traveling faster than the speed listed in this setting, then the trailer dump single function cannot be engaged.

Table 93: Defines the speed threshold for Trailer Dump Single function (N768)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N768	24.85	0	40.39	MPH

Defines the speed threshold for Trailer Dump Forward function (N769)

This setting controls the maximum speed the vehicle can be traveling and still allow the trailer dump forward function to be engaged. If the vehicle is traveling faster than the speed listed in this setting, then the trailer dump forward function cannot be engaged.

Table 94: Defines the speed threshold for Trailer Dump Forward function (N769)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N769	24.85	0	40.39	MPH

Defines the speed threshold for Trailer Dump Center function (N770)

This setting controls the maximum speed the vehicle can be traveling and still allow the trailer dump center function to be engaged. If the vehicle is traveling faster than the speed listed in this setting, then the trailer dump center function cannot be engaged.

Table 95: Defines the speed threshold for Trailer Dump Center function (N770)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N770	24.85	0	40.39	MPH

Defines the speed threshold for Trailer Dump Rear function (N771)

This setting controls the maximum speed the vehicle can be traveling and still allow the trailer dump rear function to be engaged. If the vehicle is traveling faster than the speed listed in this setting, then the trailer dump rear function cannot be engaged.

Table 96: Defines the speed threshold for Trailer Dump Rear function (N771)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N771	24.85	0	40.39	MPH

Lift Axle Functions

Lift Axle control is handled through hardwired connections from the Chassis Modules to the Lift Axle solenoids. Switch functionality can be controlled through hardwired switches to the Chassis Modules, or through the Multiplexed dash switches via *CAN* messages. Each Chassis Module has a maximum capacity of two Lift Axle circuits, four total.

> **NOTE**
>
> Lift axle functionality is programmed through *PVP*.

Lift Axle logic is determined by axle type. See the following table for more information.

Table 97: Steerable Lift Axle w/o Auto-Reverse

Raise Condition Logic	Lower Condition Logic
Lift Switch is Inactive OR	Lift Switch is Active AND
Park Brake Engaged OR	Park Brake Disengaged AND
Trans in Reverse	Trans Not in Reverse

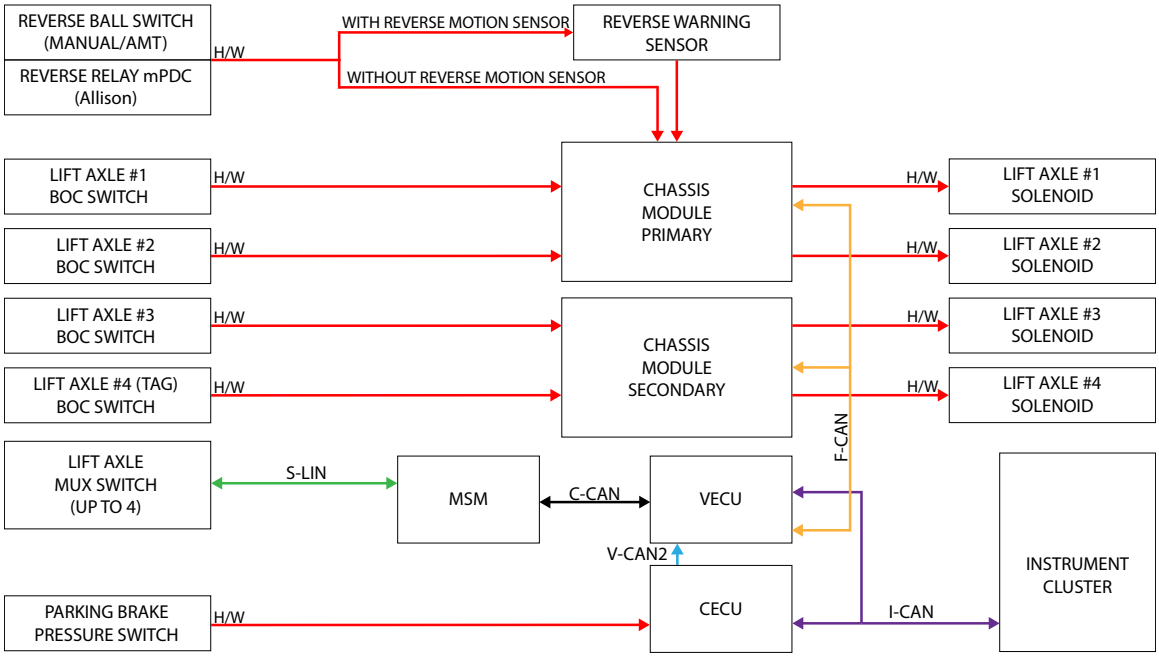
Table 98: Steerable Lift Axle with Auto-Reverse OR Non-Steerable Lift Axle w/o Park Brake

Raise Condition Logic	Lower Condition Logic
Lift Switch is Inactive OR	Lift Switch is Active AND
Park Brake Engaged	Park Brake Disengaged

Table 99: Non-Steerable Lift Axle with Park Brake

Raise Condition	Lower Condition
Lift Switch is Inactive AND	Lift Switch is Active OR
Park Brake Disengaged	Park Brake Engaged

Figure 7: Lift Axle Wiring Block Diagram



Determines what type of lift axle is installed at this location (N782)

This setting controls what type of lift axle is installed at axle 1.

The possible values for this setting are:

0 - No lift axle installed
1 - Steerable lift axle
2 - Non-steerable lift axle

Table 100: Determines what type of lift axle is installed at this location (N782)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N782	0	0	2	DISCRETE

Determines what type of lift axle is installed at this location (N783)

This setting controls what type of lift axle is installed at axle 2.

The possible values for this setting are:

0 - No lift axle installed
1 - Steerable lift axle
2 - Non-steerable lift axle

Table 101: Determines what type of lift axle is installed at this location (N783)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N783	0	0	2	DISCRETE

Determines what type of lift axle is installed at this location (N785)

This setting controls what type of lift axle is installed at axle 4.

The possible values for this setting are:

0 - No lift axle installed
1 - Steerable lift axle
2 - Non-steerable lift axle

Table 102: Determines what type of lift axle is installed at this location (N785)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N785	0	0	2	DISCRETE

Determines what type of lift axle is installed at this location (N784)

This setting controls what type of lift axle is installed at axle 3.

The possible values for this setting are:

0 - No lift axle installed
1 - Steerable lift axle
2 - Non-steerable lift axle

Table 103: Determines what type of lift axle is installed at this location (N784)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N784	0	0	2	DISCRETE

Differential Lock Functions

Defines the speed threshold for Inter Axle Diff Lock function (N805)

This setting controls the vehicle's speed threshold for the axle *Differential lock (Diff lock)* function.

Table 104: Defines the speed threshold for Inter Axle Diff Lock function (N805)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N805	39.77	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Front Axle function (N806)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the front axle.

Table 105: Defines the speed threshold for Wheel Differential Lock Front Axle function (N806)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N806	24.85	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Single Rear Axle function (N807)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on a single rear axle.

Table 106: Defines the speed threshold for Wheel Differential Lock Single Rear Axle function (N807)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N807	24.85	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Forward Rear Axle function (N808)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the forward rear axle.

Table 107: Defines the speed threshold for Wheel Differential Lock Forward Rear Axle function (N808)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N808	24.85	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Center Rear Axle function (N809)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the center rear axle.

Table 108: Defines the speed threshold for Wheel Differential Lock Center Rear Axle function (N809)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N809	24.85	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Rear Rear Axle function (N810)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the rear rear axle.

Table 109: Defines the speed threshold for Wheel Differential Lock Rear Rear Axle function (N810)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N810	24.85	0	70	MPH

Defines the speed threshold for Wheel Differential Lock Dual Rear Axle function (N811)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on a dual rear axle.

Table 110: Defines the speed threshold for Wheel Differential Lock Dual Rear Axle function (N811)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N811	24.85	0	70	MPH

Defines the speed threshold for the work brakes function (N815)

This setting controls the vehicle's speed threshold for the work brakes function.

Table 111: Defines the speed threshold for the work brakes function (N815)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N815	3.11	3.11	6.21	MPH

Defines when EOH PTO is installed (N816)

This setting controls where *Electric Over Hydraulic (EOH) PTO* is installed, if the truck has it.

The possible values for this setting are:

0 - Not Electric Over Hydraulic
1 - Electric Over Hydraulic
2 - Electric Over Hydraulic with Park Brake
3 - Electric Over Hydraulic with Pump Mode

Table 112: Defines when EOH PTO is installed (N816)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N816	0	0	3	DISCRETE

Determines if Suspension Dump is required (S817)

This setting controls whether *PTO* triggers a suspension dump when a *PTO* engagement interlock occurs.

Table 113: Determines if Suspension Dump is required (S817)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N817	NONE	NONE	AUTO SUSP DUMP W/PTO ENGAGEMENT INTERLOCK	DISCRETE

Defines the speed threshold for fifth wheel slide (N820)

This setting controls the vehicle's speed threshold for the fifth wheel slide function.

Table 114: Defines the speed threshold for fifth wheel slide (N820)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N820	6.84	0	9.94	MPH

Defines the speed threshold for Air Suspension Dump (N821)

Table 115: Defines the speed threshold for Air Suspension Dump (N821)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N821	4.35	0	158.45	MPH

Defines the speed threshold for trailer suspension dump function (N822)

This setting controls the vehicle's speed threshold for the trailer suspension dump function.

Table 116: Defines the speed threshold for trailer suspension dump function (N822)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N822	4.35	0	158.45	MPH

Defines the speed threshold for air over inflation function (N823)

This setting controls the vehicle's speed threshold for the air over-inflation function.

Table 117: Defines the speed threshold for air over inflation function (N823)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N823	15.53	0	158.45	MPH

Axle Interlock Functions

Determines Which Interlocks Are Present For Axle One (N786)

This setting controls the type of interlock on the first axle.

The possible values for this setting are:

0 - No Interlock
1 - Auto Reverse Interlock
2 - Park Brake Interlock

Table 118: Determines Which Interlocks Are Present For Axle One (N786)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N786	0	0	2	DISCRETE

Determines Which Interlocks Are Present For Axle Two (N787)

This setting controls the type of interlock on the second axle.

The possible values for this setting are:

0 - No Interlock
1 - Auto Reverse Interlock
2 - Park Brake Interlock

Table 119: Determines Which Interlocks Are Present For Axle Two (N787)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N787	0	0	2	DISCRETE

Determines Which Interlocks Are Present For Axle Three (N788)

This setting controls the type of interlock on the third axle.

The possible values for this setting are:

0 - No Interlock
1 - Auto Reverse Interlock
2 - Park Brake Interlock

Table 120: Determines Which Interlocks Are Present For Axle Three (N788)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N788	0	0	2	DISCRETE

Determines Which Interlocks Are Present For Axle Four (N789)

This setting controls the type of interlock on the fourth axle.

The possible values for this setting are:

0 - No Interlock
1 - Auto Reverse Interlock
2 - Park Brake Interlock

Table 121: Determines Which Interlocks Are Present For Axle Four (N789)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N789	0	0	2	DISCRETE

Boolean KW only parameter to enable single switch control of lift axles (TRACTOR ONLY) (S780)

This setting enables switch control for lift axles on the tractor. If the tractor has lift axles, this setting is used to enable the switch control needed to operate the lift axles.

The possible values for this setting are:

0 - Not Installed
1 - Installed

NOTE

This parameter only applies to Kenworth trucks.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 122: Boolean KW only parameter to enable single switch control of lift axles (TRACTOR ONLY) (S780)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N780	0	0	1	DISCRETE

Determines location of switches and which CAN will deliver control messages (S781)

This setting controls where the lift axle switches are located. The location of the lift axle switches also determines which *CAN* is used to deliver control messages.

The possible values for this setting are:

0 - Dash Mounted (MUX)
1 - Rocker Mounted

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 123: Determines location of switches and which CAN will deliver control messages (S781)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N781	0	0	1	DISCRETE

Defines the high speed threshold for Wheel Differential Lock Center Rear Axle function (N924)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the center rear axle.

Table 124: Defines the high speed threshold for Wheel Differential Lock Center Rear Axle function (N924)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N924	25.00	11.00	70.00	MPH

Defines the high speed threshold for Wheel Differential Lock Dual Rear Axle function (N925)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on a dual rear axle.

Table 125: Defines the high speed threshold for Wheel Differential Lock Dual Rear Axle function (N925)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N925	25.00	11.00	70.00	MPH

Defines the high speed threshold for Wheel Differential Lock Front Axle function (N926)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the front axle.

Table 126: Defines the high speed threshold for Wheel Differential Lock Front Axle function (N926)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N926	25.00	11.00	70.00	MPH

Defines the high speed threshold for Wheel Differential Lock Forward Rear Axle function (N927)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the forward rear axle.

Table 127: Defines the high speed threshold for Wheel Differential Lock Forward Rear Axle function (N927)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N927	25.00	11.00	70.00	MPH

Defines the high speed threshold for Wheel Differential Lock Rear Rear Axle function (N928)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on the rear rear axle.

Table 128: Defines the high speed threshold for Wheel Differential Lock Rear Rear Axle function (N928)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N928	25.00	11.00	70.00	MPH

Defines the high speed threshold for Wheel Differential Lock Single Rear Axle function (N929)

This setting controls the vehicle's speed threshold for the wheel *Differential lock (Diff lock)* function on a single rear axle.

Table 129: Defines the high speed threshold for Wheel Differential Lock Single Rear Axle function (N929)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N929	25.00	11.00	70.00	MPH

Chapter 15 | ELECTRIC TRAILER OPTIONS

Electric Trailer Options

Options in this section control how the truck interacts with a connected trailer.

ETO Spare Circuit 1 Function Option (N775)

This setting controls what function is sent through pin #1 of the ISO 3731 trailer electric connector.

The possible values for this setting are:

0 - Not Installed
1 - (2) Dump Gates w/ 3m coil BOC LH rail (FWD)
2 - ISO 3731 switch 1 ID trailer floodlight
3 - ISO 3731 switch 1 ID trailer dump gate (Single)
4 - ISO 3731 switch 1 ID trailer air suspen
5 - ISO 3731 switch 1 ID trailer 3rd lift axle
6 - ISO 3731 switch 1 ID trailer Hotline
7 - 2-SP CKT THRU ABS ISO 3731 CONN
8 - ADD 7-WAY RECPT W/TRAC KIT WIRED TO 3 DASH SW & BKUP LAMP SW
9 - ADD 7-WAY RECPT TO EOF WIRED TO 3 DASH SW & BKUP LAMP SW
10 - ADD 4-WAY RECPT TO BOC WIRED TO 3 DASH
11 - (2) Dump Gates w/ 3m coil BOC LH rail (FWD) with Speed Interlock
12 - ISO 3731 switch 1 ID trailer dumpgate (Single) with Speed Interlock
13 - ISO 3731 switch 1 ID trailer air suspen with Speed Interlock
14 - ISO 3731 switch 1 ID trailer air suspen with Park Brake Interlock
15 - Trailer Beacon Light

NOTE
This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 130: ETO Spare Circuit 1 Function Option (N775)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N775	0	0	15	DISCRETE

ETO Spare Circuit 2 Function Option (N776)

This setting controls what function is sent through pin #2 of the ISO 3731 trailer electric connector.

The possible values for this setting are:

0 - Not Installed
1 - (2) Dump Gates w/ 3m coil BOC LH rail (REAR)
2 - ISO 3731 switch 2 ID trailer floodlight

3 - ISO 3731 switch 2 ID trailer dumpgate (Single)
4 - ISO 3731 switch 2 ID trailer air suspen
5 - ISO 3731 switch 2 ID trailer 3rd lift axle
6 - ISO 3731 switch 2 ID trailer Hotline
7 - 2-SP CKT THRU ABS ISO 3731 CONN
8 - ADD 7-WAY RECPT W/TRAC KIT WIRED TO 3 DASH SW & BKUP LAMP SW
9 - ADD 7-WAY RECPT TO EOF WIRED TO 3 DASH SW & BKUP LAMP SW
10 - ADD 4-WAY RECPT TO BOC WIRED TO 3 DASH
11 - (2) Dump Gates w/ 3m coil BOC LH rail (REAR) with Speed Interlock
12 - ISO 3731 switch 2 ID trailer dumpgate (Single) with Speed Interlock
13 - ISO 3731 switch 2 ID trailer air suspen with Speed Interlock
14 - ISO 3731 switch 2 ID trailer air suspen with Park Brake Interlock

NOTE
This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 131: ETO Spare Circuit 2 Function Option (N776)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N776	0	0	14	DISCRETE

ETO Spare Circuit 3 Function Option (N777)

This setting controls what function is sent through pin #3 of the ISO 3731 trailer electric connector.

The possible values for this setting are:

0 - Not Installed
1 - (1) Trailer Dump Gate w/ 3m coil BOC (Single)
2 - (1) Trailer Dump Gate w/ 3m coil BOC (Center)
3 - (1) Truck Dump Gate w/ 3m coil BOC
4 - ADD 7-WAY RECPT W/TRAC KIT WIRED TO 3 DASH SW AND BKUP LAMP SW
5 - ADD 7-WAY RECPT TO EOF WIRED TO 3 DASH SW AND BKUP LAMP SW
6 - ADD 4-WAY RECPT TO BOC WIRED TO 3 DASH
7 - (1) Trailer Dump Gate w/ 3m coil BOC (Single) with Speed Interlock
8 - (1) Trailer Dump Gate w/ 3m coil BOC (Center) with Speed Interlock
9 - (1) Truck Dump Gate w/ 3m coil BOC with Speed Interlock
10 - Trailer Air Suspension
11 - Trailer Air Suspension with Speed Interlock
12 - Trailer Air Suspension with Park Brake Interlock

NOTE
This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 132: ETO Spare Circuit 3 Function Option (N777)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N777	0	0	12	DISCRETE

J560 Center Pin (#7) Function Option (N778)

This setting controls what function is sent through the configurable pin of the J560 connector pin.

The possible values for this setting are:

0 - Not Installed
1 - 7-Way switch, Trailer flood light
2 - 7-Way switch, Hotline
3 - 7-Way switch, Trailer air suspension
4 - 7-Way switch, Overfill
5 - 7-Way switch, 3rd Axle Lift
6 - 7-WAY SW: DUMPGATE /GUARD (Single)
7 - 7-WAY SW: DUMPGATE /GUARD (Single) with Speed Interlock
8 - Trailer Air Suspension with Speed Interlock
9 - Trailer Air Suspension with Park Brake Interlock

NOTE
This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 133: J560 Center Pin (#7) Function Option (N778)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N778	0	0	9	DISCRETE

Trailer Hotline Switch (N779)

This setting enables single switch control of lift axles.

The possible values for this setting are:

0 - Not Installed
1 - Trailer Hotline IGN switched
2 - Trailer Hotline IGN switched w/Alarm

NOTE
This parameter is for MX engines only.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 134: Trailer Hotline Switch (N779)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N779	2	0	2	DISCRETE

Chapter 16 | BACKUP ALARM

Backup alarm parameters

A vehicle backup alarm is controlled by the vehicle control unit, through the chassis module, as a multiplex signal. The parameters enable the backup alarm function and has a separate parameter for a switch to mute the alarm if needed.

Configuration parameter that enables the complete backup alarm function (S830)

This setting controls whether the vehicle has a backup alarm system or not.

Table 135: Configuration parameter that enables the complete backup alarm function (S830)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S830	NONE	NONE	BACKUP ALARM	FLAG

Backup Alarm Mute Switch (S917)

This setting controls whether the vehicle has a backup alarm mute switch.

Table 136: Backup Alarm Mute Switch (S917)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S917	OFF	OFF	ON	FLAG

Chapter 17 | DRIVELINE PROTECTION & MULTI TORQUE

PACCAR Driveline Protection

The PACCAR Driveline Protection feature allows the engine to reduce the maximum torque output in order to protect driveline components when the drivetrain reduction is calculated to be above a calibrated ratio. This functionality provides the rated torque in all conditions, and only reduces torque output if one or both of the following conditions are met:

- The vehicle has an auxiliary transmission with gear ratio greater than 1.0:1
- Vehicle has a transmission in a forward or reverse gear with a gear ratio equal to or greater than 13.0:1

Driveline protection is automatically included within the programming for all multi-torque engine ratings, as it utilizes the same software functions to enable the higher torque values of the multi-torque rating.

Impact to vehicle speed/acceleration determination for trucks with multispeed axles. (S911)

This setting indicates if the input is fitted and therefore will be processed.

The possible values for this setting are:

0 - Single Speed Rear Axle
1 - Two Speed Rear Axle Is Equipped (Must Set Secondary Rear Axle Ratio Parameter And DLP Parameters If Enabled)

Table 137: Impact to vehicle speed/acceleration determination for trucks with multispeed axles. (S911)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S911	0	0	1	FLAG

No multi torque (S910)

This setting controls whether the vehicle has multi torque or not.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 138: No multi torque (S910)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S910	OFF	OFF	ON	FLAG

Multi Torque with Cruise Control only (N890)

This setting controls if multi-torque is available only when cruise control is active or at all times.

The possible values for this setting are:

0 - Multi-Torque enabled with and without cruise control active
1 - Multi-Torque enable only while cruise control active

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 139: Multi Torque with Cruise Control only (N890)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N890	0	0	1	FLAG

Chapter 18 | EXTERIOR LIGHTING

Exterior lighting parameters

This group of parameters provide functionality with exterior lighting depending on specific application of the vehicle in motion or stationary.

Parameter to enable Flood light during reverse (N882)

This setting turns the vehicle's flood light on when the vehicle is in reverse.

The possible values for this setting are:

0 - Lights can turn ON in all cases
1 - Lights can turn ON ONLY with key OFF OR while in reverse
2 - Lights can turn ON ONLY with key OFF OR while park brake applied
3 - Lights can turn ON ONLY with key OFF OR while park brake applied OR while in in reverse

Table 140: Parameter to enable Flood light during reverse (N882)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N882	0	0	3	DISCRETE

Beacon Lamp DTC - On/Off (N930)

This setting enables *DTC* monitoring of the beacon lamp.

Table 141: Beacon Lamp DTC - On/Off (N930)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N930	0	0	1	FLAG

Spot Lamp DTC - On/Off (N931)

This setting enables *DTC* monitoring of the spot lamp.

Table 142: Spot Lamp DTC - On/Off (N931)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N931	0	0	1	FLAG

Sleeper Dome Lamp DTC - On/Off (N932)

This setting enables *DTC* monitoring of the sleeper dome lamp.

Table 143: Spot Lamp DTC - On/Off (N932)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N932	0	0	1	FLAG

Work Lights or Flood Lamps 2 DTC - On/Off (N933)

This setting enables *DTC* monitoring of the work lights or flood lamps 2.

Table 144: Work Lights or Flood Lamps 2 DTC - On/Off (N933)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N933	0	0	1	FLAG

Work Lights or Flood Lamps 3 DTC - On/Off (N934)

This setting enables *DTC* monitoring of the work lights or flood lamps 3.

Table 145: Work Lights or Flood Lamps 3 DTC - On/Off (N934)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N934	0	0	1	FLAG

Work Lights or Flood Lamps 1 DTC - On/Off (N935)

This setting enables *DTC* monitoring of the work lights or flood lamps 1.

Table 146: Work Lights or Flood Lamps 1 DTC - On/Off (N935)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N935	0	0	1	FLAG

Chapter 19 | VEHICLE PARAMETERS

Vehicle Parameters

Parameters in this section control basic functions related to the vehicle.

Tires (S836)

This setting contains the circumference of the vehicle's tires. The circumference of the tire is used to determine vehicle speed and distance traveled.

NOTE
This parameter is for MX engines only.

Table 147: Tires (S836)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S836	10	3	16	FT

Chapter 20 | POWER TAKE OFF (PTO)

Power Take Off (PTO)

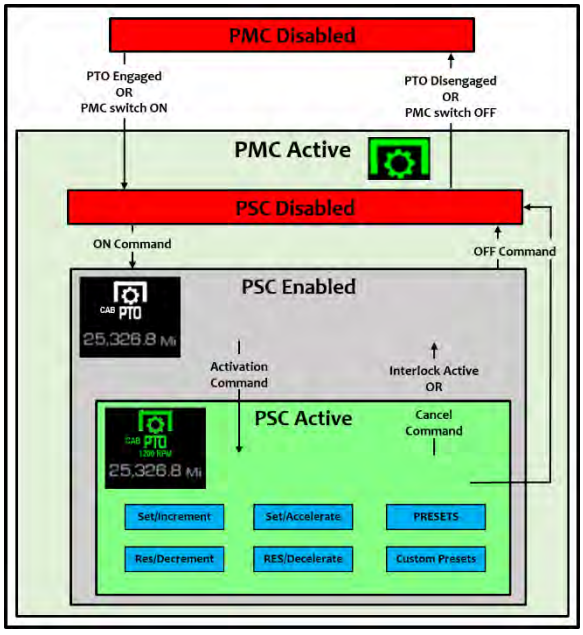
PTO mode is a PACCAR specific function offered on MX powered vehicles with *VECU* control units, which provides PACCAR MX speed controls to meet the needs of various vehicle applications.

PTO Mode consists of two systems, *PTO Mode Control (PMC)* and *PTO Speed Control (PSC)*. *PMC* becomes active when the physical *PTO* is engaged or the *PMC* switch is active. When active, *PMC* displays the green telltale and allows for all *PTO* limits and safeties to be applied. However, *PMC* only allows for engine speed control from the CAB or Remote throttle, control from the switches is not allowed at this stage.

PSC becomes enabled once the cruise control ON/OFF switch is set to ON, and the white icon (on highline display) is shown on the display. *PSC* becomes active when the set/resume button or presets are activated. *PSC* allows speed control of the engine via switches, body inputs or *CAN*. When a cancel command is issued from an interlock, *PSC* is still enabled but not active. The only way to fully disable *PSC* is to press the cruise control ON/OFF switch or stop requesting via CAN, although *PMC* may remain active until both the *PMC* switch is turned off and/or the *PTO* is disengaged.

PTO Mode is fully customizable with multiple programmable operator input functions, engine speed controls, vehicle speed parameters, and safety interlocks. Interlocks can make the operation of *PTO*-driven equipment safer and more convenient for the driver, and can protect both the chassis drivetrain and *PTO*-driven auxiliary equipment from misuse and potential damage. When an interlock is active, *PSC* will transition from active to enabled, and engine speed will reduce to the minimum *PMC* speed for the selected control location.

Figure 8: PMC and PSC Interaction Diagram



EIST may also be disabled in *PTO* Mode to allow for extended operations with the engine at idle. The engine is also capable of logging time and fuel consumption in *PTO* Mode separately from non-*PTO* operation.

While the engine is in *PTO* mode, many different limitations can be imposed by software in the vehicle controller. These limitations may include:

- Engine Speed
- Engine Speed Ramp-Up/Ramp-Down Rates
- Maximum Engine Torque Output
- Vehicle Speed
- Engine Idle Time
- Safety Interlocks

The purpose of this section is to describe the *PTO* Mode programming features and capabilities.

- *PTO Controls* on page 127 is intended to provide an overview of how control switches can be wired and integrated to the truck.
- *PTO: PTO Mode Control Configurations* on page 130 begins to list all the parameters that define *PTO* Mode. Once these parameters are defined, more parameters are presented that customize how the operator will control the *PTO* Mode function.

1. Cab Station - These parameters are for switches and controls located inside the cab.
   - *PTO: Cab Station Engine Speed Control Options* on page 139
   - *PTO: Cab Station Presets* on page 141
   - *PTO: Cab Station Limits* on page 133
   - *PTO: Cab Station Engine Speed Control Interlocks* on page 136
   - *PTO: Cab Station Custom Presets* on page 145
2. Remote Station - These parameters are for controls that are external to the cab.
   - *PTO: Remote Station Limits* on page 149
   - *PTO: Remote Station Engine Speed Control Interlocks* on page 151
   - *PTO: Remote Station Engine Speed Control Options* on page 154
   - *PTO: Remote Station Presets* on page 155
3. Cab and/or Remote Station - These parameters are dedicated to applications that use a combination of cab and/or remote station controls.
   - *PTO: Cab And/Or Remote Station Custom Presets* on page 160
   - *PTO: Cab And/Or Remote Station: Engine Speed Control Interlocks* on page 164
4. Advanced Parameters
   - *PTO: Pedal* on page 164
   - *PTO: Remote CAN Control* on page 165
   - *PTO: Advanced Settings* on page 166

Additional transmission configuration may be necessary depending on the equipped transmission and/or transfer case. PACCAR recommends consulting the transmission manufacturer for information related to specific wiring harnesses and transmission programming requirements for proper *PTO* functionality.

PTO Controls

Default OE Installed PTO Controls

Enabling and controlling the engine for *PTO* Mode can be performed via a signal sent directly from a driver operated electric switch in dash (or from steering wheel switches, if equipped). Driver *PTO*

Mode request options are usually installed at the factory for dash switches or for steering wheel switches.

The control hardware required for this feature is usually factory installed. Refer to *Figure 9: Cab Station Dash Switches* on page 128 for information on how the dash switches are implemented and *Figure 10: Cab Station Steering Wheel Switches* on page 128 for information on how the steering wheel switches are implemented.

Figure 9: Cab Station Dash Switches

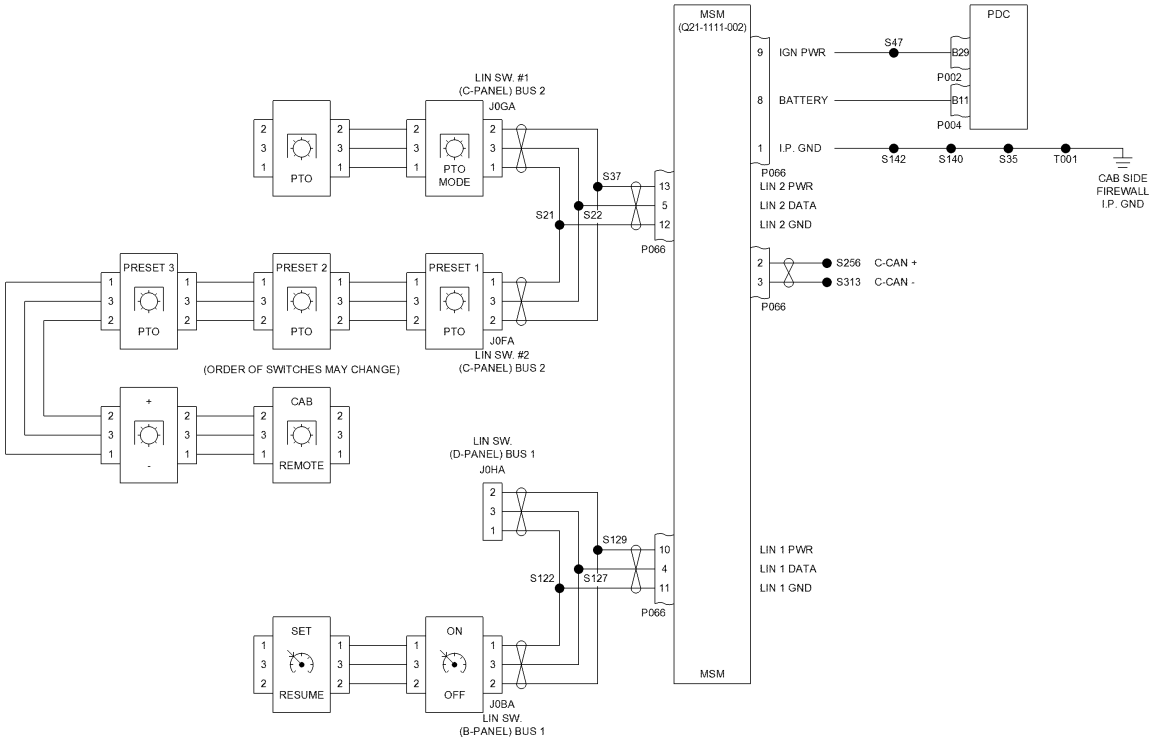
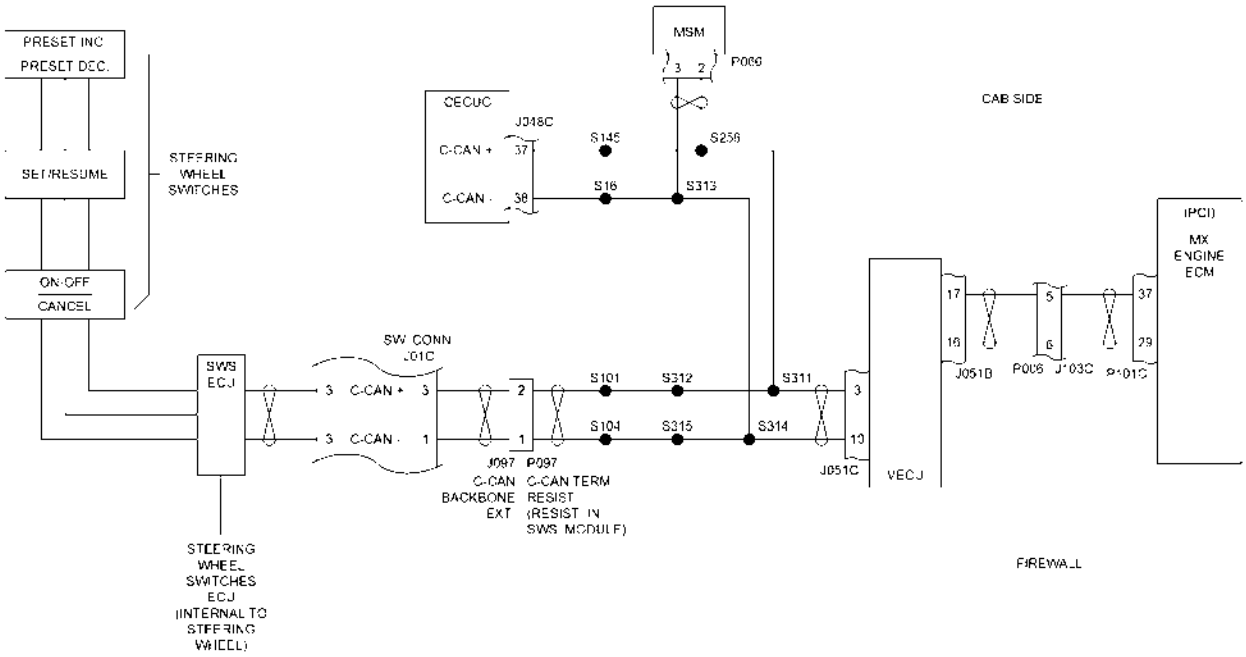


Figure 10: Cab Station Steering Wheel Switches



Factory OE Dash Controls for Aftermarket Air Operated PTO

Aftermarket air actuated *PTO*'s may be installed and be controlled by the factory driver controls inside the cab. The signal is processed through the *VECU* unit to the multiplex solenoid bank to operate that assigned air solenoid. The VECU can be customized to require a feedback signal (such as the *PTO* engagement indicator lamp on the dash) before increasing engine speed.

The control hardware required for this feature is usually factory installed.

CAN Based PTO Mode Request

PTO Mode requests can be initiated when a signal is sent through a *CAN* network connection.

This setup requires a customer-provided *CAN* based controller.

Remote Station PMC

Remote Station *PMC* includes the following possible setups:

1. Remote Station Switches
2. Remote Station Accelerator
3. Remote Station *CAN* Based Controls

4. Remote Station *TSC1* Controls

PMC Remote Station Accelerator

Remote Station Accelerator is generally a customer installed accelerator typically installed outside the cab. The accelerator can be used to implement *Engine Speed Control (ESC)* in Remote *PTO* Mode, if fitted. Remote Station accelerator will provide continuously variable *ESC* in a similar manner as the ordinary cab mounted accelerator used to drive the truck.

PMC Remote Station Accelerator requires additional programming and aftermarket parts to access and control this feature. With appropriate hardware and software, this feature may be combined with any of the following *PMC*:

1. *PTO* Mode Activation for one of the following options:
   - Remote Station Switches *ESC*
   - *CAN* based *ESC*
2. Factory installed Sensors that interact with Engine *PTO* (any/all of the following, depending on programming):
   - Service Brake Switch
   - Parking Brake Switch
   - Clutch Switch
   - Neutral Position Signal from Transmission (Not applicable to manual transmissions)
   - Vehicle Speed Sensor
   - Engine Speed Sensor

PTO: PTO Mode Control Configurations

Type of PTO Controls - Cab/Remote/Both (S518)

This setting determines whether *PTO* controls are for cab station, remote station, or both cab and remote stations. The options available for this setting are:

NONE
PTO MODE CONTROL - REMOTE STATION
PTO MODE CONTROL - CAB & REMOTE STATION
PTO MODE CONTROL - CAB STATION

NOTE
The vehicle must have a multiplexed Cab/Remote selection switch in the dash to use the CAB & REMOTE STATION option.

NOTE
This parameter is for MX engines only.

Table 148: Type of PTO Controls - Cab/Remote/Both (S518)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
S518	NONE	NONE	*PTO* MODE CONTROL	FLAG

PTO Governor Responsiveness (N517)

This setting adjusts the engine's response to speed or torque changes during *PTO* mode.

NOTE

This parameter is for MX engines only.

Table 149: PTO Mode Engine Speed Governor Responsiveness (N517)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N517	1	1	8	FACTOR

Cab Accelerator Pedal Type in PTO Mode (N544)

This setting controls whether the accelerator pedal is used to change engine torque or engine speed while using the cab accelerator pedal in *PTO* Mode. This setting allows operators to use the accelerator pedal in the way best suited for their vehicle operation.

NOTE

Enable Cab Accelerator Active in Cab Station PMC (N545) on page 132 must be enabled for this setting to be changed.

The possible values for this setting are:

Torque Pedal
Speed Pedal

NOTE

A torque pedal is the typical automotive-style pedal that is used in cars and trucks for normal driving.

NOTE

This parameter is for MX engines only.

Table 150: Cab Accelerator Pedal Type in PTO Mode (N544)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N544	Torque Pedal	Torque Pedal	Speed Pedal	FLAG

Enable Cab Accelerator Active in Cab Station PMC (N545)

This setting enables using the accelerator pedal while the vehicle is in cab station *PTO* Mode.

> NOTE
>
> This setting must be enabled to allow changes to the *Cab Accelerator Pedal Type in PTO Mode (N544)* on page 131 setting.

> NOTE
>
> This parameter is for MX engines only.

Table 151: Enable Cab Accelerator Active in Cab Station PMC (N545)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N545	Enabled	Disabled	Enabled	FLAG

Enable Cab Accelerator Active in Remote Station PMC (N577)

This setting enables using the accelerator pedal while the vehicle is in remote *PTO* Mode.

> NOTE
>
> This parameter is for MX engines only.

Table 152: Enable Cab Accelerator Active in Remote Station PMC (N577)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N577	Disabled	Disabled	Enabled	DISCRETE

Enable Remote Pedal in Remote Station PMC (N578)

This setting is used to enable remote pedal inputs during *PTO* mode. This option must be enabled to allow pedal input from remote locations.

> NOTE
>
> This parameter is for MX engines only.

Table 153: Enable Remote Pedal in Remote Station PMC (N578)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N578	Enabled	Disabled	Enabled	DISCRETE

Fan On in PTO Mode: CAB and REMOTE Station (N885)

This setting turns engine fan on when PTO mode is active.

NOTE
This parameter is for MX engines only.

Table 154: Fan On in PTO Mode: CAB and REMOTE Station (N885)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N885	Disabled	Disabled	Enabled	FLAG

Open circuit detection on Allison MTD PTO Controls - PTO 1 (N921)

This setting enables open circuit detection on Allison MTD *PTO* controls.

Table 155: Open circuit detection on Allison MTD PTO Controls - PTO 1 (N921)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N921	0	0	1	FLAG

Open circuit detection on PTO Engaged Output for PTO Hourmeter and PTO Telltale (N922)

This setting enables open circuit detection on the *PTO* engaged output for both *PTO* hourmeter and *PTO* telltale.

Table 156: Open circuit detection on PTO Engaged Output for PTO Hourmeter and PTO Telltale (N922)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N922	0	0	1	FLAG

PTO: Cab Station Limits

Maximum Engine Speed - Accelerator Controlled (N519)

This setting controls the maximum speed the engine can achieve when in cab station *PTO* Mode using the accelerator pedal. The engine will not exceed this speed when being controlled by the accelerator pedal, regardless of pedal position. This setting is initially equal to *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

NOTE

This parameter is for MX engines only.

Table 157: Maximum Engine Speed - Accelerator Controlled (N519)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N519	2000	650	2200	RPM

Maximum Engine Speed - Switch Controlled (N520)

This setting controls the maximum speed the engine can achieve when in cab station *PTO* Mode using the cab switches. The engine will not exceed this speed when being controlled by the steering wheel or dash switches.

NOTE

This parameter is for MX engines only.

Table 158: Maximum Engine Speed - Switch Controlled (N520)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N520	2000	650	2200	RPM

Maximum Vehicle Speed (N523)

This setting controls the vehicle speed limit while in cab station *PTO* mode. The vehicle will no longer accelerate when this limit has been reached, while PTO mode is active. This setting affects all input methods of increasing vehicle speed.

NOTE

This parameter is for MX engines only.

Table 159: Maximum Vehicle Speed (N523)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N523	6	6	158.45	MPH

Maximum Rate of Engine Speed INCREASE (N524)

This setting controls the rate of engine speed increase in cab station *PTO* mode. The value entered in this setting limits the rate of engine speed increase to a maximum number of rpm/s for any in-cab controls.

NOTE

This parameter is for MX engines only.

Table 160: Maximum Rate of Engine Speed INCREASE (N524)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N524	1000	10	2000	RPM/S

Maximum Rate of Engine Speed DECREASE (N525)

This setting controls the rate of engine speed decrease in cab station *PTO* mode. The value entered in this setting limits the rate of engine speed decrease to a maximum number of rpm/s for any in-cab controls.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 161: Maximum Rate of Engine Speed DECREASE (N525)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N525	1000	10	2000	RPM/S

Maximum Engine Torque Output (N528)

This setting controls the engine torque limit when the vehicle is in cab station *PTO* mode. The engine torque output will not exceed this value while in PTO mode.

NOTE

This parameter is for MX engines only.

Table 162: Maximum Engine Torque Output (N528)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N528	1903	148	1903	LB-FT

Minimum Engine speed (N603)

This setting controls the minimum speed the engine will operate at while in cab *PTO* mode. The engine will retain this minimum speed if no other commands occur to increase the engine speed.

> NOTE
>
> This parameter is for MX engines only.

Table 163: Minimum Engine speed (N603)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N603	650	650	2200	RPM

> NOTE
>
> If *Maximum Vehicle Speed (N523)* on page 134 is greater than 6.2 MPH, then the value entered in this setting cannot be greater than 800 RPM.

PTO: Cab Station Engine Speed Control Interlocks

Clutch Interlock (N546)

This setting controls if the clutch pedal will be used as a speed control interlock in cab station *PSC*.

The possible values for this setting are:

0 - Clutch Interlock Disabled, *PSC* may remain active.
1 - Clutch Interlock Enabled, clutch pedal cancels *PSC*.
2 - Clutch Interlock Enabled, clutch pedal cancels *PSC* and disables accelerator pedal.

> NOTE
>
> This parameter is for MX engines only.

Table 164: Clutch Interlock (N546)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N546	1	0	2	DISCRETE

Custom Interlock (N547)

This setting controls how *PSC* operates when a custom interlock is active.

The possible values for this setting are:

0 - Custom Interlock Disabled, *PSC* may remain active.

1 - Custom Interlock Enabled, cancels *PSC*.
2 - Custom Interlock Enabled, cancels *PSC* and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 165: Custom Interlock (N547)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N547	0	0	2	DISCRETE

Neutral Interlock (N548)

This setting controls how *PSC* operates when the vehicle is not in neutral.

The possible values for this setting are:

0 - Neutral interlock is disabled, *PSC* may remain active when vehicle is not in neutral.
1 - Neutral interlock is enabled, cancels *PSC* when vehicle is not in neutral.
2 - Neutral interlock is enabled, cancels *PSC* when vehicle is not in neutral and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 166: Neutral Interlock (N548)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N548	1	0	2	DISCRETE

Park Brake Interlock (N549)

This setting controls how *PSC* operates when the parking brake is not set.

The possible values for this setting are:

0 - Park Brake Interlock is disabled, *PSC* may remain active when disengaging park brake.
1 - Park Brake Interlock is enabled, disengaging park brake cancels *PSC*.
2 - Park Brake Interlock is enabled, disengaging park brake cancels *PSC* and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 167: Park Brake Interlock (N549)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N549	1	0	2	DISCRETE

Service Brake Interlock: Pressed Equals No PTO Speed Control (N550)

This setting controls how *PSC* operates when the service brake is pressed.

The possible values for this setting are:

0 - Service Brake Interlock disabled, *PSC* may remain active.
1 - Service Brake Interlock enabled, brake pedal application cancels *PSC*.
2 - Service Brake Interlock enabled, brake pedal application cancels *PSC* and disables accelerator pedal.

NOTE

This parameter is for MX engines only.

Table 168: Service Brake Interlock: Pressed Equals No PTO Speed Control (N550)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N550	1	0	2	DISCRETE

NOTE

If the entry in *Maximum Vehicle Speed (N523)* on page 134 is greater than 30 MPH, then this setting must be enabled.

Service Brake Interlock: NOT Pressed Equals No PTO Speed Control (N551)

This setting controls how *PSC* operates when the service brake is not pressed.

The possible values for this setting are:

0 - Service Brake Interlock disabled, *PSC* may remain active.
1 - Service Brake Interlock enabled, releasing brake pedal cancels *PSC*.
2 - Service Brake Interlock enabled, releasing brake pedal cancels *PSC* and disables accelerator pedal.

NOTE

If the entry in *Service Brake Interlock: Pressed Equals No PTO Speed Control (N550)* on page 138 is a 1 or 2, then the entry in this field must be a 0.

NOTE

This parameter is for MX engines only.

Table 169: Service Brake Interlock: NOT Pressed Equals No PTO Speed Control (N551)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N551	0	0	2	DISCRETE

PTO: Cab Station Engine Speed Control Options

Engine Speed Ramp-up w/ long press of SET/ACCEL (N521)

This setting controls the engine acceleration rate from in-cab controls during cab station *PTO* mode. This setting affects the acceleration rate of all in-cab switch-based controls.

NOTE

This parameter is for MX engines only.

Table 170: Engine Speed Ramp-up w/ long press of SET/ACCEL (N521)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N521	250	10	1000	RPM/S

Engine Speed Ramp-down w/ long press of RES/DECEL (N522)

This setting controls the engine deceleration rate from in-cab controls during cab station *PTO* mode. This setting affects the deceleration rate of all in-cab switch-based controls.

NOTE

This parameter is for MX engines only.

Table 171: Engine Speed Ramp-down w/ long press of RES/DECEL (N522)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N522	250	10	1000	RPM/S

Engine Speed Increase with bump of SET/ACCEL (N526)

This setting controls the amount the engine speed is increased with the short press of the Set/Accel switch. This setting is closely connected with *Maximum Rate of Engine Speed INCREASE (N524)* on page 134 .

NOTE
This parameter is for MX engines only.

Table 172: Engine Speed Increase with bump of SET/ACCEL (N526)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N526	50	10	1000	RPM

Engine Speed Decrease with bump of RES/DECEL (N527)

This setting controls the amount the engine speed decreases when the operator short presses the Resume/Decel switch. This setting is closely connected with *Maximum Rate of Engine Speed DECREASE (N525)* on page 135 .

NOTE
This parameter is for MX engines only.

Table 173: Engine Speed Decrease with bump of RES/DECEL (N527)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N527	50	10	1000	RPM

Preset Increment/Decrement Switch Type (N543)

This setting controls the type of presets available while in cab *PTO* mode.

In Toggle (6 Presets) Mode, pressing the "+" key repeatedly will cause the engine speed to jump to Preset 1, then Preset 2, Preset 3, etc. Pressing "-" repeatedly, will cause the engine to jump downward through the Toggle Presets until Preset 1 is reached. In Toggle Mode, there is also the ability to "capture" the next-highest or next-lowest engine speed preset using the +/- keys, while controlling engine speed with the accelerator pedal.

In Dedicated (2 Presets) Mode, pressing "-" will cause the engine speed to jump to Dedicated Preset 1, and pressing "+" will cause the engine speed to jump to Dedicated Preset 2.

The possible values for this setting are:

0 - Preset engine settings disabled
1 - Enable Toggle (6 presets)
2 - Enable Dedicated (2 presets)

If using option 1, the presets are adjusted using:

- *Toggle Preset 1 (N529)* on page 141
- *Toggle Preset 2 (N530)* on page 142
- *Toggle Preset 3 (N531)* on page 142
- *Toggle Preset 4 (N532)* on page 143

- *Toggle Preset 5 (N533)* on page 143
- *Toggle Preset 6 (N534)* on page 144

If using option 2, the presets are adjusted using:

- *Dedicated Preset 1 (N535)* on page 144
- *Dedicated Preset 2 (N536)* on page 145

NOTE

This parameter is for MX engines only.

Table 174: Preset Increment/Decrement Switch Type (N543)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N543	2	0	2	DISCRETE

Set/Res Enabled (N610)

This setting is used to enable cab *PTO* controls using the Set/Resume switch in the cab. If this setting is enabled, cab PTO functions can be activated using the Set/Resume switch on the cab's dashboard or steering wheel (if installed).

NOTE

This parameter is for MX engines only.

Table 175: Set/Res Enabled (N610)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N610	Enabled	Disabled	Enabled	FLAG

PTO: Cab Station Presets

Toggle Preset 1 (N529)

This setting controls the cab pre-programmed speed 1 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1". The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 176: Toggle Preset 1 (N529)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N529	800	1	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Toggle Preset 2 (N530)* on page 142 , then the entry in this field must be less than that value.

Toggle Preset 2 (N530)

This setting controls the cab pre-programmed speed 2 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1" and there is a value entered in *Toggle Preset 1 (N529)* on page 141 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 177: Toggle Preset 2 (N530)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N530	900	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 1 (N529)* on page 141 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Toggle Preset 3 (N531)* on page 142 , then the entry in this field must be less than that value.

Toggle Preset 3 (N531)

This setting controls the cab pre-programmed speed 3 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1" and there is a value entered in *Toggle Preset 2 (N530)* on page 142 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 178: Toggle Preset 3 (N531)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N531	1000	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 2 (N530)* on page 142 , and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Toggle Preset 4 (N532)* on page 143 , then the entry in this field must be less than that value.

Toggle Preset 4 (N532)

This setting controls the cab pre-programmed speed 4 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1" and there is a value entered in *Toggle Preset 3 (N531)* on page 142 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 179: Toggle Preset 4 (N532)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N532	1100	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 3 (N531)* on page 142 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Toggle Preset 5 (N533)* on page 143 , then the entry in this field must be less than that value.

Toggle Preset 5 (N533)

This setting controls the cab pre-programmed speed 5 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1" and there is a value entered in *Toggle Preset 4 (N532)* on page 143 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 180: Toggle Preset 5 (N533)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N533	1200	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 4 (N532)* on page 143 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Toggle Preset 6 (N534)* on page 144 , then the entry in this field must be less than that value.

Toggle Preset 6 (N534)

This setting controls the cab pre-programmed speed 6 variable. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "1" and there is a value entered in *Toggle Preset 5 (N533)* on page 143 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 181: Toggle Preset 6 (N534)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N534	1300	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 5 (N533)* on page 143 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

Dedicated Preset 1 (N535)

This setting controls the cab dedicated speed 1 variable. This speed is set by pressing the decrement (-) button on the increment/decrement (+/-) switch. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "2".

NOTE

This parameter is for MX engines only.

Table 182: Dedicated Preset "-" (N535)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N535	800	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

Dedicated Preset 2 (N536)

This setting controls the cab dedicated speed 2 variable. This speed is set by pressing the increment (+) button on the increment/decrement (+/-) switch. This option is only available if *Preset Increment/Decrement Switch Type (N543)* on page 140 is set to a value of "2" and there is a value entered in *Dedicated Preset 1 (N535)* on page 144 .

NOTE

This parameter is for MX engines only.

Table 183: Dedicated Preset "+" (N536)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N536	900	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

PTO: Cab Station Custom Presets

Custom Preset 1 Functionality (N537)

There are up to six custom preset switches available. The switches can control engine speed during cab station *PTO* or remote station *PTO*. Remote Custom Presets can be configured to be used when in Cab station.

This setting controls how custom preset switch 1 is used to control engine speed during cab station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

NOTE

Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 1 sets the engine speed to the value defined in *Custom Preset 1 (N538)* on page 146 .

NOTE

This parameter is for MX engines only.

Table 184: Custom Preset 1 Functionality (N537)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N537	Cancel	Cancel	Latch	FLAG

Custom Preset 1 (N538)

There are up to three custom preset switches available in the cab. The switches can control engine speed during cab station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 1 is used for vehicles with cab station *PTO*.

NOTE

See *Custom Preset 1 (N571)* on page 161 for information on setting the engine speed on cab switch 1 during remote PTO mode.

NOTE

This parameter is for MX engines only.

Table 185: Custom Preset 1 (N538)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N538	750	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

Custom Preset 2 Functionality (N539)

There are up to six custom preset switches available. The switches can control engine speed during cab station *PTO* or remote station *PTO*. Remote Custom Presets can be configured to be used when in Cab station.

This setting controls how custom preset switch 1 is used to control engine speed during cab station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

NOTE

Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 2 sets the engine speed to the value defined in *Custom Preset 2 Functionality (N539)* on page 146 .

NOTE

This parameter is for MX engines only.

Table 186: Custom Preset 2 Functionality (N539)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N539	Cancel	Cancel	Latch	FLAG

Custom Preset 2 (N540)

There are up to three custom preset switches available in the cab. The switches can control engine speed during cab station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 2 is used for vehicles with cab station *PTO*.

NOTE

Refer to *Custom Preset 2 Functionality (N539)* on page 146 for information on the available settings to use custom preset 2 switch.

NOTE

This parameter is for MX engines only.

Table 187: Custom Preset 2 (N540)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N540	850	0	2200	RPM

NOTE

The value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If there is an entry in *Custom Preset 3 (N542)* on page 148 , then the entry in this field must be less than that value.

Custom Preset 3 Functionality (N541)

There are up to six custom preset switches available. The switches can control engine speed during cab station *PTO* or remote station *PTO*. Remote Custom Presets can be configured to be used when in Cab station.

This setting controls how custom preset switch 1 is used to control engine speed during cab station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

> NOTE
>
> Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 3 sets the engine speed to the value defined in *Custom Preset 3 (N542)* on page 148 .

> NOTE
>
> This parameter is for MX engines only.

Table 188: Custom Preset 3 Functionality (N541)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N541	Cancel	Cancel	Latch	FLAG

Custom Preset 3 (N542)

There are up to three custom preset switches available in the cab. The switches can control engine speed during cab station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 3 is used for vehicles with cab station *PTO*.

> NOTE
>
> See for setting the engine speed on cab switch 1 during remote PTO mode.

> NOTE
>
> This parameter is for MX engines only.

Table 189: Custom Preset 3 (N542)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N542	950	0	2200	RPM

> NOTE
>
> The value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 .

PTO: Remote Station Limits

Maximum Engine Speed - Cab and Remote Accelerator Controlled (N552)

This setting controls the maximum speed the engine can achieve when in remote *PTO* Mode using the accelerator pedal or from the remote accelerator. The engine will not go faster than the maximum speed entered no matter how much the accelerator pedal is depressed.

NOTE
This parameter is for MX engines only.

Table 190: Maximum Engine Speed - Cab and Remote Accelerator Controlled (N552)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N552	2000	650	2200	RPM

Maximum Engine Speed - Switch or TSC1 Controlled (N553)

This setting controls the maximum speed the engine can achieve when in remote *PTO* Mode using the switches or request sent via CAN. The engine will not go faster than the maximum speed entered no matter how much the switch is depressed or *TSC1* message sent.

NOTE
This parameter is for MX engines only.

Table 191: Maximum Engine Speed - Switch or TSC1 Controlled (N553)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N553	2000	650	2200	RPM

Maximum Vehicle Speed (N556)

This setting controls the vehicle speed limit while in remote *PTO* mode. This setting affects all input methods of increasing vehicle speed.

NOTE
This parameter is for MX engines only.

Table 192: Maximum Vehicle Speed (N556)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N556	0	0	158.45	MPH

Maximum Rate of Engine Speed INCREASE (N557)

This setting controls the rate of engine speed increase in remote station *PTO* mode. The value entered in this setting limits the rate of engine speed increase to a maximum number of RPMs for any remote station controls. This setting is closely connected with *Engine Speed Increase with bump of SET/ACCEL (N559)* on page 155 .

NOTE

This parameter is for MX engines only.

Table 193: Maximum Rate of Engine Speed INCREASE (N557)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N557	1000	10	2000	RPM/S

Maximum Rate of Engine Speed DECREASE (N558)

This setting controls the rate of engine speed decrease in remote station *PTO* mode. The value entered in this setting limits the rate of engine speed decrease to a maximum number of RPMs for any remote station controls. This setting is closely connected with *Engine Speed Decrease with bump of RES/DECEL (N560)* on page 155 .

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

NOTE

This parameter is for MX engines only.

Table 194: Maximum Rate of Engine Speed DECREASE (N558)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N558	1000	10	2000	RPM/S

Maximum Engine Torque Output (N561)

This setting controls the engine torque limit when the vehicle is in remote *PTO* mode. The engine torque rate will not go higher than the value entered.

NOTE

This parameter is for MX engines only.

Table 195: Maximum Engine Torque Output (N561)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N561	1903	148	1903	LB-FT

Remote: Minimum Engine Speed (N602)

This setting controls the minimum speed the engine will operate at while in remote station PTO Mode. The engine will retain this minimum speed if no other commands occur to increase the engine speed.

NOTE

This parameter is for MX engines only.

Table 196: Remote: Minimum Engine Speed (N602)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N602	650	650	2200	RPM

PTO: Remote Station Engine Speed Control Interlocks

Clutch Interlock (N580)

This setting controls if the clutch pedal will be used as a speed control interlock in remote station *PSC*.

The possible values for this setting are:

0 - Clutch Interlock is disabled, remain in Remote *PSC* when clutch is pressed.
2 - Clutch Interlock Enabled, clutch pedal cancels *PSC* and disables accelerator pedal.

NOTE

This parameter is for MX engines only.

Table 197: Clutch Interlock (N580)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N580	2	0	2	DISCRETE

Custom Interlock (N581)

This setting controls if remote *PTO* mode is enabled when a custom interlock input is active.

The possible values for this setting are:

0 - Custom Interlock is disabled, remain in Remote *PSC* when custom interlock is active.
2 - Custom Interlock Enabled, cancels *PSC* and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 198: Custom Interlock (N581)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N581	0	0	2	DISCRETE

Neutral Interlock (N582)

This setting controls if remote *PTO* mode is disabled when the vehicle is not in neutral.

The possible values for this setting are:

0 - Neutral Interlock is enabled, stay in Remote *PSC* when vehicle is not in neutral.
2 - Neutral Interlock Enabled, cancels *PSC* and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 199: Neutral Interlock (N582)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N582	2	0	2	DISCRETE

Park Brake Interlock (N583)

This setting controls if remote *PTO* mode is disabled when the parking brake is set or not.

The possible values for this setting are:

0 - Park Brake Interlock is disabled, remain in Remote *PSC* when park brake is not set.
2 - Park Brake Interlock Enabled, disengaging park brake cancels *PSC* and disables accelerator pedal.

NOTE
This parameter is for MX engines only.

Table 200: Park Brake Interlock (N583)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N583	2	0	2	DISCRETE

Service Brake Interlock, Pressed equals No PTO Speed Control (N584)

This setting controls if remote *PTO* mode is disabled when the service brake is pressed.

The possible values for this setting are:

0 - Service Brake Interlock is enabled, remain in Remote *PSC* when service brake is pressed.
2 - Service Brake Interlock Enabled, brake pedal application cancels *PSC* and disables accelerator pedal.

NOTE

If the value in *Maximum Vehicle Speed (N556)* on page 149 is greater than 30 MPH and the entries for *Neutral Interlock (N582)* on page 152 and *Park Brake Interlock (N583)* on page 152 are 0, then this setting must be enabled.

NOTE

This parameter is for MX engines only.

Table 201: Service Brake Interlock, Pressed equals No PTO Speed Control (N584)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N584	2	0	2	DISCRETE

Service Brake Interlock, NOT Pressed equals No PTO Speed Control (N585)

This setting controls if remote *PTO* mode is disabled when the service brake is not pressed.

The possible values for this setting are:

0 - Service Brake Interlock is enabled, remain in Remote *PSC* when service brake is not pressed.
2 - Service Brake Interlock Enabled, releasing brake pedal cancels *PSC* and disables accelerator pedal.

NOTE

This parameter is for MX engines only.

NOTE

If *Service Brake Interlock, Pressed equals No PTO Speed Control (N584)* on page 153 is greater than 0, this parameter must be 0.

Table 202: Service Brake Interlock, NOT Pressed equals No PTO Speed Control (N585)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N585	0	0	2	DISCRETE

PTO: Remote Station Engine Speed Control Options

Set/Res Input Enabled (N611)

This setting is enables the remote Set/Resume switches for Remote *PTO* use.

> NOTE
>
> This parameter is for MX engines only.

Table 203: Set/Res Input Enabled (N611)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N611	Enabled	Disabled	Enabled	FLAG

Engine Speed Ramp-up w/ long press of SET/ACCEL (N554)

This setting controls the engine acceleration rate during remote PTO mode. This setting affects the acceleration rate of all remote control options.

Table 204: Engine Speed Ramp-up w/ long press of SET/ACCEL (N554)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N554	250	10	1000	RPM/S

Engine Speed Ramp-down w/ long press of RES/DECEL (N555)

This setting controls the engine deceleration rate during remote PTO mode. This setting affects the deceleration rate of all remote control options.

Table 205: Engine Speed Ramp-down w/ long press of RES/DECEL (N555)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N555	250	10	1000	RPM/S

Engine Speed Increase with bump of SET/ACCEL (N559)

This setting controls the amount the engine speed is increased when a *PSC* increase command is requested from a remote control. This setting is closely connected with *Maximum Rate of Engine Speed INCREASE (N557)* on page 150 .

NOTE
This parameter is for MX engines only.

Table 206: Engine Speed Increase with bump of SET/ACCEL (N559)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N559	50	10	1000	RPM

Engine Speed Decrease with bump of RES/DECEL (N560)

This setting controls the amount the engine speed is decreased when a *PSC* increase command is requested from a remote control. This setting is closely connected with *Maximum Rate of Engine Speed DECREASE (N558)* on page 150 .

NOTE
This parameter is for MX engines only.

Table 207: Engine Speed Decrease with bump of RES/DECEL (N560)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N560	50	10	1000	RPM

PTO: Remote Station Presets

Toggle Preset 1 (N562)

This setting controls the remote pre-programmed speed 1 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1". The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE
This parameter is for MX engines only.

Table 208: Toggle Preset 1 (N562)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N562	800	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If there is an entry in *Toggle Preset 2 (N530)* on page 142 , then the entry in this field must be less than that value.

Toggle Preset 2 (N563)

This setting controls the cab pre-programmed speed 2 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1" and there is a value entered in *Toggle Preset 1 (N562)* on page 155 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 209: Toggle Preset 2 (N563)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N563	900	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 1 (N562)* on page 155 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If there is an entry in *Toggle Preset 3 (N564)* on page 156 , then the entry in this field must be less than that value.

Toggle Preset 3 (N564)

This setting controls the cab pre-programmed speed 3 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1" and there is a value entered in *Toggle Preset 2 (N563)* on page 156 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 210: Toggle Preset 3 (N564)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N564	1000	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 2 (N563)* on page 156 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If there is an entry in *Toggle Preset 4 (N565)* on page 157 , then the entry in this field must be less than that value.

Toggle Preset 4 (N565)

This setting controls the cab pre-programmed speed 4 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1" and there is a value entered in *Toggle Preset 3 (N564)* on page 156 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 211: Toggle Preset 4 (N565)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N565	1100	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 3 (N564)* on page 156 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If there is an entry in *Toggle Preset 5 (N566)* on page 157 , then the entry in this field must be less than that value.

Toggle Preset 5 (N566)

This setting controls the cab pre-programmed speed 5 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1" and there is a value entered in *Toggle Preset 4 (N565)* on page 157 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 212: Toggle Preset 5 (N566)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N566	1200	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 4 (N565)* on page 157 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If there is an entry in *Toggle Preset 6 (N567)* on page 158 , then the entry in this field must be less than that value.

Toggle Preset 6 (N567)

This setting controls the cab pre-programmed speed 6 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "1" and there is a value entered in *Toggle Preset 5 (N566)* on page 157 . The preset is reached by pressing the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 213: Toggle Preset 6 (N567)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N567	1300	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Toggle Preset 5 (N566)* on page 157 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 .

Dedicated Preset 1 (N568)

This setting controls the remote dedicated preset 1 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "2". The preset is reached by pressing the decrement (-) button on the increment/decrement (+/-) switch. The entry in this setting must be less than or equal to the entry in *Dedicated Preset 2 (N569)* on page 159 .

NOTE

This parameter is for MX engines only.

Table 214: Dedicated Preset 1 (N568)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N568	800	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 .

Dedicated Preset 2 (N569)

This setting controls the remote dedicated preset 2 variable. This option is only available if *Preset Increment/Decrement Switch Type (N576)* on page 159 is set to a value of "2". The preset is reached by pressing the increment (+) button on the increment/decrement (+/-) switch.

NOTE

This parameter is for MX engines only.

Table 215: Dedicated Preset 2 (N569)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N569	900	0	2000	RPM

NOTE

The value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 .

Preset Increment/Decrement Switch Type (N576)

This setting controls the type of presets available while in remote *PTO* mode. Presets are reached by pressing the increment/decrement (+/-) switch.

The possible values for this setting are:

0 - Preset engine settings disabled
1 - Enable Toggle (6 presets)
2 - Enable Dedicated (2 presets)

If using option 1, the presets are adjusted using:

- *Toggle Preset 1 (N562)* on page 155
- *Toggle Preset 2 (N563)* on page 156
- *Toggle Preset 3 (N564)* on page 156
- *Toggle Preset 4 (N565)* on page 157
- *Toggle Preset 5 (N566)* on page 157
- *Toggle Preset 6 (N567)* on page 158

If using option 2, the presets are adjusted using:

- *Dedicated Preset 1 (N568)* on page 158
- *Dedicated Preset 2 (N569)* on page 159

NOTE

This parameter is for MX engines only.

Table 216: Preset +/- Switch Type (N576)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N576	2	0	2	DISCRETE

PTO: Cab And/Or Remote Station Custom Presets

Custom Preset 1 Functionality (N570)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls how custom preset switch 1 is used to control engine speed during remote station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

NOTE

Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 1 sets the engine speed to the value defined in *Custom Preset 1 (N571)* on page 161 .

NOTE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913) on page 167 must be set to ON for this setting to function.

NOTE

Use *Custom Preset 1 Functionality (N537)* on page 145 if the vehicle wants only cab station *PTO* Custom Presets.

NOTE

This parameter is for MX engines only.

Table 217: Custom Preset 1 Functionality (N570)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N570	Cancel	Cancel	Latch	FLAG

Custom Preset 1 (N571)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 1 is used for vehicles with remote station *PTO*.

> NOTE
>
> *Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913)* on page 167 must be set to ON for this setting to function.

> NOTE
>
> Refer to *Custom Preset 1 Functionality (N570)* on page 160 for information on the available settings to use custom preset switch 1.

> NOTE
>
> This parameter is for MX engines only.

Table 218: Custom Preset 1 (N571)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N571	750	0	2000	RPM

> NOTE
>
> If the custom preset is used to control cab PTO, the value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If the custom preset is used to control remote PTO, the value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If the custom preset is used to control both cab and remote PTO, the value entered in this variable should be greater than or equal to the lowest value of those two variables.

Custom Preset 2 Functionality (N572)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls how custom preset switch 2 is used to control engine speed during remote station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

> NOTE
>
> Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 2 sets the engine speed to the value defined in *Custom Preset 2 (N573)* on page 162 .

NOTE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913) on page 167 must be set to ON for this setting to function.

NOTE

Use *Custom Preset 2 Functionality (N539)* on page 146 if the vehicle wants only cab station *PTO* Custom Presets.

NOTE

This parameter is for MX engines only.

Table 219: Custom Preset 2 Functionality (N572)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N572	Cancel	Cancel	Latch	FLAG

Custom Preset 2 (N573)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 2 is used for vehicles with remote station *PTO*.

NOTE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913) on page 167 must be set to ON for this setting to function.

NOTE

Refer to *Custom Preset 2 Functionality (N572)* on page 161 for information on the available settings to use custom preset switch 2.

NOTE

This parameter is for MX engines only.

Table 220: Custom Preset 2 (N573)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N573	850	0	2000	RPM

NOTE

If the custom preset is used to control cab PTO, the value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If the custom preset is used to control remote PTO, the value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If the custom preset is used to control both cab and remote PTO, the value entered in this variable should be greater than or equal to the lowest value of those two variables.

Custom Preset 3 Functionality (N574)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls how custom preset switch 3 is used to control engine speed during remote station *PTO*. There are two options available for this setting:

Momentary - Cancels preset engine speed request when switch is released
Latch - Holds preset engine speed request when switch is released

NOTE

Cab custom preset switches installed at the factory are physically latching switches. Programming the switch to be a momentary switch causes the engine speed request to be canceled when the switch is toggled off.

Using custom preset switch 3 sets the engine speed to the value defined in *Custom Preset 3 Functionality (N574)* on page 163 .

NOTE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913) on page 167 must be set to ON for this setting to function.

NOTE

This parameter is for MX engines only.

Table 221: Custom Preset 3 Functionality (N574)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N574	Cancel	Cancel	Latch	FLAG

Custom Preset 3 (N575)

There are up to three custom preset switches available for remote. The switches can control engine speed during remote station *PTO* or both cab station and remote station *PTO*.

This setting controls the engine's speed when custom preset switch 3 is used for vehicles with remote station *PTO*.

NOTE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913) on page 167 must be set to ON for this setting to function.

NOTE

Refer to *Custom Preset 3 Functionality (N574)* on page 163 for information on the available settings to use custom preset switch 3.

NOTE

This parameter is for MX engines only.

Table 222: Custom Preset 3 (N575)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N575	950	0	2000	RPM

NOTE

If the custom preset is used to control cab PTO, the value entered in this variable must be greater than the entry in *Minimum Engine speed (N603)* on page 136 and less than the entry in *Maximum Engine Speed - Switch Controlled (N520)* on page 134 . If the custom preset is used to control remote PTO, the value entered in this variable must be greater than the entry in *Remote: Minimum Engine Speed (N602)* on page 151 and less than the entry in *Maximum Engine Speed - Switch or TSC1 Controlled (N553)* on page 149 . If the custom preset is used to control both cab and remote PTO, the value entered in this variable should be greater than or equal to the lowest value of those two variables.

PTO: Cab And/Or Remote Station: Engine Speed Control Interlocks

Custom Interlock Switch Behavior (N888)

This setting determines if an open circuit or a ground circuit is treated as an active interlock.

NOTE

This parameter is for MX engines only.

Table 223: Custom Interlock Switch Behavior (N888)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N888	Active Ground	Active Ground	Active Open Circuit	FLAG

PTO: Pedal

Enable slew rate limit for speed pedal if configured for speed control (N886)

This setting enables the slew rate limit using the accelerator pedal to control engine speed during *PTO* mode.

> NOTE
>
> This parameter is for MX engines only.

Table 224: Enable slew rate limit for speed pedal if configured for speed control (N886)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N886	Disabled	Disabled	Enabled	FLAG

Enable slew rate limit for torque pedal if configured for torque control (N887)

This setting enables the slew rate limit of the cab accelerator pedal, when the accelerator pedal is configured as a torque control pedal.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 225: Enable slew rate limit for torque pedal if configured for torque control (N887)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N887	Disabled	Disabled	Enabled	FLAG

PTO: Remote CAN Control

Enable Body Control from Source Address 7 (N586)

This setting controls use of a remote *PTO* switch from Source Address 7.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 226: Enable Body Control from Source Address 7 (N586)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N586	Enabled	Disabled	Enabled	DISCRETE

Enable Body Control from Source Address 33 (N587)

This setting controls use of a remote *PTO* switch from Source Address 33.

> **NOTE**
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> **NOTE**
>
> This parameter is for MX engines only.

Table 227: Enable Body Control from Source Address 33 (N587)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N587	Enabled	Disabled	Enabled	DISCRETE

PTO: Advanced Settings

Disables PSC with Stop Lamp Active (N516)

This setting disables *PSC* for both cab and remote station controls when Stop Lamp is illuminated.

> **WARNING**
>
> Continued command of engine speed when a stop engine lamp is illuminated may damage the engine.

> **NOTE**
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> **NOTE**
>
> This parameter is for MX engines only.

Table 228: Disables PSC with Stop Lamp Active (N516)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N516	Enabled	Disabled	Enabled	DISCRETE

Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913)

This setting allows remote Custom Presets to control engine speed in CAB *PTO* mode.

> NOTE
>
> This parameter is for MX engines only.

Table 229: Allow Remote Custom Presets (N571, N573, N575) in CAB PTO mode (N913)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N913	ON	OFF	OFF	FLAG

Retarder Interlock (N914)

This setting cancels *PSC* when retarders become active.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

> NOTE
>
> This parameter is for MX engines only.

Table 230: Retarder Interlock (N914)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N914	OFF	OFF	ON	DISCRETE

Chapter 21 | CMP - ANALOG DTC ENABLE/ DISABLE

Chassis Modules (CMP and CMS)

There are two modules for chassis component control; the *CMP* and the *Chassis Module Secondary (CMS)* (Also referred to as the *SCM*, and *Optional Chassis Module (OCM)*, respectively). The *CMP* is standard equipment for all *VECU* system trucks as it controls major functions such as exterior lighting, fuel level, and other options. The *CMS* may be found on trucks built from the factory with certain options such as more than two lift axles, snow plow, or a *Body Builder CAN (B-CAN)*.

Chassis Module Parameters

These parameters will enable or disable fault code monitoring of current and voltage at the chassis module for the assigned device. These parameters could be useful if the device is multiplexed, factory installed, and the specific parameter is enabled to monitor.

Fuel Level Sensor (Secondary) (N401)

This setting enables fault code monitoring of the secondary fuel level sensor.

Table 231: Fuel Level Sensor (Secondary) (N401)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N401	OFF	OFF	ON	FLAG

Main Transmission Oil Temp (N403)

This setting enables fault code monitoring of the main transmission oil temperature.

NOTE
This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 232: Main Transmission Oil Temp (N403)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N403	OFF	OFF	ON	FLAG

Filter Gauges (fuel filter restriction) (N404)

This setting enables fault code monitoring of the filter gauges and fuel filter restriction.

Table 233: Filter Gauges (fuel filter restriction) (N404)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N404	OFF	OFF	ON	FLAG

Axle Temp Gauges (Rear Rear) (N406)

This setting enables fault code monitoring of the rear rear axle temperature gauges.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 234: Axle Temp Gauges (Rear Rear) (N406)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N406	OFF	OFF	ON	FLAG

Battery Energy Monitoring (via Ammeter) (N407)

This setting enables fault code monitoring of the battery energy levels via ammeter.

Table 235: Battery Energy Monitoring (via Ammeter) (N407)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N407	OFF	OFF	ON	FLAG

Remote Throttle Input (N408)

This setting enables fault code monitoring of the remote throttle input.

Table 236: Remote Throttle Input (N408)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N408	OFF	OFF	ON	FLAG

Axle Temp Gauges (Rear Front) (N409)

This setting enables fault code monitoring of the rear front axle temperature gauges.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 237: Axle Temp Gauges (Rear Front) (N409)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N409	OFF	OFF	ON	FLAG

Chapter 22 | CMS - ANALOG DTC ENABLE/ DISABLE

Chassis Modules (CMP and CMS)

There are two modules for chassis component control; the *CMP* and the *CMS* (Also referred to as the *SCM*, and *OCM*, respectively). The *CMP* is standard equipment for all *VECU* system trucks as it controls major functions such as exterior lighting, fuel level, and other options. The *CMS* may be found on trucks built from the factory with certain options such as more than two lift axles, snow plow, or a *B-CAN*.

Chassis Module Parameters

These parameters will enable or disable fault code monitoring of current and voltage at the chassis module for the assigned device. These parameters could be useful if the device is multiplexed, factory installed, and the specific parameter is enabled to monitor.

Auto Start/Stop Hood Tilt Switch (N421)

This setting enables fault code monitoring of the auto start/stop hood tilt switch.

Table 238: Auto Start/Stop Hood Tilt Switch (N421)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N421	OFF	OFF	ON	FLAG

Axle Temp Gauges (Rear Center) (N422)

This setting enables fault code monitoring of the rear center axle temperature gauges.

> NOTE
>
> This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 239: Axle Temp Gauges (Rear Center) (N422)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N422	OFF	OFF	ON	FLAG

Axle Temp Gauges (Steer) (N423)

This setting enables fault code monitoring of the steer axle temperature gauges.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 240: Axle Temp Gauges (Steer) (N423)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N423	OFF	OFF	ON	FLAG

Fuel Temp Sensor (N424)

This setting enables fault code monitoring of the fuel temperature sensor.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 241: Fuel Temp Sensor (N424)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N424	OFF	OFF	ON	FLAG

Oil Temp Gauges (Aux Trans) (N429)

This setting enables fault code monitoring of the auxiliary transmission oil temperature gauges.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 242: Oil Temp Gauges (Aux Trans) (N429)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N429	OFF	OFF	ON	FLAG

Oil Temp Gauges (Split shaft PTO/transfer case) (N430)

This setting enables fault code monitoring of the split shaft PTO transfer case oil temperature gauges.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 243: Oil Temp Gauges (Split shaft PTO/transfer case) (N430)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N430	OFF	OFF	ON	FLAG

Lift Axle Air PressureGauge (#1) - DTC Enable (N425)

This setting enables fault code monitoring of the #1 lift axle pressure gauge.

Table 244: Lift Axle Air PressureGauge (#1) - DTC Enable (N425)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N425	OFF	OFF	ON	FLAG

Lift Axle Air PressureGauge (#2) - DTC Enable (N426)

This setting enables fault code monitoring of the #2 lift axle pressure gauge.

Table 245: Lift Axle Air PressureGauge (#2) - DTC Enable (N426)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N426	OFF	OFF	ON	FLAG

Lift Axle Air PressureGauge (#3) - DTC Enable (N427)

This setting enables fault code monitoring of the #3 lift axle pressure gauge.

Table 246: Lift Axle Air PressureGauge (#3) - DTC Enable (N427)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N427	OFF	OFF	ON	FLAG

Lift Axle Air PressureGauge (tag) - DTC Enable (N428)

This setting enables fault code monitoring of the lift axle pressure gauge.

Table 247: Lift Axle Air PressureGauge (tag) - DTC Enable (N428)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N428	OFF	OFF	ON	FLAG

Spare Analog Input DTC Enable (NA-OCM60) (N431)

This setting enables NA-OCM60 for fault code monitoring.

Table 248: Spare Analog Input DTC Enable (NA-OCM60) (N431)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N431	OFF	OFF	ON	FLAG

Spare Analog Input DTC Enable (NA-OCM61) (N432)

This setting enables NA-OCM61 for fault code monitoring.

Table 249: Spare Analog Input DTC Enable (NA-OCM61) (N432)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N432	OFF	OFF	ON	FLAG

Spare Analog Input DTC Enable (NA-OCM62) (N433)

This setting enables NA-OCM62 for fault code monitoring.

Table 250: Spare Analog Input DTC Enable (NA-OCM62) (N433)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N433	OFF	OFF	ON	FLAG

Suspension Load Air Pressure Gauge #2 - DTC Enable (N434)

This setting enables fault code monitoring of the suspension load air pressure gauge #2.

Table 251: Suspension Load Air Pressure Gauge #2 - DTC Enable (N434)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N434	OFF	OFF	ON	FLAG

Chapter 23 | AFTER-TREATMENT

Exterior Notification of Regen

An external signal shall be provided to notify the operator that regeneration is occurring. The intention is that this signal shall drive a relay to power a notification method such as beacon lamps or horns. The parameter can disable the feature or can turn on the exterior device either in any active *PTO* state or only on when the *PTO* is turned on. In any case the function will only turn on when the vehicle is parked and an active regeneration is occurring.

Exterior Notification for Regen Active (N915)

This setting controls when exterior notifications occur during active regeneration.

The possible values for this setting are:

0 - OFF
1 - ON with Regen Active and Park Brake
2 - Regen Active with Park Brake and PTO active

NOTE
This parameter is for MX engines only.

Table 252: Exterior Notification for Regen Active (N915)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N915	1	0	2	DISCRETE

Chapter 24 | CMP - DIGITAL OUTPUT DTCS

Finding The Digital Output Parameters in PVP

The digital output parameters found in this chapter are located in *PVP* under the section titled **CMP - Digital Output FMI5 (Undercurrent / Open)**.

Chassis Modules (CMP and CMS)

There are two modules for chassis component control; the *CMP* and the *CMS* (Also referred to as the *SCM*, and *OCM*, respectively). The *CMP* is standard equipment for all *VECU* system trucks as it controls major functions such as exterior lighting, fuel level, and other options. The *CMS* may be found on trucks built from the factory with certain options such as more than two lift axles, snow plow, or a *B-CAN*.

Chassis Module Parameters

These parameters will enable or disable fault code monitoring of current and voltage at the chassis module for the assigned device. These parameters could be useful if the device is multiplexed, factory installed, and the specific parameter is enabled to monitor.

Lift Axle #1 Solenoid Undercurrent/Open DTC Control (N412)

This setting enables fault code monitoring of the lift axle #2 solenoid.

Table 253: Main Beam (High Beam) LH Undercurrent/Open DTC Control (N489)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N489	ON	OFF	ON	FLAG

Lift Axle #2 Solenoid Undercurrent/Open DTC Control (N413)

This setting enables fault code monitoring of the lift axle #2 solenoid.

Table 254: Lift Axle #2 Solenoid Undercurrent/Open DTC Control (N413)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N413	OFF	OFF	ON	FLAG

Electric Over Air Solenoid Kingpin Release (N414)

This setting enables *EOA* solenoid kingpin release.

Table 255: Electric Over Air Solenoid Kingpin Release (N414)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N414	ON	OFF	ON	FLAG

Direction Indication/Hazard Lights LH Trailer (rear) Undercurrent/Open DTC Control (N415)

This setting enables fault code monitoring of the trailer rear left side direction indication/hazard lights.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 256: Direction Indication/Hazard Lights LH Trailer (rear) Undercurrent/Open DTC Control (N415)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N415	ON	OFF	ON	FLAG

Direction Indication/Hazard Lights RH Trailer (rear) Undercurrent/Open DTC Control (N416)

This setting enables fault code monitoring of the trailer rear right side direction indication/hazard lights.

NOTE

This parameter must be modified by a PACCAR employee. Contact PACCAR if this parameter needs to be changed.

Table 257: Direction Indication/Hazard Lights RH Trailer (rear) Undercurrent/Open DTC Control (N416)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N416	ON	OFF	ON	FLAG

Daytime Running Lights (DRL) LH (Peterbilt) Undercurrent/Open DTC Control (N417)

This setting enables fault code monitoring of the left side daytime running lights.

NOTE

This parameter only applies to Peterbilt trucks.

Table 258: Daytime Running Lights (DRL) LH (Peterbilt) Undercurrent/Open DTC Control (N417)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N417	OFF	OFF	ON	FLAG

Daytime Running Lights (DRL) RH (Peterbilt) Undercurrent/Open DTC Control (N418)

This setting enables fault code monitoring of the right side daytime running lights.

NOTE

This parameter only applies to Peterbilt trucks.

Table 259: Daytime Running Lights (DRL) RH (Peterbilt) Undercurrent/Open DTC Control (N418)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N418	OFF	OFF	ON	FLAG

Fog/Driving Lamps (front) 1st set Undercurrent/Open DTC Control (N419)

This setting enables fault code monitoring of the first set of front fog/driving lamps.

Table 260: Fog/Driving Lamps (front) 1st set Undercurrent/Open DTC Control (N419)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N419	OFF	OFF	ON	FLAG

Front Tractor Position Lights (Park Lamps) Undercurrent/Open DTC Control (N420)

This setting enables fault code monitoring of the front tractor position lights/park lamps.

Table 261: Front Tractor Position Lights (Park Lamps) Undercurrent/Open DTC Control (N420)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N420	ON	OFF	ON	FLAG

Main Beam (High Beam) LH Undercurrent/Open DTC Control (N489)

This setting enables fault code monitoring of the left side high beam.

Table 262: Main Beam (High Beam) LH Undercurrent/Open DTC Control (N489)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N489	ON	OFF	ON	FLAG

Main Beam (High Beam) RH Undercurrent/Open DTC Control (N490)

This setting enables fault code monitoring of the right side high beam.

Table 263: Main Beam (High Beam) RH Undercurrent/Open DTC Control (N490)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N490	ON	OFF	ON	FLAG

Rear Tractor Position Lamps (Park Lamps) Undercurrent/Open DTC Control (N491)

This setting enables fault code monitoring of the rear tractor position lamps/park lamps.

NOTE

The factory default value of this setting is OFF. Vehicles equipped with LED lighting should keep this setting to OFF. Turning this setting to ON on a vehicle with LED lighting can create a fault code error in the system.

Table 264: Rear Tractor Position Lamps (Park Lamps) Undercurrent/Open DTC Control (N491)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N491	OFF	OFF	ON	FLAG

Reverse Lamps Undercurrent/Open DTC Control (N492)

This setting enables fault code monitoring of the reverse lamps.

Table 265: Reverse Lamps Undercurrent/Open DTC Control (N492)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N492	ON	OFF	ON	FLAG

Tractor Direction Indication, Brake and Hazard - RH Rear Lamp Undercurrent/Open DTC Control (N493)

This setting enables fault code monitoring of the right side rear tractor direction indication, brake, and hazard lights.

Table 266: Tractor Direction Indication, Brake and Hazard - RH Rear Lamp Undercurrent/Open DTC Control (N493)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N493	ON	OFF	ON	FLAG

Tractor Direction Indication, Brake and Hazard - LH Rear Lamp Undercurrent/Open DTC Control (N494)

This setting enables fault code monitoring of the left side rear tractor direction indication, brake, and hazard lights.

Table 267: Tractor Direction Indication, Brake and Hazard - LH Rear Lamp Undercurrent/Open DTC Control (N494)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N494	ON	OFF	ON	FLAG

Reverse Warning (aka Backup Alarm) Undercurrent/Open DTC Control (N495)

This setting enables fault code monitoring of the reverse warning/backup alarm.

Table 268: Reverse Warning (aka Backup Alarm) Undercurrent/Open DTC Control (N495)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N495	OFF	OFF	ON	FLAG

Tractor Direction Indication/Hazard/Side Turn Indication RH Front Lamp Undercurrent/Open DTC Control (N496)

This setting enables fault code monitoring of the right side front light.

NOTE

The factory default value of this setting is OFF. Vehicles equipped with LED lighting should keep this setting to OFF. Turning this setting to ON on a vehicle with LED lighting can create a fault code error in the system.

Table 269: Tractor Direction Indication/Hazard/Side Turn Indication RH Front Lamp Undercurrent/Open DTC Control (N496)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N496	OFF	OFF	ON	FLAG

Tractor Direction Indication/Hazard/Side Turn Indication LH Front Lamp Undercurrent/Open DTC Control (N497)

This setting enables fault code monitoring of the left side front light.

NOTE

The factory default value of this setting is OFF. Vehicles equipped with LED lighting should keep this setting to OFF. Turning this setting to ON on a vehicle with LED lighting can create a fault code error in the system.

Table 270: Tractor Direction Indication/Hazard/Side Turn Indication LH Front Lamp Undercurrent/Open DTC Control (N497)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N497	OFF	OFF	ON	FLAG

Tractor Direction Indication/Hazard/DRL - RH Front Lamp Undercurrent/Open DTC Control (N498)

This setting enables fault code monitoring of the right side front tractor direction indication, hazard, and daytime running lights.

Table 271: Tractor Direction Indication/Hazard/DRL - RH Front Lamp Undercurrent/Open DTC Control (N498)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N498	OFF	OFF	ON	FLAG

Tractor Direction Indication/Hazard/DRL - LH Front Lamp Undercurrent/Open DTC Control (N499)

This setting enables fault code monitoring of the left side front tractor direction indication, hazard, and daytime running lights.

Table 272: Tractor Direction Indication/Hazard/DRL - LH Front Lamp Undercurrent/Open DTC Control (N499)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N499	OFF	OFF	ON	FLAG

Chapter 25 | CMS - DIGITAL OUTPUT DTCS

Finding The Digital Output Parameters in PVP

The digital output parameters found in this chapter are located in *PVP* under the section titled **CMS - Digital Output FMI5 (Undercurrent / Open)**.

Chassis Modules (CMP and CMS)

There are two modules for chassis component control; the *CMP* and the *CMS* (Also referred to as the *SCM*, and *OCM*, respectively). The *CMP* is standard equipment for all *VECU* system trucks as it controls major functions such as exterior lighting, fuel level, and other options. The *CMS* may be found on trucks built from the factory with certain options such as more than two lift axles, snow plow, or a *B-CAN*.

Chassis Module Parameters

These parameters will enable or disable fault code monitoring of current and voltage at the chassis module for the assigned device. These parameters could be useful if the device is multiplexed, factory installed, and the specific parameter is enabled to monitor.

City Horn Relay Undercurrent/Open DTC Control (N435)

This setting enables fault code monitoring of the city horn relay.

Table 273: City Horn Relay Undercurrent/Open DTC Control (N435)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N435	OFF	OFF	ON	FLAG

Aftertreatment External Notification Undercurrent/Open DTC Control (N436)

This setting enables fault code monitoring of the aftertreatment external notification.

Table 274: Aftertreatment External Notification Undercurrent/Open DTC Control (N436)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N436	OFF	OFF	ON	FLAG

Spare Digital Output Undercurrent/Open DTC Control (NA-OCM02) (N437)

This setting enables NA-OCM02 for fault code monitoring.

Table 275: Spare Digital Output Undercurrent/Open DTC Control (NA-OCM02) (N437)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N437	OFF	OFF	ON	FLAG

Lift Axle #3 Solenoid Undercurrent/Open DTC Control (N438)

This setting enables fault code monitoring of lift axle #3 solenoid.

Table 276: Lift Axle #3 Solenoid Undercurrent/Open DTC Control (N438)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N438	OFF	OFF	ON	FLAG

Lift Axle #4 Solenoid Undercurrent/Open DTC Control (N439)

This setting enables fault code monitoring of the lift axle #4 solenoid.

Table 277: Lift Axle #4 Solenoid Undercurrent/Open DTC Control (N439)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N439	OFF	OFF	ON	FLAG

Vehicle Thermal Management Undercurrent/Open DTC Control (NA-OCM69) (N480)

This setting enables NA-OCM69 fault code monitoring.

Table 278: Vehicle Thermal Management Undercurrent/Open DTC Control (NA-OCM69) (N480)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N480	OFF	OFF	ON	FLAG

Vehicle Thermal Management Undercurrent/Open DTC Control (NA-OCM72) (N481)

This setting enables NA-OCM72 fault code monitoring.

Table 279: Vehicle Thermal Management Undercurrent/Open DTC Control (NA-OCM72) (N481)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N481	OFF	OFF	ON	FLAG

Trailer Options - Dump Gate/Configurable Output Undercurrent/Open DTC Control (NA-OCM10) (N482)

This setting enables NA-OCM10 fault monitoring.

Table 280: Trailer Options - Dump Gate/Configurable Output Undercurrent/Open DTC Control (NA-OCM10) (N482)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N482	OFF	OFF	ON	FLAG

Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM25) (N483)

This setting enables NA-OCM25 fault monitoring.

Table 281: Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM25) (N483)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N483	OFF	OFF	ON	FLAG

Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM26) (N484)

This setting enables NA-OCM26 fault monitoring.

Table 282: Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM26) (N484)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N484	OFF	OFF	ON	FLAG

Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM33) (N485)

This setting enables NA-OCM33 fault monitoring.

Table 283: Trailer Options - ISO 3731/Spare/Aux Trailer Conn/Berg Box Undercurrent/Open DTC Control (NA-OCM33) (N485)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N485	OFF	OFF	ON	FLAG

Sky/Aux Lights (Panel) Undercurrent/Open DTC Control (N486)

This setting enables fault code monitoring of the sky/auxiliary lights panel.

Table 284: Sky/Aux Lights (Panel) Undercurrent/Open DTC Control (N486)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N486	OFF	OFF	ON	FLAG

Work Lamps (Frame Mounted) Undercurrent/Open DTC Control (N487)

This setting enables fault code monitoring of frame-mounted work lamps.

Table 285: Work Lamps (Frame Mounted) Undercurrent/Open DTC Control (N487)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N487	OFF	OFF	ON	FLAG

Snow Plow Lamp Undercurrent/Open DTC Control (N488)

This setting enables fault code monitoring of snow plow mounted lamps.

Table 286: Snow Plow Lamp Undercurrent/Open DTC Control (N488)

SEL Code	Default Value	Minimum Value	Maximum Value	Unit Type
N488	OFF	OFF	ON	FLAG

Glossary

Adaptive Cruise Control – An electronic system that automatically adjusts the speed of a truck in cruise control to a predetermined following distance and/or time. This feature includes a warning system to warn the driver for collision avoidance.

Anti-lock Braking System – A federally mandated anti-skid braking device used on cars and trucks.

Automatic Traction Control – A function within a motor vehicle that can be switched on to help limit tire slip in acceleration on slippery surfaces by limiting engine torque and/or differential braking.

Body Builder CAN – CAN that handles communication between the *CMS* and body builder items such as body controller/PTO and starter battery *SoC*.

Cab CAN – A vehicle bus standard designed to allow microcontrollers and devices to communicate with each other within a vehicle without a host computer. This network is specific to the cab area.

Cab Electronic Control Unit – Cab control located inside the cab on vehicles with Namux 4 architecture between 2010 and 2018. It is replaced by the VECU controller that was phased in starting in 2018.

CECU VECU Multiplex – New vehicle multiplex architecture that uses both a *CECU* and a *VECU* to handle CAN communication.

Chassis Module Primary – Chassis Module with standard functionality such as exterior lighting and electric-over-air.

Chassis Module Secondary – Chassis Module with optional functionality like different temp sensors and body builder functionality.

Controller Area Network – A vehicle bus standard designed to allow microcontrollers and devices to communicate with each other within a vehicle without a host computer.

Cruise Control – A function within a motor vehicle that can be switched on to maintain a selected constant speed without the use of the accelerator.

DAVIE4 – A diagnostic tool used for programming and troubleshooting *ECU*s on the vehicle.

Diagnostic Trouble Code – These are standard and OEM specific codes that request vehicle data or identify vehicle problems. Typically used with service tools. Technically defined as OBD-II PIDS, or on-board diagnostics parameter IDs.

Diesel Exhaust Fluid – A solution containing urea that is injected in the SCR aftertreatment system.

Differential lock – A device that disables the differential of a motor vehicle in slippery conditions to improve grip.

Downhill Speed Control – System that allows the engine to provide braking when the vehicle speed exceeds pre-determined vehicle speeds when the vehicle is in Cruise Control mode.

Downhill Speed Limiter – System that allows the engine to provide braking when the vehicle speed exceeds pre-determined vehicle speeds when speed is being controlled through pedal input.

Driver Shift Aid – A software module used to communicate the need to execute an upshift event to a customer to improve engine fuel consumption. Also known as DRSA.

Dynamic Cruise Control – System that detects objects in front of the vehicle to adjust the vehicle's speed to accommodate slower moving objects.

Electronic Catalog – System dealers and service personnel use to look up the specific chassis components when a truck comes in for service.

Electronic Control Unit – A device responsible for overseeing, regulating, and altering the operation of the truck's electronic systems.

Electronic Service Analyst – A PC based diagnostic service tool that supports both Kenworth and Peterbilt multiplexed cab electronics. The ESA tool is used in PACCAR factories, at dealership and fleet locations.

Electric Over Air – A term meant to highlight the difference between air system architectures. One is a pure air system that changes states using air valves, while an EOA system uses electrical switches to actuate/control air solenoids.

Electric Over Hydraulic – EOA system that uses electrical switches to actuate/control hydraulic functions.

Engine Idle Shutdown Timer – A function that shuts down the engine after a customer-prescribed amount of time when no overrule conditions are present.

Engine Over-speed Air Shutdown – Provides emergency overspeed shutdown protection for diesel engines and are the most effective way of preventing a runaway situation.

Engine Speed Control – Module used to limit the vehicle's engine speed in cab station or remote station *PTO* mode.

Fast Idle Control – Engine function that controls the idle of the engine when a higher idle is required, such as instances where a Power Take Off is being used or when stationary idling needs more coolant flow.

Frame CAN – FD capable CAN.

G-CAN – Sub CAN off of ABS (Bendix only).

Gear Down Protection – Module that encourages the driver to shift into top gear when operating the vehicle at the target operating speed.

Hill Start Aid – Momentarily prevents vehicle from moving while on a steep grade when brake pedal is released.

HVAC – System to control the temperature of the air inside the cab and the sleeper.

J-CAN – CAN network that handles communications between the *CMP* and the *MSB*.

Legal Speed Limit – The maximum speed the vehicle can normally travel, before modifications from the Driver Reward system and similar functions.

Master Switch Module – A smart module that interfaces with all of the multiplexed switches on the dash.

Menu Control Switch – Switch used to control the vehicle's system menu located on the dash.

Multiplex Solenoid Bank – This is a device with a set of electric over air solenoid connecting electric switches to air operated devices. On occasion this will be shortened to Solenoid Bank. The term Multiplex is added to clarify that the device is multiplexed with the vehicle controller as opposed to a bank of solenoids that are individually wired to the switch.

Multiplexed – Method by which multiple analog or digital signals are combined into one signal over a shared medium.

On Board Diagnostics – The vehicle's self-diagnostic and reporting system.

Optional Chassis Module – See *Chassis Module Secondary* on page 195 .

Original Equipment Manufacturer – Refers to the company that originally manufactured the product. Often synonymous with the truck makers/truck divisions unless otherwise noted.

Outside Air Temperature – Refers to the ambient temperature outside of the vehicle.

PACCAR Engine Pro – Former North American software application used to make changes or adjust engine parameters. Replaced by *PVP*.

PACCAR Vehicle Pro – North American software application used to make changes or adjust engine parameters.

Power Take Off – A term for methods of taking power from an operating power source, such as a running engine, which can be used to provide power to attachments or separate machines.

Predictive Cruise Control – An optional cruise control function that increases or decreases vehicle speed based on geographical terrain.

Progressive Shift – Module typically used to encourage earlier shifts in lower gears to improve fuel economy.

PTO Mode Control – System that provides configurable interlocks to restrict *PTO* Mode (if required).

PTO Speed Control – System that provides engine speed controls when vehicle is in *PTO* mode.

Right Hand Stalk – Multiplexed Stalk on the right side of the steering column controlling retarder. Mounted on the right stalk.

Selective Catalytic Reduction – An aftertreatment technology that eliminates NOx by using DEF.

Smart Clutch – Horton fan clutch for optional variable speed fan functionality.

Soft Top Speed Limit – The maximum speed the vehicle can travel, after modifications from the Driver Reward system and similar functions.

Solenoid Bank #1 – A J1939 based solenoid bank for controlling electric-over-air functions.

Solenoid Bank #2 - A J1939 based solenoid bank for controlling electric-over-air functions.

Speed Control Management - System designed to help encourage fuel-efficient shifting habits by reducing engine acceleration or restricting vehicle speed at elevated engine speeds.

State of Charge - Measurement of the amount of charge in the vehicle's battery.

Steering Wheel Switches - Switch controls installed on the vehicle's Smartwheel.

System Address 33 - This is the internal identifier for the Body Builder Module on a truck with VECU architecture.

Transmission Control Module - *ECU* that controls the vehicle's transmission.

Telematics - Customer installed 3rd party systems for tracking/monitoring trucks in the field. Also typically called "Communications Units".

Torque Speed Control Message - A CAN message used to handle torque speed control requests.

Vehicle Acceleration Limiter - System designed to improve fuel economy by limiting the maximum vehicle acceleration.

Vehicle Electronic Control Unit - Control unit, computer, installed inside the cab and processes all input and output from the driver controls to the cab and chassis.

Vehicle Identification Number - Unique code, including a serial number, used to identify a vehicle.

Vehicle Speed Limiter - System designed to improve fuel economy by reducing the vehicle's maximum speed in pre-defined situations.

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