



JPRO®



USER GUIDE | 2024 v3

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APPENDIX A – DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

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PRODUCT OPTIONS

JPRO® Professional Diagnostic Software

Includes all features provided by:

- ✓ General Features
- ✓ JPRO® Heavy-Duty Features
- ✓ JPRO® Off-Highway Features
- ✓ JPRO® Medium-Duty Features
- ✓ General Features List
 - Education and Troubleshooting Features
 - Reporting Features
 - Integration Features
 - JConfiguration Features
 - Product Support Features
- ✓ All Makes, All Models Coverage:

Engines	Transmissions	Braking Systems	Body & Chassis
✓ Agility (Fuel System)	✓ Detroit Diesel	✓ Bendix	✓ Alexander Dennis
✓ Bobcat Off-Highway	✓ Eaton	✓ Ford	✓ Bluebird
✓ CAT On-Highway	✓ Ford	✓ GM	✓ Dana
✓ CAT Off-Highway	✓ GM	✓ Haldex	✓ Detroit Assurance
✓ ClearFlame	✓ Mack	✓ Sprinter	✓ Ford
✓ Cummins	✓ Sprinter	✓ Wabash	✓ Freightliner
✓ Detroit Diesel	✓ Volvo	✓ Wabco	✓ Fuso
✓ Deutz	✓ ZF Meritor		✓ GM
✓ EControls			✓ International
✓ Ford			✓ Kenworth
✓ GM			✓ Mack
✓ Hino			✓ Peterbilt
✓ International			✓ Prevost
✓ Isuzu			✓ Sprinter
✓ John Deere Off-Highway			✓ Sterling
✓ Komatsu Off-Highway			✓ Thomas Built
✓ Kubota Off-Highway			
✓ Mack			✓ Volvo
✓ Mercedes-Benz			✓ Van Hool
✓ PACCAR			✓ Western Star
✓ Sprinter			
✓ Volvo			

NOTE: Access to clear faults can be removed. Contact Noregon support for more information.

JPRO® Professional Diagnostic Software with NextStep® Repair

Includes all features in JPRO® Professional Diagnostics Software.

Also, includes the following features:

- Integrates with Fault Guidance to provide troubleshooting guidance.
 - View troubleshooting information, wiring diagrams and step-by-step troubleshooting procedures for a fault with one click in JPRO® Commercial Vehicle Diagnostics.
 - Enhanced integration features from the troubleshooting repair view:
 - View fault related data while simultaneously viewing repair procedures.
 - Clear faults to verify the repair without leaving the Fault Guidance screen.

NOTE: Access to this can be removed. Contact Noregon support for more information.

- Access Bi-Directional functionality directly from the troubleshooting repair view.
- Works on vehicle without requiring a VIN.
- The following are currently supported:
 - Heavy Duty engines and aftertreatment systems
 - All Bendix components
 - Wabco components
 - Eaton transmissions
 - Ford and GM medium-duty engine and aftertreatment faults
- Regular content updates to add more fault and component coverage.
- Automatically link to Maintenance and Service Data sheets for Wabco, Bendix, and Haldex brakes as well as Eaton transmissions.

JPRO® Professional Diagnostic Software for AU

Includes the following features:

- ✓ JPRO® Heavy-Duty Features
- ✓ JPRO® Off-Highway Features
- ✓ JPRO® Medium-Duty Features
- ✓ General Features List
 - Education and Troubleshooting Features
 - Reporting Features
 - Integration Features
 - Configuration Features
 - Product Support Features

Coverage Support includes:

Engines	Transmissions	Braking Systems	Body & Chassis
✓ Bobcat Off-Highway	✓ Detroit Diesel	✓ Bendix	✓ Bluebird
✓ CAT On-Highway	✓ Eaton	✓ Haldex	✓ Dana
✓ CAT Off-Highway	✓ Sprinter	✓ Sprinter	✓ Freightliner
✓ ClearFlame	✓ ZF Meritor	✓ Wabash	✓ International
✓ Cummins		✓ Wabco	✓ Kenworth
✓ Detroit Diesel			✓ Peterbilt
✓ Hino			✓ Sprinter
✓ International			✓ Sterling
✓ Isuzu			✓ Thomas Built
✓ John Deere Off-Highway			✓ Western Star
✓ Komatsu Off-highway			
✓ Kubota Off-Highway			
✓ Mercedes-Benz			
✓ PACCAR			
✓ Sprinter			

NOTE: Access to clear faults can be removed. Contact Noregon support for more information.

NOTE: Bi-Directional tests are not supported in Australia.

NOTE: Mack and Volvo, Ford, and GM are not supported in Australia.

JPRO® HEAVY-DUTY FEATURES

- Heavy Duty supports all standard Heavy-Duty vehicles. VIN is not required for vehicle connections.
- Supports the heavy-duty SAE J1587/J1708, J1939, ISO 15765 and KWP2000 messages.
- Supports trailer diagnostics using:
 - PLC 7-way connector combined with a Noregon Trailer Diagnostic adapter or the Noregon DLA+ PLC.
 - Universal J560 PLC Adapter combined with a Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, or DLA+ PLC adapter.
 - 4-pin to 9-pin extended diagnostic cable adapter combined with a Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, or DLA+ Wireless adapter.
 - Trailers equipped with 9-Pin SAE J1939 connector using a Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, or DLA+ PLC adapter.
- Supports reading and display of HD-OBD Emissions faults in standard fault display.
- Supports reading freeze frame data for 1939 faults that have that data available.
- Clear indication of overall [vehicle health](#) considering:
 - ✓ No 1939 Data (on 2009 or newer vehicles)
 - ✓ Cannot Detect Engine
 - ✓ Excessive CAN Error Frames
 - ✓ Active Faults Present
 - ✓ DPF Regen Inhibited
 - ✓ DPF Regen Needed
 - ✓ Consumable Fluid(s) Low
 - ✓ Battery Voltage Low
 - ✓ Cannot Detect ABS (on 2001 or newer vehicles)
- JPRO® Road Worthiness assesses a vehicle's safety and compliance for over-the-road operation by checking:
 - ✓ No ABS faults reported, or lamps illuminated
 - ✓ Max Road Speed < 80 mph
 - ✓ DPF Pressure is reported
- Display of data related to reported faults in [Data Monitor](#).
- Graphically displays data using thermometers, gauges, etc. on the [Data Monitor](#).
- Pre-defined Data Groups in [Data Monitor](#) enables troubleshooting electrical problems and common performance complaints.

JPRO® HEAVY-DUTY FEATURES (CONT.)

- Ability to define custom groups of related data parameters to display in [Data Monitor](#).
- Subsystems Diagnostics menu provides the ability to view the following subsystems with related data:
 - ✓ Aftertreatment Diagnostics
 - ✓ Coolant System
 - ✓ Fuel System
 - ✓ Oil System
 - ✓ ADAS
- Coolant System displays data from related components to assist in troubleshooting coolant system issues.

NOTE: Coolant System display for CAT components not currently available.

- Fuel System displays data from related components to assist in troubleshooting fuel system issues.

NOTE: Fuel System display for Mack and Volvo components not currently available.

- Ability to launch Cylinder Cut Out directly from Fuel System screen.
- Oil System displays data from related components to assist in troubleshooting oil system issues.
- ADAS displays faults and data from related components to assist in troubleshooting Advanced Driver Assistance System issues.
- [Aftertreatment Diagnostics](#) displays data from aftertreatment related components, including Soot Level, current [Regen Zone Information](#), and EGR data for rapid troubleshooting of the aftertreatment system.
 - Ability to view the following subsystems with related data:
 - ✓ DEF Tank and Pump
 - ✓ DPF and DOC
 - ✓ Engine, EGR, and Turbocharger
 - ✓ SCR
 - Clicking the Bi-Directional button on any of the Aftertreatment Diagnostics subsystem screens displays tests supporting the related subsystem components.
 - Search the Data tab to quickly identify parameters of interest.
- Emissions Assistance from the Aftertreatment screen to aid in troubleshooting emissions problems.
- [Regen Zone Information](#) window helps technicians better understand DPF systems on today's diesel trucks. The Regen Zone window educates users on the meaning behind each Regen Zone.
 - Showing how each zone relates to DPF soot loading and engine derate.
 - When performing a parked regeneration is most beneficial or required.
- Ability to launch Maximum Road Speed, Cruise Speed, and Idle Shutdown parameter adjustments directly from the Vehicle Key Data Points display if available.

JPRO® HEAVY-DUTY FEATURES (CONT.)

- Ability to launch PTO parameter adjustments directly from the Vehicle Key Data Points display if available.
- [Consumable Fluid](#) screen to monitor fluids used by vehicle and inform user of low levels.
- Displays the trailer lamp status on tractor brake [key data point's](#) window.
- [Wheel Speed Window Test and Wheel Speed Chart Test](#) used to verify and test wheel speed sensors on all tractor and trailer braking systems.
- The [Wiggle Test / Performance Issue Monitor](#) bi-directional test assists in diagnosing loose electrical connections, intermittent faults, and performance complaints by alerting users to changes in monitored data.

Engine Support

Heavy-Duty Features for Caterpillar (On-Highway)

- Supports reading proprietary diagnostic fault codes and event codes for all Caterpillar engines.
- Supports proprietary sensor data for all Caterpillar engines.
- Bi-Directional support for Caterpillar engines:

Bi-Directional Test or Calibration	Supported On
Cruise Control Speed Limits <ul style="list-style-type: none"> ✓ Low Cruise Control Speed Limit ✓ High Cruise Control Speed Limit 	<ul style="list-style-type: none"> • 3126, C12, and C18 engines • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C9, C13, C15, and C18 ACERT engines • EPA 07: C7, C13, and C15 ACERT engines
Cylinder Cut-Out Test	<ul style="list-style-type: none"> • 3126, C12, and C18 engines • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C9, C13, C15, and C18 ACERT engines • EPA 07: C7, C13, and C15 ACERT engines
Idle Shutdown <ul style="list-style-type: none"> ✓ Idle Shutdown Time ✓ Idle Shutdown Override 	<ul style="list-style-type: none"> • 3126, C12, and C18 engines • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C9, C13, C15, and C18 ACERT engines • EPA 07: C7, C13, and C15 ACERT engines
Injection Actuator Pressure Test	<ul style="list-style-type: none"> • 3126 engines • EPA 04: C7 ACERT engines

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test or Calibration	Supported On
Injector Solenoid Test	<ul style="list-style-type: none"> • 3126, C12, and C18 engines • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C9, C13, C15, and C18 ACERT engines • EPA 07: C7, C13, and C15 ACERT engines
Injector Trim Calibration	<ul style="list-style-type: none"> • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C9, C13, C15, and C18 ACERT engines
Intake Valve Actuator Test	<ul style="list-style-type: none"> • EPA 04: C13 and C15 ACERT engines • EPA 07: C13 and C15 ACERT engines
Intake Valve Actuator Solenoid Test	<ul style="list-style-type: none"> • EPA 04: C13 and C15 ACERT engines • EPA 07: C13 and C15 ACERT engines
Maximum Vehicle Speed Limit ✓ Vehicle Speed Limit	<ul style="list-style-type: none"> • 3126, C12, and C18 engines • C-15 pre-ACERT engines (before 2004) • EPA 04: C7, C13, and C15 ACERT engines • EPA 07: C7, C13, and C15 ACERT engines
Parked DPF Service Regeneration	<ul style="list-style-type: none"> • EPA 07: C7, C13, and C15 ACERT engines

Heavy-Duty Features for ClearFlame

- Supports faults and sensor data for ClearFlame engines.

Heavy-Duty Features for Cummins

- Supports reading Cummins Proprietary Fault Codes on all EPA 07 and newer Cummins engines.
- Supports proprietary sensor data on all EPA 07 and newer Cummins engines.
- Supports reading proprietary NOx sensor data on all EPA 13 and newer Cummins engines.
- Supports Cummins CNG (compressed natural gas) engines including proprietary fault codes and sensor data.
- Bi-Directional support for Cummins engines:

Bi-Directional Test	Supported On
Aftertreatment History	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX • EPA 13: all ISB, ISL, ISX • GHG17: all B6.7, L9, X15 • GHG21: all B6.7, L9, X15

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
Aftertreatment Injector Flow Test	<ul style="list-style-type: none"> • EPA 07: all ISX (15L) • EPA 10: all ISX (12 & 15L) • EPA 13: all ISX (12 & 15L)
Aftertreatment Injector Leak Test	<ul style="list-style-type: none"> • EPA 07: all ISX (15L) • EPA 10: all ISX (12 & 15L) • EPA 13: all ISX (12 & 15L)
Aftertreatment Injector Shutoff Valve Test	<ul style="list-style-type: none"> • EPA 07: all ISX (15L) • EPA 10: all ISX (12 & 15L) • EPA 13: all ISX (12 & 15L)
Aftertreatment Maintenance Reset	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Cylinder Cut Out	<ul style="list-style-type: none"> • EPA 02: ISB (3.9L) • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Cylinder Misfire Monitor Test	<ul style="list-style-type: none"> • CNG: All ISX 12G and ISX12N
DEF Doser Pump Override Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
DEF System Heater Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX, PX-6 and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
DEF System Leak Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9 • GHG17: all B6.7, L9, X12, X15 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
DPF Service Regen	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Engine Protection Parameters <ul style="list-style-type: none"> ✓ Limited Restart ✓ Shutdown ✓ Shutdown Manual Override <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Fan Override Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX • EPA 13: all ISB, ISL, ISX • GHG17: all B6.7, L9, X15 • GHG21: all B6.7, L9, X15
Fuel Injector Calibration	<ul style="list-style-type: none"> • EPA 07: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems • EPA 10: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems
Fuel Injector Performance Test	<ul style="list-style-type: none"> • EPA 10: all ISX (12 & 15L) • EPA 13: all ISX (12 & 15L) • GHG17: all L9, X12, and X15 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Fuel Injector Reset	<ul style="list-style-type: none"> • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
Fuel Leakage Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX (12L and 15L), PX-6, and PX-8 with Common Rail Fuel Systems • EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9 with Common Rail Fuel Systems • GHG17: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems • GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems
Fuel System Table Reset	<ul style="list-style-type: none"> • CNG: All ISX 12G and ISX12N
Idle Shutdown <ul style="list-style-type: none"> ✓ Idle Shutdown Status ✓ Idle Shutdown Time 	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9
J1939 Datalink Control Test	<ul style="list-style-type: none"> • EPA 07: all ISC, ISL, ISX (12L and 15L), PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX • EPA 13: all ISB, ISL, ISX • GHG17: all B6.7, L9, X15 • GHG21: all B6.7, L9, X15
Maintenance Monitor Parameters	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX • EPA 13: all ISB, ISL, ISX • GHG17: all B6.7, L9, X15 • CNG: All ISL, ISX, ISB

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
<p>PTO Parameters</p> <p>PTO:</p> <ul style="list-style-type: none"> ✓ Enable/Disable ✓ Additional Switch Pedal ✓ Maximum Engine Load ✓ Maximum Speed ✓ Minimum Speed ✓ Maximum Vehicle Speed ✓ Ramp Rate ✓ Resume Switch Speed ✓ Set Switch Speed <p>Accelerator Pedal or Lever Override:</p> <ul style="list-style-type: none"> ✓ Enable/Disable ✓ Maximum Engine Speed <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9
<p>Road & Cruise Speed Limits</p> <p>Road Speed Governor:</p> <ul style="list-style-type: none"> ✓ Maximum Vehicle Speed ✓ Maximum Accelerator Vehicle Speed (Road Speed Limit) ✓ Lower Droop ✓ Upper Droop <p>Cruise Control:</p> <ul style="list-style-type: none"> ✓ Maximum Cruise Control Speed <p>Gear Down Protection:</p> <ul style="list-style-type: none"> ✓ Enable/Disable ✓ Gear Down Maximum Vehicle Speed (Heavy Engine Load) ✓ Gear Down Maximum Vehicle Speed (Light Engine Load) <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
SCR Performance and System Test	<ul style="list-style-type: none"> • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Trip Information Parameters <ul style="list-style-type: none"> ✓ Vehicle Overspeed 1 ✓ Vehicle Overspeed 2 <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9
Trip Reset	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9
VGT Electronic Actuator Installation and Calibration	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • GHG21: all B6.7, L9, X15, PX-7, and PX-9
VGT Hysteresis Test	<ul style="list-style-type: none"> • EPA 10: all ISB, ISC, ISL, ISX (12L and 15L), PX-6, and PX-8 with Common Rail Fuel Systems • EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9 with Common Rail Fuel Systems • GHG17: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems • GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test	Supported On
<p>VSS Parameters</p> <p>Vehicle Speed Sensor Anti-Tampering Sensitivity:</p> <ul style="list-style-type: none"> ✓ Tampering Sensitivity Level <p>Vehicle Speed Source:</p> <ul style="list-style-type: none"> ✓ Maximum Engine Speed Without Vehicle Source ✓ Number of Transmission Tailshaft Gear Teeth ✓ Rear Axle Ratio ✓ Vehicle Speed Sensor Type <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8 • EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8 • EPA 13: all ISB, ISL, ISX, PX-7, and PX-9 • GHG17: all B6.7, L9, X15, PX-7, and PX-9 • CNG: All ISX 12G and ISX12N • GHG21: all B6.7, L9, X15, PX-7, and PX-9

NOTE: PX engines are PACCAR branded.

Heavy-Duty Features for Detroit Diesel

- Supports proprietary sensor data on all 2000 model year and newer Detroit Diesel engines with [Supported ECU Software Versions \(click the link to see supported software versions\)](#):
 - DD5, DD8, DD13, DD15, DD16, Series 50, Series 55, and Series 60

NOTE: JPRO must connect and identify the correct Detroit Diesel engine module software versions (CPC, MCM, and/or ACM) to enable bi-directional support. The following features are only available for [Supported ECU Software Versions](#).

NOTE: To see Software Version, select the engine and look in the bottom left of JPRO.

- Bi-Directional support for Detroit Diesel engines:

Bi-Directional Test or Calibration	Supported On
<p>Cruise Speed Limits</p> <ul style="list-style-type: none"> ✓ Max Cruise Set Speed ✓ Min Cruise Set Speed <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • CPC02T • CPC04T • CPC302T • CPC501T
<p>Cylinder Cut Out</p>	<ul style="list-style-type: none"> • Any supported CPC with MCM02T or MCM21T

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test or Calibration	Supported On
DEF Coolant Valve Control Test	<ul style="list-style-type: none"> Any supported CPC with ACM02T and MCM02T Any supported CPC with MCM21T and with ACM21T or ACM301T
DEF Quantity Test	<ul style="list-style-type: none"> Any supported CPC with ACM02T, ACM21T, or ACM301T
DOC Face Plug Cleaning	<ul style="list-style-type: none"> CPC02T with MCM02T CPC04T with MCM02T or MCM21T
DPF Ash Accumulator Reset	<ul style="list-style-type: none"> CPC02T with ACM02T CPC04T with ACM21T CPC302T with ACM21T or ACM301T and with MCM21T CPC501T with MCM21T and with ACM21T or ACM301T
DPF Service Regen	<ul style="list-style-type: none"> CPC02T CPC04T CPC302T CPC501T with ACM02T, ACM21T, or ACM301T
EGR Actuator Slow Learn	<ul style="list-style-type: none"> DD13 any supported CPC with MCM02T DD15 or DD16 any supported CPC with MCM21T
EGR Delta Pressure Sensor Recalibration	<ul style="list-style-type: none"> DD13 any supported CPC with MCM02T DD15 or DD16 any supported CPC with MCM21T
Hydrocarbon Doser Purge	<ul style="list-style-type: none"> Any supported CPC with MCM02T or MCM21T
Idle Shutdown <ul style="list-style-type: none"> ✓ Idle Shutdown Status ✓ Idle Shutdown Time 	<ul style="list-style-type: none"> CPC02T CPC04T CPC302T CPC501T
Intake Throttle Valve Test	<ul style="list-style-type: none"> Any supported CPC with MCM02T

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test or Calibration	Supported On
Metering Unit Flood Routine	<ul style="list-style-type: none"> Any supported CPC with MCM02T
Parked SCR Efficiency Test	<ul style="list-style-type: none"> CPC02T with ACM02T CPC04T with ACM02T or ACM21T CPC302T with ACM21T or ACM301T CPC501T with ACM21T or ACM301T
Performance Check Low Temp ATD	<ul style="list-style-type: none"> CPC02T with MCM02T CPC04T with ACM02T or ACM21T CPC302T with ACM21T
<p>PTO Parameters</p> <ul style="list-style-type: none"> General PTO Cab PTO Remote PTO Inputs <p><i>For the full list of supported parameters, see all 23 PTO Parameters</i></p> <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> CPC02T CPC04T CPC501T
<p>Road Speed Limits</p> <ul style="list-style-type: none"> ✓ Maximum Road Speed Limit <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> CPC02T CPC04T CPC302T CPC501T
SCR Air Pressure System Check	<ul style="list-style-type: none"> Any supported CPC with ACM02T
SCR Airless Doser System (ADS) Self Check	<ul style="list-style-type: none"> Any supported CPC with ACM02T or ACM21T
SCR Output Component Test	<ul style="list-style-type: none"> Any supported CPC with ACM02T or ACM21T and with MCM02T or MCM21T

JPRO® HEAVY-DUTY FEATURES (CONT.)

Bi-Directional Test or Calibration	Supported On
<p><u>VSS Parameters</u></p> <ul style="list-style-type: none"> ✓ Vehicle Speed Sensor ✓ Axle Ratio ✓ Tire Revs Per Unit Distance ✓ Top Gear Ratio ✓ Second Highest Gear Ratio ✓ Number of Output Shaft Teeth ✓ Anti-Tamper ✓ VSS Absolute Diagnostics Limit (EPA 13 only) ✓ VSS Driving Diagnostic Limit (EPA 13 only) ✓ Wheel Revs Front Axle Nr (EPA 13 only) <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • CPC02T • CPC04T • CPC501T

Supported ECU Software Versions

CPC Family ECUs				ACM Family ECUs			MCM Family ECUs	
CPC02T	CPC04T	CPC302T	CPC501T	ACM02T	ACM21T	ACM301T	MCM02T	MCM21T
App_010C	App_040A	App_2104	App_3105	acm_0x01EE	acm_0x023E	acm_0x0354	mcm_0x047B	mcm_0x06B2
App_010D	App_040B	App_2105	App_3106	acm_0x01EF	acm_0x024E	acm_0x0359	mcm_0x047C	mcm_0x06B9
App_010E	App_040D	App_2107	App_3107	acm_0x01F0	acm_0x0211	acm_0x035C	mcm_0x047D	mcm_0x06C1
	App_040E	App_2108	App_3108	acm_0x01F3	acm_0x0213		mcm_0x047E	mcm_0x06DB
	App_0406	App_2109	App_3109		acm_0x0221		mcm_0x0477	mcm_0x06DE
	App_0407				acm_0x0232			mcm_0x06ED
	App_0408				acm_0x0236			mcm_0x06EF
	App_0409				acm_0x0250			mcm_0x06F2
	App_0410							mcm_0x06F6
	App_0411							mcm_0x2A1 B
	App_0412							mcm_0x2A1 3
	App_0413							
	App_0414							

JPRO® HEAVY-DUTY FEATURES (CONT.)

PTO Parameters

General PTO:

- ✓ Config PTO Speed Control
- ✓ PTO Remote Throttle Override Mode
- ✓ Throttle Override Max Eng Speed
- ✓ PTO Dropout Serv Brk Prk Brk
- ✓ PTO Dropout on Clutch Enabled
- ✓ Max Road Speed in PTO Mode
- ✓ PTO Ramp Rate
- ✓ PTO Cab Switches Mode
- ✓ PTO Accel Pedal Override Mode
- ✓ RPM Increment

Cab PTO:

- ✓ Min PTO Spd Set Coast Sw
- ✓ Max PTO Spd Resume Accel Sw
- ✓ Set Coast Switch PTO Speed
- ✓ Resume Accel Switch PTO Speed

Remote PTO:

- ✓ Remote PTO Spd Selection Mode
- ✓ No of Speeds Via Remote PTO
- ✓ Spd 1 Via Remote PTO
- ✓ Spd 2 Via Remote PTO
- ✓ Spd 3 Via Remote PTO

Inputs:

- ✓ 2 08 DI Selection
- ✓ 2 09 DI Sw Config *(EPA 10 only)*
- ✓ 2 09 DI Selection *(EPA 13 only)*
- ✓ Remote Accelerator Enable

Heavy-Duty Features for Deutz

- Supports reading and clearing SAE faults.
- Supports reading proprietary sensor data for the listed Deutz engines:
 - EMR 3 - EDC 16 UC40 on TBL-180
 - EMR 3 - EDC 7 UC31 on TBL-180
 - EMR 4 - EDC 17 CV52 on TBL-180, TBL-400
 - EMR 4 - EDC 17 CV54 on TBL-180
 - EMR3 - EDC 16 UC40 on Safeaero 220, Tug MT
 - EMR3 - EDC 7 UC31 on Safeaero 220, Tug MT
 - EMR4 - EDC 17 CV52 on Safeaero 220, Tug 660, Tug GT-35, Tug M1A, Tug MA, Tug MH, Tug MR
 - EMR4 - EDC 17 CV54 on Tug GT-35, Tug MH, Tug MR
 - EMR4 - EDC 17 CV56 on Safeaero 220

NOTE: Deutz 12-pin Off-Highway cables are required.

Heavy-Duty Features for EControls

- Supports reading SAE faults and data on EControls engines:
 - EControls ECM on Tug 660, Tug M1A, Tug MA
 - EControls ECM 4G on Tug 660, Tug Alpha, Tug M1A, Tug MA

NOTE: EControls 8-pin Off-Highway cables are required.

Heavy-Duty Features for International

- Supports proprietary sensor data on all EPA 07 and newer International engines.
- Bi-Directional support for International engines:

Bi-Directional Test	Supported On
Actuator Test	<ul style="list-style-type: none"> • Aftertreatment (AFT) Fuel Shutoff Valve <ul style="list-style-type: none"> ○ EPA 10 Maxxforce 11, and 13 engines ○ A26 GHG17 engines • Aftertreatment (AFT) Fuel Doser <ul style="list-style-type: none"> ○ EPA 10 Maxxforce 11, and 13 engines • Aftertreatment (AFT) Purge Air Actuator <ul style="list-style-type: none"> ○ A26 GHG17 engines • Diesel Exhaust Fluid (DEF) Line Heaters <ul style="list-style-type: none"> ○ A26 GHG17 engines • Diesel Exhaust Fluid (DEF) Tank Valve Heater <ul style="list-style-type: none"> ○ A26 GHG17 engines • Engine Fuel Actuator Control 1 (Pump) <ul style="list-style-type: none"> ○ A26 GHG17 engines • Engine Fuel Actuator Control 2 (Rail) <ul style="list-style-type: none"> ○ A26 GHG17 engines • Engine Throttle Valve Position <ul style="list-style-type: none"> ○ EPA 10 Maxxforce 11, and 13 engines ○ 2013 N13 and A26 GHG17 engines • Exhaust Gas Recirculation (EGR) Valve Position <ul style="list-style-type: none"> ○ EPA 10 Maxxforce 11, and 13 engines ○ 2013 N13 and A26 GHG17 engines • Exhaust Back Pressure Valve <ul style="list-style-type: none"> ○ EPA 10 Maxxforce 11, and 13 engines ○ 2013 N13 engines

Bi-Directional Test	Supported On
Actuator Test (continued)	<ul style="list-style-type: none"> • Fuel Ignitor <ul style="list-style-type: none"> ○ A26 GHG17 engines • Fuel Solenoid <ul style="list-style-type: none"> ○ A26 GHG17 engines • Variable Geometry Turbocharger (VGT) A26 GHG17 engines
Aftertreatment Fuel Enable Actuator Leak Test	<ul style="list-style-type: none"> • A26 GHG17 engines
Aftertreatment Hydrocarbon Doser Leak Test	<ul style="list-style-type: none"> • A26 GHG17 engines
Aftertreatment Hydrocarbon Dosing System Test	<ul style="list-style-type: none"> • A26 GHG17 engines
Aftertreatment Reset	<ul style="list-style-type: none"> • EPA 07 and EPA 10 Maxxforce 11 and 13 engines
<p>Auxiliary Engine Speed Control (PTO) Parameters</p> <ul style="list-style-type: none"> • General parameters • Enable/Disable parameters • Preset parameters • Advanced Configuration parameters • Configuration parameters <p><i>For the full list of supported parameters, see all 59 Auxiliary Engine Speed Control (PTO) Parameters</i></p> <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information</i></p>	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines • EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines
CDPF Reset	<ul style="list-style-type: none"> • EPA 10 Maxxforce DT, 9 and 10 engines
Cylinder Cut Out	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines • EPA 10 Maxxforce 9, DT, 10, 11, and 13 engines • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines
DEF Doser Pump Override Test	<ul style="list-style-type: none"> • N9, N10, 2013 N13, and 2015 N13 engines
DOC/DPF Replacement Reset	<ul style="list-style-type: none"> • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

Bi-Directional Test	Supported On
DPF Service Regen	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines • EPA 10 Maxxforce 7, DT, 9, 10, 11, and 13 engines • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines
Forced Active Regen	<ul style="list-style-type: none"> • A26 GHG17 engines
Fuel Pressure Adaptation Reset	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7 engines • EPA 13 Maxxforce 7 engines
Idle Shutdown Time <ul style="list-style-type: none"> ✓ Idle Shutdown Timer Mode ✓ Engine Idle Shutdown Time ✓ Idle Shutdown Time – No Parking Brake Set ✓ Idle Shutdown Time with Park Brake 	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, and 10 engines • EPA 10 Maxxforce DT, 9, 10, 11, 13 and 15 engines • EPA 13 Maxxforce 7, 9, DT, 10, 11, and 13 engines • N9, N10, N13, and A26 GHG17 engines
KOEO Injector Test	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, and 10 engines • EPA 10 Maxxforce DT, 9, and 10 engines • N9 and N10 engines
KOER Standard Test	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, and 10 engines • EPA 10 Maxxforce 7, DT, 9, and 10 engines • N9 and N10 engines
KOER Air Management Test	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, and 10 engines • EPA 10 Maxxforce 7, DT, 9, 10, 11, and 13 engines • EPA 13 Maxxforce 7 engines • N9, N10, 2015 N13, and A26 GHG17 engines
KOER Standard Test	<ul style="list-style-type: none"> • EPA 07 to EPA 13 Maxxforce 7, 9 and 10 engines • N9 and N10 engines

Bi-Directional Test	Supported On
<p><u>Road & Cruise Speeds</u></p> <ul style="list-style-type: none"> ✓ Max Vehicle Speed ✓ Cruise Control Mode ✓ Cruise Control Vehicle Speed Low Limit ✓ Cruise Control Vehicle Speed High Limit ✓ Max Vehicle Speed with Road Speed Limiting On ✓ Max Vehicle Speed with Cruise Control ✓ Road Speed Limiting Vehicle Speed Limit ✓ Road Speed Limiting Control Mode <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, and 10 engines • EPA 10 Maxxforce DT, 9, 10, 11, 13 and 15 engines • EPA 13 Maxxforce 7, 9, DT, 10, 11, and 13 engines • N9, N10, N13, and A26 GHG17 engines
<p><u>SCR Faults Reset</u></p>	<ul style="list-style-type: none"> • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines
<p><u>VSS Parameters</u></p> <ul style="list-style-type: none"> ✓ Vehicle Speed Anti-Tampering Enabled ✓ Tire Revs Per Mile ✓ Rear Axle Ratio Low ✓ Rear Axle Ration High ✓ Transmission Top Gear Ratio ✓ Transmission Tailshaft Gear Teeth ✓ Vehicle Speed Signal Mode ✓ Vehicle Speed Source Selection When Split Shaft is Active <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p>	<ul style="list-style-type: none"> • EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines • EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines • N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines <p><i>NOTE: The exact VSS Parameters available vary based on engine type.</i></p>

Auxiliary Engine Speed Control (PTO) Parameters

NOTE: The exact AESC Parameters available vary based on engine type.

General PTO:

- | | |
|---|--|
| <ul style="list-style-type: none"> ✓ AESC – Mode ✓ AESC – Maximum Vehicle Speed ✓ AESC – In Cab Mode Preset ✓ AESC – In Cab Operator Interface ✓ AESC – Ramp Rate ✓ AESC – Maximum Engine Speed | <ul style="list-style-type: none"> ✓ AESC – Engine Speed Limit With VSS Fault ✓ AESC – Vehicle Speed ✓ AESC – Maximum Engine Load ✓ AESC – Minimum Engine Speed ✓ AESC – Maximum Engine Load Time |
|---|--|

Enable/Disable:

- | | |
|---|---|
| ✓ AESC – Remote Pedal Enable | ✓ AESC – Disable AESC With Vehicle Speed |
| ✓ AESC – Disable With Clutch | ✓ AESC – SPDT Enable |
| ✓ AESC – Disable With Brake | ✓ AESC – Disable RP With Service Brake |
| ✓ AESC – Disable With APS | ✓ AESC – Disable RP With Parking Brake Released |
| ✓ AESC – Disable ATC With Service Brake | ✓ AESC – Disable RP With Driveline Status |
| ✓ AESC – Disable AESC With Parking Brake Released | ✓ AESC – Disable RP With In-Cab Controls |
| ✓ AESC – Disable AESC With Driveline Status | ✓ AESC – Disable RP With Vehicle Speed |
| ✓ AESC – Disable AESC With In-Cab Controls | ✓ AESC - Disable with Parking Brake |

Preset:

- | | |
|---|---|
| ✓ AESC – Preset Engine Speed 1 (Set) | ✓ AESC – Preset Engine Speed 6 |
| ✓ AESC – Preset Engine Speed 2 (Resume) | ✓ AESC – Engine Speed Throttle Down Ramp Rate |
| ✓ AESC – Preset Engine Speed 3 | ✓ AESC – Bump Up/Down Step |
| ✓ AESC – Preset Engine Speed 4 | ✓ Remote AESC – Preset Engine Speed Select |
| ✓ AESC – Preset Engine Speed 5 | |

Advanced Configuration

- | | |
|--|--|
| ✓ AESC – Return to Zero | ✓ Force Fan On With AESC Active |
| ✓ Interrupt DPF Regeneration When AESC Activated | ✓ Master Switch for Setting Source Addresses |
| ✓ Load Threshold for Loaded AESC Applications | |

Heavy-Duty Features for Mack and Volvo

- Supports all Mack, Volvo and Prevost vehicles.
- Displays all standard and proprietary fault codes for all components.
- Ability to resolve partial Chassis ID to full VINs on Mack/Volvo vehicles.
- Improved powertrain fault readings on EPA 13 Mack/Volvo vehicles.
- Supports proprietary sensor data on all EPA 07 and newer Mack/Volvo engines.
- Supports reading proprietary NOx sensor data on all EPA 13 and newer Mack/Volvo engines.
- Mack and Volvo Specific Reports including:
 - ✓ Trip Report
 - ✓ Life of Vehicle Report

NOTE: Reports are currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.

NOTE: Reports only available on Mack EPA07 and newer vehicles with the DataMax parameter enabled.

NOTE: Reports only available on Volvo 2012 and newer with the DataMax parameter enabled.

- Bi-Directional support for Mack and Volvo engines include:

Bi-Directional Test	Supported On
Aftertreatment Injector Activation for Flow Test	<ul style="list-style-type: none"> • EPA 07
Cylinder Cut Out	<ul style="list-style-type: none"> • EPA 07 to GHG17
DEF Dosing Valve Test	<ul style="list-style-type: none"> • EPA 10 to GHG17
DEF Pressure System Test	<ul style="list-style-type: none"> • EPA 10 to GHG17
DPF Service Regen	<ul style="list-style-type: none"> • EPA 07 to GHG17
DPF System Reset	<ul style="list-style-type: none"> • EPA 07 to GHG17
EGR Function Test	<ul style="list-style-type: none"> • EPA 07 to GHG17
Enable or Disable Cruise Control <i>NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.</i>	<ul style="list-style-type: none"> • EPA 07 to GHG17
Exit Inducement Test <ul style="list-style-type: none"> ✓ EPA 10 for SPN 4094 & SPN 52466 ✓ EPA 13 to GHG17 for P208E & P103B 	<ul style="list-style-type: none"> • EPA 10 to GHG17 <i>NOTE: Contact Noregon support to help verify the Temporary Exit Inducement test for EPA 13 to GHG17 engines with P-codes P207F.</i>
Fan Activation Test	<ul style="list-style-type: none"> • EPA 07 to GHG17
Fuel Shut-off Valve Test	<ul style="list-style-type: none"> • EPA 07 to EPA 10
Hydrocarbon Dosing Control Valve Test	<ul style="list-style-type: none"> • EPA 10
Learned Data Reset	<ul style="list-style-type: none"> • EPA 07 to GHG17
NOx Conversion Monitor Test	<ul style="list-style-type: none"> • EPA 13 to GHG17
Purge Air Valve Test	<ul style="list-style-type: none"> • EPA 10
SCR Regeneration	<ul style="list-style-type: none"> • EPA 13 to GHG17

Bi-Directional Test	Supported On
<p>Set Cruise Max and Min Speeds</p> <ul style="list-style-type: none"> ✓ Cruise Max Set Speed ✓ Cruise Min Set Speed ✓ Cruise Control Min Speed to Resume ✓ Road Speed Limit for Cruise Control <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p> <p><i>NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.</i></p>	<ul style="list-style-type: none"> • EPA 07 to GHG17
<p>Set Road Speed Limit</p> <ul style="list-style-type: none"> ✓ Customer Road Speed Limit ✓ Road Speed Limit, Pedal Driving ✓ Road Speed Limit Mandated by Law <p><i>NOTE: Access to this can be removed. Contact Noregon support for more information.</i></p> <p><i>NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.</i></p>	<ul style="list-style-type: none"> • EPA 07 to GHG17
<p>Idle Shutdown Time</p> <ul style="list-style-type: none"> ✓ Idle Shutdown Time <p><i>NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.</i></p>	<ul style="list-style-type: none"> • EPA 07 to GHG17
<p>Trip Reset</p> <p><i>NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.</i></p>	<ul style="list-style-type: none"> • Mack EPA 07 and newer vehicles with the DataMax parameter enabled. • Volvo 2012 and newer with the DataMax parameter enabled.
<p>VGT Electronic Actuator Installation and Calibration</p>	<ul style="list-style-type: none"> • EPA 13 to GHG17
<p>VGT Function Test</p>	<ul style="list-style-type: none"> • EPA 07 to GHG17
<p>VGT Monitor Test</p>	<ul style="list-style-type: none"> • EPA 13 to GHG17
<p>Warm Hold Function Test</p>	<ul style="list-style-type: none"> • EPA 07 to EPA 10

NOTE: To see Software Version, select the engine and look in the bottom left of JPRO.

NOTE: Mack and Volvo Coverage requires internet access at least once a month. Failure to provide internet access will result in the application limiting use and eventually shutting off the module features.

NOTE: Mack and Volvo Coverage only supports the Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, or DLA+ Wireless adapters.

Heavy-Duty Features for Mercedes-Benz

- Supports proprietary sensor data on EPA 07 MBE 900 and 4000 engines.
- **Bi-Directional support for Mercedes-Benz engines:**

Bi-Directional Test	Supported On
Cylinder Cut Out	EPA 07
DPF Service Regen	EPA 07 <i>NOTE: Can be started from either the Bi-Directional test selection or the Aftertreatment Diagnostics screen.</i>

Heavy-Duty Features for PACCAR

- Supports all PACCAR Body Controllers and engines including clearing faults.

NOTE: PACCAR Body Controller faults are only supported on 2007 and newer Kenworth and Peterbilt trucks.

NOTE: PACCAR Body Controller faults on the KWP2000 protocol can only be read when using the JPRO® DLA+ 3.0, DLA+ 3.0 Wireless, DLA+ 2.0, DLA+ 2.0 Wireless, DLA+, or DLA+ Wireless adapter. If using the JPRO® DLA+ or JPRO® DLA+ Wireless adapter, please ensure the label on the back of the adapter indicates it is 'Rev P Compatible'.

- Support for 2016 Peterbilt and Kenworth trucks with or without the PACCAR Y-cable (PACCAR P/N 42-02848) available from the PACCAR dealer network.
- Supports reading and clearing proprietary fault codes on all EPA 10 to GHG21 MX engines.
- Supports reading proprietary data on all EPA 10 to GHG21 MX engines.
- Bi-Directional support for PACCAR engines:

Bi-Directional Test	Supported On
Activate Air Shut Off Valve	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
Activate Fuel Dosing Valve Test	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
Automated Cylinder Performance Test	<ul style="list-style-type: none"> • EPA 10 to EPA 13 all MX engines
Check Internal DEF Pump Module Heater	<ul style="list-style-type: none"> • EPA 13 all MX engines

Cylinder Cut-Out	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
Cylinder Compression Test	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
DEF Doser Pump Test	<ul style="list-style-type: none"> • EPA 10 to GHG17 all MX engines
DEF Heater Test <ul style="list-style-type: none"> • DEF Inlet Pipe Heater • DEF Pipe Heater • DEF Pump Heater • DEF Return Pipe Heater • DEF Tank Heater Valve 	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
DPF Service Regen	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines
Enable Regeneration after Aftertreatment System Repair	<ul style="list-style-type: none"> • EPA 10 to EPA 13 all MX engines
Evaluate NOx Sensors Test <ul style="list-style-type: none"> • NOx sensor after catalyst • NOx sensor before catalyst 	<ul style="list-style-type: none"> • EPA 13 All MX Engines
Install a New or Cleaned DPF	<ul style="list-style-type: none"> • EPA 10 to EPA 13 all MX engines
Prime the System with the Pump for DEF	<ul style="list-style-type: none"> • GHG17 all MX engines
Reset the Soot Level	<ul style="list-style-type: none"> • EPA 10 to EPA 13 all MX engines
Turbo Actuator Effort Test	<ul style="list-style-type: none"> • GHG17 to GHG21 all MX engines

Note: For PX-6, PX-7, PX-8, or PX-9 engine bi-directional test support, please see the [Cummins](#) features.

Transmission Support

Heavy-Duty Support for Detroit Diesel

- Supports reading SAE faults and data for:
 - ✓ DT12 TCM01T and TCM05T Transmissions
- Bi-Directional support for Detroit Diesel transmissions:

Bi-Directional Test or Calibration	Supported On
Clutch Apply Leak Test	DT12 TCM01T and TCM05T transmissions
Tilt Sensor Calibration	DT12 TCM05T transmissions
Transmission Learn Procedure Test	DT12 TCM01T and TCM05T transmissions

Heavy-Duty Features for Eaton

- Supports reading faults and data for:
 - ✓ Gen I AutoSelect / AutoShift
 - ✓ Gen II AutoShift / UltraShift ASW / UltraShift DM
 - ✓ Lightning
 - ✓ Gen III UltraShift PLUS
 - ✓ Advantage Series
 - ✓ Gen III AutoShift / UltraShift Hybrid Electric
 - ✓ Procision Series
 - ✓ Endurant Series
 - ✓ Gen III AutoShift / UltraShift / UltraShift PLUS
 - ✓ VORAD 300
 - ✓ VORAD 400 FLR
 - ✓ Hybrid Drive System Controller

Heavy-Duty Support for Mack and Volvo Transmissions

- Displays standard and proprietary fault codes for all Mack and Volvo transmissions.

Heavy-Duty Support for ZF Meritor Transmissions

- Supports reading SAE faults and data for:
 - ✓ SureShift
 - ✓ FreedomLine

Brake Manufacturer Support

Heavy-Duty Features for Bendix

- Supports identification of all Bendix components.
- Includes ACom® Legacy to support older Bendix ECUs not currently supported by JPRO® Commercial Vehicle Diagnostics.
- Bendix DTC Report support for overall health report of all Bendix components.
- Clear Faults functionality supports clearing all faults, or only faults from a selected Bendix component.

NOTE: Access to this can be removed. Contact Noregon support for more information.

Bendix Tractor Brakes

- Supports reading and clearing Bendix proprietary fault codes on all EC-60 and EC-80 braking systems.
- Supports proprietary sensor data on all EC-60 and EC-80 braking systems, ADB Wear Sensing, and ADB Continuous Wear Sensing ECUs.
- Path-Type codes replace Blink Codes in Look Codes for EC-80.
- Supports reading and clearing Bendix proprietary fault codes and data for Intellipark.
- Supports reading and clearing [Event History](#) records on all EC-60 and EC-80 braking systems.
- [Event History](#) supports reading:
 - ✓ Event Counters for EC-80 braking systems.
 - ✓ ESP Counters for EC-60 and EC-80 braking systems.
- [ABS Monitor](#) provides an at-a-glance assessment of the braking system's health by monitoring related electrical and pneumatic components.
- CPC Configuration Layout displays Central Pressure Controller diagram for the reported EC-80 CPC.
- Users will be automatically prompted to run the ABS ECU Recovery test when required, based on the configuration of the EC-80 ABS ECU.

- Bi-Directional support for Bendix tractor brakes:

Bi-Directional Test or Calibration	Supported On
ABS Air Bag Pressure Test	<ul style="list-style-type: none"> • EC-60 Advanced braking systems • EC-80 ESP/ESP+ braking systems
ABS Configuration <ul style="list-style-type: none"> • ABS • Tire Size • ATC • ESP • Broadcast <p><i>For the full list of supported parameters, see all 36 ABS Configuration Parameters</i></p>	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
ABS Engine Limiting Test	<ul style="list-style-type: none"> • EC-60 Premium or Advanced braking systems • EC-80 ATC or ESP braking systems
ABS Pressure Test	<ul style="list-style-type: none"> • EC-60 Advanced braking systems • EC-80 ESP/ESP+ braking systems
ABS Self Config Test	<ul style="list-style-type: none"> • EC-60 braking systems • EC-80 ABS and ATC braking systems
ATC Configuration Test <ul style="list-style-type: none"> ✓ ATC Control ✓ Traction Control Switch 	<ul style="list-style-type: none"> • Supports all EC-80 braking systems
Battery Voltage Test	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
Braking System Switches Test	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
Dashboard Lamp Tests	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
Drag Torque Test	<ul style="list-style-type: none"> • EC-60 Premium or Advanced braking systems • EC-80 ATC or ESP braking systems
ECU Reset	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
ESP Lamp Test	<ul style="list-style-type: none"> • EC-80 ESP/ESP+ braking systems
Maintenance Mode	<ul style="list-style-type: none"> • Intellipark systems

Bi-Directional Test or Calibration	Supported On
Modulator Valve (Chuff) Tests	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
Steering Angle Test and Calibration	<ul style="list-style-type: none"> • EC-60 Advanced braking systems • EC-80 ESP/ESP+ braking systems
Wheel Speed Chart Test	<ul style="list-style-type: none"> • All braking systems reporting wheel speed values
Wheel Speed Window Test	<ul style="list-style-type: none"> • All braking systems reporting wheel speed values
Wiggle Test/Performance Issue Monitoring	<ul style="list-style-type: none"> • EC-60 and EC-80 braking systems
Yaw Rate and Lateral Accel. Test and Calibration	<ul style="list-style-type: none"> • EC-60 Advanced braking systems • EC-80 ESP/ESP+ braking systems

ABS Configuration Parameters

NOTE: The exact ABS Configuration parameters available vary based on brake ECU type.

ABS	<ul style="list-style-type: none"> ✓ Configuration Additional Axle ✓ Engine Retarder Control ✓ Rail Mode
Tire Size	<ul style="list-style-type: none"> ✓ Tire Size (RPM)
ATC	<ul style="list-style-type: none"> ✓ ATC Control ✓ Traction Control Switch
ESP	<ul style="list-style-type: none"> ✓ Yaw Control ✓ RSP ✓ Steering Angle Sensor Orientation ✓ Lateral Acceleration Sensor Orientation ✓ Yaw Rate Sensor Orientation ✓ Trailer Modulator ✓ Air Bag
Broadcast	<ul style="list-style-type: none"> ✓ High Resolution Wheel Speed ✓ Wheel Speed Information

	<ul style="list-style-type: none"> ✓ Electronic Brake Controller ✓ Cruise Control/Wheel Speed ✓ Brake Message
Broadcast (continued)	<ul style="list-style-type: none"> ✓ J1939: High Resolution Wheel Speed ✓ J1939: Wheel Speed Information ✓ J1939: Electronic Brake Control ✓ J1939: Cruise Control/Wheel Speed ✓ J1587: PID 49 ABS Control Status ✓ J1587: PID 84 Road Speed Information ✓ J1587: PID 151 ATC Control Status ✓ J1587: PID 168 Battery Potential (Voltage) ✓ J1587: PID 194 Diagnostics Data Requests (Faults) ✓ J1587: PID 209 ABS Control Status (Trailer) ✓ J2497: PID 49 ABS Control Status ✓ J2497: PID 84 Road Speed Information ✓ J2497: PID 151 ATC Control Status ✓ J2497: PID 168 Battery Potential (Voltage) ✓ J2497: PID 194 Diagnostics Data Requests (Faults) ✓ J2497: PID 209 ABS Control Status (Trailer) ✓ J2497: PID 237 VIN (Trailer) ✓ J2497: PID 245 Odometer (Trailer)

Bendix Trailer Brakes

- Supports reading and clearing proprietary fault codes and SAE sensor data for the following:
 - ✓ TABS-6™ Advanced Single-Channel (SC) Trailer ABS
 - ✓ TABS-6™ Multi-Channel (MC) Trailer ABS
 - ✓ TABS-8™ Trailer ABS
- Supports reading and clearing faults for iSense – Pro (ADB Continuous Pad Wear Sensing) ECUs.
- Supports trailer diagnostics over CAN for TABS-6™ Advanced Single-Channel Trailer ABS, TABS-6™ Advanced Multi-Channel Trailer ABS and Bendix® TABS-8™ Trailer ABS modules using the Bendix 4-pin to 9-pin diagnostics extension cable.
- The [EOL \(End of Line\) Test](#) provides a suite of tests used to validate if the trailer ABS and its sensors are installed and functioning properly, and are available for:
 - ✓ TABS-6™ Advanced Single-Channel Trailer ABS

- ✓ TABS-6™ Multi-Channel (MC) Trailer ABS
- ✓ TABS-8™ Trailer ABS
- EOL Test report provides general ECU information, test results, and information gathered by individual tests.
- Individual EOL tests are also available from the bi-directional test menu.
- ECU Configuration provides technicians the tools to set the configuration and parameters of TABS-6™ Multi-Channel (MC) Trailer ABS ECUs.
- Bi-Directional Support for Bendix Trailers:

Bi-Directional Test or Calibration	Supported On
ABS Indicator Lamp Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Axle Load Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Battery Voltage Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Chuff Test	<ul style="list-style-type: none"> • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Door Switch Status Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
ECU Configuration <ul style="list-style-type: none"> ✓ ABS Configuration ✓ Load and Sensor Configuration ✓ TRSP ✓ Auxiliary IO 	<ul style="list-style-type: none"> • TABS-6™ Multi-Channel (MC) Trailer ABS
ECU Information Test*	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
General Output Functions Test <i>NOTE: Functions available vary based on brake ECU configuration.</i>	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Installation Angle Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS

Bi-Directional Test or Calibration	Supported On
Installation Configuration Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Lift Axle Control Test <i>NOTE: Supports LAC1 and LAC2</i>	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Lift Axle Sensing Test <i>NOTE: Supports LAS1 and LAS2</i>	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Lift Lower Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Low Pressure Warning Emergency Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Low Pressure Warning Service Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-8™ Trailer ABS
P-21 Delivery Test	<ul style="list-style-type: none"> • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
P-21 Modulator Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
P-22 Delivery Test	<ul style="list-style-type: none"> • TABS-6™ Multi-Channel (MC) Trailer ABS
P-22 Modulator Test	<ul style="list-style-type: none"> • TABS-6™ Multi-Channel (MC) Trailer ABS
Pad Wear Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
Pressure Sensor Test	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS
S-C and S-D Sensor Tests	<ul style="list-style-type: none"> • TABS-6™ Advanced Single-Channel Trailer ABS • TABS-6™ Multi-Channel (MC) Trailer ABS • TABS-8™ Trailer ABS

Bi-Directional Test or Calibration	Supported On
S-E and S-F Sensor Tests <i>NOTE: Supports 4 sensor configuration only</i>	<ul style="list-style-type: none"> TABS-6™ Multi-Channel (MC) Trailer ABS
Scratchpad Test*	<ul style="list-style-type: none"> TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Tire Inflation System Test	<ul style="list-style-type: none"> TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Wear Sensing Test <i>NOTE: Requires QWS on SENS IN 1 and 2</i>	<ul style="list-style-type: none"> TABS-6™ Multi-Channel (MC) Trailer ABS with minimum software version of TCWG.730.88
Wheel Speed Chart Test	<ul style="list-style-type: none"> All braking systems reporting wheel speed values
Wheel Speed Window Test	<ul style="list-style-type: none"> All braking systems reporting wheel speed values

*NOTE: Test only displayed within the EOL Test dialog.

Bendix Driver Assistance Systems (DAS)

- Support reading and clearing Bendix Fault Codes and reading sensor data on:
 - ✓ AutoVue® 3G LDW System
 - ✓ SafetyDirect® Web Portal Processor (3G and 5G)
 - ✓ AutoVue® FLC20™ Camera
 - ✓ Wingman® FLR20™/FLR21™ Radar
 - ✓ Wingman® FLR25™ Radar
 - ✓ Blindspotter® Radar
 - ✓ Vorad VS500 Radar
 - ✓ Driver Interface Unit (DIU)
 - ✓ Active Steering by Bendix CVS
- Supports reading and clearing [Event History](#) records on all FLR 21 ECUs.
- Updated support for AG12 software version for Steering Assist ECUs.

- Bi-Directional support for Bendix Driver Assistance Systems:

Bi-Directional Test or Calibration	Supported On
<p>AutoVue Configuration</p> <ul style="list-style-type: none"> ✓ Enable Startup Chirps ✓ Enable Radio Mute Discrete Output ✓ Allow Driver Volume Control ✓ LDW Warning Alert Type ✓ LDW Minimum Operating Speed ✓ TPMS Sampling Interval 	<ul style="list-style-type: none"> • AutoVue® 3G LDW system
<p>Blindspotter Configuration</p> <ul style="list-style-type: none"> ✓ Enable Auto Baud Rate ✓ Set J1939 Baud Rate ✓ Legacy Mode ✓ Hazard Lamp Suppression ✓ Fixed CCVS Acceptance Address ✓ Sensor Location ✓ Extra CAN Target Messages ✓ FOV Speed Threshold ✓ J1939 Base Source Address ✓ Suppress Side Object Display BIST 	<ul style="list-style-type: none"> • Blindspotter® Radar
<p>Camera Snapshot Test</p>	<ul style="list-style-type: none"> • AutoVue® FLC20™ Camera
<p>Clear Stored Events and Videos</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (3G and 5G)

Bi-Directional Test or Calibration	Supported On
<p>DIU Configuration</p> <ul style="list-style-type: none"> ✓ Minimum Volume Percentage ✓ Minimum Volume Retained ✓ Power-up Tone ✓ 2 Second Alert Tone ✓ 1 Second Alert Tone ✓ Headway Alerts When Breaking ✓ Collision Alert When Braking ✓ Wingman Advanced Alerts ✓ Left Speaker Diagnostics ✓ LDW Audio Support ✓ Right Speaker Diagnostics ✓ Blackout Mode 	<ul style="list-style-type: none"> • Driver Interface Unit
<p>Indicator Component Tests</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (5G)
<p>Lamp Component Tests</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (5G)
<p>LDW Configuration</p> <ul style="list-style-type: none"> ✓ LDW ✓ LDW Minimum Operating Speed ✓ LDW Sensitivity (Left Side) ✓ LDW Sensitivity (Right Side) ✓ LDW + Blindspotter 2 Integration 	<ul style="list-style-type: none"> • AutoVue® FLC20™ Camera
<p>Output Component Tests</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (3G and 5G)
<p>Pressure Trimming and Coil Polarity Test</p>	<ul style="list-style-type: none"> • Active Steering by Bendix CVS • Steering Assist AG12 software
<p>Radar Service Alignment</p>	<ul style="list-style-type: none"> • Wingman® FLR25™ Radar

Bi-Directional Test or Calibration	Supported On
<p>Safety Direct Event Configuration</p> <ul style="list-style-type: none"> ✓ SD Event Collection ✓ SD Event Triggers ✓ SD Min Speeds <p>For the full list of supported parameters, see all 22 Safety Direct Event Configuration Parameters</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (3G and 5G)
<p>Safety Direct Event Selection Configuration</p> <ul style="list-style-type: none"> ✓ Notification Beep ✓ Video Recording <p>For the full list of supported parameters, see all 18 Safety Direct Event Selection Configuration Parameters</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (3G and 5G)
<p>SDP3 Configuration</p> <ul style="list-style-type: none"> ✓ Enable Startup Chirps ✓ Enable Radio Mute Discrete Output ✓ LDW Driver Disable Switch Type ✓ Alert Type ✓ Audio Sound Type ✓ TPMS Sampling Interval ✓ Video Input Camera Type 	<ul style="list-style-type: none"> • SafetyDirect® Web Portal Processor (3G)
<p>SDP5 Configuration</p> <ul style="list-style-type: none"> ✓ Enable Startup Chirps ✓ Enable Radio Mute Discrete Output ✓ LDW Driver Disable Switch Type ✓ Alert Type ✓ Audio Sound Type ✓ TPMS Sampling Interval ✓ Cellular Enable ✓ DVR Options ✓ Startup Chirp Volume ✓ Video Input Camera Type 	<ul style="list-style-type: none"> • SafetyDirect® Web Portal Processor (5G)

Bi-Directional Test or Calibration	Supported On
<p>SDP5 System Configuration</p> <ul style="list-style-type: none"> ✓ FLC Camera ✓ DFC Camera ✓ MPC2 Camera ✓ CTP OBC ✓ Private CAN ✓ Backup Battery <p>Use Only CTP for Data Offloading</p>	<ul style="list-style-type: none"> • SafetyDirect® Web Portal Processor (5G)
<p>Speaker Volume Configuration</p>	<ul style="list-style-type: none"> • AutoVue® 3G LDW system • SafetyDirect® Web Portal Processor (3G and 5G)
<p>SPTAC Calibration</p>	<ul style="list-style-type: none"> • AutoVue® FLC20™ Camera
<p>Startup Chirp Volume Setting</p>	<ul style="list-style-type: none"> • SafetyDirect® Web Portal Processor 3G version 21.19 and above • SafetyDirect® Web Portal Processor 5G
<p>TSR Configuration</p> <ul style="list-style-type: none"> ✓ Traffic Sign Recognition ✓ TSR OverSpeed Alert ✓ TSR OverSpeed Alert and Action ✓ Source Address for the Country Select message 	<ul style="list-style-type: none"> • AutoVue® FLC20™ Camera
<p>Wingman FLR Configuration</p> <p><i>General Settings:</i></p> <ul style="list-style-type: none"> ✓ ACC Lateral Mounting Offset ✓ Stationary Object Warning ✓ Direct TSC1 Control ✓ Highway Departure Braking ✓ ACC Type ✓ Multi Lane AEB ✓ ACC Type Engine Mismatch <p><i>DFA Alerts/Following Distance Settings:</i></p> <ul style="list-style-type: none"> ✓ Following Distance Alert Table ✓ Momentary FDA 	<ul style="list-style-type: none"> • Wingman® FLR20™/FLR21™ Radar • Vorad VS500 Radar
<p>Wingman Fusion Blindness Adjustment</p>	<ul style="list-style-type: none"> • Wingman® FLR21™ Radar

Bi-Directional Test or Calibration	Supported On
<p style="text-align: center;"><i>Safety Direct Event Configuration Parameters</i></p> <hr/> <p>NOTE: The exact Safety Direct Event Selection Configuration parameters available vary based on ECU type.</p> <hr/> <p>SD Event Collection</p> <ul style="list-style-type: none"> ✓ Safety Direct Event Reporting ✓ Transmit Time Before Event Trigger ✓ Transmit Time After Event Trigger ✓ SD Manual Event Video Length ✓ SD Overspeed Grace Threshold ✓ SD Overspeed Video Snapshots OTA <p>SD Event Triggers</p> <ul style="list-style-type: none"> ✓ Hard Braking Force ✓ Severe Hard Braking Force ✓ Excessive Turning Force ✓ Severe Excessive Turning Force ✓ Following Distance Time ✓ Following Distance Duration ✓ Severe Following Distance Duration ✓ SD Severe Lane Mark No. Track Time ✓ Vehicle Overspeed Limit Threshold ✓ Vehicle Speeding Limit ✓ Severe Vehicle Overspeed Limit Threshold ✓ Speeding Trigger ✓ Severe Speeding Trigger <p>SD Min Speeds</p> <ul style="list-style-type: none"> ✓ Braking Trigger Minimum Speed ✓ Excessive Turning Trigger Minimum Speed ✓ Following Distance Minimum Speed 	<p style="text-align: center;"><i>Safety Direct Event Selection Configuration Parameters</i></p> <hr/> <p>NOTE: The exact Safety Direct Event Selection Configuration parameters available vary based on ECU type.</p> <hr/> <p>Notification Beep:</p> <ul style="list-style-type: none"> ✓ Excessive Curve Speed ✓ Excessive Braking ✓ Distance Alert ✓ Forward Collision Warning ✓ Collision Mitigation Braking ✓ ESC ✓ RSC ✓ Over Speed Limit ✓ Vehicle Speeding <p>Video Recording:</p> <ul style="list-style-type: none"> ✓ Excessive Curve Speed ✓ Excessive Braking ✓ Distance Alert ✓ Forward Collision Warning ✓ Collision Mitigation Braking ✓ ESC ✓ RSC ✓ Over Speed Limit ✓ Vehicle Speeding

Bendix Tire Pressure Monitoring System (TPMS)

- Support reading and clearing Bendix proprietary fault codes on all SmarTire™ TPMS solutions.
- Support for proprietary sensor data on all SmarTire™ TPMS solutions.
- Supports reading and clearing mileage accumulation statistics and sensor fault occurrences on all SmarTire™ NextGen TPMS solutions.
- [TPMS Diagnostics](#) provides an at-a-glance assessment of the Bendix TPMS system’s health by monitoring related data.
- TPMS key data points screen displays tire pressure and temperature data for configured sensor ID’s.
- Supports reading Event History Information and saving to local file.
- **Bi-Directional support for Bendix TPMS:**

Bi-Directional Test or Calibration	Supported On
<p>TPMS Ambient Sensor Configuration</p> <p>Global Settings:</p> <ul style="list-style-type: none"> ✓ Altitude Compensation <p>Ambient Application Configuration:</p> <ul style="list-style-type: none"> ✓ Ambient Sensor ID Code ✓ Ambient Condition Enable ✓ Ambient Pressure From Sensor ✓ Ambient Pressure Enable ✓ Ambient Pressure Source <p>Ambient Sensor Fault Enable</p>	<ul style="list-style-type: none"> • All SmarTire™ TPMS solutions
<p>TPMS Backup and Restore</p> <p>For compatibility rules see TPMS Backup and Restore Compatibility</p>	<ul style="list-style-type: none"> • All SmarTire™ TPMS solutions
<p>TPMS Configuration</p>	<ul style="list-style-type: none"> • All SmarTire™ TPMS solutions
<p>TPMS Lamp Display Configuration</p>	<ul style="list-style-type: none"> • SmarTire™ Standard and NextGen TPMS Solutions
<p>TPMS Parameters</p> <ul style="list-style-type: none"> • Global Settings • Sensor Fault Time Programming • Programming Restrictions • Dual Tire Imbalance • Low Power Mode • Vehicle and Trailer Settings • Antenna Configuration <p>For the full list of supported parameters, see all 36 TPMS Parameters</p>	<ul style="list-style-type: none"> • All SmarTire™ TPMS solutions
<p>TPMS Scratchpad</p>	<ul style="list-style-type: none"> • SmarTire™ NextGen TPMS solutions

TPMS Parameters

NOTE: The TPMS Parameters available vary based on TPMS type and variant.

Global Settings

- | | |
|------------------------------|--------------------------------|
| ✓ First Alert Level | ✓ High Temperature |
| ✓ Temperature Compensate FAL | ✓ Auto Learn Setting |
| ✓ Second Alert Level | ✓ Tire Condition Pressure Mode |
| ✓ Temperature Compensate SAL | |

Sensor Fault Time Programming

- | | |
|---------------------------------------|--|
| ✓ Sensor Fault Time Rolling Mode | ✓ Custom Ambient Sensor Fault Time |
| ✓ Custom Stationary Sensor Fault Time | ✓ Sensor Fault Time for Ambient Sensor |
| ✓ Sensor Fault Time Stationary Mode | |

Programming Restrictions

- | | |
|-------------------------|------------------------------|
| ✓ Gauge Units Menu | ✓ Gauge Learn Menu |
| ✓ Gauge Parameters Menu | ✓ Gauge Profile Menu |
| ✓ Gauge Axle Menu | ✓ Gauge Password Menu |
| ✓ Gauge Altitude Menu | ✓ PIN Code to Unlock Display |

Dual Tire Imbalance

- ✓ Dual Tire Imbalance Enable
- ✓ Dual Tire Imbalance Pressure Limit

Low Power Mode

- ✓ Vehicle Battery Check Interval
- ✓ Minimum Vehicle Battery
- ✓ Maximum Sensor Data Age

Low Power Mode Stage 1

- ✓ Stage One Sleep Time
- ✓ Stage One Repetitions
- ✓ Forward Collision Warning

Low Power Mode Stage 2

- ✓ Stage Two Sleep Time
- ✓ Stage Two Repetitions

Low Power Mode Stage 3

- ✓ Stage Three Sleep Time

Vehicle and Trailer Settings

- | | |
|-----------------|------------------------|
| ✓ Vehicle Type | ✓ Exclusive Trailer |
| ✓ Vehicle ID | ✓ Exclusive Trailer ID |
| ✓ Trailer Learn | |

Antenna Configuration

- ✓ Internal Antenna

TPMS Backup and Restore Compatibility

The TPMS Service Replacement allows configuration settings to be saved to and loaded from a local file. The following shows compatibility rules for transferring data between different TPMS controllers.

SmarTire™ Standard TPMS solutions:

- May update Standard and NextGen controllers.

SmarTire™ iTPMS solutions:

- May only update other iTPMS controllers.

SmarTire™ NextGen TPMS solutions:

- May update Standard and NextGen controllers.

Bendix Air Treatment Systems

- Supports reading proprietary faults, data, and clearing faults for EAC (Standalone) components.
- Supports reading and clearing proprietary fault codes for the following air treatment system components:
 - ✓ eAPU2
 - ✓ iAPU
 - ✓ EVM1
 - ✓ eIAG
- Bi-Directional support for Bendix Air Treatment Systems:

Bi-Directional Test or Calibration	Supported On
Cartridge Lifetime Prediction Reset Test	<ul style="list-style-type: none"> • EAC (Standalone)
Cartridge Reset Test	<ul style="list-style-type: none"> • iAPU

Bi-Directional Test or Calibration	Supported On
Oil Change Reset Test	<ul style="list-style-type: none"> • iAPU

Bendix Auxiliary Components

- Supports reading and clearing Bendix proprietary fault codes and data for the PLC Relay.

Heavy-Duty Features for Haldex

- Support proprietary identification for Haldex Trailer Braking systems.
- Supports reading proprietary faults for all Haldex Trailer Braking systems.
- Reads and displays trailer odometer and trip distance for all Haldex Trailer Braking systems.

Heavy-Duty Support for Wabash

- Supports reading SAE faults and data for Wabash trailer brakes.

Heavy-Duty Features for Wabco

- Supports proprietary identification for:
 - ✓ HABS ABS
 - ✓ HPB (Hydraulic Power Brake) System
 - ✓ C Series ABS
 - ✓ D Series ABS
 - ✓ TCS II trailer braking system
 - ✓ E Series ABS including the E8
 - ✓ mBSP – Modular Braking System Platform
- Supports reading and clearing SAE J1587 and J1939 faults for all Wabco tractor and trailer braking systems.
- Supports reading all SAE data for all Wabco tractor and trailer braking systems.
- Supports reading proprietary wheel speed data where J1587 communications are available.
- Bi-Directional support for Wabco brakes:

Bi-Directional Test or Calibration	Supported On
Dashboard Lamp Tests	<ul style="list-style-type: none"> • All Wabco braking systems except the mBSP
Enable/Disable ATC (Automatic Traction Control)	<ul style="list-style-type: none"> • HPB brakes and all pneumatic braking systems

Bi-Directional Test or Calibration	Supported On
Memorized Components Reset	<ul style="list-style-type: none"> All pneumatic and hydraulic braking systems where J1587 communications are available
Modulator Valve (Chuff) Test	<ul style="list-style-type: none"> All pneumatic braking systems
Wheel Speed Chart Test	<ul style="list-style-type: none"> All braking systems reporting wheel speed values
Wheel Speed Window Test	<ul style="list-style-type: none"> All braking systems reporting wheel speed values

Auxiliary Component Support

Heavy-Duty Support for Agility

- Supports reading proprietary faults and data for Agility Blue iQ® Fuel System Control Module.
- Bi-Directional support for Agility Blue iQ® Fuel System Control Module.:

Bi-Directional Test or Calibration	Supported On
Wiggle Test/Performance Issue Monitoring	<ul style="list-style-type: none"> Agility Blue iQ® Fuel System Control Module.

Heavy-Duty Support for Alexander Dennis

- Supports reading SAE faults and data for Alexander Dennis auxiliary components.

Heavy-Duty Support for Bluebird

- Supports reading SAE faults and data for Bluebird auxiliary components.

Heavy-Duty Features for Dana

- Support reading and clearing proprietary fault and data on Dana CTIS (Central Tire Inflation System) where J1939 communications are available.
- Bi-Directional support for Dana CTIS systems:

Bi-Directional Test or Calibration	Supported On
CTIS Pressure Tests	<ul style="list-style-type: none"> Dana CTIS where J1939 communications are available
CTIS Supply Tank Pressure Test	<ul style="list-style-type: none"> Dana CTIS where J1939 communications are available

Heavy-Duty Support for Detroit Assurance

- Supports proprietary sensor data for the Radar Frontend 2.
- Bi-Directional support for Detroit Assurance:

Bi-Directional Test or Calibration	Supported On
Radar Alignment	<ul style="list-style-type: none"> • Radar Frontend 2
Radar Parameters ✓ Radar Height	<ul style="list-style-type: none"> • Radar Frontend 2

Heavy-Duty Features for Freightliner

- Support reading and clearing faults from all Freightliner auxiliary components.

Heavy-Duty Features for Fuso

- Support for Fuso FE Gas Series trucks (Models FEC7TS, FEC7TW, FEC9TS and FECZTS) through a heavy duty 9 pin connection:
 - Read and clear faults from all vehicle components.
 - Alerts for out of date software for the PSI engine and Fuso SSAM, ABS and ICUC components.

Heavy-Duty Support for International

- Supports reading SAE faults and data for International auxiliary components.

Heavy-Duty Support for PACCAR Body Controllers

- Support for the following PACCAR Body Controllers including clearing faults:
 - CECU3
 - CECU3 500
 - VECU

NOTE: PACCAR Body Controller faults are only supported on 2007 and newer Kenworth and Peterbilt trucks.

NOTE: PACCAR Body Controller faults on the KWP2000 protocol can only be read when using the Noregon DLA+ 3.0, DLA+ 3.0 Wireless, DLA+ 2.0, DLA+ 2.0 Wireless, DLA+, or DLA+ Wireless adapter. If using the Noregon DLA+ or DLA+ Wireless adapter, please ensure the label on the back of the adapter indicates it is 'Rev P Compatible'.

Heavy-Duty Support for Prevest

- Displays all standard and proprietary fault codes for all Prevest auxiliary components.

Heavy-Duty Support for Sterling

- Supports reading SAE faults and data for Sterling auxiliary components.

Heavy-Duty support for Thomas Built

- Supports reading SAE faults and data for Sterling auxiliary components.

Heavy-Duty Support for Mack and Volvo Auxiliary Components

- Displays all standard and proprietary fault codes for all Mack and Volvo components.

Heavy-Duty Support for Van Hool

- Supports reading SAE faults and data for Van Hool auxiliary components.

Heavy-Duty support for Western Star

- Supports reading SAE faults and data for Western Star auxiliary components.

JPRO® OFF-HIGHWAY FEATURES

- Off-Highway supports Caterpillar Off-Highway vehicles.

NOTE: Appropriate off-highway cables are required to connect to vehicles in JPRO®. Refer to the [Cable Connection Guide](#) for assistance with cable selection and finding connector locations.

- Supports SAE J1939 messages.
- Ability to save and playback log files for Off-Highway specific connections.

NOTE: Playing back log files from Off-Highway connections is not supported in JPRO® versions prior to 2021 v1.

Off-Highway support for Bobcat

- Supports proprietary Faults and sensor data for the listed equipment types, models, and engines:
 - Mini-Excavators
 - ✓ E45 with DL02 engine
 - ✓ E50 with DL02 engine
 - ✓ E55 with DL02 engine
 - Track Loaders
 - ✓ T450 with DL02 engine
 - ✓ T550 with DL02 engine
 - ✓ T590 with DL02 engine
 - ✓ T630 with DL03 engine
 - ✓ T650 with DL02 engine
 - ✓ T740 with DL03 engine
 - ✓ T770 with DL03 engine
 - ✓ T870 with DL03 engine
 - Skid Steer Loaders
 - ✓ S530 with DL02 engine
 - ✓ S630 with DL02 engine
 - ✓ S650 with DL02 engine
 - ✓ S740 with DL03 engine
 - ✓ S770 with DL03 engine

- Bi-Directional Support for Bobcat engines:

Bi-Directional Test or Calibration	Supported On
Wiggle Test/Performance Issue Monitoring	DL02, and DL03 engines on applicable equipment

NOTE: Bobcat 6-pin Off-Highway cable is required

Off-Highway support for Caterpillar

- Supports reading SAE faults and sensor data on 2010 and newer models:

Equipment Type	Supported On
Backhoe Loader	415F2 (C3.4B), 415F2 IL (C3.4B), 427F2 (C3.4B)
Compact Track Loader	239D3 (C2.2), 249D3 (C2.2)
Excavator	311F LRR (C3.4B), 312F GC (C3.4B), 313F GC (C3.4B), 320 (C4.4), M323F (C4.4)
Genset	XQ35 (C2.2)
Hydraulic Shovel	6030 (C27)
Industrial Engine	C13 (C13), C13B (C13B), C15 (C15), C18 (C18), C18 (C18), C27 (C27), C3.4B (C3.4B), C4.4 (C4.4), C7 (C7), C9 (C9), C9.3 (C9.3)
Material Handler	MH3037 (C7)
Padfoot Compactor	CP34 (C3.4B), CP44B (C3.4B), CP5 (C3.4B), CP56B (C4.4), CP68B (C4.4), CP74B (C4.4)
Petroleum Power Train (Transmission)	CX31-C13I (C13), CX31-C18I (C18), CX31-P600-C13I (C13), CX31-P600-C9I (C9), CX35-P800-C18I (C18), CX35-P800-C27I (C27), TH35-C13I (C13), TH48-E70-C27I (C27)
Pneumatic Compactor	CW14 (C3.4B), CW16 (C3.4B)
Skid Steer (Both)	216B2 (C2.2), 216B3 (C2.2), 226B2 (C2.2), 226B3 (C2.2), 226D3 (C2.2), 232B2 (C2.2), 232D (C2.2), 232D3 (C2.2), 236D3 (C2.2), 239D (C2.2), 242B2 (C2.2), 247B2 (C2.2), 247B3 (C2.2), 249D (C2.2), 257B2 (C2.2)

Equipment Type	Supported On
Smooth Drum Compactor	CB44B (C3.4B), CB46B (C3.4B), CB54B (C3.4B), CB7 (C3.4B), CB8 (C3.4B), CD10 (C3.4B), CD44B (C3.4B), CD4B (C3.4B), CD54B (C3.4B), CD8 (C3.4B), CS34 (C3.4B), CS44B (C3.4B), CS5 (C3.4B), CS56B (C4.4), CS66B (C4.4), CS68B (C4.4), CS74B (C4.4), CS76B (C4.4), CS78B (C4.4)
Telehandler	TH336C (C3.4B), TH337C (C3.4B), TH3510D (C3.4B), TH357D (C3.4B), TH406C (C3.4B), TH407C (C3.4B), TH408D (C3.4B), TH414C (C3.4B), TH417C (C3.4B), TH514C (C3.4B), TH514D (C3.4B), TL642C (C3.4B), TL642D (C3.4B), TL943C (C3.4B), TL943D (C3.4B)

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Caterpillar off-highway 2010 and newer models:

Equipment Type	Supported On
Asphalt Paver	AP1000 (C7.1), AP1000 F (C7.1), AP1000E (C7.1), AP1055 (C7.1), AP1055 F (C7.1), AP1055E (C7.1), AP1055E/BG1055E (C7.1), AP400 (C3.6), AP455 (C3.6), AP500E (C4.4), AP500F (C4.4B), AP555E (C4.4), AP555F (C4.4B), AP600F (C4.4B), AP655F (C4.4B), BG1000E (C7.1), BG1055E (C7.1), BG500E (C4.4), BG555E (C4.4)
Backhoe Loader	415 (C3.6), 416 (C3.6), 416F (C4.4), 416F (C4.4B), 416F2 (C4.4B), 420 (C3.6), 420 XE (C3.6), 420E (C4.4), 420F (C4.4), 420F (C4.4B), 420F2 (C4.4B), 420F2 IT (C4.4B), 424 (C3.6), 428 (C3.6), 428F (C4.4), 428F2 (C4.4B), 430 (C3.6), 430E (C4.4), 430F (C4.4), 430F (C4.4B), 430F2 (C4.4B), 430F2 IT (C4.4B), 432 (C3.6), 432F (C4.4), 432F (C4.4B), 432F2 (C4.4B), 434 (C3.6), 434F (C4.4), 434F (C4.4B), 434F2 (C4.4B), 440 (C4.4B), 444 (C3.6), 444F (C4.4), 444F (C4.4B), 444F2 (C4.4B), 450 (C4.4B), 450E (C4.4), 450F (C4.4), 450F (C4.4B)
Cold Planer	PM310 (C9.3), PM310 (C9.3B), PM312 (C9.3), PM312 (C9.3B), PM313 (C9.3), PM313 (C9.3B)
Compact Wheel Loader	910 (C3.6), 910M (C4.4B), 914 (C3.6), 914G2 (C4.4), 914M (C4.4B), 918M (C4.4B), 920 (C3.6)

Equipment Type	Supported On
Crawler Dozer	D1 (C3.6), D1 LGP (C3.6), D2 (C3.6), D2 LGP (C3.6), D3 (C3.6), D3 LGP (C3.6), D3K LGP (C4.4), D3K LGP (C4.4B), D3K XL (C4.4), D3K2 LGP (C4.4), D3K2 LGP (C4.4B), D3K2 XL (C4.4), D3K2 XL (C4.4B), D4 (C4.4B), D4K LGP (C4.4), D4K XL (C4.4), D4K2 LGP (C4.4), D4K2 LGP (C4.4B), D4K2 XL (C4.4), D4K2 XL (C4.4B), D5 (C7.1), D5K LGP (C4.4), D5K XL (C4.4), D5K2 LGP (C4.4), D5K2 LGP (C4.4B), D5K2 XL (C4.4), D5K2 XL (C4.4B), D6 (C9.3B), D6 XE (C9.3B), D6K2 (C6.6), D6K2 (C7.1), D6K2 LGP (C4.4B), D6K2 LGP (C6.6), D6K2 XL (C4.4B), D6K2 XL (C6.6), D6N LGP (C6.6), D6N LGP (C7.1), D6N XL (C6.6), D6N XL (C7.1), D6T (C9.3), D6T LGP (C9.3), D6T XL (C9.3), D6T XL VPAT (C9.3), D6T XW (C9.3), D7 (C9.3B), D7E (C9.3), D7E LGP (C9.3), D8 (C15), D8T (C15)

Equipment Type	Supported On
Excavator	312E (C4.4), 312E (C4.4B), 312E L (C4.4), 312E L (C4.4B), 312F (C4.4B), 313 (C3.6), 313 GC (C3.6), 313F (C4.4B), 313F L (C4.4B), 314E CR (C4.4), 314E CR (C4.4B), 314E CR/E LCR (C4.4B), 314E LCR (C4.4), 314E LCR (C4.4B), 314F (C4.4B), 315 (C3.6), 315 GC (C3.6), 315F L (C4.4B), 316E L (C4.4), 316E L (C4.4B), 316F L (C4.4B), 317 (C3.6), 317 GC (C3.6), 318E L (C4.4), 318E L (C4.4B), 318F L (C4.4B), 320 (C4.4B), 320 GC (C4.4B), 320E (C6.6), 320E L (C6.6), 320E LN (C6.6), 320E LRR (C6.6), 320E RR (C6.6), 320E/E L (C6.6), 320E/E L/E LN (C6.6), 320F L (C4.4B), 323 (C7.1), 323E (C6.6), 323E L (C6.6), 323E LN (C6.6), 323E SA (C6.6), 323E/E L/E LN (C6.6), 323F L (C7.1), 323F LN (C4.4B), 323F SA (C4.4B), 324E (C7.1), 324E L (C7.1), 324E/E L (C7.1), 325F L (C4.4B), 326 (C7.1), 326F L (C7.1), 326F LN (C7.1), 329E (C7.1), 329E L (C7.1), 329E LN (C7.1), 329E/E L (C7.1), 329F L (C7.1), 330 (C7.1), 330 GC (C7.1), 330F (C7.1), 330F L (C7.1), 333 (C7.1), 335 (C7.1), 335F L (C7.1), 335F LCR (C7.1), 336 (C7.1), 336 (C9.3B), 336 GC (C7.1), 336E (C9.3), 336E H (C9.3), 336E L (C9.3), 336E LH (C9.3), 336E LN (C9.3), 336E LNH (C9.3), 336F (C9.3), 336F L (C9.3), 336F L XE (C9.3), 336F LN (C9.3), 336F LN XE (C9.3), 336F LXE (C9.3), 336F XE (C9.3), 340 (C9.3B), 340F (C9.3), 345 GC (C9.3B), 349E (C13), 349E L (C13), 349E L HVG (C13), 349E L VG (C13), 349E/E L (C13), 349F (C13), 349F L (C13), 349F/F L (C13), 350 (C9.3B), 352F (C13), 352F-VG (C13), 374F L (C15), M313D (C4.4), M314 (C3.6), M314F (C4.4B), M315 D2 (C4.4), M315D (C4.4), M315F (C4.4B), M316F (C4.4B), M317 D2 (C4.4), M317F (C4.4B), M318F (C7.1), M320F (C7.1), M322 (C7.1), M322F (C7.1), M323F (C4.4B)
Feller Buncher	2570C (C7.1), 2570D (C7.1), 2670C (C7.1), 2670D (C7.1), 521 (C9.3B), 522 (C9.3B), 563C (C7.1), 573C (C7.1)
General Forestry	548 (C7.1), 558 (C7.1), 568 (C9.3), 568 (C9.3B), FM538 (C7.1), FM568 (C9.3B)
Knuckleboom Loader	2384C (C6.6), 2384D (C4.4B), 2484C (C6.6), 2484D (C4.4B), 559C (C6.6), 559D (C4.4B), 579C (C6.6), 579D (C4.4B)
Landfill Compactor	826K (C15)

Equipment Type	Supported On
Load Haul Dump	R2900 (C15)
Log Loader	538 (C7.1), 548 (C7.1), 558 (C7.1), 568 (C9.3), 568 LL (C9.3B), 938K (C6.6), 938M (C7.1), FM538 (C7.1), FM568 (C9.3B)
Material Handler	MH3022 (C7.1), MH3024 (C7.1), MH3026 (C7.1), MH3032 (C7.1), MH3040 (C7.1), MH3050 (C9.3B), MH3250 (C9.3B)
Motor Grader	120 (C7.1), 120M (C7.1), 120M II (C7.1), 12M (C9.3), 14 (C13), 140 (C9.3), 140 GC (C7.1), 140M (C9.3), 14M (C13), 14M III (C13), 150 (C9.3), 16 (C13), 160 (C9.3), 160M (C9.3), 16M (C13), 16M III (C13), 18 (C13), 18M (C13), 18M III (C13)
Off-Highway Truck	725 (C9.3), 725C (C9.3), 725C2 (C9.3), 730 (C13), 730C (C13), 730C2 (C13), 735 (C13), 735B (C15), 735C (C15), 740 (C15), 740B (C15), 770 (C15), 770G (C15)
Padfoot Compactor	815 (C7.1), 815K (C7.1), 816 (C7.1), 816K (C7.1), 824 (C15), 824K (C15), 825 (C15), 825K (C15), 826 (C15), CP11 (C4.4B), CP11 GC (C3.6), CP12 (C4.4B), CP12 GC (C3.6), CP13 GC (C3.6), CP14 (C4.4B), CP16 (C4.4B), CP44 (C4.4), CP54 XT (C4.4), CP54B (C4.4), CP54B (C4.4B), CP56B (C4.4), CP56B (C4.4B), CP68B (C4.4), CP68B (C4.4B), CP7 (C3.6), CP74B (C4.4), CP74B (C4.4B)
Petroleum Power Train (Transmission)	CX31-P600-C9.3I (C9.3), C31-P600-C15I (C15), CX31-P600-C18I (C18), CX35-P800_C18I (C18), CX38-P892-C18I (C18), TH35-C13I (C13), TH35-C15I (C15), TH35-C15T (C15), TH48-E70-C27I (C27)
Pipelayer	PL61 (C4.4B), PL72 (C9.3), PL83 (C15), PL87 (C15)
Pneumatic Compactor	CW34 (C4.4), CW34 (C4.4B)
Road Reclaimer/Recycler	RM500 (C15), RM400 (C9.3B), RM500B (C15)
Site Prep Tractor	2864C (C9.3), 586C (C9.3)

Equipment Type	Supported On
Smooth Drum Compactor	CB10 (C3.6), CB10 (C4.4B), CB13 (C4.4B), CB15 (C4.4B), CB16 (C4.4B), CB34 (C4.4), CB44B (C4.4), CB44B (C4.4B), CB54 (C4.4), CB54B (C4.4), CB54B (C4.4B), CB64 (C4.4), CB64B (C4.4B), CB66B (C4.4B), CB68B (C4.4B), CB7 (C3.6), CB8 (C3.6), CCS7 (C4.4B), CS10 GC (C3.6), CS11 (C4.4B), CS11 GC (C3.6), CS12 (C4.4B), CS12 GC (C3.6), CS13 GC (C3.6), CS14 (C4.4B), CS16 (C4.4B), CS19 (C4.4B), CS44 (C4.4), CS54 (C4.4), CS54 XT (C4.4), CS54B (C4.4), CS54B (C4.4B), CS56B (C4.4), CS56B (C4.4B), CS64B (C4.4), CS64B (C4.4B), CS66B (C4.4), CS66B (C4.4B), CS68B (C4.4), CS68B (C4.4B), CS7 (C3.6), CS74B (C4.4), CS74B (C4.4B), CS76B (C4.4), CS76B (C4.4B), CS78B (C4.4), CS78B (C4.4B)
Telehandler	TH3510 (C3.6), TH3510D (C4.4), TH357 (C3.6), TH357D (C4.4), TH408 (C3.6), TH408D (C4.4), TL1055 (C3.6), TL1055D (C4.4), TL1255 (C3.6), TL1255D (C4.4), TL642 (C3.6), TL943 (C3.6)
Track Loader	953 (C7.1), 953K (C7.1), 963 (C7.1), 963K (C7.1), 973K (C9.3)
Track Processor/Harvester	568 (C9.3)
Wheel Dozer	814 (C7.1), 814K (C7.1)
Wheel Feller Buncher	563D (C7.1), 573D (C7.1)
Wheel Loader	924K (C6.6), 926 (C7.1), 926M (C7.1), 930 (C7.1), 930K (C6.6), 930M (C7.1), 938 (C7.1), 938M (C7.1), 950 (C7.1), 950 GC (C7.1), 950GC (C7.1), 950K (C7.1), 950M (C7.1), 950M Z (C7.1), 962 (C7.1), 962K (C7.1), 962M (C7.1), 962M Z (C7.1), 966 (C7.1), 966 (C9.3B), 966 GC (C9.3B), 966 XE (C9.3B), 966K (C9.3), 966K XE (C9.3), 966M (C9.3), 966M XE (C9.3), 972 (C7.1), 972 (C9.3B), 972 XE (C9.3B), 972K (C9.3), 972M (C9.3), 972M XE (C9.3), 980K (C13), 980M (C13), 982 (C13), 982M (C13), 986 (C15), 986K (C15), 988 GC (C15), R1700 (C13)
Wheel Scraper	621 (C13), 621H (C13), 621K (C13), 623 (C13), 623H (C13), 623K (C13), 627 (C13), 627 (C9.3), 627H (C13), 627H (C9.3), 627K (C13), 627K (C9.3), 637 (C9.3), 637K (C9.3), 657K (C15)

Equipment Type	Supported On
Wheel Skidder	525D (C7.1), 535D (C7.1), 545D (C7.1), 555D (C7.1)

NOTE: CAT 9 or 14 pin Off-Highway cables are required.

- **Bi-Directional support for Caterpillar engines:**

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	C4.4, C6.6, C7.1, C9.3, C9.3B, and C13 engines
Wiggle Test/Performance Issue Monitoring	C4.4, C6.6, C7.1, C9.3, C9.3B, and C13 ACERT T4i & T4 engines on applicable equipment

Off-Highway Support for Cummins

Ammann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Ammann Off-Highway 2013 and newer models:

Equipment Type	Supported On
Soil Compactor	ASC 110 D (QSB4.5)

- Ammann Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5
DPF Service Regen	QSB4.5
SCR Performance and System Test	QSB4.5
Wiggle Test/Performance Issue Monitoring	QSB4.5

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

ASV

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following ASV Off-Highway 2013 and newer models:

Equipment Type	Supported On
Compact Track Loader	RT 75(QSF2.8), RT 120(QSF3.8)

- ASV Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSF3.8
DPF Service Regen	QSF3.8
SCR Performance and System Test	QSF3.8
Wiggle Test/Performance Issue Monitoring	QSF3.8

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Bergman

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bergman Off-Highway 2020 and newer models:

Equipment Type	Supported On
Wheeled Dump Truck	C815S (QSB4.5), C828S (QSB6.7)

- Bergman Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7
DPF Service Regen	QSB4.5
Fuel Leakage Test	QSB6.7

Bi-Directional Test or Calibration	Supported On
SCR Performance and System Test	QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Bomag

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bomag Off-Highway 2010 and newer models:

Equipment Type	Supported On
Mobile Feeder	BMF 2500 Series(QSB5.9)
Drum Roller	BW 200 Series(QSB5.9)

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Ditch Witch

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Ditch Witch Off-Highway 2010 and newer models:

Equipment Type	Supported On
Trencher	HT 275(QSC8.3), HT 275(QSL9)
Directional Drill	JT100 ALL TERRAIN(QSB6.7), JT100(QSB6.7), JT24(F3.8), JT25(QSB4.5), JT30 ALL TERRAIN(QSB4.5), JT30(QSB4.5), JT40(QSB4.5), JT60 ALL TERRAIN(QSB6.7), JT60(QSB6.7), AT 40 ALL TERRAIN(QSB4.5)

- Ditch Witch Bi-Directional support for Cummins engines

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9
DPF Service Regen	F3.8, QSB4.5, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB4.5, QSB6.7, QSL9
Wiggle Test/Performance Issue Monitoring	F3.8, QSB4.5, QSB6.7, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Dynapac

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Dynapac Off-Highway 2010 and newer models:

Equipment Type	Supported On
Tandem Roller	CC 2200 C(QSB3.3), CC2300(QSB3.3), CC3200(QSB3.3)
Compactor	CP 1200(QSF2.8), CP 274(QSB4.5), CT3000(QSB6.7), F1000T(QSB6.7)
Wheeled Finisher	FC1400C II(QSF2.8), F 2500 CS(QSB6.7), F 2500 W(QSB6.7), F 3030C(QSB6.7), F 2500 C, (QSB6.7), F 2500 CS,(QSB6.7), MF2500CL(QSB6.7), MF2500CM(QSB6.7), MF2500CS (QSB6.7), F1000W(QSB6.7), F800T(QSB6.7), F800W(QSB6.7)
Vibratory Roller	150 A (QSB3.3), 150 AD(QSB3.3), CA 150 P(QSB3.3), CA 150(QSB3.3), CA 1300 PD(QSB4.5), CA 250 D-II(QSB4.5), CA 250 PD(QSB4.5), CA 2500 D(QSB4.5), CA 2500 PD(QSB4.5), CA 250-II(QSB4.5), CA 252 D(QSB4.5), CA 252(QSB4.5), CA 302 D(QSB4.5), CA 302 PD(QSB4.5), CA 3500 D(QSB4.5), CA

Equipment Type	Supported On
	3500 D(QSF3.8), CA 3500 PD(QSB4.5), CA 3500 PD(QSF3.8), CA 362 D(QSB6.7), CA 362 PD(QSB6.7), CA 4000 D(B4.5), CA 4000 D(QSB4.5), CA 4000 PD(B4.5), CA 4000 PD(QSB4.5), CA 702 D(QSB6.7), CA 702 PD(QSB6.7), CA2500(QSB4.5), CA5500D(B4.5), CA5500PD(B4.5), CA6000D(B4.5), CC 4000 C VI(QSF3.8), CC 4000 VI(QSF3.8), CC 4200 C VI(QSF3.8), CC 4200 C(QSB4.5), CC 4200 VI(QSF3.8), CC 4200(QSF3.8), CC 5200 C VI(QSF3.8), CC 5200 C(QSB4.5), CC 5200(QSB4.5), CC 6200 C VI(QSF3.8), CC 6200 VI(QSF3.8), CC 6200(QSB4.5), CC 7200(QSB6.7),

- Dynapac Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSF3.8
DPF Service Regen	B4.5, QSB4.5, QSF3.8
Fuel Leakage Test	QSB6.7
SCR Performance and System Test	QSB4.5, QSB6.7, QSF3.8
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSF3.8

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Gradall

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Gradall Off-Highway 2010 and newer models:

Equipment Type	Supported On
Wheel Excavator	D 152(ISB6.7), D 154(ISB6.7)
Hydraulic Excavator	D 172(ISB6.7), D 174(ISB6.7)

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Hitachi

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hitachi Off-Highway 2010 and newer models:

Equipment Type	Supported On
Wheeled Loader	ZW310-5A(QSM11), ZW330(QSM11)ZW370(QSX15), ZW140ZW150(QSB4.5), ZW140-6 (QSB4.5), ZW180(QSB6.7), ZW180-5(QSB6.7), ZW200-5(QSB6.7), ZW200-5A(QSB6.7), ZW200-6(QSB6.7), ZW310-6(QSL9),

- Hitachi Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9
DPF Service Regen	QSB4.5, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB4.5, QSB6.7, QSL9
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Hydrema

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hydrema Off-Highway 2013 and newer models:

Equipment Type	Supported On
Loader Backhoe	906 E(QSB4.5), 908 E(QSB4.5)
Off Highway Truck	912 F(QSB4.5), 922 C(QSB5.9), 922 C(QSB6.7), H 926 E-ESD(QSB4.5), H 928 E-ESD(QSB4.5)
Wheel Excavator	MX 14(QSB4.5), MX 16(QSB4.5), MX 18(QSB4.5)

- Hydrema Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7
DPF Service Regen	QSB4.5
Fuel Leakage Test	QSB6.7
SCR Performance and System Test	QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Hyundai CE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hyundai CE Off-Highway 2010 and newer models:

Equipment Type	Supported On
Excavator	210W-9A(QSB6.7), 220LC-9A(QSB6.7), 235LCR-9A(QSB6.7), 260LC-9A(QSB6.7), 300LC-9A(QSB6.7), 330LC-9A(QSL9), 380LC-9A(QSL9), HX140A L(QSF3.8), HX140LC(QSF3.8), HX220AL(QSB6.7), HX220L(QSB6.7), HX220LR(QSB6.7), HX300L(QSB6.7), R850LC-9(QSX15), 480LC-9 MH, (QSM11), 480LC-9A(QSX11.9), 520LC-9A(QSX11.9), HX480A L(X12), HX520A L(X12), R480LC-9(QSM11), R800LC-7A, (QSX15), R800LC-9, (QSX15), R800LC-

Equipment Type	Supported On
	9A, (QSX15), R800LC-9A,(QSX15), R850LC-9(QSX15)
Wheel Loader	HL 935, (QSB6.7), HL 940, (QSB6.7), HL 955(QSB6.7), HL760-9(QSB6.7), HL770-9(QSL9), HL980A XT(X12), HL980A(X12)
Compactor	HR110C(QSF3.8), HR120C(QSF3.8), HR140C(QSF3.8)
Wheel Excavator	HW140A(QSB4.5), HW160A,(QSB4.5), HW170A CR(QSB4.5), HW210(QSB6.7), HW210(QSB6.7), HW210A(QSB6.7), HW250A MH(QSB6.7)
Compact Loader	R110C, (QSF3.8), R140C(QSF3.8), R140W-9A(QSB6.7)

- Hyundai CE Bi-Directional support for Cummins engines

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15
DPF Service Regen	QSB4.5, QSF3.8, QSL9, QSX15
Fuel Leakage Test	QSB6.7, QSL9, QSX15
SCR Performance and System Test	QSB4.5, QSB6.7, QSF3.8, QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

JCB

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following JCB Off-Highway 2010 and newer models:

Equipment Type	Supported On
Wheel Loader	467ZX(QSM11), 427(QSB6.7), 435S(QSB6.7), 437(QSB6.7), 437HT(QSB6.7), 457HT(QSB6.7), 457S(QSB6.7), 457ZX(QSB6.7)
Articulated Dump Truck	700(QSB6.7)
Backhoe Loader	HMEE(QSB6.7)

- JCB Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB6.7
DPF Service Regen	QSB6.7
SCR Performance and System Test	QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Kalmar

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kalmar Off-Highway 2010 and newer models:

Equipment Type	Supported On
Off-Highway Truck	T2(B6.7), TT618i(B6.7)

- Kalmar Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	B6.7
DPF Service Regen	B6.7
Fuel Leakage Test	B6.7

Bi-Directional Test or Calibration	Supported On
SCR Performance and System Test	B6.7
Wiggle Test/Performance Issue Monitoring	B6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Kawasaki KCM

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kawasaki KCM Off-Highway 2010 and newer models:

Equipment Type	Supported On
Wheel Loader	90ZV-2(QSM11)
Wheeled Loader	60ZV-2 SERIES(QSB4.5), 70TM7 SERIES(QSB6.7), 70TMV-2(QSB6.7), 70Z7 SERIES(QSB6.7), 70ZV SERIES(QSB6.7), 70ZV-2 SERIES(QSB6.7), 80Z7(QSB6.7), 80ZV-2(QSB6.7), 85ZV(QSL9), 90Z7(QSL9), 90ZV(QSL9)

- Kawasaki KCM Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9
DPF Service Regen	QSB4.5, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB4.5, QSB6.7, QSL9
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Leeboy

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Leeboy Off-Highway 2010 and newer models:

Equipment Type	Supported On
Road Widener	RW-85(QSF2.8), 4130B(QSF3.8)
Force Feed Loader	3000C(QSF3.8)
Motor Grader	685D(QSF3.8), 695B(QSF3.8), G700B(QSF3.8)
Asphalt Pavers	8816(QSF3.8)
Chip Spreader	CSM(QSB4.5), CSV(QSB4.5)

- LEEBOY Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSF3.8
DPF Service Regen	QSB4.5, QSF3.8
SCR Performance and System Test	QSB4.5, QSF3.8
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSF3.8

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Liebherr

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Liebherr Off-Highway 2010 and newer models:

Equipment Type	Supported On
Material Handler	LH 24(QSB4.5), LH 26(QSB4.5)
Rough Terrain Crane	LRT 1090-2.1(QSB6.7)
Crane	LRT 1100-2.1(QSB6.7)

Equipment Type	Supported On
Excavator	R 922(QSB6.7), R 924(QSB6.7)

- Liebherr Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7
DPF Service Regen	QSB4.5
Fuel Leakage Test	QSB6.7
SCR Performance and System Test	QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Link-Belt

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Link-Belt Off-Highway 2010 and newer models:

Equipment Type	Supported On
Rough Terrain Crane	100 RT(QSB6.7), 120 RT(QSB6.7), 75 RT(QSL9), RTC 80160 SII(QSL9), RTC 8050 SII(QSB4.5), RTC 8065 SII(QSB6.7), RTC 8090(QSL9)
All Terrain Crane	175 AT(QSX15), ATC 3200(QSB6.7)
Crane	138 HSL(QSB6.7), 228 HSL(QSB6.7), 238 HSL(QSB6.7), HTC 8660 SL(QSM11), HTC 8675 Series II(QSX15), HTC 8690 LB(ISX12), HTC 8690 LB(QSX15), HTC 8690(ISX12), HTC 8690(QSX15), 138 HSL(QSB6.7 CM2350), 218 V(QSB6.7), 228 HSL(QSB6.7 CM2350), 238 HSL(QSB6.7 CM2350), 248 HSL(QSB6.7), 298 HSL(QSL9), 348 HSL(QSL9), TCC 1200(QSL9), TCC 1400(QSL9), TCC 2500(QSL9), TCC 500(QSL9), TCC 750(QSB6.7), TCC 800(QSB6.7)

Equipment Type	Supported On
Telescopic Crane	HTT 86100(QSX15), HTT 86100(X12), HTT 86110(QSX15), HTT 86110(X12), HTT 8675(QSX15), HTT 8675(X12)

- Link-Belt Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9, QSX15
DPF Service Regen	QSB4.5, QSL9, QSX15
Fuel Leakage Test	QSB6.7, QSL9, QSX15
SCR Performance and System Test	QSB4.5, QSB6.7, QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Liugong

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Liugong Off-Highway 2010 and newer models:

Equipment Type	Supported On
Cold Planer	5100-2(QSB5.9)
Wheel Loader	886H(QSM11), 890H(QSM11), 890H(X12)
Excavator	945E(QSM11), 950E(QSG12), 950E(X12), 950F(X12), 970E(QSX15)
Mining Truck	DR50C(QSX15), DW90A(QSM11)
Directional Drill	RD45A-CS(QSC8.3), SD36A(QSM11), SH32(QSM11), SH36C(QSM11), SH39(QSM11), SH46A(QSX15)

Equipment Type	Supported On
Diaphragm Wall Grab	SG50A(QSM11), SG70(QSM11)
Trencher	SX40A(QSM11), SX50(QSX15)
Dozer	230C(B6.7)
Paver	509A(QSB6.7)
Vibratory Roller	6212E(QSB4.5), 6213E(QSB4.5), 6214E(QSB4.5), 6520E(QSB4.5), 6612E(QSB4.5)
Wheel Loader	CLG856H(QSB6.7), 848H(QSB6.7), 856H(B6.7), 856H(QSL9), 862H(QSL9), 870H(QSL9), 877H(L9)
Excavator	913E(QSF3.8), 915E(QSB4.5), W915E(QSB4.5), 936E(QSL), 939E(L9)

- Liugong Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	B6.7, QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15
DPF Service Regen	B6.7, L9, QSB4.5, QSF3.8, QSL9, QSX15
Fuel Leakage Test	B6.7, QSB6.7, QSL9, QSX15
SCR Performance and System Test	B6.7, L9, QSB4.5, QSB6.7, QSF3.8, QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	B6.7, QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Manitowoc

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Manitowoc Off-Highway 2010 and newer models:

Equipment Type	Supported On
Crane	1015(QSX15), 15000(QSM11), 16000(QSX15), 18000(QSX15), 2250(QSX15), 31000(QSX15), 777(QSC8.3), 888(QSM11), 999(QSM11), MLC300(QSG12), MLC650(QSX15), 14000(QSL9),
Wheel Loader	555(QSL9)
Crane	MLC100(QSB6.7), MLC100A(QSB6.7), MLC150(QSB6.7), MLC165(QSB6.7), MLC80A(QSB6.7), MLC90A(QSB6.7)

- Manitowac Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB6.7, QSL9, QSX15
DPF Service Regen	QSL9, QSX15
Fuel Leakage Test	QSB6.7, QSL9, QSX15
SCR Performance and System Test	QSB6.7, QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	QSB6.7, QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

New Holland CE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following New Holland CE Off-Highway 2010 and newer models:

Equipment Type	Supported On
Dozer	D350(QSM11)

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Pettibone

- Bi-Directional support for Cummins engines, reading proprietary diagnostic fault codes, event codes, and data for the following Pettibone Off-Highway 2010 and newer models:

Equipment Type	Supported On
Telehandler	1056x (QSF3.8), 1246x (QSF3.8), 1256x (QSF3.8), 1544x (QSF3.8), T944x (QSF3.8), T1056X (QSF3.8), T1246X (QSF3.8), T1256X (QSF3.8), 445F2 (QSF3.8)

- Pettibone Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	1056x (QSF3.8), 1246x (QSF3.8), 1256x (QSF3.8), 1544x (QSF3.8), T944x (QSF3.8), T1056X (QSF3.8), T1246X (QSF3.8), T1256X (QSF3.8), 445F2 (QSF3.8)
DPF Service Regen	1056x (QSF3.8), 1246x (QSF3.8), 1256x (QSF3.8), 1544x (QSF3.8), T944x (QSF3.8), T1056X (QSF3.8), T1246X (QSF3.8), T1256X (QSF3.8), 445F2 (QSF3.8)
SCR Performance and System Test	1056x (QSF3.8), 1246x (QSF3.8), 1256x (QSF3.8), 1544x (QSF3.8), T944x (QSF3.8), T1056X (QSF3.8), T1246X (QSF3.8), T1256X (QSF3.8), 445F2 (QSF3.8)
Wiggle Test/Performance Issue Monitoring	1056x (QSF3.8), 1246x (QSF3.8), 1256x (QSF3.8), 1544x (QSF3.8), T944x (QSF3.8), T1056X (QSF3.8), T1246X (QSF3.8), T1256X (QSF3.8), 445F2 (QSF3.8)

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Sakai

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sakai Off-Highway 2010 and newer models:

Equipment Type	Supported On
Vibratory Roller	SV414D(QSF2.8), SV414T(QSF2.8), SV544D(QSF3.8), SV544T(QSB4.5)
Tandem Roller	SW994(QSF3.8)

- SAKAI Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSF3.8
DPF Service Regen	QSB4.5, QSF3.8
SCR Performance and System Test	QSB4.5, QSF3.8
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSF3.8

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Sany

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sany Off-Highway 2010 and newer models:

Equipment Type	Supported On
Crane	SCC3500A(QSM11)
Cold Planer	SCM600-3(QSX15)
Grader	SMG200C-6(QSC8.3), SAG200C-6(QSB6.7)
Combination Roller	SPR260C-6(QSB5.9), SPR300C-6(QSB5.9)
Asphalt Pavers	SAP60C-7(QSB4.5)

Equipment Type	Supported On
Crane	SCC1350A(QSL9), SCC2600A(QSL9)
Grader	SMG180C-6(QSB6.7), SMG200C-6(QSB6.7)
Vibratory Roller	SSR100C-6(QSB4.5), SSR120C-6(QSB4.5)
Excavator	SY215C(QSB6.7), SY215CLC(QSB6.7), SY225C(QSB6.7), SY235CLC(QSB6.7), SY265C(QSB6.7), SY305C LC(QSL9), SY335C LC(QSL9), SY365C(QSL9), SY390H(QSL9), SY500H(QSG12)

- SANY Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9
DPF Service Regen	QSB4.5, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB4.5, QSB6.7, QSL9
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Sennebogen

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sennebogen Off-Highway 2010 and newer models:

Equipment Type	Supported On
Crane	6100E (QSX15), 690 HD(QSM11), 690 HD(QSX15), 1100(QSB6.7), 1100E(QSB6.7)
Cycle Crane	640(B6.7), 624(B6.7), 730(QSB6.7), 738 M(QSB6.7), 818 M(QSB4.5), 821R E(B4.5), 824 G(B4.5), 825 M(QSB6.7)

Equipment Type	Supported On
Material Handler	8100(QSB4.5), 8130 EQ(QSB4.5), 8160 EQ(QSB6.7)

- Sennebogen Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	B6.7, QSB4.5, QSB6.7
DPF Service Regen	B4.5, B6.7, QSB4.5
Fuel Leakage Test	B6.7, QSB6.7
SCR Performance and System Test	B6.7, QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	B6.7, QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Tadano Faun

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Tadano Faun Off-Highway 2010 and newer models:

Equipment Type	Supported On
Crane	GTC-350(QSB4.5), GTC-600(QSB6.7), GTC-800(QSB6.7)

- Tadano Faun Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7
DPF Service Regen	QSB4.5
Fuel Leakage Test	QSB6.7

Bi-Directional Test or Calibration	Supported On
SCR Performance and System Test	QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Terex

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Terex Off-Highway 2010 and newer models:

Equipment Type	Supported On
All Terrain Crane	MAC 50(QSC)
Skid Steer	R265T(QSF2.8)
Articulated Dump Truck	TA 251(QSM11), TA 27-7(QSM11), TA 300(QSM11), TA 30-7(QSM11), TA25-7(QSC8.3), TA25-7(QSM11), TA 27-7(QSL9)
Wheel Loader	TL 420(QSM11), TL 450(QSM11)
Rock Truck	TR 35(QSM11)
Crane	T340-1(QSC8.3), 1065(QSB6.7), 1075(QSB6.7), 1100(QSB6.7), RT 130(QSL9), RT 230(QSB4.5), RT 555(QSB6.7), RT 670(QSB6.7), T 340-1 XL(L9)
Rough Terrain Crane	RT 780(QSB6.7)
Hydraulic Excavator	TC 210 LC(QSB6.7), TC 210(QSB6.7), TC 240 LC(QSB6.7), TC 240(QSB6.7), TC 260 LC(QSB6.7), TC 260(QSB6.7)
Wheel Loader	TL 210(QSB6.7), TL 260(QSB6.7), TL 310(QSB6.7)
Excavator	TW 190(QSB6.7), TW 240(QSB6.7)

- Terex Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSL9
DPF Service Regen	L9, QSB4.5, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	L9, QSB4.5, QSB6.7, QSL9
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Tiger Cat

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Tiger Cat Off-Highway 2010 and newer models:

Equipment Type	Supported On
Loader	234(QSB6.7), 845(QSB6.7)
Material Handler	600D(QSB6.7)
Mulcher	M700 SERIES(QSB6.7)

- Tiger Cat Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB6.7
Fuel Leakage Test	QSB6.7
SCR Performance and System Test	QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Vermeer

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Vermeer Off-Highway 2010 and newer models:

Equipment Type	Supported On
Chipper	BC1200XL(QSB3.3), BC2100XL(QSB6.7)
Tractor	FT100(QSF3.8), FT300(QSL9)

- Vermeer Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB6.7, QSF3.8, QSL9
DPF Service Regen	QSF3.8, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB6.7, QSF3.8, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Wirtgen

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Wirtgen Off-Highway 2010 and newer models:

Equipment Type	Supported On
Cold Planer	W 100 XFI(QSL9), W 120 XFI(QSL9), W 120 XTI(QSL9), W 130 XFI(QSL9), W 150 CFI(QSL9), W 250I(QSL9), W 200 FI(QSX15), W 200 HI(QSX15), W 207 FI(QSX15), W 250I(QSX15)

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- Wirtgen Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSL9, QSX15
DPF Service Regen	QSL9, QSX15
Fuel Leakage Test	QSL9, QSX15
SCR Performance and System Test	QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Wollard

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Wollard Off-Highway 2013 and newer models:

Equipment Type	Supported On
Passenger Stair	CMPS 170(B3.3), CMPS 228(B3.3), TML 704(B3.3)
Tug	M 100(QSB3.3)
Conventional Pushback Tractor	M 60(QSF2.8)
Loader	TC 1000(B3.3)
Tug	M 100(QSB4.5)
Conventional Pushback Tractor	M 140(QSB4.5), M 200(QSB4.5), M 400(QSB6.7), MB 2(QSB6.7), MB 4(QSB4.5), MB 4(QSB6.7)

- Wollard Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7
DPF Service Regen	QSB4.5
Fuel Leakage Test	QSB6.7
SCR Performance and System Test	QSB4.5, QSB6.7
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

XCMG

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following XCMG Off-Highway 2013 and newer models:

Equipment Type	Supported On
Wheel Loader	LW1100KN(QSX15), LW1200KN(QSX15), LW600K(QSC8.3), LW700KV(QSM11), LW800K(QSM11), LW800KN(QSM11), LW820G(QSM11), LW900KN(QSM11)
Grader	GR135C(QSB4.5), GR180C(QSB6.7), GR300(QSL9)
Rough Terrain Crane	RT100(QSL9), RT120E(QSL9), RT200E(QSL9), RT25(QSB6.7), RT35(QSB6.7), RT40E(QSB6.7), RT50(QSB6.7), RT50A(QSB6.7), RT55E(QSB6.7), RT55U(QSB6.7), RT60(QSB6.7), RT60A(QSB6.7), RT70E(QSB6.7), RT70U(QSB6.7), RT80(QSL9), RT90E(QSL9), RT90U(QSL9)
Backhoe Loader	XC870HK(QSB4.5), XC870K(QSB4.5)
Vibratory Roller	XD121(QSF3.8), XS142(B5.9), XS162(B5.9), XS182(B5.9), XS202(B5.9), XS222(B5.9)

Equipment Type	Supported On
Excavator	XE210C(QSB6.7), XE250C(QSB6.7), XE300U(QSB6.7)
Crane	QUY80(QSC8.3), XG500(QSM11), XGC100(QSC8.3), XGC300(QSM11), XGC400(QSM11), XGC650(QSX15), QUY150(QSL9), QUY250(QSL9), QUY260(QSL9), QUY280(QSL9), QUY70(QSB6.7), XG360(QSL9), XGC130(QSL9), XGC260(QSL9), XGC55(QSB6.7), XE470C(QSM11), XE470CK(QSM11), XE470U(QSM11), XE490CH(X12), XE490CK(X12), XE490U(X12), XE500C(QSM11), XE500CA(QSM11), XE500D(QSM11), XE700C(QSX15), XE700D(QSX15), XE900C(QSX15), XE900D(QSX15)
Directional Drill	XMZ130(QSB6.7), XMZ160(QSB6.7), XR180D(QSB6.7), XR180D-II(QSB6.7), XR220(QSL9), XR220A(QSL9), XR220D(QSL9), XR220D-II(QSL9), XR260D(QSL9), XM200(QSX15), XR120D(B5.9), XR200(QSM11), XR250(QSM11), XR280(QSM11), XR280D(QSM11), XR280D-II(QSM11), XR320D(QSM11), XR360(QSM11), XR400D(QSX15), XR400E(QSX15), XR460D(QSX15), XRS1050(QSM11), XZ260(QSB5.9), XDY2000(X12)

- XCMG Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15
DPF Service Regen	QSB4.5, QSF3.8, QSL9, QSX15
Fuel Leakage Test	QSB6.7, QSL9, QSX15
SCR Performance and System Test	QSB4.5, QSB6.7, QSF3.8, QSL9
Wheel Speed Chart Test or Wheel Speed Window Test	QSX15
Wiggle Test/Performance Issue Monitoring	QSB4.5, QSB6.7, QSF3.8, QSL9, QSX15

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

ZoomLion

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following ZoomLion Off-Highway 2013 and newer models:

Equipment Type	Supported On
Diaphragm Wall Grab	ZDG650(QSM11)
Excavator	ZE135E(QSF3.8), ZE135E-10F(QSF3.8), ZE155E-10(QSF3.8), ZE480E(QSM11), ZE700E(QSX15), ZR220A(QSL9)
Directional Drill	ZR280C(QSM11), ZR360C(QSM11), ZR360L(QSM11)
Rough Terrain Crane	RT25(QSB6.7), RT35(QSB6.7), RT60(QSB6.7), RT61(QSB6.7), RT65(QSB6.7), RT75(QSB6.7), RT100(QSC8.3), RT110(QSC8.3)
Trencher	RT80(QSB6.7)
Crane	QUY180(QSL9), ZCC1300(QSL9), ZCC2600(QSL9)

- ZoomLion Bi-Directional support for Cummins engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	QSB6.7, QSF3.8, QSL9
DPF Service Regen	QSF3.8, QSL9
Fuel Leakage Test	QSB6.7, QSL9
SCR Performance and System Test	QSB6.7, QSF3.8, QSL9
Wiggle Test/Performance Issue Monitoring	QSB6.7, QSF3.8, QSL9

NOTE: Cummins 3-pin or 9-pin off-highway cables are required.

NOTE: The models listed above are verified to work in JPRO. Users may be able to connect to additional models and attain partial or complete coverage functionality.

Off-Highway support for John Deere

- Supports SAE Faults and sensor data for the listed equipment types and models:
 - Backhoes
 - ✓ 310L with John Deere 6068 diesel engine
 - ✓ 310L EP with Yanmar 4TNV diesel engine
 - ✓ 310SL with John Deere 6068 diesel engine
 - ✓ 310SL HL with John Deere 6068 diesel engine
 - ✓ 410L with John Deere 6068 diesel engine
 - Dozers
 - ✓ 450K with John Deere 4045 diesel engine
 - ✓ 450K LGP with John Deere 4045 diesel engine
 - ✓ 650K with John Deere 4045 diesel engine
 - ✓ 650K LGP with John Deere 4045 diesel engine
 - ✓ 700L XLT / 700L LGP with John Deere 6068 engine
 - ✓ 750L with John Deere 6068 diesel engine
 - ✓ 750L XLT with John Deere 6068 diesel engine
 - ✓ 750L LGP with John Deere 6068 diesel engine
 - ✓ 850L with John Deere 6090 diesel engine
 - ✓ 850L WLT with John Deere 6090 diesel engine
 - ✓ 850L LGP with John Deere 6090 diesel engine
 - Compact Loaders
 - ✓ 317G with Yanmar 4TNV engine
 - ✓ 325G with Yanmar 4TNV engine
 - ✓ 331G with Yanmar 4TNV engine
 - ✓ 333G with Yanmar 4TNV engine
 - Excavator
 - ✓ 35G with Yanmar 3TNV engine
 - ✓ 30G with Yanmar 3TNV engine
 - ✓ 50G with Yanmar 4TNV engine
 - ✓ 75G with Yanmar 4TNV engine
 - ✓ 60G with Yanmar 4TNV engine
 - ✓ 85G with Yanmar 4TNV engine
 - ✓ 130G with John Deere 4.5L engine
 - ✓ 160G LC with John Deere 4.5 L engine
 - ✓ 200G with John Deere 4.5 L engine
 - ✓ 210G LC with John Deere 6.8L 6068HT106 engine
 - ✓ 250G LC with John Deere 6.8 L engine

- ✓ 350 P-Tier with John Deere 9.0 L engine
- ✓ 470 P-Tier with John Deere 6135 engine
- Skid Steer Loaders
 - ✓ 317G with Yanmar 4TNV engine
 - ✓ 318G with Yanmar 4TNV engine
 - ✓ 320G with Yanmar 4TNV engine
 - ✓ 330G with Yanmar 4TNV engine
- Wheel Loaders
 - ✓ 524P with John Deere 6068 engine
 - ✓ 544 P-Tier with John Deere 6068 engine
 - ✓ 624 P-Tier with John Deere 6068 engine
 - ✓ 644P with John Deere 6068 engine
 - ✓ 844 P-Tier with John Deere 6135 engine
- Bi-Directional support for Caterpillar engines:

Bi-Directional Test or Calibration	Supported On
Wiggle Test/Performance Issue Monitoring	3TNV, 4045, 4TNV, 6068, 6090, 6135 engines on applicable equipment

Off-Highway Support for Komatsu

- Supports proprietary Faults and sensor data for the listed equipment types, models, and engines:
- Excavators
 - ✓ PC138USLC-11 with SAA4D95LE-7 engine
 - ✓ PC200LC-8 with SAA6D107E-1 engine
 - ✓ PC210LC-10 with SAA4D95LE-7 engine
 - ✓ PC210LC-11 with SAA6D107E-3 engine
 - ✓ PC290LC-11 with SAA6D107E-3 engine
 - ✓ PC360LC-10 with SAA6D114E-5 engine
 - ✓ PC360LC-11 with SAA6D114E-6 engine
 - ✓ PC490LC-11 with SAA6D125E-7 engine
 - ✓ PC88MR-10 with SAA4D95LE-6 engine
 - ✓ PC88MR-11 with SAA4D95LE-6 engine
- Wheel Loaders
 - ✓ WA270-7 with SAA6D107E-2 engine

JPRO® OFF-HIGHWAY FEATURES (CONT.)

- ✓ WA320-7 with SAA6D107E-2 engine
- ✓ WA380-7 with SAA6D107E-2 engine
- ✓ WA270-8 with SAA6D107E-3 engine
- ✓ WA320-8 with SAA6D107E-3 engine
- ✓ WA380-8 with SAA6D107E-3 engine

NOTE: Komatsu 12-pin Off-Highway cable is required

- Bi-Directional support for Komatsu equipment:

Bi-Directional Test or Calibration	Supported On
Aftertreatment Injector Flow Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Aftertreatment Injector Leak Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Aftertreatment Injector Shutoff Valve Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Cylinder Cut Out	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
DEF Doser Pump Override Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
DPF Service Regen	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Fuel Injector Performance Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Fuel Leakage Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
SCR Performance and System Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
Wiggle Test/Performance Issue Monitoring	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7
VGT Hysteresis Test	<ul style="list-style-type: none"> • SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7

Off-Highway Support for Kubota

- Supports proprietary Faults and sensor data for the listed equipment types, models, and engines:
 - Kubota Compact Track Loader

JPRO® OFF-HIGHWAY FEATURES (CONT.)

- ✓ SVL75-2 with V3307-CR-TE4 engine
 - ✓ SVL95-2s with V3800-TIEF4 engine
 - ✓ SVL97-2 with V3800-TIEF4 engine
- Kubota Skid Steer Loader
 - ✓ SSV75 with V3307-CR-TE4 engine
- Kubota Power Utility Excavator
 - ✓ KX080-4 with V3307-CR-TE4 engine
- Sunward America Tracked Skid Steep Loader
 - ✓ SWTL4538 with V3307-CR-TE4 engine
- Takeuchi Compact Track Loader
 - ✓ TL8R2 with V3307-CR-TE4 engine
 - ✓ TL12V2 with V3800-TIEF4 engine
- Bi-Directional support for Kubota engines:

Bi-Directional Test or Calibration	Supported On
Cylinder Cut Off Test	V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment
DPF Regen	V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment
Wiggle Test/Performance Issue Monitoring	V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment

JPRO® MEDIUM-DUTY FEATURES

- Medium Duty supports reading emissions faults and data from all standard US OBD vehicles since 2007.
- Supports the medium-duty ISO 15765, ISO 14229, J1850, GMLAN (CAN-based) and KWP2000 (CAN-based) messages.
- Enhanced connection support with greater diagnostic capabilities for newer Medium-Duty vehicles outside of the supported year range.
- Supports continuous refresh of selected data in the [Data Monitor](#) window.
- View Emissions on-board test results in the [Emissions Test Results](#) window.
- Aftertreatment Diagnostics displays data from aftertreatment related components, including Soot Level, and EGR data for rapid troubleshooting of the aftertreatment system.
 - Ability to view the following subsystems with related data:
 - ✓ DEF Tank and Pump
 - ✓ DPF and DOC
 - ✓ Engine, EGR, and Turbocharger
 - ✓ SCR
 - Search the Data tab to quickly identify parameters of interest.
 - Aftertreatment Diagnostics supports the following Medium-Duty manufacturers:
 - ✓ Ford
 - ✓ GM
 - ✓ Hino
 - ✓ Isuzu

Medium-Duty Support for Ford

- Supports the following Ford models:
 - ✓ F-series – 2004 to 2022
 - ✓ F-650 & F-750 – 2004 to 2022
 - ✓ Econoline E-series – 2004 to 2022
 - ✓ Ford Motorhome/Incomplete Chassis (F-59/F-53) – 2015 to 2021
 - ✓ Transit Connect – 2004 to 2018
 - ✓ Transit vehicles – 2004 to 2021
- Supports the medium duty ISO 15765 and ISO 14229 messages.

JPRO® MEDIUM-DUTY FEATURES (CONT.)

- Gives users the ability to read and clear faults, read freeze frames, read sensor data, and display emission test results.
- Bi-Directional support for Ford engines:

Bi-Directional Test	Supported On
DPF Regeneration	<ul style="list-style-type: none"> • 2008 - 2010 6.4L diesel engines • 2011 - 2022 6.7L diesel engines
KAM (Keep Alive Memory) Reset	<ul style="list-style-type: none"> • All supported engines
KOEO On Demand Self-Test	<ul style="list-style-type: none"> • All supported engines
KOER On Demand Self-Test	<ul style="list-style-type: none"> • All supported engines
KOEO Injector Buzz Test	<ul style="list-style-type: none"> • All supported engines
KOER Glow Plug Monitor Self-Test	<ul style="list-style-type: none"> • All supported diesel engines
KOER Switch Test	<ul style="list-style-type: none"> • 2004 - 2021 All supported diesel engines
Misfire Monitor Test	<ul style="list-style-type: none"> • 2008 – 2021 All supported gasoline engines
Misfire Profile Correction Learn Test	<ul style="list-style-type: none"> • 6.8L V-10 Gasoline Engines
Power Balance Test	<ul style="list-style-type: none"> • 2008 - 2010 6.4L diesel engines • 2011 - 2022 6.7L diesel engines • 6.8L V-10 Gasoline Engines
Relative Compression Test	<ul style="list-style-type: none"> • All supported engines 2008 - 2022 (except for 2009 6.4L Diesel)
Set EGR Position	<ul style="list-style-type: none"> • 2011 - 2021 6.7L diesel engines
Set EGR Throttle	<ul style="list-style-type: none"> • 2011 - 2021 6.7L diesel engines
Transmission Adaptive Learn Tests <ul style="list-style-type: none"> ✓ Clear Transmission Adaptive Tables ✓ Stop Using Transmission Adaptive Tables ✓ Halt Transmission Adaptive Learning ✓ Resume Transmission Adaptive Learning 	<ul style="list-style-type: none"> • 2018 to 2021 Ford Motorhome/Incomplete Chassis (F-59) with: 6.8L gasoline engines <ul style="list-style-type: none"> ○ 6.8L CNG engines ○ 7.3L gasoline engines

- Bi-Directional support for Ford Transmissions:

Bi-Directional Test	Supported On
KOEO On Demand Self-Test	<ul style="list-style-type: none"> • 2004 - 2021 transmissions
KOER On Demand Self-Test	

- Bi-Directional support for Ford Brakes:

Bi-Directional Test	Supported On
G – Sensor Calibration Test	<ul style="list-style-type: none"> • 2004 - 2021 brakes
On Demand Self-Test	
Sensor Initialization	

- Bi-Directional support for Ford 2004 – 2018 auxiliary components (when component is available):

Bi-Directional Test	Supported On
On-Demand Self-Test	<ul style="list-style-type: none"> • 4X4 Control Module (4x4m) • Accessory Protocol Interface Module (APIM) • Audio Control Module (ACM) • (Audio) Digital Signal Processing Module (DSP) • Body Control Module (BdyCM) • Circuit Deactivation Ignition Module (CDIM) • Cruise-Control Module (C-CM) • DC to DC Converter Control Module (DCDC) • Digital Audio Control Module (DACMC) • Driver Front Seat Module (DSM) • Driver/Dual Climate-Control Seat Module (DCSM) • Drivers Door Module (DDM) • Front Control/Display Interface Module (FCDIM) • Front Controls Interface Module (FCIM) • Front Display Interface Module (FDIM) • Generic Electronic Module (GEM) • Global Positioning System Module (GPSM) • Headlamp Control Module (HCM) • Heads Up Display (HUD) • Heated Steering Wheel Module (HSWM)

Bi-Directional Test	Supported On
	<ul style="list-style-type: none"> • Heating Ventilation Air Conditioning (HVAC) • Image Processing Module A (IPMA) • Image Processing Module B (IPMB) • Information Center Module (ICM) • Instrument Cluster (IC or IPC) • Interior Lighting Control Module (ILCM) • Occupant Classification System Module (OCS) • Parking Aid Module (PAM) • Passenger Front Door Module (PDM) • Power Running Board (PRB) • Power Steering Control Module (PSCM) • Rear Seat Entertainment Module (RETM) • Reductant Control Module (DCU) • Restraint Control Module (RCM) • Running Board Control Module (RBM) • Satellite Digital Audio Receiver System (SDARS) • Seat Control Module E (SCME) • Side Obstacle Detection Control Module – Left (SODL) • Side Obstacle Detection Control Module – Right (SODR) • Smart Junction Box (SJB) • Steering Angle Sensor Module (SASM) • Steering Column Control Module (SCCM) • Trailer Brake Control Module (TBC) • Trailer Module (TRM) • Transfer Case Control Module (TCCM) • Vehicle Security Module (VSM)
Wiper Control Test	<ul style="list-style-type: none"> • Generic Electronic Module (GEM) • Smart Junction Box (SJB)
Wiper Washer Rear Test	<ul style="list-style-type: none"> • Generic Electronic Module (GEM)

Bi-Directional Test	Supported On
	<ul style="list-style-type: none">• Smart Junction Box (SJB)

Medium-Duty Support for GM

- Supports the following vehicles:
 - ✓ 2002 – 2022 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500
 - ✓ 2002 – 2022 GMC Express and Chevy Savana
 - ✓ 2002 – 2010 GM Medium Duty vehicles
 - ✓ 2014 – 2022 GMC Canyon and Chevy Colorado
 - ✓ Freightliner trucks with GM 6.0L (L96) engines

NOTE: Only the powertrain components are supported on 2014 and newer GM vehicles.

- Supports GM 6.6L (L8T) engines on:
 - ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500
 - ✓ 2021 – 2023 GMC Express and Chevy Savana
 - ✓ 2021 – 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500
 - ✓ 2022 – 2024 Chevy Silverado HD and GMC Sierra HD
 - ✓ 2020 – 2024 Freightliner MT45 trucks
- Supports the medium duty J1850 VPW and GMLAN messages.
- Gives users the ability to read and clear faults, read freeze frames, read sensor data, and display emission test results.

JPRO® MEDIUM-DUTY FEATURES (CONT.)

- Bi-Directional support for GM engines:

Bi-Directional Test	Supported On
A/C Relay	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2021 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
CMP Actuator Solenoid	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2021 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Crankshaft Position Variation Learn	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2021 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Cylinder Cut Out	<ul style="list-style-type: none"> • 2002 to 2022 all diesel and gasoline engines (except GM vehicles with CAT engines) • 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine • 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine • 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine • 2022-2024 Chevy Silverado HD and GMC Sierra HD • 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine

Bi-Directional Test	Supported On
DPF Catalyst Reset	<ul style="list-style-type: none"> • 2010 to 2022 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 to 2022 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
DPF Pressure Sensor Reset	<ul style="list-style-type: none"> • 2010 to 2022 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 to 2022 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
DPF Service Regen	<ul style="list-style-type: none"> • 2010 to 2022 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 to 2022 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
Engine Controls Ignition Relay	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine • 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine • 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine • 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine • 2022-2024 Chevy Silverado HD and GMC Sierra HD • 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine

Bi-Directional Test	Supported On
Engine Speed Control	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
EVAP Purge/Seal Solenoid	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
EVAP Purge Solenoid	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
EVAP Vent Solenoid	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Fuel Closed Loop Status	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Fuel Injector Balance	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

Bi-Directional Test	Supported On
Fuel Pump Relay	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Fuel Trim Enable	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
GEN L-Terminal	<ul style="list-style-type: none"> • 2010 to 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
HO2S Heater Tests <ul style="list-style-type: none"> • Bank 1 Sensor 1 • Bank 1 Sensor 2 • Bank 2 Sensor 1 • Bank 2 Sensor 2 	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
HO2S Heater Learn	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Idle Spark	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

Bi-Directional Test	Supported On
<p>Misfire Graphic</p>	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine • 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine • 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine • 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine • 2022-2024 Chevy Silverado HD and GMC Sierra HD • 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine
<p>NOx Sensor Reset:</p> <ul style="list-style-type: none"> • Sensor 1 • Sensor 2 	<ul style="list-style-type: none"> • 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 and 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
<p>Reductant Heater Tests:</p> <ul style="list-style-type: none"> • Heater 1 • Heater 2 • Heater 3 	<ul style="list-style-type: none"> • 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 and 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
<p>Reductant System Leak Test</p>	<ul style="list-style-type: none"> • 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 and 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine

Bi-Directional Test	Supported On
Reductant Tank Reset	<ul style="list-style-type: none"> • 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine • 2016 GMC Canyon and Chevy Colorado with a 2.8L Diesel Engine • 2017 and 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L Diesel engine
Reset Oil Life	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine • 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine • 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine • 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine • 2022-2024 Chevy Silverado HD and GMC Sierra HD • 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine
RVS Disable History Reset	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Spark Retard	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

Bi-Directional Test	Supported On
Starter Relay	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Throttle Position	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
Throttle Position Sweep	<ul style="list-style-type: none"> • 2010 to 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine • 2010 to 2017 GMC Express and Chevy Savana with 6.0L Gas engine • 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

- Bi-Directional support for GM Transmissions:

Bi-Directional Test	Supported On
High Side Driver 1 Line PC Solenoid PC Solenoid 2 PC Solenoid 3 PC Solenoid 4 PC Solenoid 5	<ul style="list-style-type: none"> • Transmissions in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Reset Transmission Adapts Reset Transmission Oil Life Shift Transmission Shift Solenoid 1 Shift Solenoid 2 TCC Control Solenoid	<ul style="list-style-type: none"> • Transmissions in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine

JPRO® MEDIUM-DUTY FEATURES (CONT.)

- Bi-Directional support for GM Brake Control Module:

Bi-Directional Test	Supported On
ABS Motor	<ul style="list-style-type: none"> • Brakes in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Automated Brake Bleed	
LF Inlet Valve Solenoid	
LF Outlet Valve Solenoid	
Rear Inlet Valve Solenoid	
Rear Outlet Valve Solenoid	
RF Inlet Valve Solenoid	
RF Outlet Valve Solenoid	

- Bi-Directional support for GM Body Controllers:

Bi-Directional Test	Supported On
Accy/RAP Relay	<ul style="list-style-type: none"> • Body Controllers in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Backup Lamps	
Courtesy Lamp	
DRL	
Fog Lamps	<ul style="list-style-type: none"> • Body Controllers in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
High Beams	
Horn	
Incandescent Dimming	
LED Dimming	
LF Turn Signal	<ul style="list-style-type: none"> • Body Controllers in a 2010 to 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
LR Turn Signal	
Low Beams	
Parking Lamps	
RF Turn Signal	
RR Turn Signal -	
Run/Crank Relay	
Shift Lock Solenoid	
Wiper High Speed Relay	
Wiper Relay	

Bi-Directional Test	Supported On
Wiper Washer Motor	

Medium-Duty Support for Hino

- Supports reading faults and data from all non-hybrid components in 2011 to 2019 Hino vehicles.
- Hino support gives users the ability to read and clear faults, read sensor data, and display emission test results.
- Bi-directional support for Hino engines:

Bi-Directional Test or Calibration	Supported On
Cruise Speed Customization ✓ Maximum Set Cruise Speed	<ul style="list-style-type: none"> • All Hino engines in 2011-2019 vehicles
Cylinder Cut Out	<ul style="list-style-type: none"> • All Hino engines in 2011-2019 vehicles
DPF Manual Service Regen	<ul style="list-style-type: none"> • All Hino engines in 2011-2019 vehicles
DPF Soot Load Customization ✓ DPF Soot Load	<ul style="list-style-type: none"> • All Hino engines in 2011-2019 vehicles
Idle Shutdown Customization ✓ Idle Shutdown Setting Time	<ul style="list-style-type: none"> • All Hino engines in 2011-2019 vehicles
SCR Related Memory Reset	All Hino engines in 2011-2019 vehicles

Medium-Duty Support for Isuzu

- Supports the following vehicle models from 2008-2017 with either the 5.2L (4HK1) or 3.0L (4JJ1) engine in both North America and Australia:
 - ✓ N-Series faults and data (engine, DEF and transmission only)
 - ✓ F-Series faults (engine and DEF only)
- Supports the medium duty GMLAN messages.
- Gives users the ability to read and clear faults and read freeze frames.
- Displays emission test results in North America.
- Bi-Directional support for Isuzu engines:

Bi-Directional Test	Supported On
Cylinder Cut Out	5.2L (4HK1) or 3.0L (4JJ1) engine in North America
DPF Service Regen	5.2L (4HK1) or 3.0L (4JJ1) engine in North America

Medium-Duty Support for Sprinter

- Supports 2007 to 2015 Sprinter vehicles.
- Gives users the ability to read and clear faults, read sensor data, and display emission test results.
- Bi-Directional support for Sprinter engines:

Bi-Directional Test	Supported On
Cylinder Cut Out	<ul style="list-style-type: none"> • EPA 07 Diesel Engine
Compression Test	<ul style="list-style-type: none"> • EPA 07 Diesel Engine
Manual DPF Regen	<ul style="list-style-type: none"> • EPA 07 Diesel Engine
Injector Quantity Adjustment	<ul style="list-style-type: none"> • EPA 07 Diesel Engine
Initialize Rail Pressure	<ul style="list-style-type: none"> • EPA 07 Diesel Engine

- Bi-Directional support for Sprinter instrument clusters:

Bi-Directional Test	Supported On
Oil Change Reset	<ul style="list-style-type: none"> • 2007 – 2015 Instrument Cluster
Display Dimmer Test Routine	<ul style="list-style-type: none"> • 2007 – 2015 Instrument Cluster
Gauge Sweep Test	<ul style="list-style-type: none"> • 2007 – 2015 Instrument Cluster
LCD Display Test Routine	<ul style="list-style-type: none"> • 2007 – 2015 Instrument Cluster
Speaker Test Routine	<ul style="list-style-type: none"> • 2007 – 2015 Instrument Cluster

- Bi-Directional support for Sprinter's tire pressure monitor ECU:

Bi-Directional Test	Supported On
Tire Pressure Monitor Test	<ul style="list-style-type: none"> • 2007 – 2015 TPM

GENERAL FEATURES

- Only JPRO® DLA+ 3.0, DLA+ 3.0 Wireless, DLA+ 2.0, DLA+ 2.0 Wireless, Trailer Diagnostic Adapter, DLA+, DLA+ Wireless, and DLA+ PLC adapters are supported.
- Diagnoses all vehicle components in a single application.
- Enhanced VIN decoding for North American VINs.
 - Vehicle Series provided when available.
- Automatically connects to all supported and available data buses on the vehicle.
- Displays fault codes for all components on the supported data bus protocols.
- Displays manufacturer flash codes and descriptions for faults when available.
- Access to historical fault data from previous JPRO® connections which can be used to identify intermittent vehicle issues.

NOTE: Requires internet access.

- Provides [key data points](#) in graphical displays for vehicle and components.
- Automatically displays all component parameters of interest in the [Data Monitor](#).
 - Search, sort, or filter capabilities to easily identify parameters of interest.
 - Graph parameter changes over time.
 - Export parameter data to local file.
- Data can be displayed in Metric or English units of measurement.
- [Vehicle Readiness](#) List displays information about each identified component.
- ECUs displayed on the Vehicle Tree with active faults are marked with a red exclamation point.
- Demo mode in [Vehicle History](#) enables users to explore JPRO features quickly and easily without needing access to vehicles.
- Access to 'What's New' document showing all supported features from the Connection Selection and Help menu.

Education and Troubleshooting Features

- [Virtual Truck feature](#) enables exercising JPRO features including bi-directional tests for training and educational purposes without the need for an actual truck connection.
 - Freightliner truck illustrates a Cummins engine aftertreatment issue and a brake issue with Wabco brakes.
 - Off-highway virtual truck demonstrates the faults and data available on equipment.
 - Bendix truck highlighting Bendix capabilities.
 - Komatsu equipment highlighting off-highway capabilities.

GENERAL FEATURES (CONT.)

- [Bendix Demo Truck](#) demonstrates the tests and data available for various Bendix ECU versions and configurations.

NOTE: This is for demonstration purposes only. Tests and data may not function realistically.

- Integrates with [Fault Guidance](#) to provide troubleshooting guidance.
 - View troubleshooting information, wiring diagrams and step-by-step troubleshooting procedures for a fault with one click in JPRO® Commercial Vehicle Diagnostics.
 - Enhanced integration features from the troubleshooting repair view:
 - View fault related data while simultaneously viewing repair procedures.
 - Clear faults to verify the repair without leaving the Fault Guidance screen.
 - Access Bi-Directional functionality directly from the troubleshooting repair view.
 - Access to installed Maintenance or Service Data on the Fault Guidance screen.
 - Works on vehicle without requiring a VIN.
 - The following are currently supported
 - Heavy Duty engines and aftertreatment systems
 - All Bendix components
 - Wabco components
 - Eaton transmissions
 - Ford and GM medium-duty engine and aftertreatment faults.
 - Regular content updates to add more fault and component coverage.

NOTE: Fault Guidance is only available when JPRO Professional Diagnostic Software with NextStep is the purchased product.

- Access to Maintenance or Service Data in the fault window by automatically linking to available service data sheets for the selected fault.

NOTE: Maintenance or Service Data Sheets for Wabco, Bendix, and Haldex brakes as well as Eaton transmissions are only available when JPRO Professional Diagnostic Software with NextStep is the purchased product.

- When opening Service Data Sheets for Wabco, Bendix, and Haldex brakes, or Eaton transmissions, they will be downloaded if they were not previously installed.

NOTE: only available when JPRO® Professional Diagnostic Software with NextStep™ is the purchased product.

- [Repair Mentor](#), an enhanced vehicle health indicator and assisted diagnostics tool, prioritizes vehicle issues and provides guidance for diagnosis and repair for heavy-duty vehicle connections.
- [Most Likely Repair](#), available from Repair Mentor and Fault Guidance, provides information on the most frequent repairs for a fault.

GENERAL FEATURES (CONT.)

NOTE: Requires internet access.

- [Possible Unrepaired Recalls](#), available from Repair Mentor and Fault Guidance, provides detailed information on possible NHTSA recalls for the connected vehicle.

NOTE: Requires internet access.

- [ECU Version Check](#) will inform technicians when a firmware update is available for:
 - ✓ Cummins ECMs.
 - ✓ Detroit Diesel CPC, MCM, and ACM ECUs.

NOTE: Visiting the dealership or having the correct OEM software is required to flash an ECU to the latest firmware. Requires internet access.

- Overall [vehicle health indicators](#) including No J1939 Data, Cannot Detect Engine, Excessive CAN Error Frames, Active Faults Present, DPF Regen Inhibited, DPF Regen Needed, Consumable Fluid(s) Low, Battery Voltage Low, and Cannot Detect ABS.
- [Fault Status Assistance](#) providing technician friendly descriptions for fault status values from both the Fault Display and the Data Monitor.
- [FMI Assistance](#) providing technician friendly descriptions for fault code FMI values from both the Fault display and the Data Monitor.
- Industry Terms definitions available from the Fault Grid, NextStep window, and the Data Monitor window.
- Lookup Code Assistant provides a reference for the equivalent term used in an ECU's Service Data Sheet.
- EPA Assistance available from the Data Monitor window provides a basic explanation of EPA standards, the systems and technologies involved as well as manufacturer examples.
- Power Diagram and Electrical Assistance available in [Data Monitor](#) to aid in the diagnosis of electrical problems for heavy-duty vehicle connections.
- [Diagnostic connector pinout diagrams](#) for Heavy-Duty and Medium-Duty cable connectors to aid in troubleshooting connection issues.
- Provides [data bus utilization statistics](#) on live heavy-duty and medium-duty vehicle connections.
- Displays CAN error frame data to aid in diagnosing communication issues.
- The [Resource Portal](#) enables quick access to the JPRO Certification program as well as other OEM training resources.
- Link to Noregon's library of training videos.
- Noregon Tech Tips educational and training videos will automatically play during vehicle connections while initial data is gathered to aid technicians in getting the most out of JPRO.
- Auto-launch of JPRO News & Insights information providing quick access to technician tips, white papers, and other information to aid technicians in getting the most out of JPRO.

GENERAL FEATURES (CONT.)

- Link to online help for off-highway cables and connectors.

Reporting Features

- Prints reports containing faults and key data.
- Automatically captures a vehicle snapshot recording containing all available ECUs and parameters on every vehicle connection.
- Ability to manually record logs for up to 1 hour of vehicle data for later analysis. Log will contain all ECU and parameter data that is requested and reported during the recording.
- Ability to playback recorded logs and monitor parameters via Data Monitor.
- Ability to perform customized [Preventative Maintenance Inspections](#). Inspection available in XML format as well as in PDF report format.
- Ability to perform customized [Vehicle Inspections](#).
 - Checklists and Visual Inspection supports vehicle types: Tractor, Trailer, Box Truck, Bus and Truck.
 - Customize the inspection checklist for each vehicle type via Preferences.
 - Take notes and draw on default images or uploaded pictures for visual inspection.
 - Optional disclaimer setup via Preferences.
 - Supports saving customer signature as part of the Vehicle Inspection report.
 - View and print a complete Vehicle Inspection Report.

Integration Features

- Register and view your Technician as a Service (TaaS) license information in JPRO. An active, registered license is required for TaaS support.

NOTE: TaaS is a separate product purchase that provides live support from Noregon master technicians and is registered to a single computer. Click the *TaaS Support* main toolbar button for more information or to register your TaaS license.

- Automatically detects OEM applications and provides convenient methods to launch them.
- Ability to download or launch Truck Check Up from OEM Portal when it is released.

NOTE: Download link currently opens [Clean Truck Check information website](#).

- Link to download ServiceMaxx diagnostic applications from [OEM Application Portal](#).
- Launches OEM component diagnostic applications in Fault Code Information. Simply click on the OEM application icon to launch the application for more information about that component.
- Launches OEM component diagnostic applications from the Software Connection Warnings dialog.

GENERAL FEATURES (CONT.)

- Ability to integrate with third-party applications to collect vehicle data using JPRO's Data Collector API. Contact Noregon support for more information.
- Search mechanism to link to troubleshooting guides.
- Support report submission to Bendix by emailing the Bendix DTC Report to TechTeam@Bendix.com.
- [Submit Repair](#) allows you to upload vehicle details to:
 - ✓ The ASIST platform, developed by Decisiv, for Volvo and Mack dealers.
 - ✓ PACCAR Solutions, developed by Decisiv, for PACCAR dealers.
 - ✓ ISUZU Connect, developed by Decisiv, for Isuzu dealers.
 - ✓ HINO INSIGHT, developed by Decisiv, for Hino dealers
 - ✓ Navistar's OnCommand™ service.
 - ✓ Ruan Transportation Management Systems.

NOTE: Access to this feature is disabled by default. Please contact Noregon support for more information.

- ✓ Trimble's TMT/TMW service.
- Edit and correct mileage and VIN information upon warranty submission. See submission history information via Vehicle History.
- Option of automatic submission of vehicle data to Navistar's OnCommand™ service when disconnecting from a vehicle. For more information, contact Noregon support (support@noregon.com).

NOTE: Internet access is required for Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT), OnCommand™, or Trimble Warranty Submission.

NOTE: Submitting Warranty to Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT) requires personnel with Decisiv Admin level access to provide the Dealer ID or Decisiv App Username and Password. These items must be configured in Preferences.

NOTE: Submitting to Trimble's TMT/TMW service requires personnel with access to provide the Trimble URL, Username, and Password. These items must be configured in Preferences.

Configuration Features

- Ability to configure the application to launch at computer startup.
- Ability to automatically switch between USB, Wi-Fi®, or Bluetooth® when connecting with a DLA+ 3.0 Wireless adapter.
- Ability to automatically switch between USB or Wi-Fi® when connecting with a DLA+ 2.0 Wireless, or DLA+ Wireless adapter.
- Ability to remove access to parameter setting tests, like road and cruise speed limits. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

GENERAL FEATURES (CONT.)

Product Support Features

Links to contact Noregon support or sales from within the application.

- Links to enable remote access for support.
- Support for automatic updates.
- Easy access to JPRO DLA+ Adapter Family test tools to aid in diagnosing connection problems.

SYSTEM REQUIREMENTS

Supported Operating Systems

Windows 10 (32 or 64-bit English, 32-bit Spanish)

Windows 11

Hardware Requirements

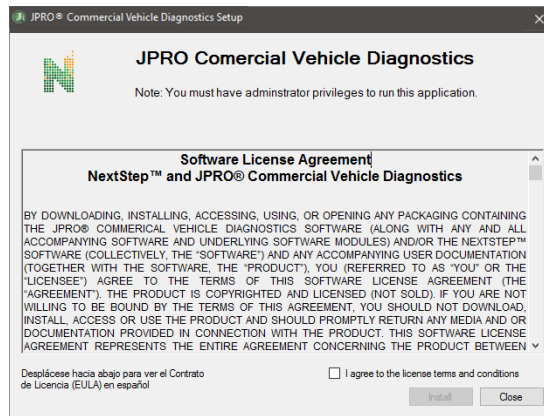
- Minimum: 8 GB RAM, 20 GB of available hard drive space, 1 gigahertz (GHz) or faster processor or SoC, and 1024 x 768 monitor
- USB 2.0 port for the Noregon DLA+ 3.0, DLA+ 3.0 Wireless, DLA+ 2.0, DLA+ 2.0 Wireless, Trailer Diagnostic Adapter, DLA+, DLA+ Wireless, or DLA+ PLC adapter

NOTE: Ensure the Noregon adapter driver and firmware is the most current available.

NOTE: Internet access required for registration, Fault Guidance, Submit Repair, Fault History functionality and to automatically check for software updates.

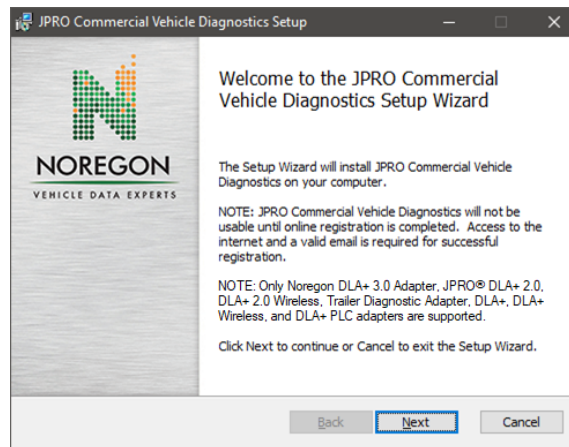
INSTALLATION

1. After downloading JPRO® Commercial Vehicle Diagnostics, double-click the **JproSetup.exe** file to begin installation.
2. The End-User License Agreement window displays. Select **"I agree to the license terms and conditions"** and select **Install**.



License Agreement

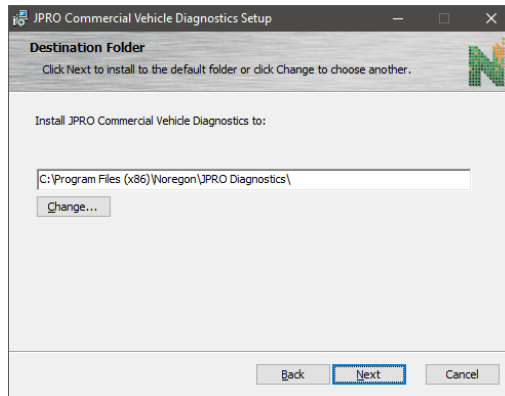
3. In the Welcome window click **Next**



Installation Welcome Window

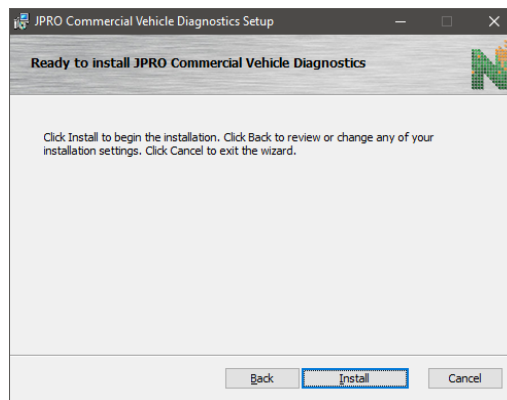
INSTALLATION (CONT.)

- The **Destination Folder** window displays. Select **Next**.



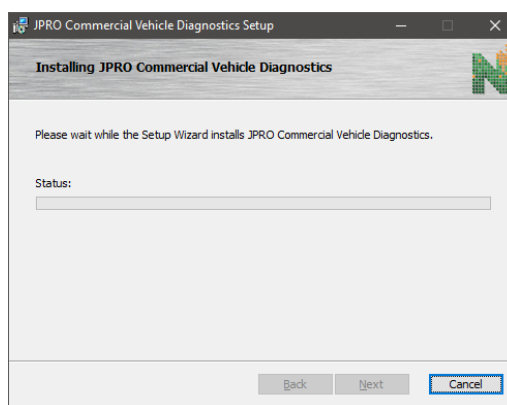
Destination Folder

- The installation program automatically chooses to install the JPRO® Commercial Vehicle Diagnostics Application software at **C:\Program Files\Noregon\JPRO Diagnostics**. You may choose another location by clicking the **Change** button, navigating to the desired location and clicking **OK**.
- Click **Next** again to display the confirmation window then select the **Install** button to start copying files to the computer.



Installation Confirmation

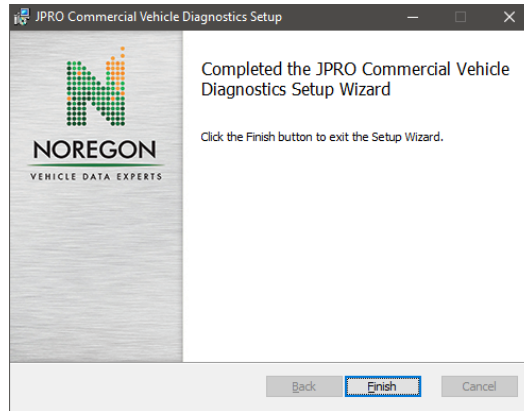
- A progress indicator will display while JPRO® Commercial Vehicle Diagnostics is installed on your PC.



Installation Progress

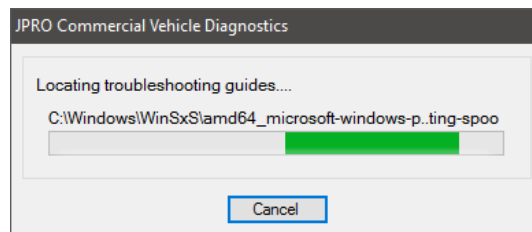
INSTALLATION (CONT.)

- When the install is complete, the completed **JPRO Commercial Vehicle Diagnostics Setup Wizard** window will be displayed.



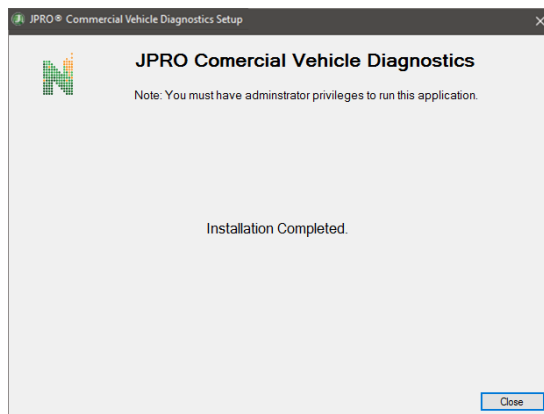
Installation Complete

- A process to search for available troubleshooting guides will be initiated. A progress indicator will display while searching.



Installation Complete

- Once the search is complete, a screen will be displayed to indicate that the installation has completed successfully. Click the **Close** button to complete the **JPRO Commercial Vehicle Diagnostics** installation.



Setup Complete

REGISTRATION


JPRO® Commercial Vehicle Diagnostics requires registration before the application may be used. Upon initial launch, you will be prompted to register the product. You will need to provide your **Customer Information** as well as the **License Key(s)** that you received from Noregon Systems.

The information will be sent to Noregon's licensing servers over the internet to register the product.

NOTE: Internet connectivity is required for registration.

If your company or business employs a proxy server to protect its internal network, then you may need to configure your proxy settings. Press the **Proxy Settings** button on the form and fill out the proxy settings.

Registration Screen


After initial registration, if you extend your subscription, you must update the Registration information. Select the **Applications Settings – Registration**  button to display the registration form. Select the **Update Registration** button to update the registration information.

A confirmation code may be required to complete registration. If this is the case, the confirmation code will be sent to the email address used during registration and must be provided to complete registration.

NOTE: Current subscription support is required to be eligible for JPRO Commercial Vehicle Diagnostics product updates.

SETTING UP PREFERENCES

Preferences Wizard

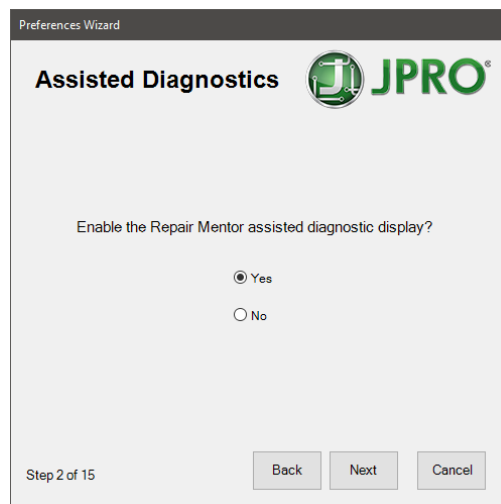
After initial registration, JPRO® Commercial Vehicle Diagnostics will display the **Preferences Wizard** to help setup the application. The **Preferences Wizard** may be accessed at any time via the **Application Settings – Preferences Wizard**  toolbar option.

1. On the Welcome Screen, choose the **Language** and **Units System** and then select **Next**.




Preferences Wizard Welcome

2. On the **Assisted Diagnostics** options screen, you may choose to disable the **Repair Mentor assisted diagnostics** feature. Repair Mentor is an enhanced vehicle health indicator and assisted diagnostics tool which prioritizes vehicle issues and provides guidance for diagnosing and repairing the issues.



Assisted Diagnostics Options

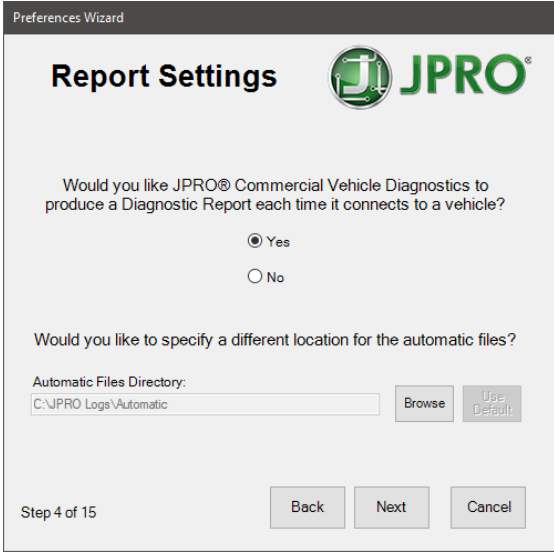
SETTING UP PREFERENCES (CONT.)

3. Select **Next** to see the **Report Setting** window. You may customize your JPRO® Diagnostic Report by specifying a logo and choosing to add your company name and address to the report header. The name and address fields will be pre-populated with the information provided at the time of registration but may be edited on this screen. You may select the **Print Preview**  button see what the report header will look like.



Logo & Company Information

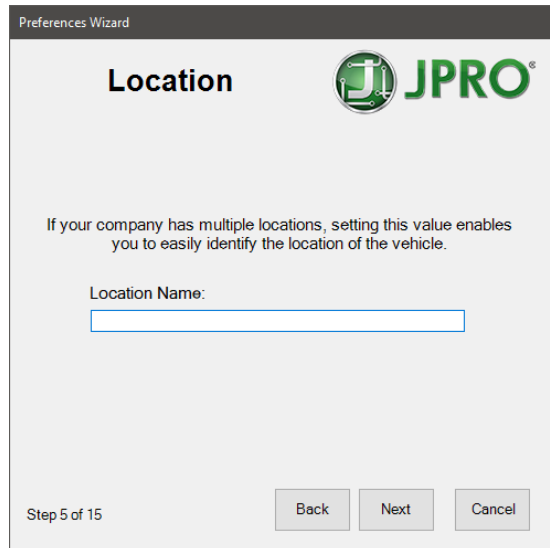
4. Select **Next** to configure JPRO® Commercial Vehicle Diagnostics to generate a report with each vehicle connection. You can view automatically generated reports from the **Vehicle History** window. You may also specify a different location for saving the automatic files now.



Report Settings

SETTING UP PREFERENCES (CONT.)

5. Select **Next** to specify the Location. If your company has multiple locations, setting the Location value enables you to easily identify the location of the vehicle. This value is used as a prefix to the name of the automatic files viewable in Vehicle History. Select **Next** when done.



The screenshot shows a window titled "Preferences Wizard" with the "Location" step selected. The JPRO logo is in the top right. The text reads: "If your company has multiple locations, setting this value enables you to easily identify the location of the vehicle." Below this is a text input field labeled "Location Name:". At the bottom, there are "Back", "Next", and "Cancel" buttons, and the text "Step 5 of 15" is in the bottom left corner.

Location

6. Next, you will be given the option to configure the **Decisiv Integration** to **ASIST** or **PACCAR** Solutions. The **Database Site**, **Dealer ID** or **Decisiv Username** and **Password** are required for Decisiv Integration.

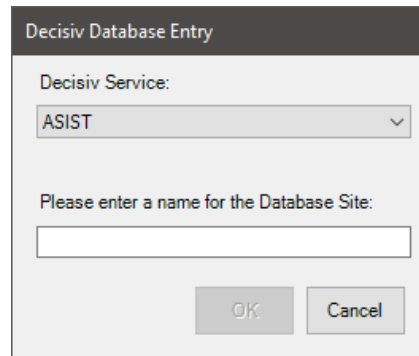


The screenshot shows a window titled "Preferences Wizard" with the "Decisiv Integration" step selected. The JPRO logo is in the top right. The text reads: "The Database Site, Dealer ID or Decisiv Username and Password are required for the Decisiv Integration Feature." Below this is a paragraph: "The Username and Password are available in the Decisiv web interface under Admin - Customize Your Database - API Settings. If you cannot access that information contact your Decisiv administrator or helpdesk at support@decisiv.net for this information." There is a "Database Site" dropdown menu with "Add" and "Delete" buttons. Below that is a "Login Info" section with "Dealer ID / Decisiv Username:" and "Password:" input fields, and a "Validate" button. At the bottom, there are "Back", "Next", and "Cancel" buttons, and the text "Step 6 of 15" is in the bottom left corner.

Decisiv Integration

SETTING UP PREFERENCES (CONT.)

- a. To add a database, first click the **Add** button. This will bring up the **Decisiv Database Entry** dialog. Select the appropriate **Decisiv Service** then type in an identifying **name for the Database Site** the user will be sending vehicle data to and click **Ok**.

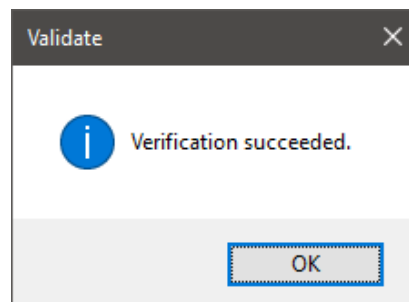


Decisiv Database Entry

NOTE: The step below will require your local Decisiv Admin lookup the Dealer ID/Decisiv Username and Password. These items are only accessible with an admin user. They can be found under Admin – Customize Your Database – API Settings in the Decisiv interface.

NOTE: You can select *Next* without configuring Decisiv Integration however you will be unable to Submit to Decisiv until this step is complete. You can access the settings for later configuration via the Application Settings – Preferences option.

- b. Once you have entered a database name, then the Dealer ID or Decisiv Username and Password will be required. To see if those items have been entered correctly the user can press **Validate** button. The **Validate** dialog will be displayed to indicate success or failure.



Decisiv Integration - Database Validation Message

- c. Repeat steps a) and b) to enter multiple databases. Press **Next** when all your databases are configured.

SETTING UP PREFERENCES (CONT.)

7. Next, you can setup your **Trimble Integration**. **URL**, **Username**, and **Password** are required.

Preferences Wizard

Trimble Integration

URL, Username and Password are required for the Trimble Integration Feature.

The URL is available in the Trimble web interface under Admin - Debug Information - ApplicationSettings - RestApiRootUrl. If you cannot access that information contact your Trimble administrator.

Please select either Odometer or ECM for data submissions.

URL

Trimble Credentials

Username

Password

Odometer/ECM Meter Type:

Odometer

ECM

Step 7 of 15

Back Next Cancel

Trimble Integration

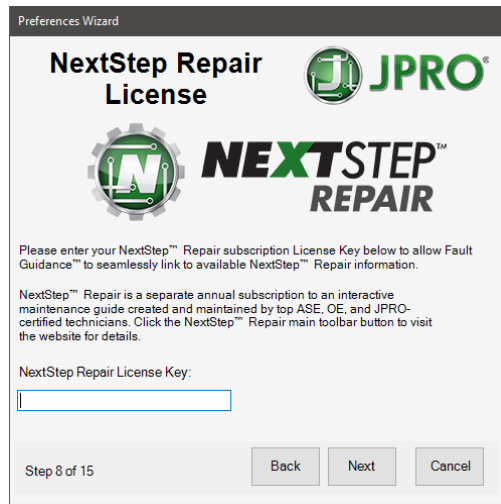
NOTE: The step below will require your local Trimble Admin lookup URL, Username, and Password. These items are only accessible with an admin user. The URL can be found under Admin – Debug Information – ApplicationSettings - RestApiRootUrl in the Trimble web interface.

- a. To setup your **Trimble Integration**, enter the URL where submissions will be sent. The **Username** and **Password** are also required. Finally, select whether you submit mileage from the Odometer or ECM. Select **Next**.

NOTE: You can select *Next* without configuring Trimble Integration however, you will be unable to Submit to Trimble until this step is complete. You can access the settings for later configuration via the Application Settings – Preferences option.

SETTING UP PREFERENCES (CONT.)

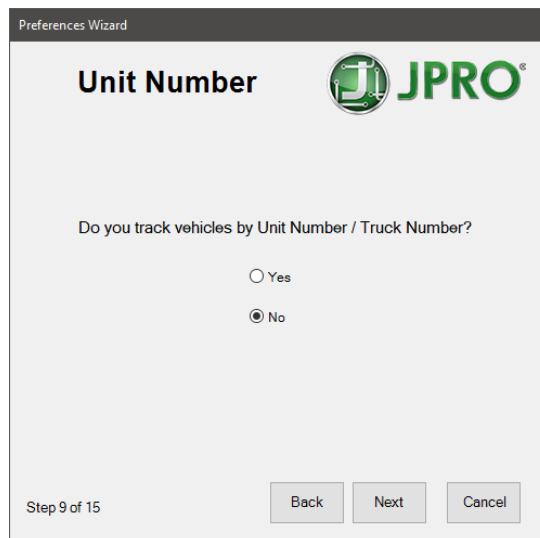
- Next, enter your **NextStep® Repair** license key to allow **Fault Guidance™** to seamlessly link to available NextStep® Repair information.



The screenshot shows a dialog box titled "Preferences Wizard" with the "NextStep Repair License" section. It features the JPRO logo and the NextStep Repair logo. The text reads: "Please enter your NextStep™ Repair subscription License Key below to allow Fault Guidance™ to seamlessly link to available NextStep™ Repair information." Below this is a text input field for the license key. At the bottom, it says "Step 8 of 15" and has "Back", "Next", and "Cancel" buttons.

NextStep Repair Integration

- Next, you will be asked if you track vehicles by **Unit Number**, also known as **Truck or Bumper Number**. If this is enabled, the application will attempt to read the Unit Number from the vehicle and prompt the user for this information if it is unable to retrieve it from the vehicle. Select **Next**.



The screenshot shows a dialog box titled "Preferences Wizard" with the "Unit Number" section. It features the JPRO logo. The text asks: "Do you track vehicles by Unit Number / Truck Number?" with two radio button options: "Yes" and "No". The "No" option is selected. At the bottom, it says "Step 9 of 15" and has "Back", "Next", and "Cancel" buttons.

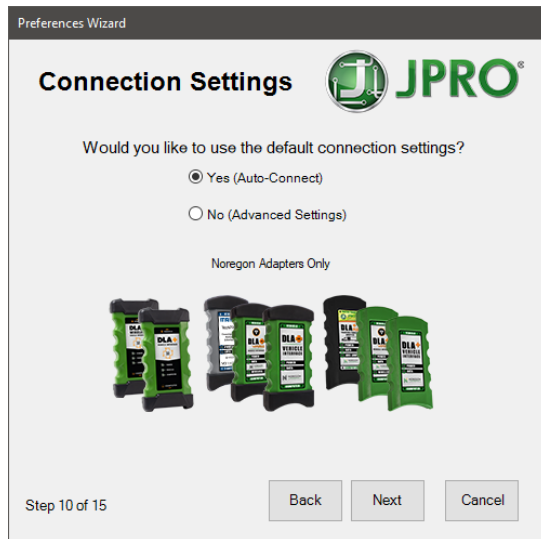
Unit Number Settings

- Next is setting up adapter connections. If your shop is using multiple Noregon adapters, select **Yes (Auto-Connect)** on this screen.

NOTE: If you have a Demo license, then adapter selections will not be shown because live vehicle connections are not available.

SETTING UP PREFERENCES (CONT.)

11. If you are using a single Noregon adapter type, select **No, (Advanced Settings)** and specify the **Vendor** and **Device** with which to connect.




Connection Settings

12. You can create a disclaimer that will appear on the **Preventative Maintenance Inspection** screen and all saved PM Inspection reports. Checking **Include the Following Disclaimer** allows you to enter your disclaimer text.



PM Inspection Disclaimer

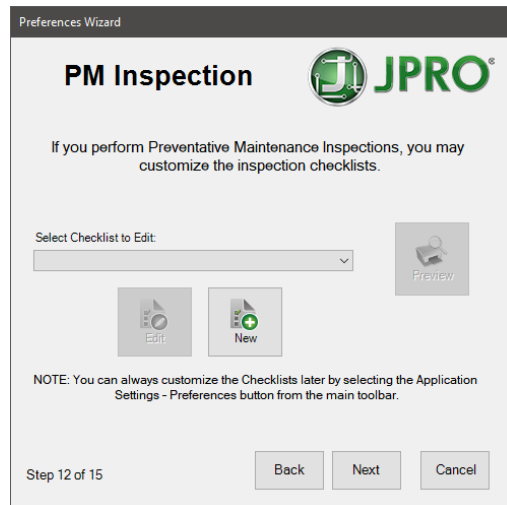
13. Preview, customize, or create new **Preventative Maintenance Inspection** checklists from the next screen. Five default checklists are included and can be previewed by selecting one and clicking the **Print Preview**  button.

You can edit any of the default checklists or create your own. Please refer to **Customize PM Checklists** for detailed instructions.

The provided default checklists are:

SETTING UP PREFERENCES (CONT.)

- (Heavy Duty) Preventative Maintenance-A
- (Heavy Duty) Preventative Maintenance-B
- (Heavy Duty) Preventative Maintenance-C
- Trailer Inspection
- DOT Inspection



The screenshot shows the 'PM Inspection' screen in the 'Preferences Wizard'. It features the JPRO logo and a title bar. The main text reads: 'If you perform Preventative Maintenance Inspections, you may customize the inspection checklists.' Below this is a 'Select Checklist to Edit' dropdown menu. To the right of the dropdown is a 'Preview' button with a magnifying glass icon. Below the dropdown are two buttons: 'Edit' (with a pencil icon) and 'New' (with a plus icon). A note at the bottom states: 'NOTE: You can always customize the Checklists later by selecting the Application Settings - Preferences button from the main toolbar.' At the bottom left, it says 'Step 12 of 15'. At the bottom right, there are 'Back', 'Next', and 'Cancel' buttons.

PM Checklist Customization


14. You can create a disclaimer that will appear on the **Vehicle Inspection** screen and all saved **Vehicle Inspection** reports.



The screenshot shows the 'Vehicle Inspection' screen in the 'Preferences Wizard'. It features the JPRO logo and a title bar. The main text reads: 'You may provide a Disclaimer that will appear on the Vehicle Inspection reports.' Below this is a checkbox labeled 'Include the Following Disclaimer'. Underneath the checkbox is a large empty text box for entering the disclaimer text. A note at the bottom states: 'NOTE: You can always provide or edit the Disclaimer later by selecting the Application Settings - Preferences button from the main toolbar.' At the bottom left, it says 'Step 13 of 15'. At the bottom right, there are 'Back', 'Next', and 'Cancel' buttons.

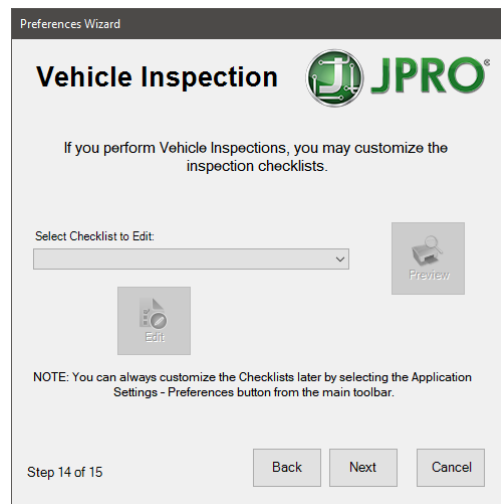
Vehicle Inspection Disclaimer

Checking **Include the Following Disclaimer** allows you to enter your disclaimer text.

15. Preview or customize the **Vehicle Inspection** checklists items from the next screen. Five checklist types are included and can be previewed by selecting one and clicking the **Preview**  button.

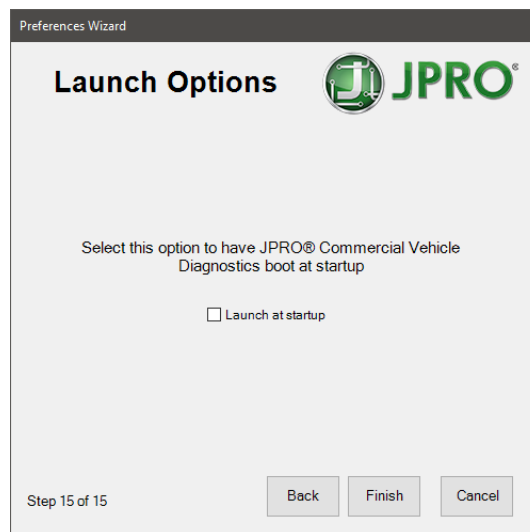
SETTING UP PREFERENCES (CONT.)

You can edit any of the checklists by selecting the **Edit** button. Please refer to **Customize Vehicle Inspection Checklist** for detailed instructions.



Vehicle Checklist Customization

16. Select the **Launch at startup** option if you want JPRO® Commercial Vehicle Diagnostics to automatically launch when the computer boots up.




Application Launch Option

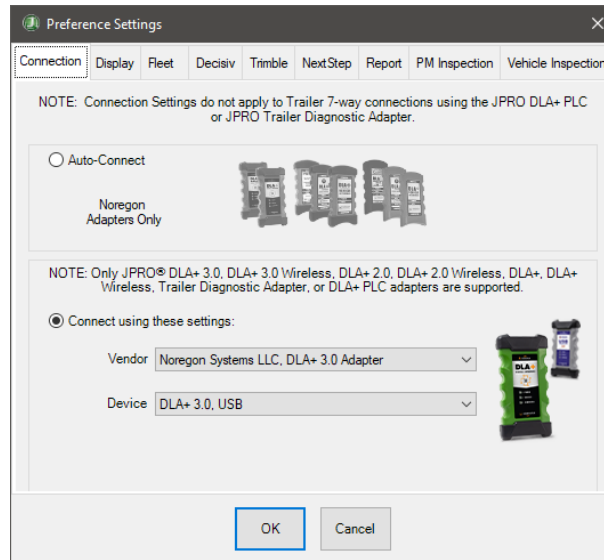
17. Select **Finish** to save all your newly configured application settings.

SETTING UP PREFERENCES (CONT.)

Changing Preference Settings

At any time, you may choose to re-run the Preferences Wizard via the **Application Settings – Preferences Wizard**  toolbar option.

You may also quickly access a single setting via the **Application Settings – Preferences**  toolbar option which displays the Preferences window in a simple tabbed dialog.



Advanced Connection Settings

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

WORKING WITH LIVE VEHICLE DATA BUS

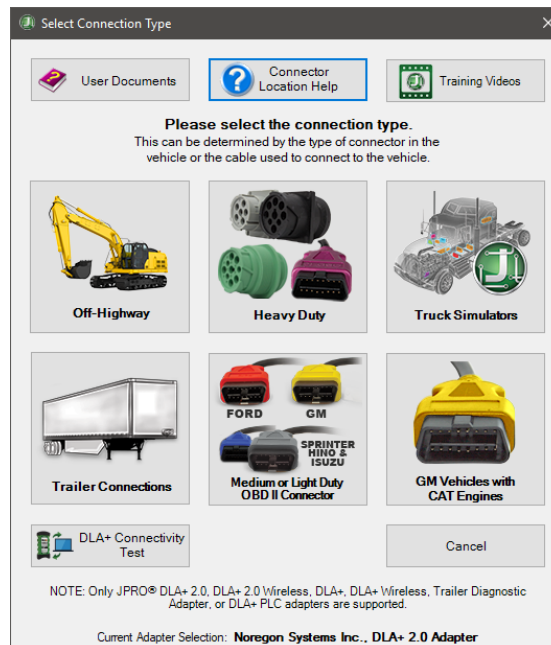
Only Noregon adapters are supported for live vehicle data bus connections:

- ✓ DLA+ 3.0
- ✓ DLA+ 3.0 Wireless
- ✓ DLA+ 2.0
- ✓ DLA+ 2.0 Wireless
- ✓ DLA+
- ✓ DLA+ Wireless
- ✓ DLA+ PLC
- ✓ Trailer Diagnostic Adapter (PLC connections only)

Connection to the Data Bus on Heavy Duty Vehicles

Connecting to the data bus establishes a connection from the PC through the vehicle adapter to the vehicle data bus that processes vehicle data.






1. Select the F8 key or the **Connect**  button on the main toolbar.
2. You will be prompted for the **connection type**.





Select Connection Type

NOTE: If you have a Demo license, the vehicle connection buttons will be disabled because live vehicle connections are not available.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

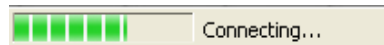
- a. Select the **How To**  button to view this User's Guide document.
- b. Select the **Connector Location Help**  button to view information about connecting to Off-Highway equipment.
- c. Select the **What's New**  to view the What's New document which contains an overview of all features available in the JPRO® Commercial Vehicle Diagnostics application. This option requires Adobe Acrobat Reader.
- d. Select the **Training Video**  to open an internet browser to the Noregon's Training Videos web page
- e. Select the **DLA+ Connectivity Test**  button to launch the Noregon **DLA+ Adapter Family Connectivity Test** application. This may be useful to aid in troubleshooting connection issues.

NOTE: If you have a Demo license, this button will not be available.

3. Select the **Truck Simulators**  button to select a vehicle to simulate. See [Virtual Truck Connection](#) or [Bendix Demo Truck Connection](#) for more information.
4. Select the **Heavy Duty**  button to connect to the vehicle data bus using all available protocols.

NOTE: If you have a Demo license, this button will not be available.

5. A progress bar in the lower left status bar will display the connection progress.

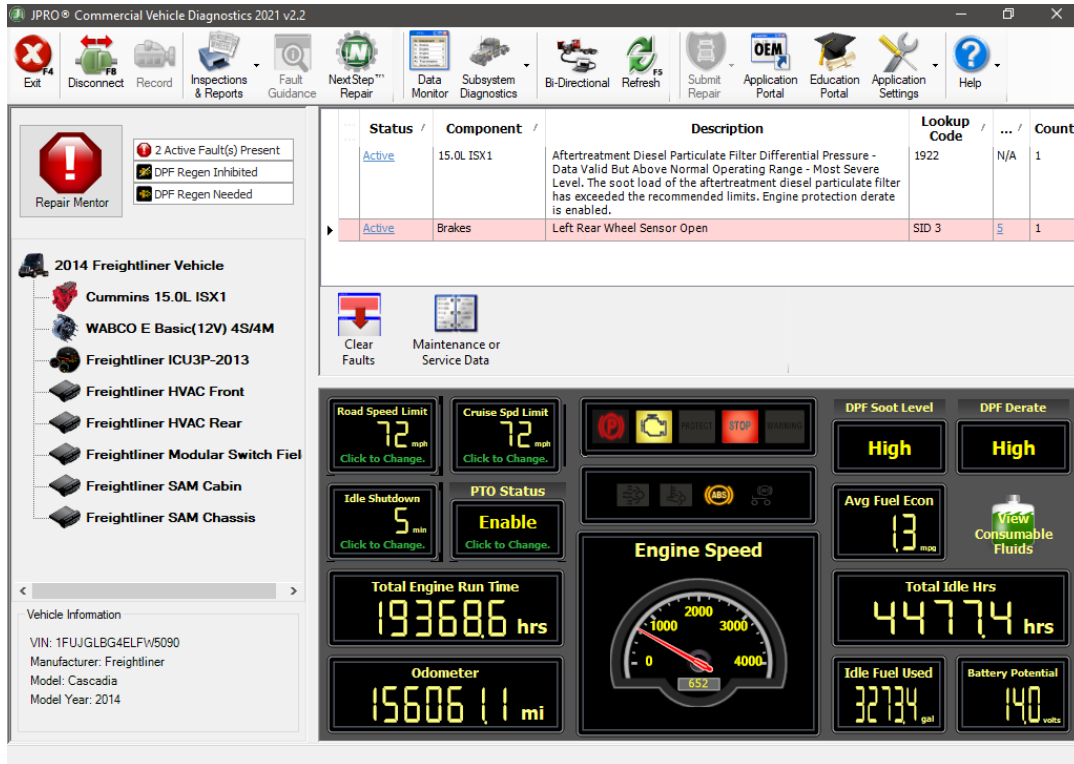


Connection Status Bar

6. After connections, the **Vehicle Readiness**, **Fault Code Information** and **Key Data Point's** windows are displayed. Initially, the top portion of the Vehicle Readiness window will indicate the

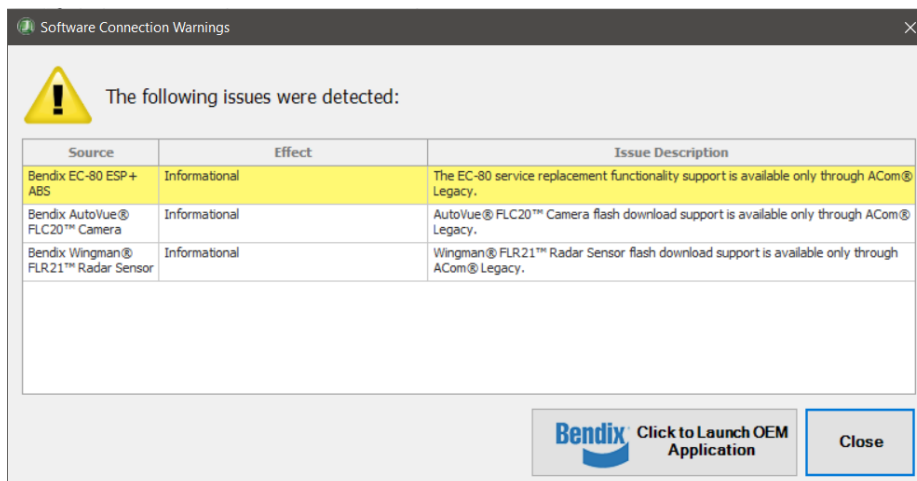
WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

gathering the vehicle's information. Once all vehicle information has been retrieved, the health of the vehicle is displayed.



Heavy-Duty Connection Main Screen

- The application will verify the software version and may display any detected connection warnings. If the selected warning is supported by an OEM application currently available on your computer, the Click to Launch OEM Application button will be displayed. Clicking the button will launch the automatically selected OEM application.



Software Connection Warnings


WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

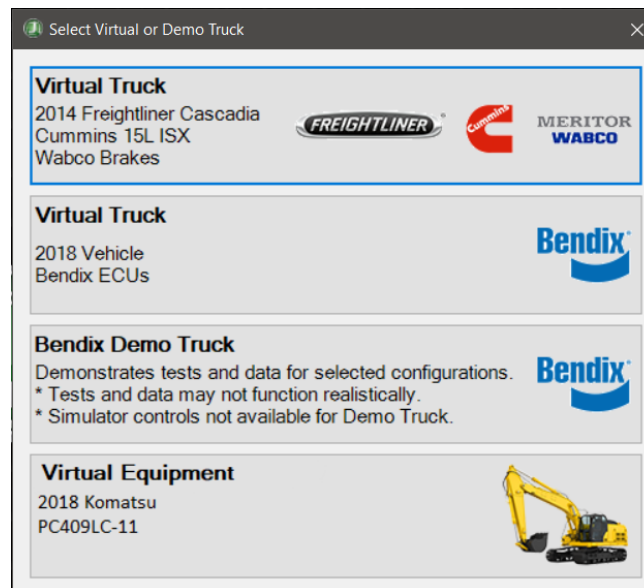
Virtual Truck Connection

JPRO has always had the ability to play back recorded vehicle logs which can demonstrate many capabilities within JPRO. However, log playback cannot demonstrate all features.



The **Virtual Truck** feature is designed to show the entire vehicle diagnostic and repair capabilities. During a virtual truck connection, most bi-directional tests for that vehicle are accessible.

1. Select the F8 key or the **Connect**  button on the main toolbar.
2. You will be prompted for the connection type. Select the **Virtual Truck** button.
3. Select the vehicle to simulate.



Select Virtual or Demo Truck

The **Freightliner** virtual truck has one of the most common emissions and brake faults allowing you to walk through a common troubleshooting and repair procedure.

The **Bendix Demo Truck** connection demonstrates the tests and data available for various configurations of Bendix equipment.

The **Virtual Equipment** highlights off-highway faults, data, and bi-directional tests available on Off-Highway Komatsu equipment.

4. The application will enter a truck simulation mode allowing you to exercise JPRO features for training and educational purposes.
5. The simulation should behave exactly as a normal Heavy-Duty vehicle connection. The **Vehicle Readiness, Fault Code Information** and **Key Data Point's** windows are displayed.

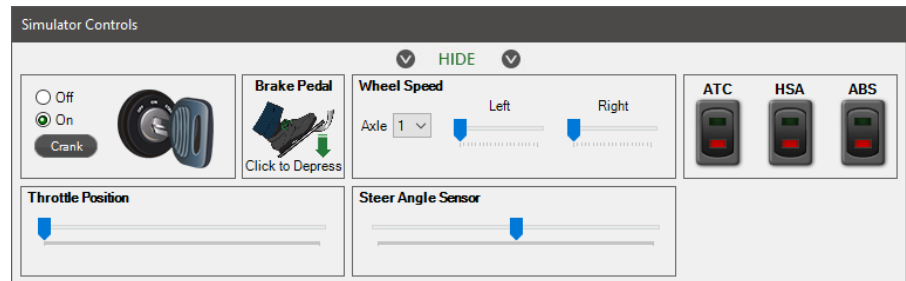
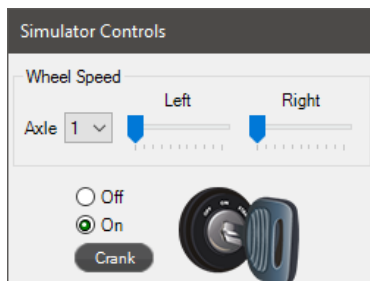
WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

Initially, the top portion of the **Vehicle Readiness** window will indicate the gathering the vehicle's information. Once all vehicle information has been retrieved, the health of the vehicle is displayed.

Status	Component	Description	Lookup Code	...	Count
Active	15.0L ISX1	Aftertreatment Diesel Particulate Filter Differential Pressure - Data Valid But Above Normal Operating Range - Most Severe Level. The soot load of the aftertreatment diesel particulate filter has exceeded the recommended limits. Engine protection derate is enabled.	1922	N/A	1
Active	Brakes	Left Rear Wheel Sensor Open	SID 3	...	1

Heavy-Duty Connection Main Screen

- Explore JPRO features such as [Fault Guidance](#), [Data Monitor](#), [Connector Info](#), [Bus Statistics](#), [Clearing Faults](#), as well as exercising [bi-directional tests](#). These features will behave exactly as if you were connected to a normal Heavy-Duty vehicle connection.
- Use the **Simulator Controls** to simulate vehicle interactions as instructed during some bi-directional tests. Click on the key to toggle the ignition state. Press and hold the **Crank** button to simulate engine cranking.



Freightliner and Virtual Truck Simulator Controls

NOTE: The ability to initiate a Recording or Submit Repair are not available when connected to a Virtual Truck.

NOTE: Simulator controls are not available when connected to Virtual Equipment.


WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

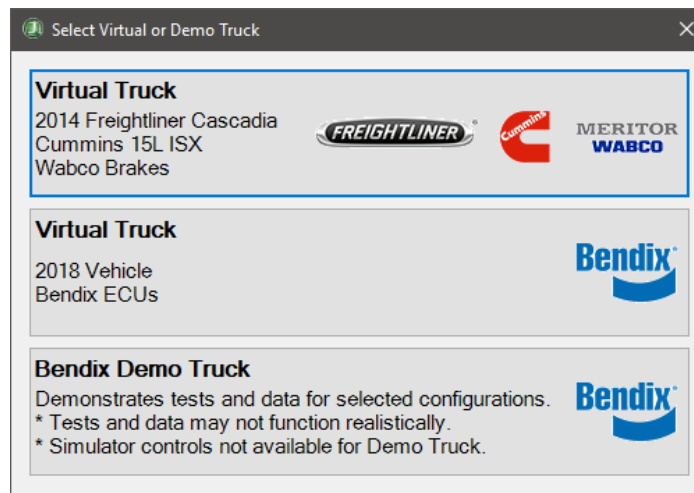
8. Select the **F8** key or the **Disconnect**  button on the main toolbar to close the virtual truck simulation session.

Bendix Demo Truck Connection

The **Demo Truck** feature demonstrates the tests and data available to various Bendix ECU versions and configurations. Select from the available options to create a custom demo connection to explore.

NOTE: This is for demonstration purposes only. Tests and data may not function realistically.

1. Select the **F8** key or the **Connect**  button on the main toolbar.
2. You will be prompted for the connection type. Select the **Truck Simulators** button.
3. Select the vehicle to simulate.

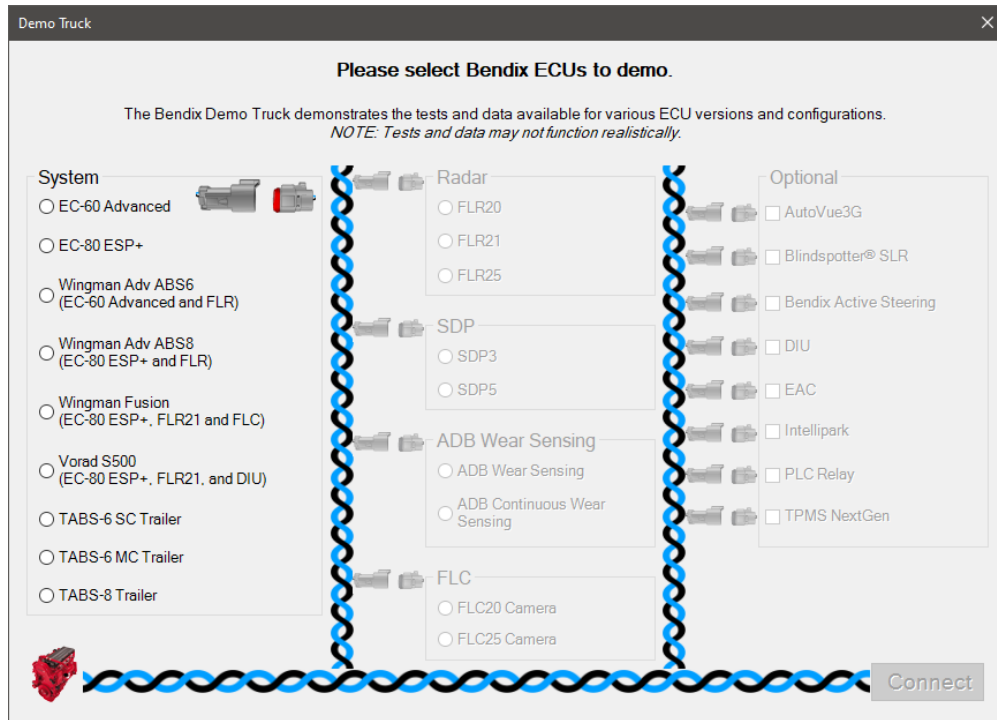


Select Virtual or Demo Truck

4. Choose **Bendix Demo Truck** from the **Select Virtual or Demo Truck** screen.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

5. Select the desired System option to enable appropriate required and optional ECU selections. Once all required selections have been made the **Connect** button will become available. Select **Connect** to begin the demonstration.

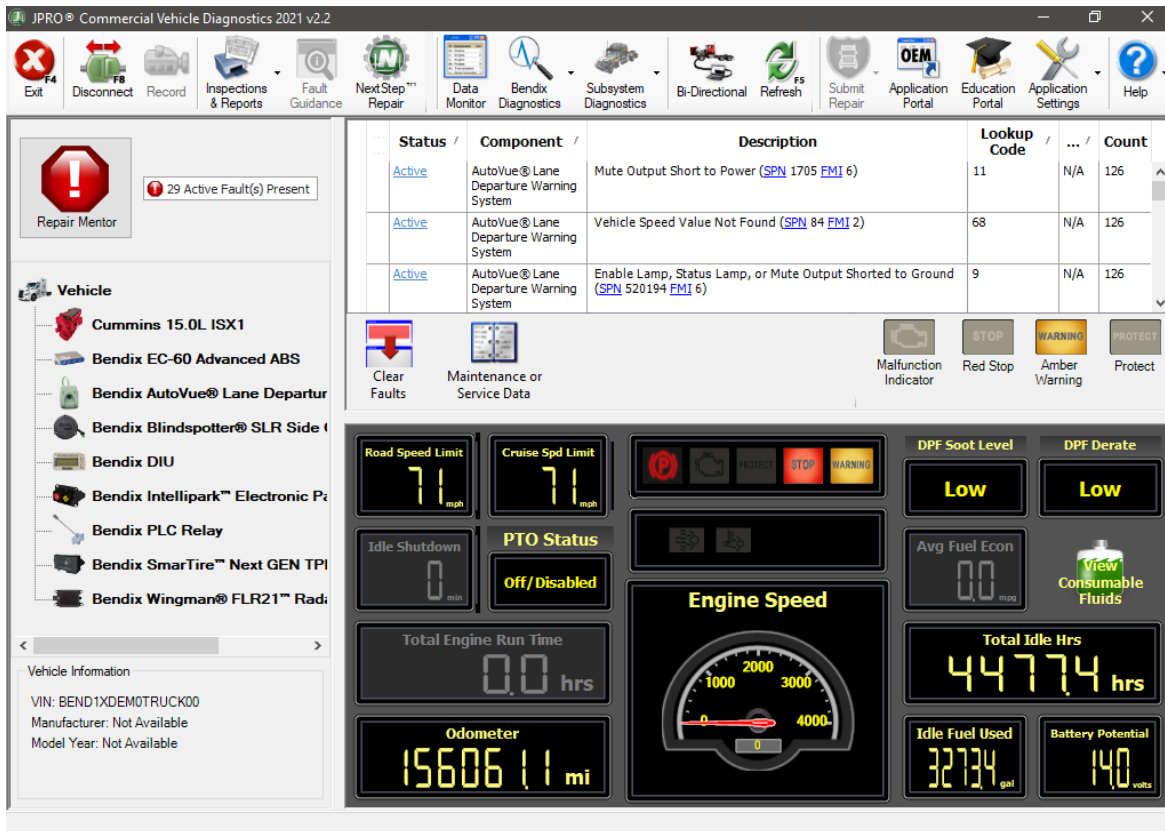


Bendix Demo Truck

6. The demonstration will behave like a Heavy-Duty vehicle connection. The **Vehicle Readiness**, **Fault Code Information** and **Key Data Points** windows are displayed with demo faults and data from the selected ECUs.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)


- Initially, the top portion of the Vehicle Readiness window will indicate the gathering the vehicle's information. Once all vehicle information has been retrieved, the health of the vehicle is displayed.



Bendix Demo Truck Connection Main Screen

- Explore JPRO features such as [Data Monitor](#) and [bi-directional tests](#) to view the options available for the selected ECUs.

NOTE: The ability to initiate a Recording or Submit Warranty are not available when connected to the Bendix Demo Truck.


- Select the F8 key or the **Disconnect**  button on the main toolbar to close the demo truck session.

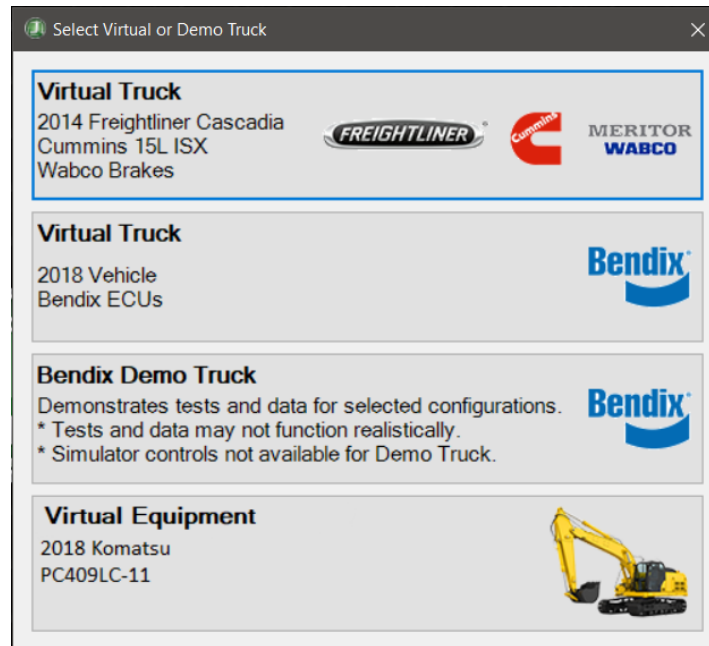
Virtual Equipment Connection

The demo truck feature demonstrates the faults, data, and bi-directional tests available on Off-Highway Komatsu equipment.

NOTE: This is for demonstration purposes only. Tests and data may not function realistically.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

1. Select the F8 key or the **Connect**  button on the main toolbar.
2. You will be prompted for the connection type. Select the **Truck Simulators** button.
3. Select the vehicle to simulate.



Select Virtual or Demo Truck

4. Choose **Virtual Equipment** from the **Select Virtual or Demo Truck** screen.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

- The demonstration will behave like an off-highway vehicle connection. The **Vehicle Readiness**, **Fault Code Information** and **Key Data Points** windows are displayed with demo faults and data from the selected ECUs.


Initially, the top portion of the **Vehicle Readiness** window will indicate the gathering the vehicle's information. Once all vehicle information has been retrieved, the health of the vehicle is displayed.

Status	Component	Description	Lookup Code	...	Count
Active	SAA6D125E-7	Ad Blue/DEF>DEF>DEF Flow Low Error	4658	N/A	1
Inactive	SAA6D125E-7	KDOC Face Plugging	2637	N/A	2
Inactive	SAA6D125E-7	Manual Stationary Regeneration Request	2639	N/A	3
Inactive	SAA6D125E-7	Turbocharger Outlet NOx>NOx>NOx Sensor Unstable	3725	N/A	2

Virtual Equipment Connection Main Screen

- Explore JPRO features such as **Data Monitor** to view the options available for the selected ECUs.

NOTE: The ability to initiate a Recording or Submit Warranty are not available when connected to the Virtual Equipment.

Select the F8 key or the **Disconnect**  button on the main toolbar to close the demo truck session

Connecting to the Data Bus on Off-Highway Vehicles


Connect a supported Noregon adapter using the appropriate Off-Highway cable.

If using a USB connection, also connect the USB cable to the computer running JPRO® Commercial Vehicle Diagnostics.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

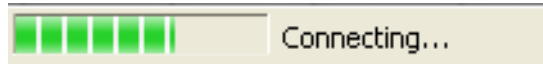
⚠ Off-Highway vehicles require specific cables to match manufacturer's connector. Please refer to the [Cable Connection Guide](#) to ensure you have the correct cable for your application.



1. Select the F8 key or the **Connect**  button on the main toolbar.
2. You will be prompted for the connection type. Select the **Off-Highway Connections** button.

NOTE: If you have a Demo license, this button will not be available.

3. A progress bar in the lower left status bar will display the connection progress.



Connection Status Bar

4. After connections, the **Vehicle Readiness**, **Fault Code Information** and **Key Data Point's** windows are displayed. Initially, the top portion of the Vehicle Readiness window will indicate the gathering the vehicle's information. Once all vehicle information has been retrieved, the health of the vehicle is displayed.

The screenshot displays the JPRO Commercial Vehicle Diagnostics 2022 v3 interface. The top toolbar includes buttons for Exit, Disconnect, Vehicle History, Inspections & Reports, Fault Guidance, NextStep™ Repair, Data Monitor, Subsystem Diagnostics, Submit Repair, OEM Application Portal, Education Portal, Application Settings, and Help. The main window is divided into several sections:

- Left Panel:** Shows a green checkmark and "No Active Issues Found" with a "Repair Mentor" button. Below this is a tree view for "CAT Vehicle" including "CAT C6.6 Off-Highway", "Cab Display", "Component #144", "Hydraulic Pump Controller", "Off Vehicle Gateway", and "Retarder - Engine".
- Vehicle Information:** Lists VIN: Not Available, Manufacturer: CAT, Model: Hydraulic Excavator (HEX), Series, and Model Year: Not Available.
- Table:** A table with columns for Status, Component, Description, Lookup Code, and Count. It lists two inactive fault codes for the C6.6 Off-Highway component.
- Bottom Panel:** Displays various vehicle parameters in a dashboard layout:

Parameter	Value
Battery Voltage	00
Boost Pressure	09
Oil Pressure	00
Coolant Temp	98.60 °F
Oil Temp	0
Fuel Temp	75.20 °F
Exhaust Temp	0
Air Inlet Temp	0
Fuel Pressure	00
Exhaust Pressure	00
Air Inlet Pressure	151

Off-Highway Connection Main Screen


WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

Connecting to the Data Bus on Medium Duty Vehicles

Connect a supported Noregon adapter using the appropriate OBD II cable provided.

If using a USB connection, also connect the USB cable to the computer running JPRO® Commercial Vehicle Diagnostics.

FORD	OBD II Cable with Red Connector.
GM / GMC / CHEVROLET	OBD II Cable with Yellow Connector.
SPRINTER	OBD II Cable with Blue Connector (DLA+ adapters) or Gray Connector (DLA+ 2.0 or DLA+ 3.0 Adapters).
HINO	OBD II Cable with Blue Connector (DLA+ adapters) or Gray Connector (DLA+ 2.0 or DLA+ 3.0 Adapters).

1. Select the **F8** key or the **Connect**  button on the main toolbar.
2. You will be prompted for the connection type. Select the **Medium/ Light Duty OBD** button.

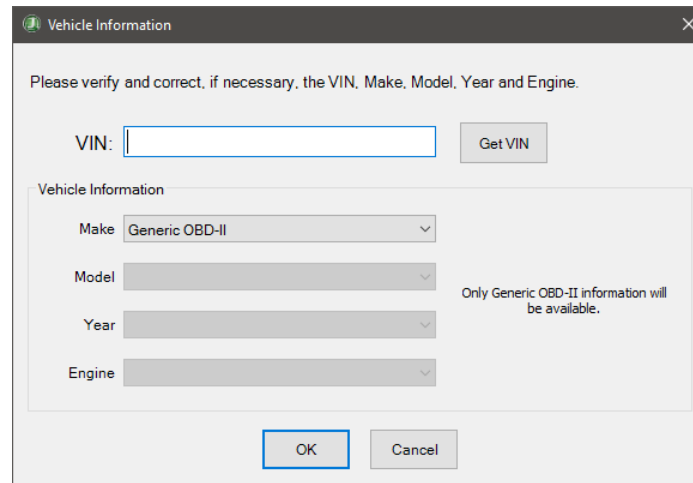


NOTE: If you have a Demo license, this button will not be available.

3. The application will try to connect to the vehicle data bus to read the VIN.
4. The application will display the vehicle information. Verify and correct, if necessary, the **VIN, Make, Model, Year** and **Engine**. If you do not have a 17 digit VIN available, or the vehicle information is incorrect, then select the make, model, year and engine.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

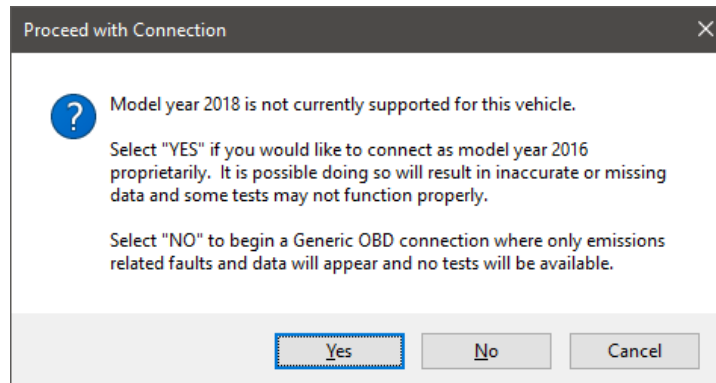
If the vehicle is not currently supported, you may attempt to connect as Generic OBD II. However, when connected as Generic OBD II, only emissions related faults and sensor data will be available.



Vehicle Information

NOTE: JPRO Commercial Vehicle Diagnostics may fail to connect as Generic OBD II on vehicles older than 2007.

5. A confirmation prompt may be displayed if the vehicle year is not supported or if the vehicle make, model, and engine is not supported in any year.
 - a. If the vehicle year is not supported, a prompt to choose to connect with proprietary support or as Generic OBD II will display.

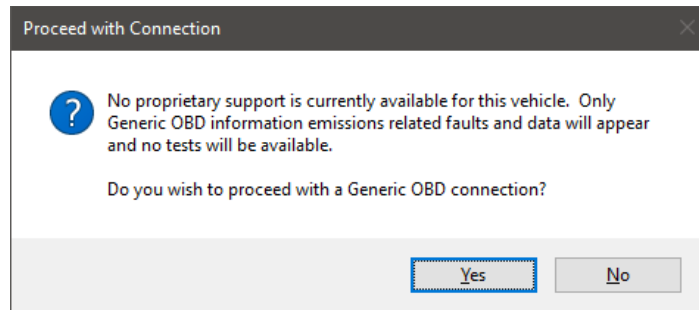


Proceed with Connection Question for Year Not Supported

- b. Select **Yes** to proceed with the connection proprietarily. Select **No** to proceed with a Generic OBD II connection.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)

- c. If the vehicle make, model and engine is not supported in any year, then a confirmation prompt to connect as Generic OBD II will display.



Proceed with Connection Question for Generic OBD II

- d. Select **Yes** to proceed with a Generic OBD II connection.
- e. The application will now try to connect to the vehicle data bus using a supported adapter. Progress information will be displayed while the initial download of vehicle and sensor data is completed.
- f. The **Vehicle Readiness**, **Fault Code Information** and **Key Data Points** windows are displayed.

JPRO® Commercial Vehicle Diagnostics 2021 v1

Exit Disconnect Vehicle History Inspections & Reports Fault Guidance NextStep™ Repair Data Monitor Emissions Bi-Directional Submit Repair Application Portal Education Portal Application Settings Help

No Active Issues Found

2018 General Motors Vehicle

- GM 6.0L V8 (L96)
- Transmission Control Module
- Body Control Module
- Electronic Brake Control Modu

Status	Component	Lookup...	Description
Inactive	Body Control Module	B3031-00	Manufacturer Specific (B3031)
Inactive	Body Control Module	B3935-00	Manufacturer Specific (B3935)
Inactive	Electronic Brake Control Module	U0100-00	Lost communication with ECM/PCM "A"
Inactive	Electronic Brake Control Module	U0140-00	Lost communication with body control module
Inactive	Electronic Brake Control Module	U0101-00	Lost communication with TCM

Clear Faults Freeze Frame Parameters

Engine Coolant Temp: 140.00 °F

Manifold Pressure: 286 In Hg

Mass Air Flow Rate: 00 lb/min

Intake Air Temp: 89.60 °F

Engine RPM: 0.00 x 1000

Vehicle Information
VIN: Not Available
Manufacturer: General Motors
Model: Truck 1500,2500,3500
Model Year: 2018

Medium-Duty Connection Main Screen

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)


Connecting to the Data Bus on a Trailer

Connect using the **PLC 7-way** connector with either the Noregon® **Trailer Diagnostic** adapter or Noregon® **DLA+ PLC** adapter. Power must be provided to the trailer using either an auxiliary battery or the tractor.

Connections using the **Universal J560 PLC** adapter combined with a Noregon **DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless or DLA+ PLC** adapter are supported.

Connections using the **4-pin to 9-pin extended diagnostic cable** adapter combined with a Noregon **DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, or DLA+ Wireless** adapter are supported.

Connections to trailers equipped with **9-Pin SAE J1939** connector using a Noregon **DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, or DLA+ PLC** adapter are also supported.

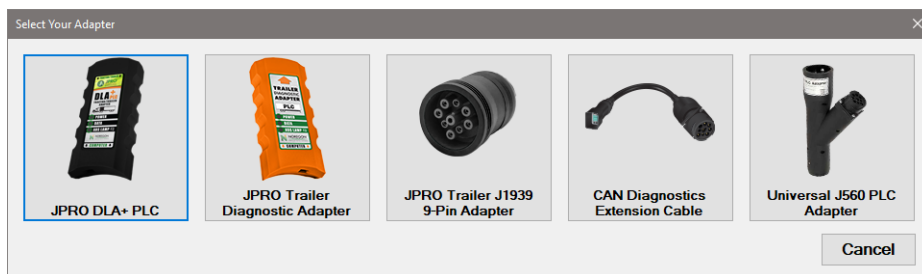
1. Select the **F8** key or the **Connect**  button on the main
2. You will be prompted for the connection type. Select the **Trailer Connections** button.



toolbar.

NOTE: If you have a Demo license, this button will not be available.

3. A PLC adapter selection screen will be displayed. Select the desired device to continue.



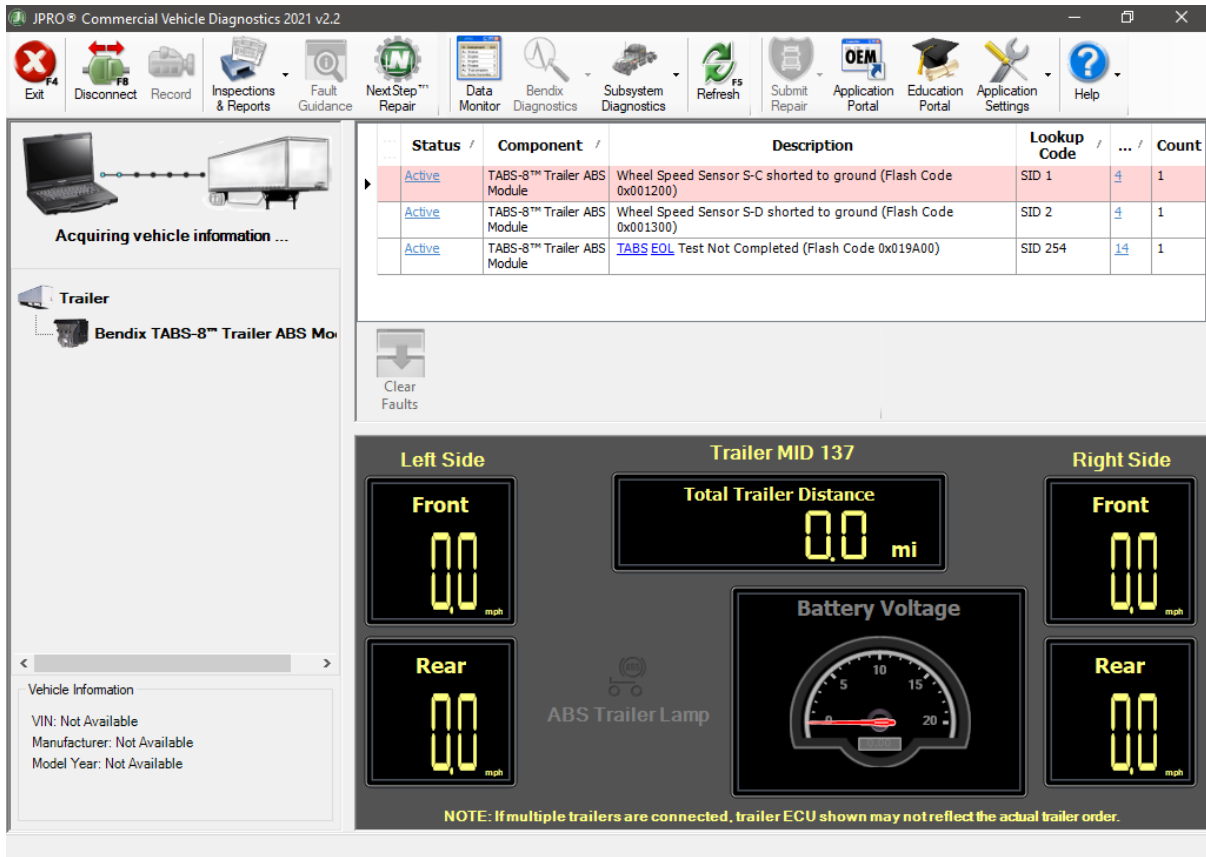
Select Your Adapter

4. The application will try to connect to the trailer using the selected trailer connection.

NOTE: If the Universal J560 PLC Adapter or CAN Diagnostics Extension Cable was selected, the application will connect to the trailer using the connection setting from Preferences.

WORKING WITH LIVE VEHICLE DATA BUS (CONT.)


5. The **Vehicle Readiness**, **Fault Code Information** and **Key Data Point's** windows are displayed.



PLC Trailer Connection Main Screen

Disconnecting from the Data Bus

Disconnecting from the data bus closes the application's connection to the vehicle data bus.

1. Select the **F8** key or the **Disconnect**  button on the main toolbar.
2. The application disconnects from the data bus.
3. All data windows are closed.

SUBMIT REPAIR

Configure Decisiv Warranty Submission

Before you can submit repair data to Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT), you must first configure the **Database Site**, **Decisiv Username** and **Password** via **Preferences**.

Finding the Decisiv API Username and Password

1. Log into your **Decisiv Portal** via an internet browser.
2. Select a database.
3. Click on **Admin** on the right top menu.

NOTE: Only personnel with Decisiv Admin level access will see the Admin option. If you do not see it, contact your Decisiv Admin to complete these steps.

4. Select **Customize Your Database**.
5. Select **API Settings**.
6. If necessary, click **Enable External API** button to turn on API access. This step should only be needed if your site has never set up API access before.
7. You should see the **API Username** and **Password** needed for integration configuration.

Configuring Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT) Integration

1. Select the **Application Settings – Preferences toolbar** button.
2. Select the **Decisiv** tab.

Preferences – Decisiv Configuration

3. Select the **Add** button to configure integration for a specific Decisiv database.
4. Select the correct Decisiv Service and enter a name for the Database Site. Select a Database Site name that lets users know what database to send the data to. For example, if you have a database for Mack and one for Volvo, name one database “Mack” and the other “Volvo”.

Decisiv Database Entry


SUBMIT REPAIR (CONT.)

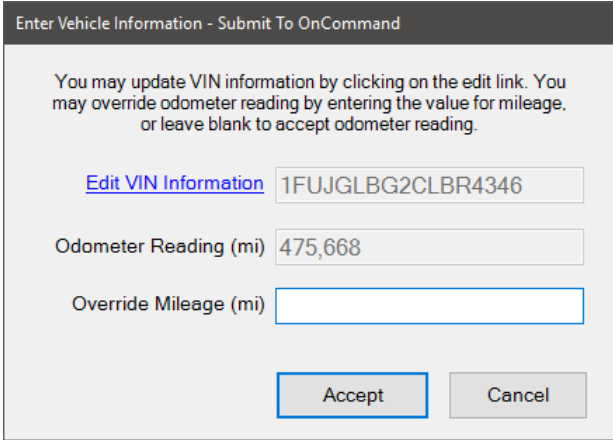
5. Select **OK** to go back to the main Preferences window. On the Preferences window, enter the Dealer ID/Decisiv Username and Password retrieved following the Finding the Decisiv API Username and Password steps above.
6. Select the **Validate** button to verify the username and password have been entered correctly.
7. Repeat step 3-6 for each database you need to configure for submission.

Send Vehicle Data to On Command

Vehicle data gathered by JPRO® Commercial Vehicle Diagnostics can be sent to **Navistar's OnCommand™** service. There is no special configuration necessary for OnCommand integration.

NOTE: The ability to initiate a send vehicle data to OnCommand™ is not available when connected to a Virtual or Demo Truck.

1. While connected to the Data Bus or at the end of a playing back a log file, click the **Submit Repair - OnCommand**  button.
2. You will be given the opportunity to override the VIN and odometer reading before submitting.



Submit to OnCommand – Enter Vehicle Information

3. The current vehicle data will be uploaded to OnCommand™.

NOTE: Automatic submission to OnCommand™ on vehicle disconnect option is available; contact Noregon support (support@noregon.com).

Send Vehicle Data to Ruan

Vehicle data gathered by JPRO® Commercial Vehicle Diagnostics can be sent to the **Ruan** service.

NOTE: The ability to initiate a send vehicle data to Ruan is not available when connected to a Virtual or Demo Truck.

SUBMIT REPAIR (CONT.)

1. While connected to the Data Bus or at the end of a playing back a log file, click the **Submit Repair – Ruan *R*** button.
2. You will be given the opportunity to override the **VIN** and **odometer** reading before submitting.

Enter Vehicle Information - Submit to RUAN

You may update VIN information by clicking on the edit link. You may override odometer reading by entering the value for mileage, or leave blank to accept odometer reading.

[Edit VIN Information](#) 1XKYDP9XXHJ177780

Odometer Reading (mi) 780,305

Override Mileage (mi)

Accept Cancel

Submit to OnCommand – Enter Vehicle Information




3. The current vehicle data will be uploaded to Ruan™.

NOTE: Access to this feature is disabled by default. Please contact Noregon support for more information.

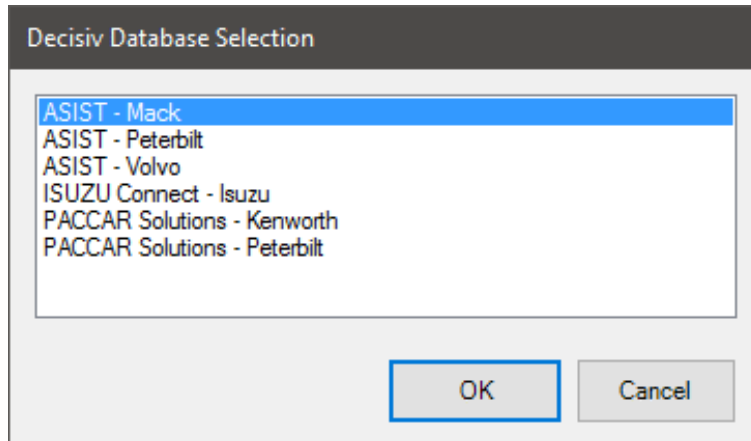
Send Vehicle Data to Decisiv (ASIST, PACCAR Solutions, ISUZU Connect or HINO INSIGHT)

Vehicle data gathered by JPRO® Commercial Vehicle Diagnostics can be sent to Decisiv's ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT service. Please see [Configure Decisiv Warranty Submission](#) section on the steps necessary for configuration.

NOTE: The ability to initiate a send vehicle data to Decisiv is not available when connected to a Virtual or Demo Truck.

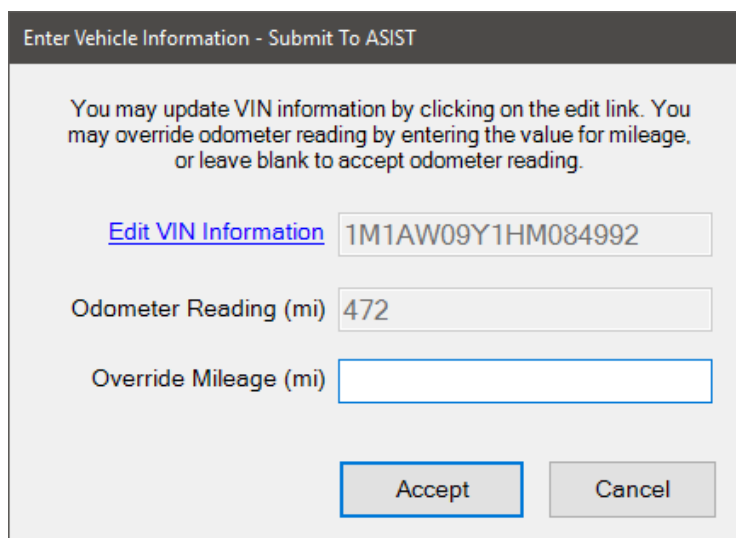
1. While connected to the Data Bus or at the end of playing back a log file, click the **Submit Report**  drop down button and select either:
 - a. **Create New Case**  which will create a new case.
 - b. Or **Update Case**  which will update the most recent case for the truck (identified by VIN), if one exists. If a case does not already exist for the truck, then a new case will be created.
2. If you have configured more than one database, then a dialog will be displayed that will allow you to select a database. The vehicle data will be submitted to the chosen database.

SUBMIT REPAIR (CONT.)



Database Selection

3. You will be given the opportunity to override the **VIN** and **odometer** reading before submitting.



Submit – Enter Vehicle Information

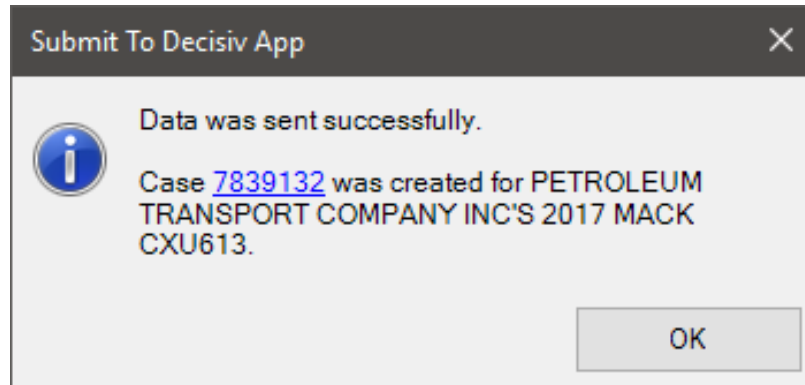
4. The current faults, odometer, engine hours, ECU Software Version, fluid levels and more than 30 additional sensor data items will be uploaded to the selected **Decisiv** database.

Feedback from Decisiv

When Decisiv receives data from JPRO, it will send back info about what it did with the data. There are five different outcomes

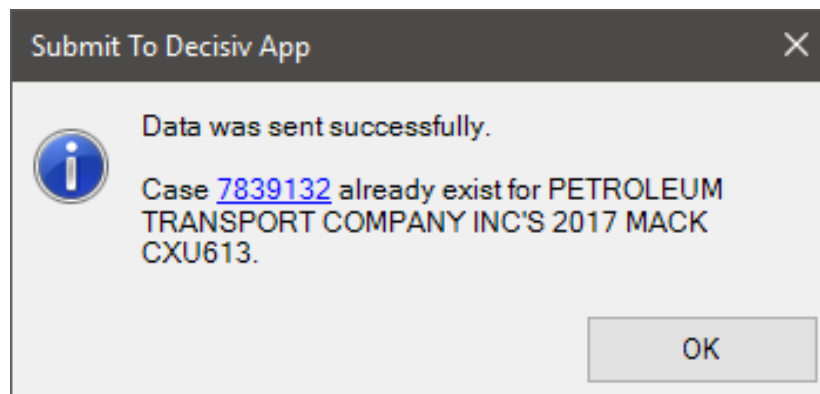
1. This dialog means that the data was sent, and a case was opened with the given Case number. Click on the **Case Number** to view the case.

SUBMIT REPAIR (CONT.)



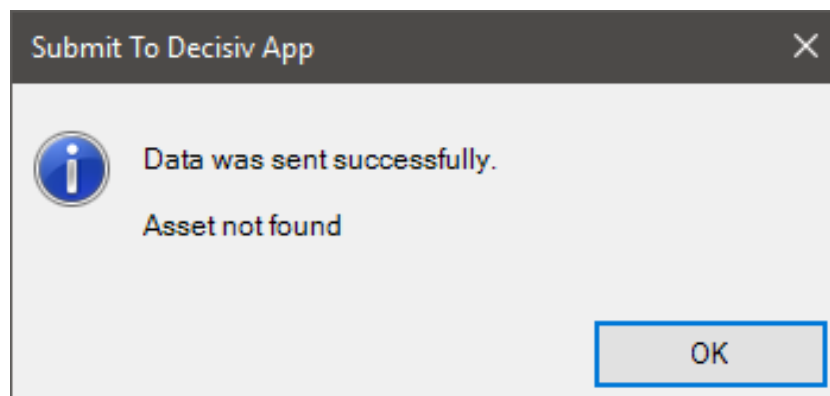
Submit - New Case Created

2. This dialog means that the data was sent, and a case was already open to receive the data. Click on the **Case Number** to view the case.



Submit – Existing Case

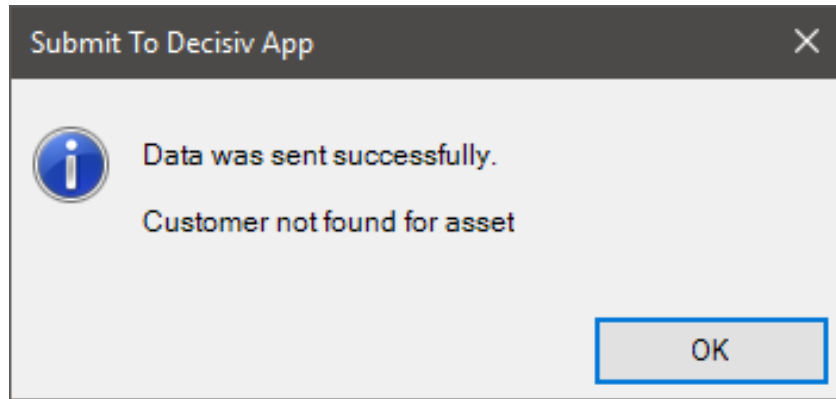
3. This dialog means that the Decisiv system received the data successfully, but there was no matching asset (VIN) in the dealer's Decisiv database. You will need to add the asset to the Decisiv system, then you will to resubmit the vehicle data into a new case created for that asset.



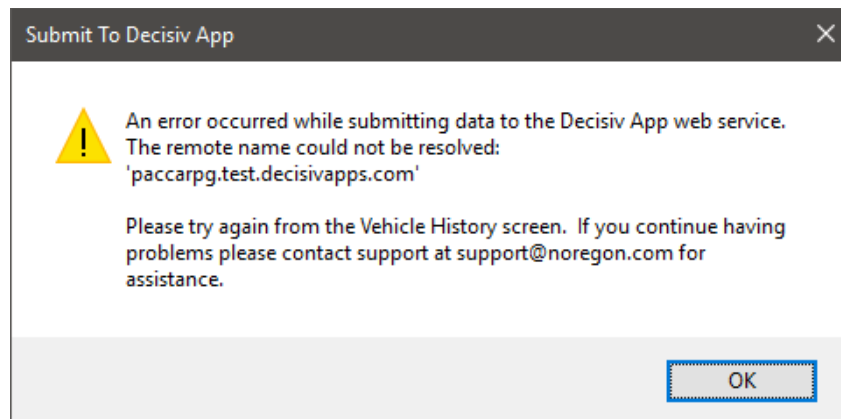
Submit – Asset Not Found

SUBMIT REPAIR (CONT.)

4. This dialog means that the Decisiv system received the data successfully, and the asset (VIN) was found, but there was no customer info in the dealer's Decisiv database. You will need to add the customer info to the Decisiv system, then you will need to resubmit the vehicle data into a new case.



Submit – Customer Not Found





Submit – Connection Error

Send Vehicle Data to Trimble

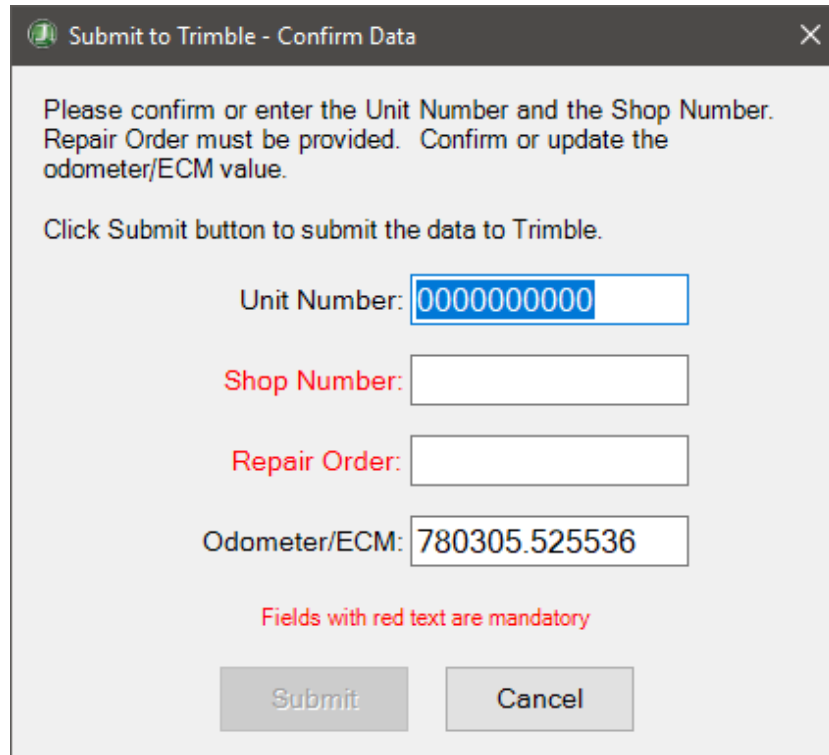
Vehicle data gathered by JPRO® Commercial Vehicle Diagnostics can be sent to Trimble's TMT/TMW service. You must first configure the **URL**, **Username** and **Password** via **Preferences**.

NOTE: The ability to initiate a send vehicle data to Trimble is not available when connected to a Virtual or Demo Truck.

1. While connected to the Data Bus or at the end of playing back a log file, click the **Submit Warranty**  drop down button and select **Trimble**  to create a new case.

SUBMIT REPAIR (CONT.)

2. A window is displayed where the submission data must be provided. **Unit Number**, **Shop Number**, **Repair Order**, and **Odometer/ECM** are all required before the data can be submitted.



Submit to Trimble - Confirm Data

Please confirm or enter the Unit Number and the Shop Number. Repair Order must be provided. Confirm or update the odometer/ECM value.

Click Submit button to submit the data to Trimble.

Unit Number:

Shop Number:

Repair Order:

Odometer/ECM:


Fields with red text are mandatory

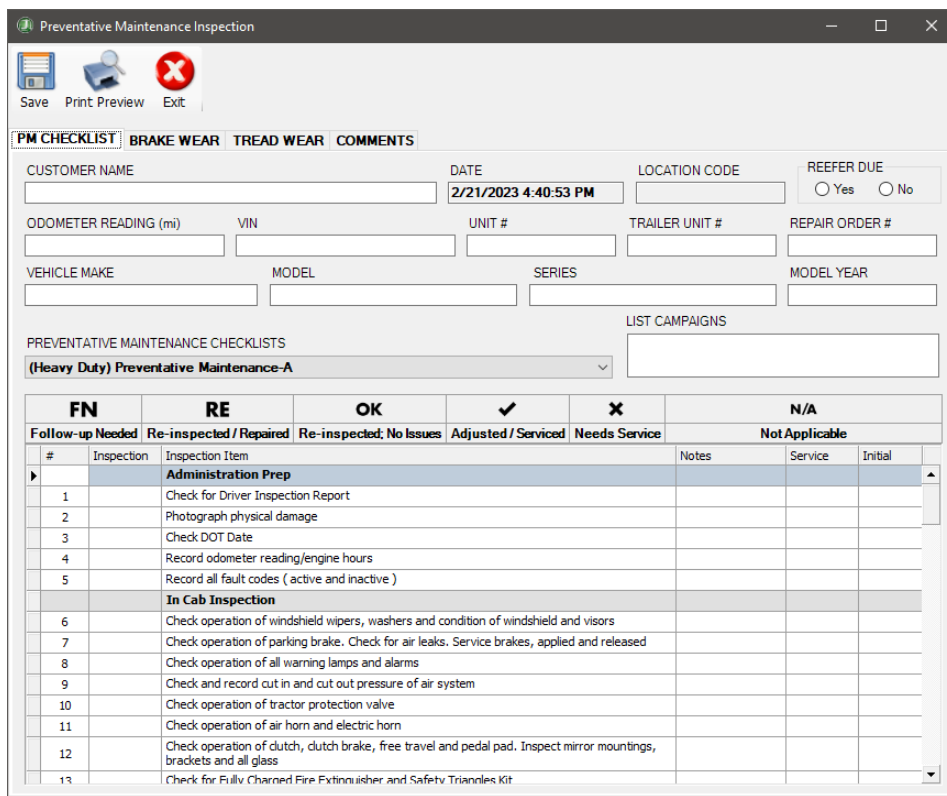
Submit – Enter Vehicle Information

3. Select **Submit** once all required data has been provided to upload the vehicle information to Trimble.

PREVENTATIVE MAINTENANCE INSPECTION

The **Preventative Maintenance Inspection** form allows you to perform a preventative maintenance inspection. This information is saved to the **PM Inspection** report. It is also saved in the **Inspection** folder within the specified **Automatic Log File Location** directory and is available from the **Vehicle History** screen's **PM Inspection History** tab.

1. Follow the previous steps for connecting to the vehicle data bus if desired (You do not have to be connected to a vehicle to create a PM Inspection).
2. Select the **PM Inspection**  button on the main toolbar to display the **Vehicle Inspection** window.



FN	RE	OK	✓	✗	N/A
Follow-up Needed	Re-inspected / Repaired	Re-inspected; No Issues	Adjusted / Serviced	Needs Service	Not Applicable
#	Inspection	Inspection Item	Notes	Service	Initial
Administration Prep					
1		Check for Driver Inspection Report			
2		Photograph physical damage			
3		Check DOT Date			
4		Record odometer reading/engine hours			
5		Record all fault codes (active and inactive)			
In Cab Inspection					
6		Check operation of windshield wipers, washers and condition of windshield and visors			
7		Check operation of parking brake. Check for air leaks. Service brakes, applied and released			
8		Check operation of all warning lamps and alarms			
9		Check and record cut in and cut out pressure of air system			
10		Check operation of tractor protection valve			
11		Check operation of air horn and electric horn			
12		Check operation of clutch, clutch brake, free travel and pedal pad. Inspect mirror mountings, brackets and all glass			
13		Check for Fully Charged Fire Extinguisher and Safety Triangles Kit			

Preventative Maintenance Inspection

3. Here you can enter **Customer Name**, **Reefer Due**, **Unit #**, **Repair Order #**, etc.
4. Vehicle Information (Odometer, VIN, Unit #, Vehicle Make, Model, Series, and Model Year) may be captured from the data bus and will automatically display if available. You may add the information if not read from the truck or if performing an inspection without making a vehicle connection.
5. The desired Checklist can be selected from the list of available **Preventative Maintenance** Checklists.
6. The Checklist allows you to record maintenance status and observations made during the vehicle observation process and maintenance.

PREVENTATIVE MAINTENANCE INSPECTION (CONT.)

7. **Brake Lining Wear** and **Rotor Condition** can be noted on the **Brake Wear** tab of the **Preventative Maintenance Inspection** window.

The screenshot shows the 'Preventative Maintenance Inspection' window with the 'BRAKE WEAR' tab selected. The window title is 'Preventative Maintenance Inspection'. The menu bar includes 'Save', 'Print Preview', and 'Exit'. The main content area is titled 'Brake Lining Wear' and has checkboxes for 'Tractor', 'Trailer 1', and 'Trailer 2'. Under 'Tractor', there are three columns for 'Axle 1', 'Axle 2', and 'Axle 3'. Each axle has two circular gauges labeled '32nds' and a 'Drum/Rotor Wear OK?' checkbox with 'Yes' and 'No' radio buttons. Under 'Trailer 1', there are two columns for 'Axle 2' and 'Axle 3', each with two circular gauges and a 'Drum/Rotor Wear OK?' checkbox.

Brake Wear Inspection

8. Click any of the **Brake Lining Wear** checkboxes for the brake components to be inspected to show or hide controls for that component.
9. Tire **Tread Wear** and **Tire Pressure** can be noted on the **Tread Wear** tab.

The screenshot shows the 'Preventative Maintenance Inspection' window with the 'TREAD WEAR' tab selected. The window title is 'Preventative Maintenance Inspection'. The menu bar includes 'Save', 'Print Preview', and 'Exit'. The main content area is titled 'Tread Wear / Tire Pressure' and has checkboxes for 'Tractor', 'Trailer 1', and 'Trailer 2'. Under 'Tractor', there are three columns for 'Axle 1', 'Axle 2', and 'Axle 3'. Each axle has two sets of controls: a '32nds' gauge and a 'PSI' gauge. Under 'Trailer 1', there are two columns for 'Axle 2' and 'Axle 3', each with two sets of '32nds' and 'PSI' gauges.

Tread Wear Inspection



9. Additional information can be added in the **Comments** tab.

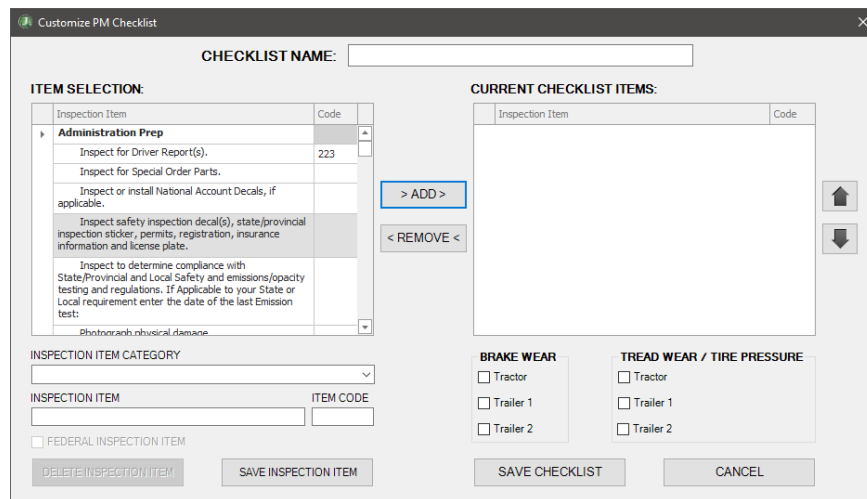
10. When finished, select the **Save** button to save the entered information. The information will automatically be included in the generated PM Inspection Report. It will also be saved in the **Inspection** folder in an XML data file.

Customize PM Checklists

JPRO® Commercial Vehicle Diagnostics comes installed with five detailed **Preventative Maintenance** checklists. It also provides a tool that allows you to create your own checklists from scratch or using one of the five default checklists as a template.

Create or Edit a Preventative Maintenance Checklist

1. Find the customization tool either through the **Preferences Wizard** or by clicking **Application Settings – Preferences**  toolbar option – PM Inspection Settings tab.
2. Click the **New**  button to open the **Customize PM Checklist** tool.



Create New Checklist

PREVENTATIVE MAINTENANCE INSPECTION (CONT.)

- You may also select a checklist from the checklists dropdown and select the **Edit** button to edit a previously created checklist or create a new checklist using the selected checklist as the template.

The screenshot shows the 'Customize PM Checklist' dialog box. The 'CHECKLIST NAME' field contains '(Heavy Duty) Preventative Maintenance-A'. The 'ITEM SELECTION' table lists categories like 'Administration Prep', 'Administrative Wrap-Up', and 'Brake (Linings)'. The 'CURRENT CHECKLIST ITEMS' table shows items like 'Administration Prep' and 'In Cab Inspection'. There are 'ADD' and 'REMOVE' buttons between the tables. At the bottom, there are sections for 'BRAKE WEAR' and 'TREAD WEAR / TIRE PRESSURE' with checkboxes for Tractor and Trailer 1/2. Buttons for 'DELETE INSPECTION ITEM', 'SAVE INSPECTION ITEM', 'SAVE CHECKLIST', and 'CANCEL' are at the bottom.

Edit Existing Checklist

- Provide or change the checklist's name. A name must be provided if you are creating a new checklist. If you are editing an existing checklist and you don't change the name your changes will be saved to the existing checklist.

NOTE: If you save a checklist with the same name as one of the 5 defaults, your changes will not be saved to the default. Instead the word 'Custom' will be added to the front of the name and your changes will be saved as a new checklist.

- Select a desired Inspection Item from the **Item Selection** area and add it to the new custom checklist by clicking the **Add** button. Adding a category header (in bold) will add all the inspection items that belong to the selected category. Adding an individual inspection item will make its category appear in **Custom Checklist Items** if it doesn't already.

The screenshot shows the 'Customize PM Checklist' dialog box. The 'CHECKLIST NAME' field is empty. The 'ITEM SELECTION' table has 'Administration Prep' selected. The 'CURRENT CHECKLIST ITEMS' table shows 'Administration Prep' with 'Check for Driver Inspection Report' added. The 'ADD' button is highlighted. The 'BRAKE WEAR' and 'TREAD WEAR / TIRE PRESSURE' sections are empty. Buttons for 'DELETE INSPECTION ITEM', 'SAVE INSPECTION ITEM', 'SAVE CHECKLIST', and 'CANCEL' are at the bottom.

Adding an Inspection Item

PREVENTATIVE MAINTENANCE INSPECTION (CONT.)

- Any Inspection Item or category can be removed by selected the desired item in the **Current Checklist Items** window and clicking the **Remove** button. The item will go back to the **Item Selection** window.
- You can easily change the order of inspection categories or items within a category by clicking the up or down arrow.
- You can add **Brake Wear** and **Tread Wear/Tire Pressure** controls by checking the vehicle types to include by default for this new checklist.
- Clicking the **Save Checklist** button will save your new checklist.

Create Custom Inspection Categories & Items

Custom categories and inspection items can be added to a checklist at any time. This allows you to tailor a checklist to your company's exact needs.

- You can choose an existing category from the **Inspection Item Category** list or type in a brand-new category.
- Write a new **Inspection Item** to add to the selected category.

Inspection Item	Code
Administration Prep	
Check DOT Date	
Photograph physical damage	
Record all fault codes (active and inactive)	
Record miles/engine hours.	
Administrative Wrap-Up	
Attach completed Preventative Maintenance (PM) reminder decal.	
Install completed annual vehicle inspection label. Remove old label first if needed.	
Mark vehicle for washing and move to wash line.	
Place driver survey in vehicle cab.	

Inspection Item	Code
Administration Prep	
Check for Driver Inspection Report	

Create a Custom Category & Inspection Item

- Clicking the **Save Inspection Item** button will add your custom item to the **Item Selection** window and the **Master Checklist**. This means that those new items will be available for any future checklist customizations.
- You can now add the new inspection item to the checklist being customized.

You can also add an item code to any inspection item. Typically, these item codes will refer to your company's servicing documentation. A custom item code will appear in place of the row number for the inspection item on both the Inspection and saved report.

- Whenever you click on an item in either the **Item Selection** or **Current Checklist Items** window, that item's information appears in lower left of the **Customize PM Checklist** window.

PREVENTATIVE MAINTENANCE INSPECTION (CONT.)


2. Enter the item code you want to add to the selected item in the Item Code box. Items codes can be any arrangement of letters and numbers.

Adding an Item Code

3. Clicking the **Save Inspection Item** button will add the item code to the selected item. The item code will be added to the item no matter which window it is in.
4. When you complete your checklist customization and click the **Save Checklist** button any item codes you added will be save to the Master Checklist. This means that those item codes will be available for any future checklist customizations.

Sharing Checklist Templates

In addition to customizing checklists, you can also share any checklists you have created or import checklists created by someone else. This makes it easy for you to share custom checklists within your organization.

1. Click **Application Settings – Preferences**  toolbar option – PM Inspection Settings tab.
2. Click **Add Template** to add a template someone has sent you. You can use the **Select PM Checklist Template** window to find the template file on your computer. Clicking **Open** will automatically add the template to your list of checklists.
3. Selecting a template from the **Select Checklist** to Edit list will enable the **Share Template** button.
4. Clicking **Share Template** opens the **Save Checklist Template** window, which you can use to save the template file in a desired location. From there you can easily share the template as an attachment via e-mail or into a shared directory where others in your organization can find it.

VEHICLE INSPECTION

The **Vehicle Inspection** form allows you to perform a checklist and visual inspection. This information is saved to the **Vehicle Inspection** report. It is also saved in the **Vehicle Inspection** folder within the specified **Automatic Log File Location** directory and is available from the Vehicle History screen's **Vehicle Inspection History** tab.

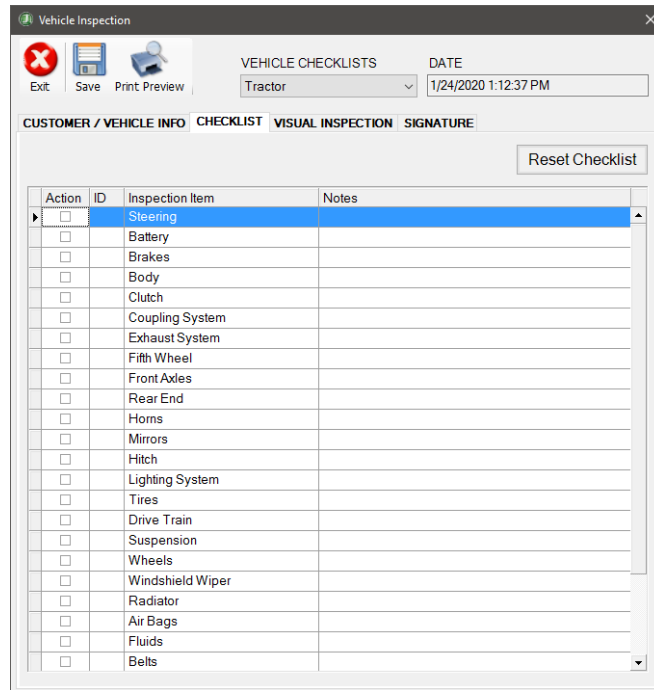
1. Follow the previous steps for connecting to the vehicle data bus if desired (You do not have to be connected to a vehicle to create a Vehicle Inspection).
2. Select the **Vehicle Inspection** button on the main toolbar to display the **Vehicle Inspection** window.

Vehicle Inspection

3. Here you can enter **Customer Name** and **Contact Information, Reason for Service, Unit #**, etc.
4. Vehicle Information (Odometer, VIN, Unit #, Vehicle Make, Vehicle Model, and Vehicle Year) may be captured from the data bus and will automatically display if available. You may add the information if not read from the truck or if performing an inspection without making a vehicle connection.
5. The **Vehicle Checklist** type will be automatically selected based on the connection type and VIN information when connected to a truck. You may change the **Vehicle Checklist** type if the automatic selection is not appropriate. This will load checklist items and images appropriate for the given vehicle type.

VEHICLE INSPECTION (CONT.)

6. Select the **Checklist** tab to record notes and observations about vehicle inspection items.

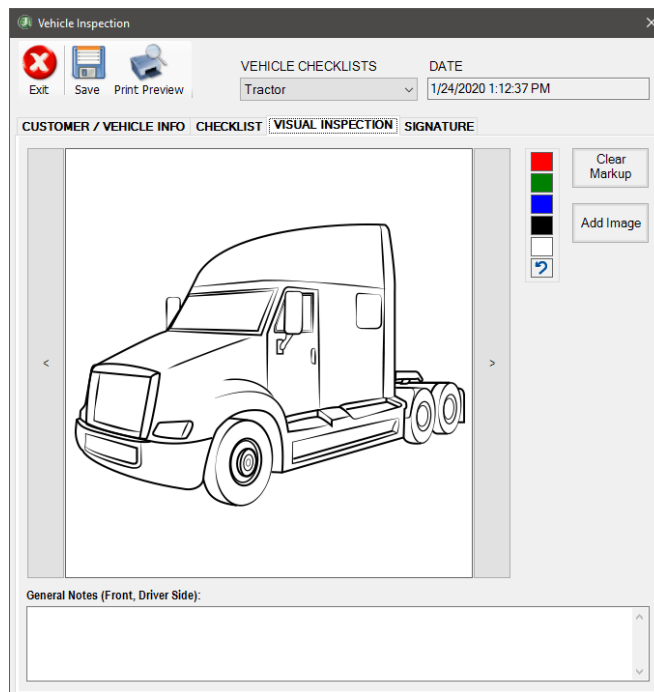


The screenshot shows the 'Vehicle Inspection' window with the 'CHECKLIST' tab selected. The window title is 'Vehicle Inspection'. At the top, there are buttons for 'Exit', 'Save', and 'Print Preview'. Below these are fields for 'VEHICLE CHECKLISTS' (set to 'Tractor') and 'DATE' (set to '1/24/2020 1:12:37 PM'). The main area has tabs for 'CUSTOMER / VEHICLE INFO', 'CHECKLIST', 'VISUAL INSPECTION', and 'SIGNATURE'. A 'Reset Checklist' button is located in the top right of the main area. Below the tabs is a table with the following columns: 'Action', 'ID', 'Inspection Item', and 'Notes'. The 'Steering' item is selected and highlighted in blue.

Action	ID	Inspection Item	Notes
<input type="checkbox"/>		Steering	
<input type="checkbox"/>		Battery	
<input type="checkbox"/>		Brakes	
<input type="checkbox"/>		Body	
<input type="checkbox"/>		Clutch	
<input type="checkbox"/>		Coupling System	
<input type="checkbox"/>		Exhaust System	
<input type="checkbox"/>		Fifth Wheel	
<input type="checkbox"/>		Front Axles	
<input type="checkbox"/>		Rear End	
<input type="checkbox"/>		Horns	
<input type="checkbox"/>		Mirrors	
<input type="checkbox"/>		Hitch	
<input type="checkbox"/>		Lighting System	
<input type="checkbox"/>		Tires	
<input type="checkbox"/>		Drive Train	
<input type="checkbox"/>		Suspension	
<input type="checkbox"/>		Wheels	
<input type="checkbox"/>		Windshield Wiper	
<input type="checkbox"/>		Radiator	
<input type="checkbox"/>		Air Bags	
<input type="checkbox"/>		Fluids	
<input type="checkbox"/>		Belts	

Vehicle Inspection - Checklist

7. The **Visual Inspection** tab is used to make more detailed visual observations about the vehicle. Draw on pre-defined images or upload pictures of the truck. A maximum of 6 images may be added. Cropping and zoom controls are available for custom images. Notes may be added concerning each image.



The screenshot shows the 'Vehicle Inspection' window with the 'VISUAL INSPECTION' tab selected. The window title is 'Vehicle Inspection'. At the top, there are buttons for 'Exit', 'Save', and 'Print Preview'. Below these are fields for 'VEHICLE CHECKLISTS' (set to 'Tractor') and 'DATE' (set to '1/24/2020 1:12:37 PM'). The main area has tabs for 'CUSTOMER / VEHICLE INFO', 'CHECKLIST', 'VISUAL INSPECTION', and 'SIGNATURE'. Below the tabs is a large image area showing a line drawing of a truck. To the right of the image are buttons for 'Clear Markup' (with a red, green, and blue color selection) and 'Add Image' (with a blue question mark icon). Below the image area is a text box labeled 'General Notes (Front, Driver Side):'.


Vehicle Inspection - Visual Inspection

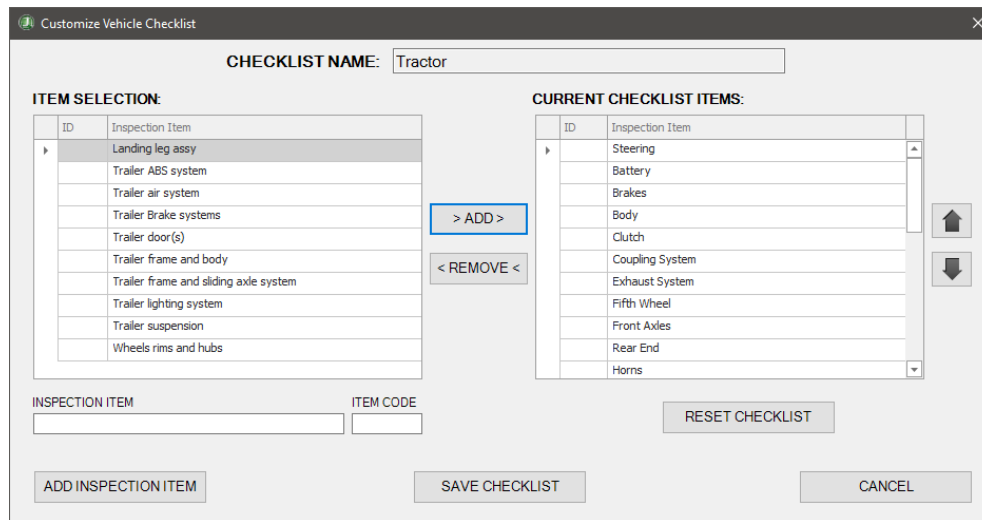
VEHICLE INSPECTION (CONT.)

8. If desired, collect the customer signature digitally via the **Signature** tab.
9. When finished, select the **Save** button to save the entered information. The information will automatically be included in the generated Vehicle Inspection Report. It will also be saved in the **Vehicle Inspection** folder in an XML data file.

Customize Vehicle Inspection Checklist

JPRO® Commercial Vehicle Diagnostics comes installed with five **Vehicle Inspection** checklists. It also provides a tool that allows you to customize the checklists items.

1. Find the customization tool either through the **Preferences Wizard** or by clicking **Application Settings – Preferences**  toolbar option – **Vehicle Inspection** tab.
2. Select the **Checklist Type** to edit from the list and click the **Edit** button to open the **Customize Vehicle Checklist** tool.



ID	Inspection Item
	Landing leg assy
	Trailer ABS system
	Trailer air system
	Trailer Brake systems
	Trailer door(s)
	Trailer frame and body
	Trailer frame and sliding axle system
	Trailer lighting system
	Trailer suspension
	Wheels rims and hubs

ID	Inspection Item
	Steering
	Battery
	Brakes
	Body
	Clutch
	Coupling System
	Exhaust System
	Fifth Wheel
	Front Axles
	Rear End
	Horns

Customize Vehicle Checklist

3. Select a desired Inspection Item from the **Item Selection** area and add it to the **Current Checklist** Items by clicking the **Add** button.
4. Remove a **Checklist Item** by selected the desired item in the **Current Checklist Items** window and clicking the **Remove** button. The item will go back to the **Item Selection** window.
5. You can easily change the order of **Checklist Items** by clicking the up or down arrow.
6. Add a new **Inspection Item** by typing in the **Inspection Item** text box and select the **Add Inspection Item** button which will add it to the **Item Selection** list. Select the **Add** button to add it to the **Current Checklist Items**.
7. Select **Save Checklist** to save all changes made.

SUBMIT BY E-MAIL

JPRO® Commercial Vehicle Diagnostics provides the ability to submit or share the playback file, JPRO® Diagnostic Report and Vehicle Inspection information if available. Select the **Compose Email** method if you are using a local email program like Outlook. Select **Save File** if you are using webmail like Gmail.

Compose E-mail

Method

Compose Email Save File

Use this option if you have a **local email program (such as Outlook) already set up**. This option launches your default email program with the submission file already attached.

Any message entered below will be included in the email body and submission file.

Message


Vehicle Information

VIN: 1XPBD49X9LD675300 Connection Date/Time:
 Make: Peterbilt 2019-05-10 15:48
 Year: 2020

Send Email Cancel


Compose E-mail for Submit Report

Compose Email

1. During a live vehicle connection select the **Submit Report**  button on the main toolbar.
2. The Compose E-mail window is displayed. Select Compose Email. Type any desired text into the Message text area. Select **Send Email** when done.
3. A new email message opens containing the typed message and the log file for the current connection.

NOTE: This feature only supports MAPI compliant email applications.

Save File


1. During a live vehicle connection select the **Submit Report**  button on the main toolbar.
2. The **Compose E-mail** window is displayed. Select **Save File**. Type any desired text into the **Message** text area. Select **Send Email** when done.
3. A **Save File** dialog will appear. Save the submission file to the desired location to be attached to a webmail message. The submission file will contain the typed message as a text document.

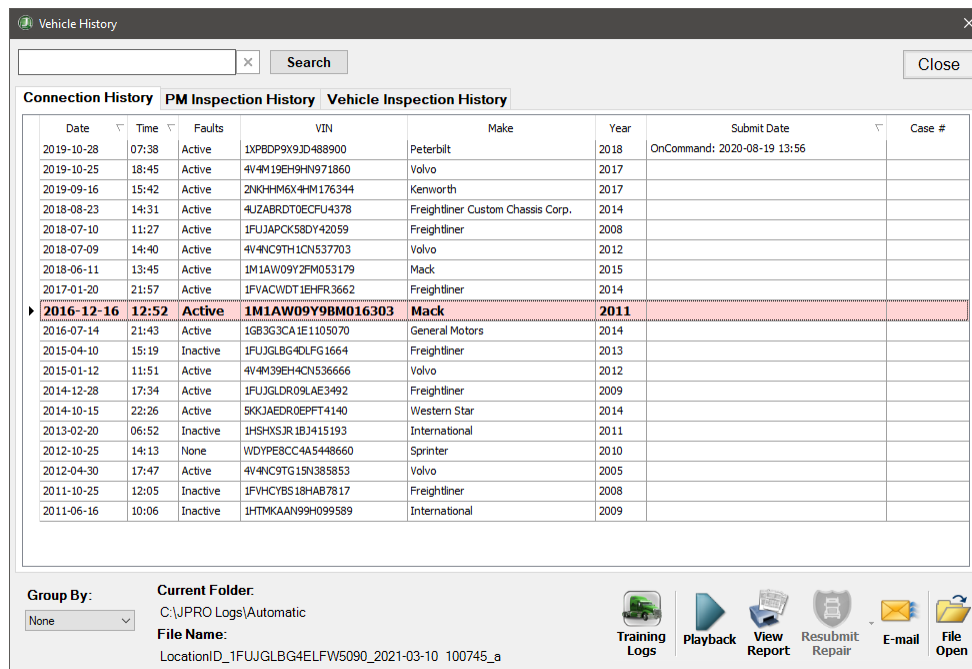
VEHICLE HISTORY

Vehicle History allows you to playback or view all the log files and reports located in the automatic log directory via the **Connection History** tab. The **Inspection History** tab allows you to view or edit PM Inspections. Data can also be sorted and grouped.

The **Connection History** tab also supports a Demo mode enabling you to explore application features quickly and easily without needing access to vehicles.

NOTE: "Off-Highway" will be shown in the VIN field for any off-highway equipment log files where a VIN could not be read.

1. Select the **Vehicle History**  button on the main toolbar.
2. The **Vehicle History** window appears with the **Connection History** tab selected and showing a listing of log files and reports located in the automatic log directory.




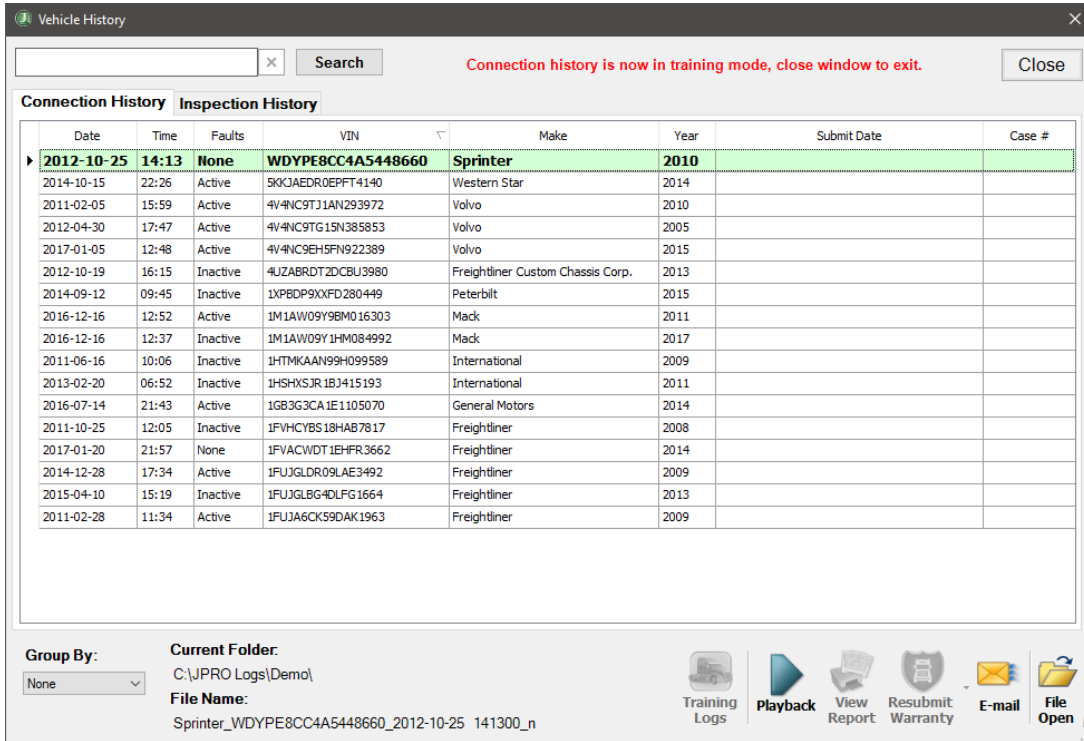
Connection History

NOTE: Unit Number will only display if enabled in Preferences.

3. Use the **Search** at the top of the form to search all columns by Make, Unit Number, Customer Name, Comments or even a partial VIN. The displayed results will show only those items that meet all search criteria.
4. Use the **Group By** box to select which report heading to sort on.

VEHICLE HISTORY (CONT.)

5. Select the **Training Logs**  button to view all installed training log files. This allows you to select files for playback to explore features without needing a vehicle connection.







The screenshot shows the 'Vehicle History' window with a search bar and a red warning message: 'Connection history is now in training mode, close window to exit.' The window has two tabs: 'Connection History' (selected) and 'Inspection History'. Below the tabs is a table with the following data:

Date	Time	Faults	VIN	Make	Year	Submit Date	Case #
2012-10-25	14:13	None	WDYPE8CC4A5448660	Sprinter	2010		
2014-10-15	22:26	Active	5K3JAEDR0EPFT4140	Western Star	2014		
2011-02-05	15:59	Active	4V4NC9TJ1AN293972	Volvo	2010		
2012-04-30	17:47	Active	4V4NC9TG15N385853	Volvo	2005		
2017-01-05	12:48	Active	4V4NC9EH5FN922389	Volvo	2015		
2012-10-19	16:15	Inactive	4UZABRDTZDCBU3980	Freightliner Custom Chassis Corp.	2013		
2014-09-12	09:45	Inactive	1XPBDP9XFD280449	Peterbilt	2015		
2016-12-16	12:52	Active	1M1AW09Y9BM016303	Mack	2011		
2016-12-16	12:37	Inactive	1M1AW09Y1HM084992	Mack	2017		
2011-06-16	10:06	Inactive	1HTMKAAN99H099589	International	2009		
2013-02-20	06:52	Inactive	1HSHXSJR1BJ415193	International	2011		
2016-07-14	21:43	Active	1GB3G3CA1E1105070	General Motors	2014		
2011-10-25	12:05	Inactive	1FVHCYBS18HAB7817	Freightliner	2008		
2017-01-20	21:57	None	1FVACWDT1EHFR3662	Freightliner	2014		
2014-12-28	17:34	Active	1FUJGLDR09LAE3492	Freightliner	2009		
2015-04-10	15:19	Inactive	1FUJGLBG4DLFG1664	Freightliner	2013		
2011-02-28	11:34	Active	1FUJA6CK59DAK1963	Freightliner	2009		


At the bottom of the window, there is a 'Group By' dropdown set to 'None', a 'Current Folder' field showing 'C:\JPRO Logs\Demo\', and a 'File Name' field showing 'Sprinter_WDYPE8CC4A5448660_2012-10-25_141300_n'. The toolbar includes icons for Training Logs, Playback, View Report, Resubmit Warranty, E-mail, and File Open.

Demo Mode


NOTE: Vehicle History will stay in training mode until you close the Vehicle History window.

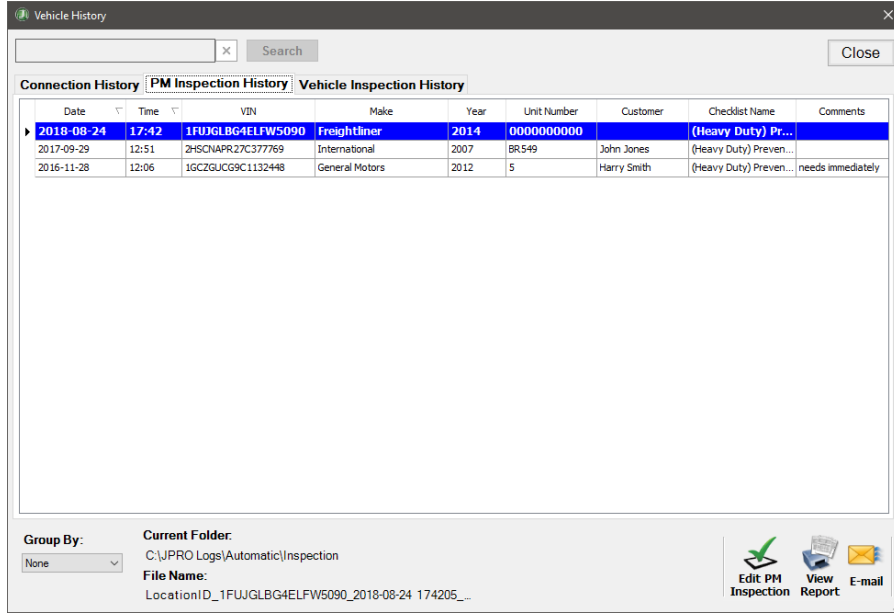
6. Select the log file of interest from the Connection History tab.
 - a. Select the **Play Log**  button or double-click on a row to play back the previously recorded data. See "Playing Back Previously Recorded Data" for more details.
 - b. Select the **View Report**  button to view the JPRO® Diagnostic Report if one is available.
 - c. Select the **Resubmit Repair - Decisiv**  button to re-upload the selected file to Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT). This button is only enabled if the vehicle information was previously submitted to Decisiv.
 - d. Select the **Resubmit Repair - OnCommand**  button to re-upload the selected file to OnCommand™. This button is only enabled if the vehicle information was previously submitted to OnCommand.

NOTE: To submit vehicle data not previously submitted to Decisiv, OnCommand™, or Trimble; you must playback the log file to the end and select the appropriate *Submit Repair* selection from the main toolbar.

- e. Select the **Email**  button to attach and e-mail the playback file, JPRO® Diagnostic Report and Vehicle Inspection information if available. See [Submit By E-mail](#) for details.




VEHICLE HISTORY (CONT.)

- f. Select the **File Open**  button to playback a log file not in the automatic log file directory. The standard **Windows Open File** dialog appears and enables you to browse to the log file and select Open. See “Playing Back Previously Recorded Data” for more details.
7. Select the **PM Inspection History** tab to view a listing of all saved PM Inspections located in the **Inspection** directory.



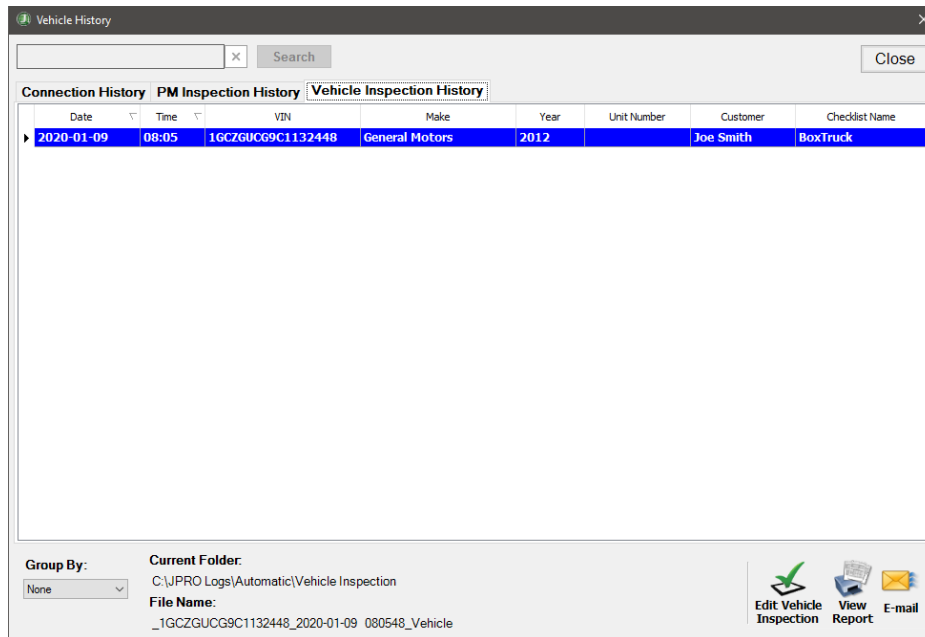
Date	Time	VIN	Make	Year	Unit Number	Customer	Checklist Name	Comments
2018-08-24	17:42	1FUJGLBG4ELFW5090	Freightliner	2014	0000000000		(Heavy Duty) Pr...	
2017-09-29	12:51	2HSCNAPR27C377769	International	2007	BR549	John Jones	(Heavy Duty) Preven...	
2016-11-28	12:06	1GC2GUCG9C1132448	General Motors	2012	5	Harry Smith	(Heavy Duty) Preven...	needs immediately

PM Inspection History


8. Select the inspection file of interest from the **PM Inspection History** tab.
 - a. Select the **Edit PM Inspection**  button to edit the Inspection information for the given vehicle.
 - b. Select the **View Report**  button to view the JPRO® PM Inspection Report if one is available.
 - c. Select the **Email**  button to attach and e-mail the **PM Inspection Report** and **Inspection XML** file.

VEHICLE HISTORY (CONT.)



9. Select the **Vehicle Inspection History** tab to view a listing of all saved Vehicle Inspections located in the Vehicle Inspection directory.



Vehicle Inspection History


10. Select the inspection file of interest in the Vehicle Inspection History tab.
 - a. Select the *Edit Vehicle Inspection*  button to view and possibly edit the Vehicle Inspection information for the given vehicle in the Vehicle Inspection form.

NOTE: Only unsigned Vehicle Inspections may be changed or edited. Signed Vehicle Inspections can only be viewed.

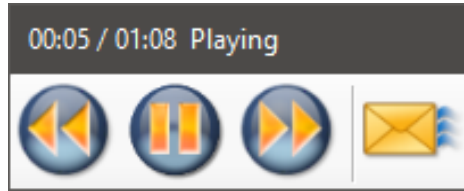
 - b. Select the *View Report*  button to view the JPRO® Vehicle Inspection Report if one is available.
 - c. Select the *Email*  button to attach and e-mail the Vehicle Inspection Report and Inspection XML file.

Playing Back Previously Recorded Data

Playing back previously recorded data allows you to access all functionality as if you were connected to a live vehicle, but with the ability to start, stop, pause, and fast forward. This feature is often used to perform a more in-depth analysis when diagnosing and troubleshooting a vehicle.

1. Select a log file of interest from the Vehicle History list or via the Vehicle History **File Open**  button.

- The **Playback toolbar** appears.



Playback Toolbar

- The **Vehicle Readiness, Fault Code Information** and **Key Data Point's** window are displayed.
- The Application status bar is updated with the name of the playback file.
- The playback toolbar functions as follows:



Rewind to beginning of the playback file.



Play the file playback.



Pause file playback.



Fast Forward file playback.



Attach and Email the playback file. This button displays the **Compose Email** dialog.

The **playback toolbar** displays the current position in the file (MM:SS), the total length of the file, and the playback state.

- To close the playback file, select the **Disconnect**  button from the main toolbar. The toolbar and all data views will close.
- The **Vehicle History** window will re-open.

Automatic Recording

Upon making a live vehicle connection, JPRO® Commercial Vehicle Diagnostics immediately begins recording all data on the data bus. The recording will automatically be saved to a log file once all data has been read. The automatic recording will be a minimum of 60 seconds but may be longer if necessary, to capture the full state of the vehicle.

Automatic log files are useful for tracking vehicle state changes over time. However, they are not useful for later troubleshooting as they simply contain the initial vehicle snapshot. Manual recordings are more useful for detailed troubleshooting analysis. Please see **Recording Live Vehicle Data** for more details on how to use recordings for later troubleshooting analysis.

Log files are saved to the computer's hard drive location configured in **Setting Up Preferences**. The default is **C: \JPRO Logs\Automatic**

Automatically saved log files contain information in the filename that denotes the vehicle's VIN, Unit Number (if required), the date and time of the recording, and the overall vehicle health. The filename will end with "a" if there were any active, pending or confirmed faults; an "i" if there any only inactive faults; and an "n" if there are no faults.



Recording Live Vehicle Data

Recording the live vehicle data allows you to capture all data on the data bus to a file. This file can later be played back for a more in-depth analysis. JPRO automatically captures an initial vehicle snapshot, however, that initial vehicle snapshot is not useful for later troubleshooting.

In order to capture a recording that is useful for detailed analysis, you should capture a manual recording after the initial vehicle snapshot has been saved.

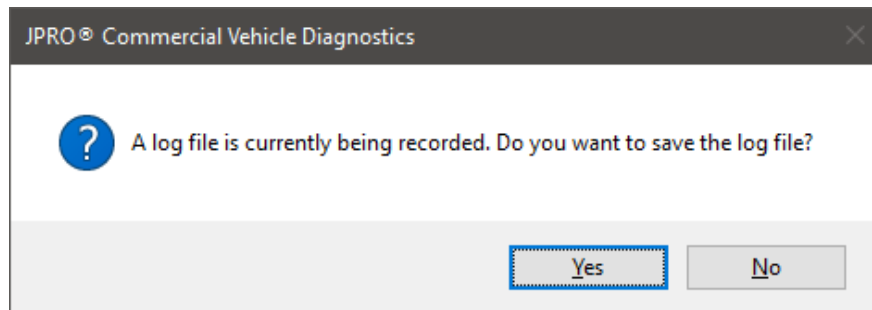
NOTE: You cannot record data from a playback file. The Record option will only be available when connected to the live data bus.

Heavy Duty, Off-Highway, or PLC Manual Recording for Later Troubleshooting

1. Make the initial vehicle connection. It is recommended that the initial connection typically be made with **Key On Engine Off (KOEO)**.
2. Wait for the initial vehicle snapshot to be saved. Once it has been saved, the **Record**  button will be enabled on the main toolbar.
3. Select the **Record** button to initiate a manual recording. JPRO will start recording all data bus activity. **Record** displays in the lower right status bar.
4. At this point, you may crank the engine or do other operations you want to later examine for changes to sensor data.
 - Heavy Duty, Off-Highway, and PLC connections automatically refresh all sensor data so that data displayed in the Data Monitor will be updated.
5. Once you are satisfied that you have useful information to examine, click the **Stop Recording**  button on the main toolbar.

NOTE: Recording is limited to a maximum of one hour.

- The recording will stop, and you will be prompted to save the log file. Select **Yes**.




Save Log File Prompt

- The standard **Windows Save File** dialog appears. Select a filename and a location for the file and click **Save**. The default location is located at **C:\JPRO logs\Automatic**.
- The file is saved to disk and can be played back using the **Playback** feature.

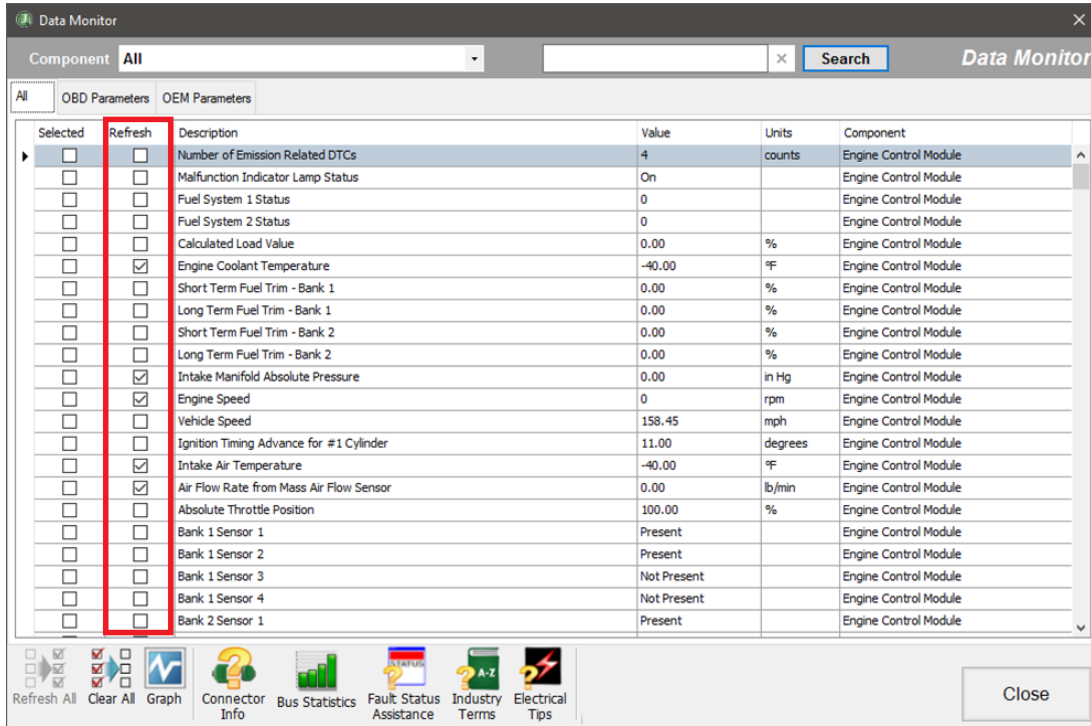
NOTE: Clicking the Disconnect or Exit  button will also cause the application to prompt you to save the log file.

Medium Duty Manual Recording for Later Troubleshooting


- Make the initial vehicle connection. It is recommended that the initial connection typically be made with **Key On Engine Off (KOEO)**.
- Wait for the initial vehicle snapshot to be saved. Once it has been saved, the **Record**  button will be enabled on the main toolbar.
- Select the *Record* button to initiate a manual recording. JPRO will start recording all data bus activity. **Record** displays in the lower right status bar.
- At this point, you may crank the engine or do other operations you want to later examine for changes to sensor data.

VEHICLE HISTORY (CONT.)


5. Open **Data Monitor** and select appropriate data of interest for refresh by selecting the **Refresh** checkbox. This causes the application to request the data items at most two times a second. The actual request rate will vary depending on the number of data items selected.




Medium Duty Data Monitor

6. Once you are satisfied that you have useful information to examine, click the **Stop Recording**  button on the main toolbar.
7. The recording will stop, and you will be prompted to save the log file. Select **Yes**.
8. The standard **Windows Save File** dialog appears. Select a filename and a location for the file and click **Save**. The default location is located at **C:\JPRO logs\Automatic**.
9. The file is saved to disk and can be played back using the **Playback** feature.

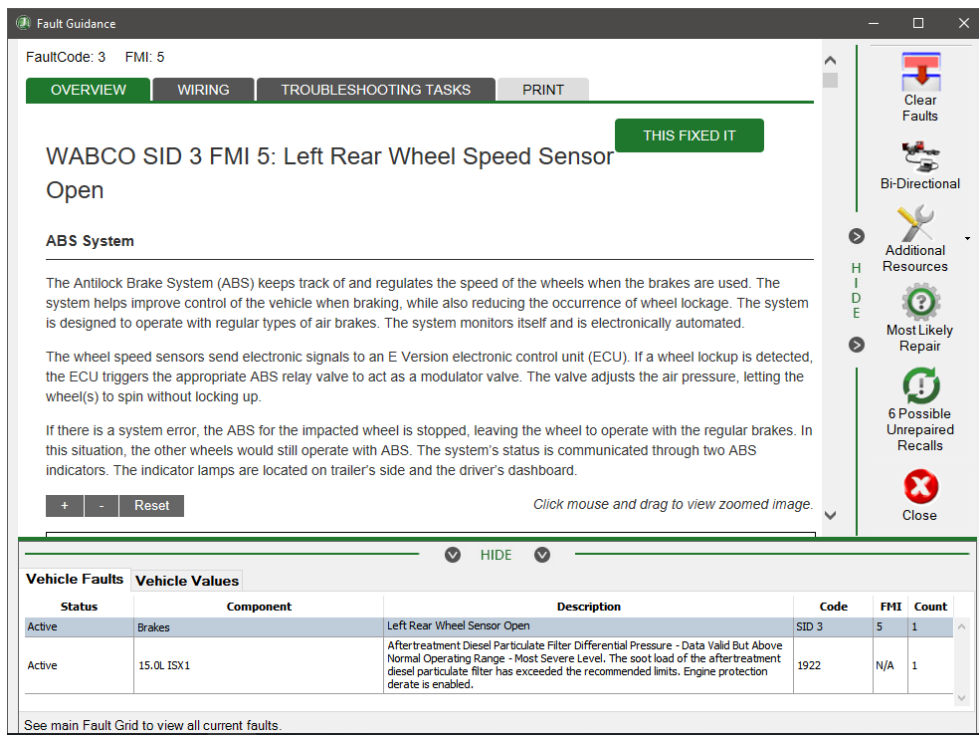
FAULT GUIDANCE

The **Fault Guidance**  button on the main toolbar allows you to view troubleshooting information, wiring diagrams and step-by-step troubleshooting procedures for all reported faults that are supported by **Fault Guidance**.

1. While connected to a heavy-duty vehicle, select the **Fault Guidance**  button on the main toolbar.

NOTE: If you are not connected or if no reported faults are currently supported, the *Fault Guidance* button will not be enabled.

2. The **Fault Guidance** window appears. Upon initial launch, no fault will be selected. You must select the fault to troubleshoot from the Vehicle Faults grid at the bottom of the window.
3. Select the fault to troubleshoot. The **Overview** tab contains general information for the selected fault condition.



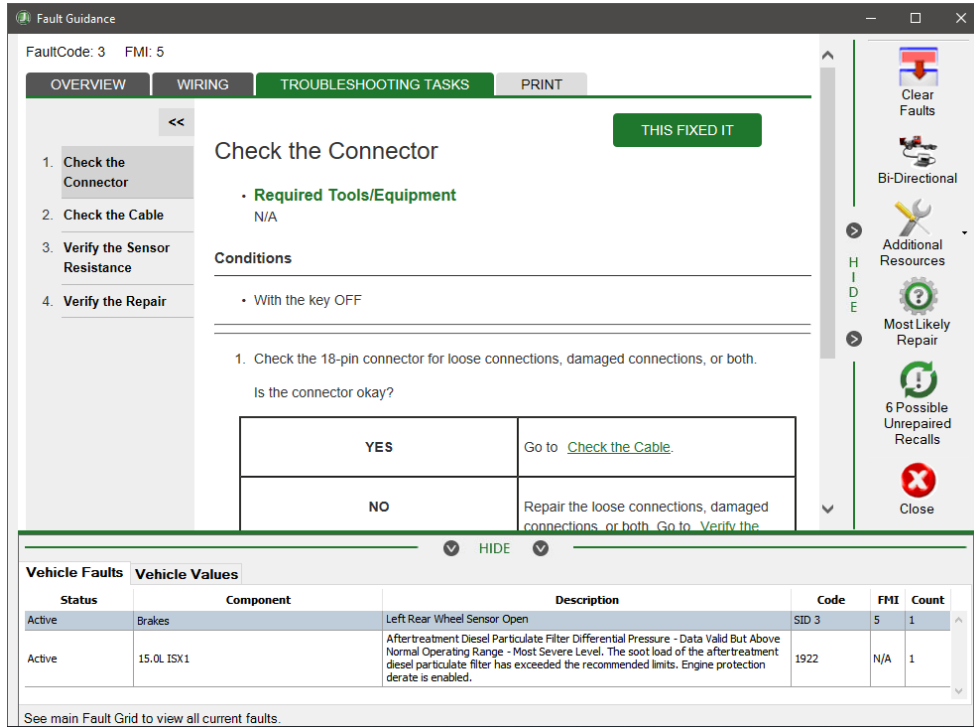
Fault Guidance Overview

NOTE: Internet access is required for access to Fault Guidance service information.



- If Fault Guidance does not currently have coverage for the selected fault, instructions will be displayed for escalating the issue to Noregon. The appropriate repair information will be sent in a PDF file as soon as possible.

NOTE: Escalation for Mack/Volvo faults is 8 business hours. Escalation for all other manufacturers is 2 business hours.




4. To view information for a different fault, select the fault from the **Vehicle Faults** list.
5. Select the **Wiring** tab to view wiring diagrams for the selected fault.
6. Select the **Troubleshooting Tasks** tab to view step by step troubleshooting steps.



Fault Guidance Troubleshooting Tasks



7. Select the **Vehicle Values** tab to view fault related data.
8. Select the **Clear Faults**  button to verify the repair procedure by forcing the ECU to re-evaluate the fault condition.
9. Select the **Bi-Directional**  button to access JPRO's Bi-Directional features as instructed by the troubleshooting tasks.

NOTE: Clear Faults and Bi-Directional buttons are not available during playback.


10. Select the **Additional Resources** button to access:
 - a. Select the **Applications**  button to access JPRO's Application Portal.
 - b. Select the **Industry Terms**  button to view definitions for common industry terms.
 - c. Select the **Maintenance or Service Data**  button to view the installed troubleshooting guide for the selected ECU.

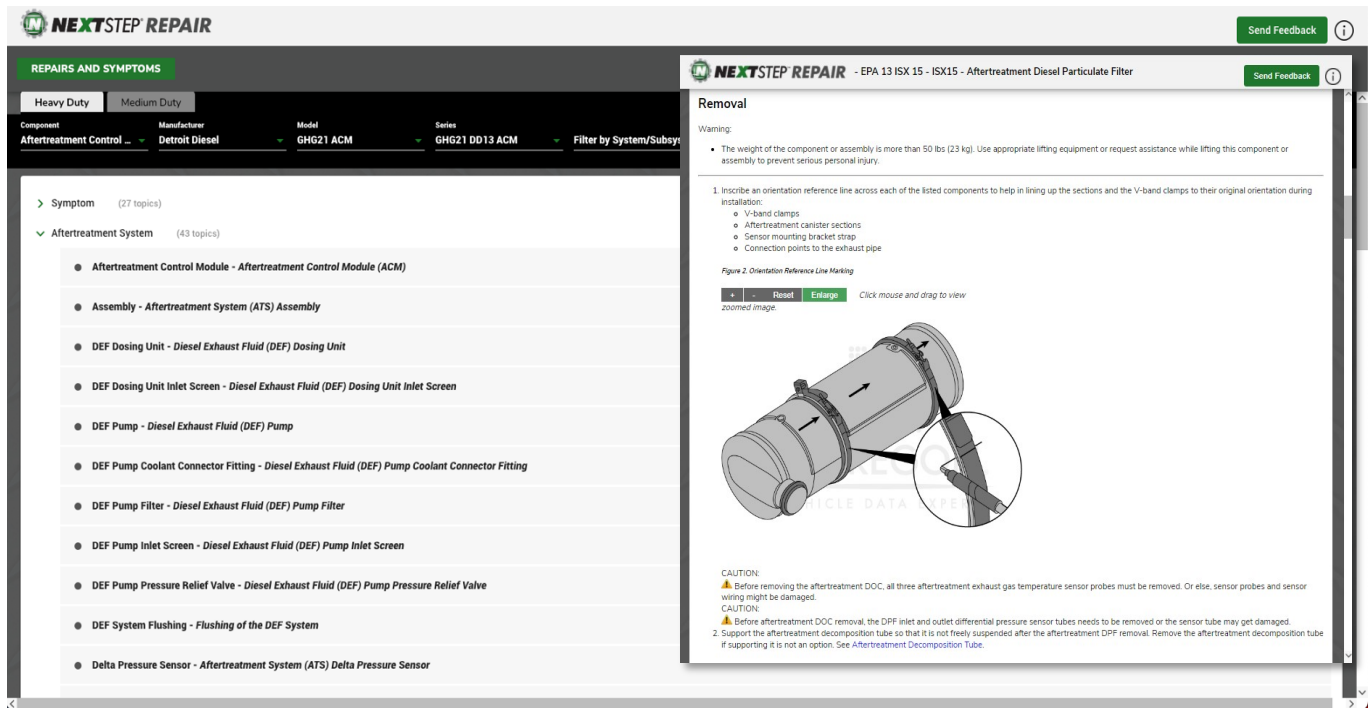
FAULT GUIDANCE (CONT.)

NOTE: Maintenance or Service Data button is only enabled if installed troubleshooting guides have been located on the computer.

11. Select the **Most Likely Repair**  button to view the [Most Likely Repair](#) information for supported engine faults.
12. Select the **Possible Unrepaired Recalls**  button to view [Possible Unrepaired Recalls](#) for the connected vehicle.

NEXTSTEP® REPAIR

The **NextStep® Repair**  main toolbar button will open a new internet browser window to the NextStep® Repair website.




NextStep Repair

NextStep® Repair is an interactive maintenance guide created and maintained by top ASE, OE, and JPRO-certified technicians. New coverage is regularly added so you always have up-to-date information without the hassle and expense of manual updates or new purchases.

NOTE: Annual subscription required to access NextStep® Repair. Please visit the website for details.

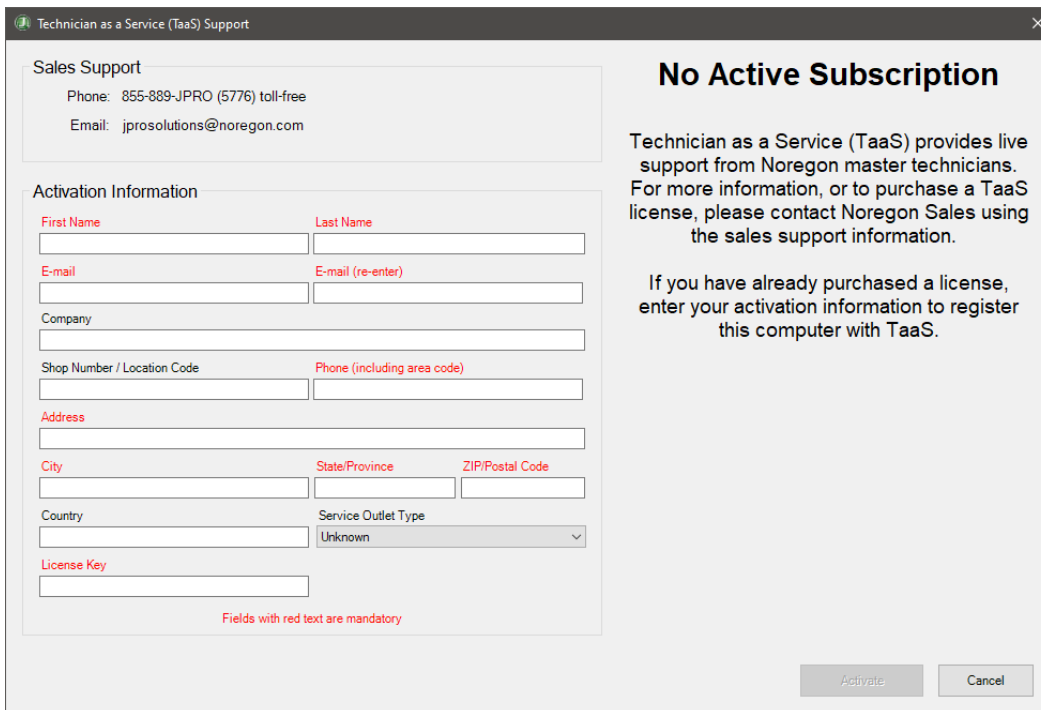
TECHNICIAN AS A SERVICE (TaaS)

TaaS is a separate product purchase that provides live support from Noregon master technicians and is registered to a single computer.

The **TaaS Support**  main toolbar button will open the TaaS Support screen, where you can register and view your TaaS license information. You will need to provide your contact information as well as the License Key that you received from Noregon Systems.

The information will be sent to Noregon's licensing servers over the internet to register the product.

NOTE: Internet connectivity is required for registration.



Sales Support
Phone: 855-889-JPRO (5776) toll-free
Email: jpro solutions@noregon.com

Activation Information

First Name Last Name

E-mail E-mail (re-enter)

Company

Shop Number / Location Code Phone (including area code)

Address

City State/Province ZIP/Postal Code

Country Service Outlet Type

License Key

Fields with red text are mandatory

No Active Subscription

Technician as a Service (TaaS) provides live support from Noregon master technicians. For more information, or to purchase a TaaS license, please contact Noregon Sales using the sales support information.

If you have already purchased a license, enter your activation information to register this computer with TaaS.

Activate Cancel

Technician as a Service (TaaS) Support

After initial registration, the TaaS Support screen will be used to validate your TaaS license when making support calls.

NOTE: Current TaaS license is required to be eligible for TaaS support.

TECH TIPS

During live-vehicle and simulated connections **Tech Tips** will automatically play educational videos aimed at assisting technicians in getting the most out of JPRO.



Tech Tips

This feature will automatically display for each connection unless disabled via user **Preferences**.

OEM APPLICATION PORTAL

The OEM Portal provides access to 3rd party software and information. This can include:


- OEM Applications
- Service Literature
- Parts website links
- Links for downloading 3rd party applications

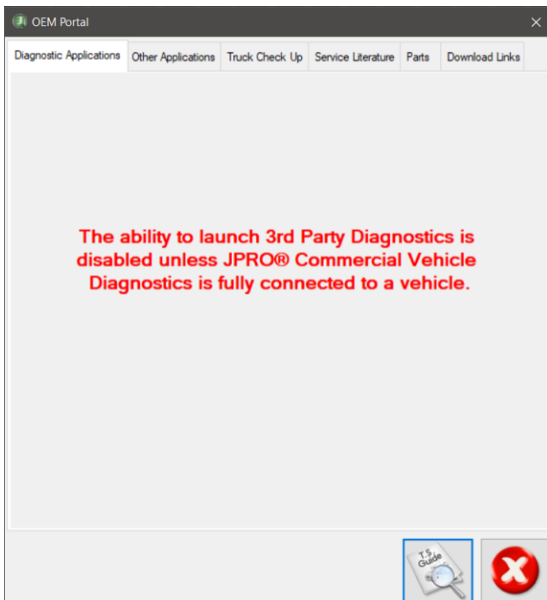
OEM Applications

The **Diagnostic Applications** tab and **Other Applications** tab list all OEM Applications currently available on your computer.

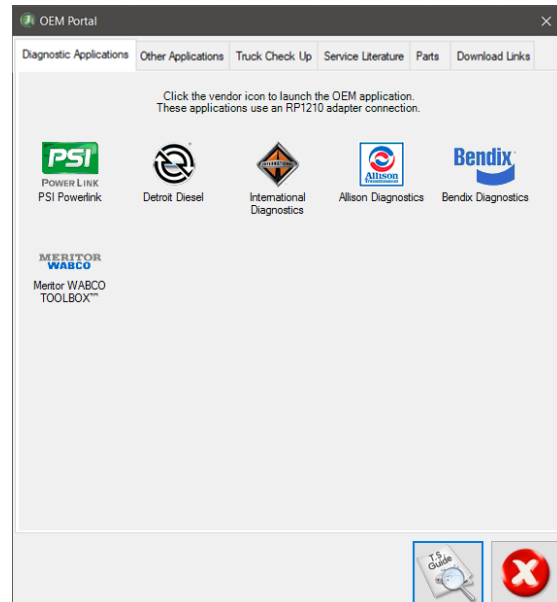
The **Diagnostic Applications** tab contains standard OEM diagnostic applications for heavy duty trucks. Access to launching these OEM applications is disabled until JPRO® Commercial Vehicle Diagnostics is fully connected to a vehicle.

All other OEM applications that are installed are available from the **Other Applications** tab. These applications are always available.

Launch an OEM Application by clicking on the application Icon (i.e. ). If there are multiple applications available for the OEM, a dialog will be presented allowing for the selection of the desired application. If JPRO® Commercial Vehicle Diagnostics has a current live vehicle connection, the application will disconnect from the data bus before launching the third-party program. Once the launched application is closed, JPRO® Commercial Vehicle Diagnostics will reconnect to the data bus.



OEM Portal Disabled



OEM Portal Enabled

Truck Check Up

Truck Check Up will perform and submit CARB Clean Truck Check inspections. When the application is released, users will be able to download or launch Truck Check Up from here.

NOTE: Download link currently opens [Clean Truck Check information website](#).

Service Literature

The **Service Literature** tab contains links to Troubleshooting Guides found on the installed computer. These guides are discovered during the Installation process and can be updated at any time by clicking the

Troubleshooting Guides  button.

Parts

The **Parts** tab contains website links to manufacturer parts catalogues. Clicking a link will open a new internet browser window.

Download Links

The website links in the **Download Links** tab navigate to OEM application websites where they can be downloaded.

RESOURCE PORTAL

The **Resource Portal** provides easy access to many industry certification and educational opportunities including a library of resources specific to JPRO.

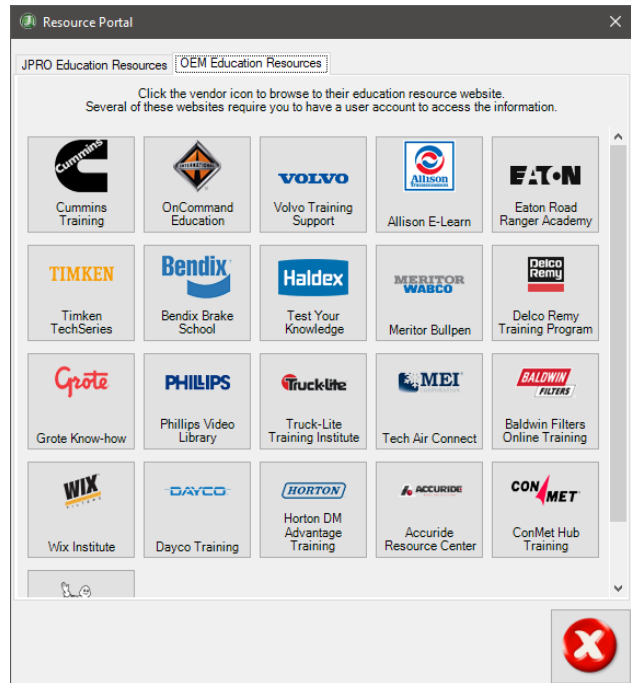
Select the **JPRO Education Resources** tab to access the **JPRO Resource Portal** web page. From the JPRO Resource Portal web page, you may access training videos, webinars, Tech Tips and many other useful resources. You may also use these resources pursue JPRO Certification.

JPRO Certification demonstrates JPRO proficiency. Earn a JPRO certificate and patches to advertise your proficiency. A certification can ensure you are getting the most benefit from the JPRO product.

Select the **OEM Education Resources** tab to access training and certification opportunities for various original equipment manufacturers (OEMs).



JPRO Education Resources



OEM Education Resources

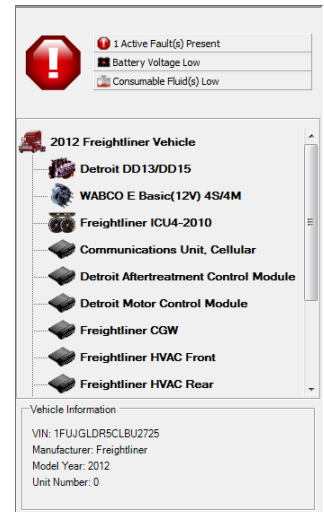
STANDARD DATA VIEWS

Most views available are the same regardless of the protocol selected or whether you are analyzing live vehicle data (**Connect** button) or working with a playback file (**Playback** button).

Vehicle Readiness

The **Vehicle Readiness** window is the heart of the JPRO® Commercial Vehicle Diagnostics. This window displays a consolidated view of the entire vehicle across data buses. The window is divided into three panels that provide useful information.

- The top portion of the window displays overall vehicle health information. See the [Heavy Duty Data Views – Vehicle Health and Repair Mentor](#) or the [Medium Duty Data Views – Vehicle Health](#) sections for more details.
- The **Vehicle Tree** shows the vehicle at the highest level and all components on the vehicle listed beneath it. Select any component in the Vehicle Tree to display the **Fault Code Information** and **Key Data Points** windows for the selected component. The **Vehicle/Component Information** area is also updated to display information pertaining to the selected component.
- The **Vehicle Information** area at the bottom of the **Vehicle Readiness** window displays the VIN, manufacturer, model, model year and unit number if the vehicle node is selected, or component-specific information if a component is selected.



Vehicle Readiness

NOTE: Trailer brakes components will only show up if the vehicle tractor brakes have PLC gateway enabled. Bendix tractor brakes have this enabled by default. This is a configuration option for Wabco tractor braking systems.

Fault Code Information

The **Fault Code Information** window displays information about all faults detected on the vehicle data bus. Additional information is displayed for the selected vehicle/component and fault at the bottom of the **Fault Code Information** window.

See [Heavy Duty Fault Code Information](#) or [Medium Duty Fault Code Information](#) for details.

Key Data Points

The **Key Data Points** window displays specific data items targeted to the component currently selected in the **Vehicle Readiness** window. The gauges displayed vary by vehicle and selected component. Data points for which no data is available are grayed out or disabled.


Data Monitor

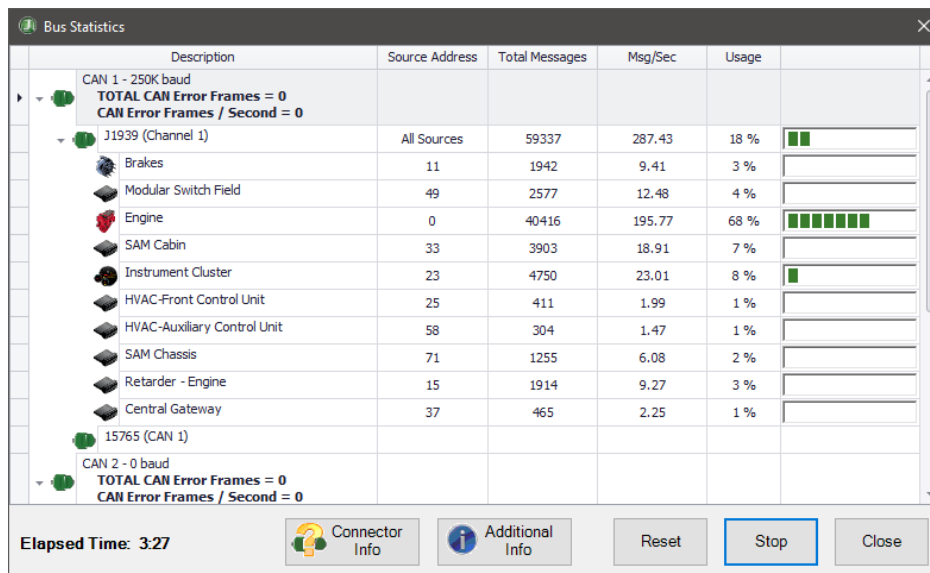
The **Data Monitor** window displays various data items and parameters, converted to meaningful values with associated units. The data items shown will vary from vehicle to vehicle based on types of sensors available.

See [Heavy Duty Data Monitor](#) or [Medium Duty Data Monitor](#) for details.

Bus Statistics

Bus Statistics are only available on live vehicle connections. The window provides textual information regarding the total number of messages received by the vehicle adapter as well as the average number of messages per second. There is a graphical representation of the current bus utilization percentage. Message statistics are provided for each ECU Bus as well.

1. Select the **Bus Statistics**  button on the main toolbar or [Connector Info](#) window.
2. The **Bus Statistics** window is displayed and begins monitoring bus communications immediately.



Bus Statistics

NOTE: ECU level statistics are only available on heavy-duty vehicle connections.

3. To control the **Bus Statistics** window:

- a. Click **Stop** to stop updating device statistics.
- b. Click **Start** to begin updating device statistics again.
- c. Click **Reset** to reset the DLA and accompanying statistics.

Connector Info

The **Connector Info** window is an educational tool that provides pinout information for various Heavy Duty and Medium Duty connectors. It is available from both playing back previously recorded connections as well as live vehicle connections.

Connector Info will open with the most appropriate connector option selected. Any of the available connector options can be selected at any time to view its pinout details.

Heavy Duty Connector Info

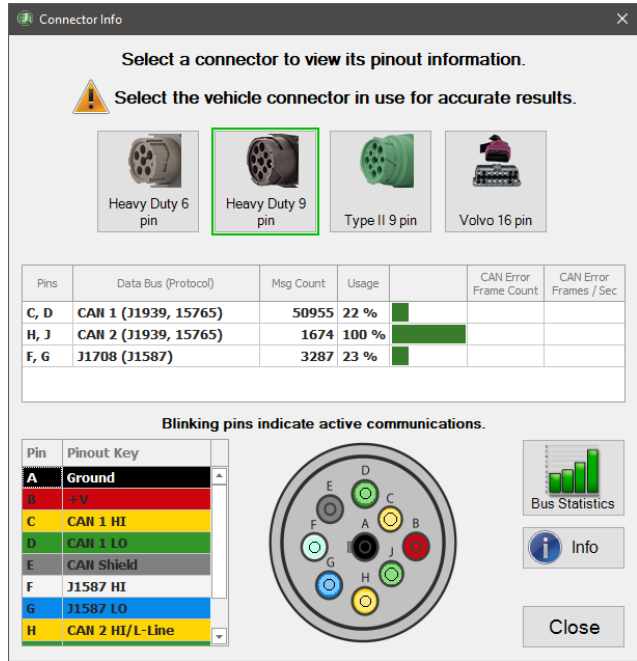
For live heavy-duty connections, the active communication protocols are shown with which pins are used by the protocol, the amount of traffic and CAN error frame counts and rate (if available).

Click **Bus Statistics** to see a detailed view of all communication protocols and which ECUs are present, along with their data bus usage.

Connector Pinout Key describes the pins and which communication protocol they relate to.

Connector Pinout Image provides the visual reference for pin identity on the connector. For live Heavy-Duty vehicle connections, blinking pins indicate active communications.

When playing back a previously recorded vehicle connection, the Bus Statistics snapshot and **Bus Statistics** button will not be displayed.



Connector Info- Heavy Duty Live Vehicle Connection

Click the [Bus Statistics](#) button to view additional information about data bus communications.

Off-Highway Connector Info

For live Caterpillar off-highway connections, the active communication protocols are shown with which pins are used by the protocol, the amount of traffic and CAN error frame counts and rate.

For other off-highway connections, please select the **Connector Location Help**  button from the [connection screen](#).

Click **Bus Statistics** to see a detailed view of all communication protocols and which ECUs are present, along with their data bus usage.

Connector Pinout Key describes the pins and which communication protocol they relate to.

Connector Pinout Image provides the visual reference for pin identity on the connector. For live Off-Highway vehicle connections, blinking pins indicate active communications.

STANDARD DATA VIEWS (CONT.)

When playing back a previously recorded vehicle connection, the **Bus Statistics** snapshot and **Bus Statistics** button will not be displayed.

The screenshot shows the 'Connector Info' window. At the top, it prompts the user to 'Select a connector to view its pinout information.' and 'Select the vehicle connector in use for accurate results.' Two connector options are shown: 'CAT 9 pin' (highlighted with a green box) and 'CAT 14 pin'. Below this is a table with the following data:

Pins	Data Bus (Protocol)	Msg Count	Usage	CAN Error Frame Count	CAN Error Frames / Sec
F, G	J1939 (Channel 1)	1994	100 %		

Below the table, it says 'Blinking pins indicate active communications.' and shows a pinout diagram with pins A through J. To the right of the diagram are buttons for 'Bus Statistics', 'Info', and 'Close'. The 'Info' button is highlighted.

Connector Info – Off-Highway Live Vehicle Connection

PLC Connector Info

For live trailer connections, the active communication protocols are shown with which pins are used by the protocol, and the amount of traffic.

Click **Bus Statistics** to see a detailed view of all communication protocols and which ECUs are present, along with their data bus usage.

Connector Pinout Key describes the pins and which communication protocol they relate to.

STANDARD DATA VIEWS (CONT.)

When playing back a previously recorded vehicle connection, the **Bus Statistics** snapshot and **Bus Statistics** button will not be displayed.

The screenshot shows the 'Connector Info' window. At the top, it prompts the user to 'Select a connector to view its pinout information.' and 'Select the vehicle connector in use for accurate results.' A warning icon is present. Below this, a connector image labeled 'Trailer PLC' is highlighted with a green box. A table below the image shows the following data:

Pins	Data Bus (Protocol)	Msg Count	Usage	CAN Error Frame Count	CAN Error Frames / Sec
	PLC (J1587)	70	6 %		

Below the table, it says 'Blinking pins indicate active communications.' and shows a pinout key table:

Pin	Pinout Key
1	Ground
2	ICC Marker
3	Left Turn Signal
4	Brake Lights
5	Right Turn Signal
6	Running Lights
7	Auxiliary +12V

To the right of the pinout key is a circular diagram of the connector with pins 1 through 7 labeled and color-coded to match the pinout key. Below the diagram are buttons for 'Bus Statistics', 'Info', and 'Close'.

Connector Info – PLCs Live Vehicle Connection

Medium Duty Connector Info

For live medium-duty connections, the active communication protocols are shown with which pins are used by the protocol, the amount of traffic and CAN error frame counts and rate.

Connector Pinout Key describes the pins and which communication protocol they relate to.

Connector Pinout Image provides the visual reference for pin identity on the connector. For live Medium-Duty vehicle connections, blinking pins indicate active communications.

The most appropriate connector will be selected based on vehicle manufacturer, but all available connectors can be selected to display their pinout details.

STANDARD DATA VIEWS (CONT.)

When playing back a previously recorded vehicle connection, the **Bus Statistics** snapshot and **Bus Statistics** button will not be displayed.

The screenshot shows the 'Connector Info' window. At the top, it prompts the user to 'Select a connector to view its pinout information.' Below this, a warning icon is followed by the instruction 'Select the vehicle connector in use for accurate results.' Three connector options are shown: 'Ford 16 pin' (red), 'GM 16 pin' (yellow, highlighted with a green border), and 'Sprinter / Isuzu 16 pin' (blue). Below the connector selection is a table with the following data:

Pins	Communication Protocol	Usage	CAN Error Frame Count	CAN Error Frames / Sec
6, 14	CAN 1 (HSCAN)	10 %	0	0

Below the table, it states 'Blinking pins indicate active communications.' To the left is a 'Pinout Key' table:

Pin	Pinout Key
2	J1850
4	Ground
5	CAN Shield
6	CAN 1 HI
7	J1587 HI
14	CAN 1 LO
15	J1587 LO
16	+V

In the center is a diagram of a 16-pin connector with pins 8, 1, 16, and 9 labeled. To the right of the diagram are three buttons: 'Bus Statistics' (with a bar chart icon), 'Info' (with an 'i' icon), and 'Close'.

Connector Info- Medium Duty Connection

HEAVY DUTY DATA VIEWS

Vehicle Health and Repair Mentor

At the top of the **Vehicle Readiness** window, the overall **Vehicle Health** status will be indicated.



A **Red Stop Sign** will be displayed if **active faults** are present, if no J1939 traffic is detected, or if **Road Worthiness** reports a failure.

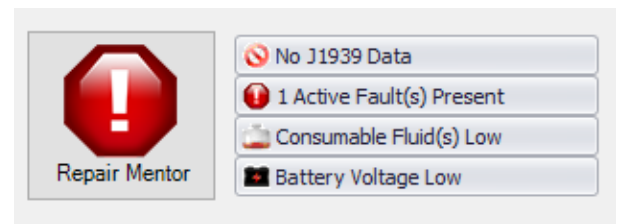


A **Yellow Warning Triangle** will be displayed when there are **no active faults**, but other issues are present.



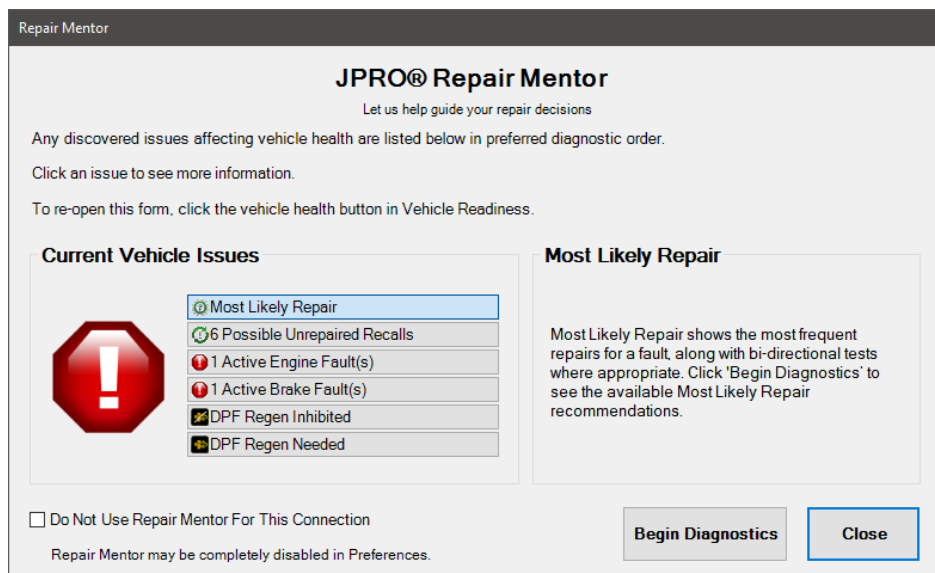
A **Green Check Mark** will be displayed when there are no active faults, or safety issues active. Possible Unrepaired Recalls may be reported.

Repair Mentor is an enhanced vehicle health indicator and assisted diagnostics tool, which prioritizes vehicle issues and provides guidance for diagnosing and repairing the issues. Repair Mentor is available in the top portion of the **Vehicle Readiness** window and will also pop out upon any issue addition or removal to bring the change to your attention.



Vehicle Health Status

Next to the **Repair Mentor** button will be displayed the issues that are currently affecting vehicle health. Select the Repair Mentor or any active issue button to see guidance related to the active issues.



Repair Mentor

Repair mentor will display the active issues in priority order. The right side of the window displays guided for the currently selected issue.

Select the **Begin Diagnostics** button to display further diagnostic information for the highlighted issue. See the list of all possible monitored issues below for details on the diagnostics available for each issue.

If Repair Mentor is disabled via **Preferences**, then the vehicle health icon image will be displayed instead of the Repair Mentor button and the Repair Mentor pop out notifications will be disabled. If Repair Mentor is disabled, the **Vehicle Issues** button will take you straight to the diagnostics aid as documented below for each monitored issue type.

Monitored Vehicle Issues

No J1939 Data

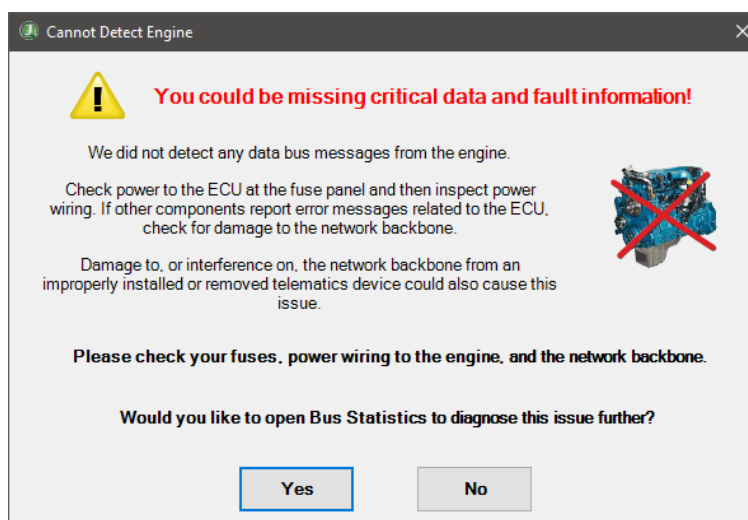
This issue only appears on vehicles from model year 2009 or newer where no J1939 data bus traffic is detected. Model year is determined by the VIN. This issue will not appear on any vehicle older than 2009, or on vehicles where the model year cannot be determined.

The diagnostics aid for the **No J1939 Data issue** is the [Connector Info](#) screen.

Cannot Detect Engine

This issue will be present if there are no data bus messages from the engine. If a message is received, then this message will disappear.

The diagnostics aid for the **Cannot Detect Engine** issue is the following warning.



Cannot Detect Engine

Select Yes to view [Bus Statistics](#) information.

Excessive CAN Error Frames Detected

This issue appears when 250 or more CAN error frames per second are reported by the adapter.

The diagnostics aid for the **Excessive CAN Error Frames Detected** issue is the [Bus Statistics](#) screen.

Active Faults Present

If there are any active faults present on the vehicle, then this issue will be displayed. If all the active faults are cleared or fixed (made inactive), then this issue will disappear.

On the **Repair Mentor** screen, the active faults issue is further broken down by components by categorizing faults as Engine, Transmission, Brake, or Other.

If a JPRO® Professional Diagnostic Software with NextStep® subscription has been purchased, then when the Repair Mentor **Begin Diagnostics** button is clicked, the best available troubleshooting information will be displayed for the associated component.

The best available troubleshooting information will be Fault Guidance or a previously located Maintenance or Service Data sheet. Please see the [Fault Guidance](#) section for more information about the available Fault Guidance features. When the **Fault Guidance** window is accessed from Repair Mentor, you will be prompted to select the fault to troubleshoot from the **Vehicle Faults** data grid.

NOTE: Internet access is required for access to Fault Guidance service information.

If no troubleshooting repair information can be found, then you will be asked if you would like to open Data Monitor's **Fault** tab to view any associated fault data.

If Repair Mentor is disabled or a NextStep subscription has not been purchased, then the diagnostics aid for the **Active Faults Present** is Data Monitor's **Fault** tab to view any associated fault data.

Regen Inhibited

The **Regen Inhibited** issue will be present when the Regen Needed issue is shown and the vehicle reports that parked regeneration is inhibited.

The diagnostics aid for the **Regen Inhibited** button is the [Aftertreatment Diagnostics](#) window.

Regen Needed

For vehicles equipped with DPF systems, the Regen Needed issue will be present when specific status messages exist that indicate the vehicle requires DPF Regeneration.

The diagnostics aid for the **Regen Needed** button is the [Aftertreatment Diagnostics](#) and the [Regen Zone Information](#) window.

Consumable Fluid(s) Low

If any of the consumable fluids report as low, then this issue will be displayed. Replacing the fluids so that they no longer report as low will cause this issue to disappear.

The diagnostics aid for the **Consumable Fluid(s) Low** issue is the [Consumable Fluids window](#).

Battery Voltage Low

This issue appears if the battery voltage is less than 11.9 volts in a running vehicle, or 10.5 volts if the engine is not running.

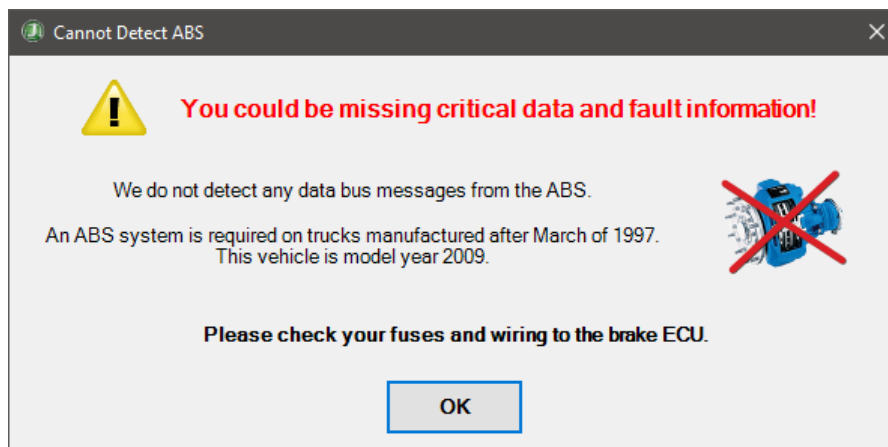
If the battery voltage is consistently above the threshold for 15 seconds or more, the issue will disappear.

The diagnostics aid for the **Battery Voltage Low** issue is [Data Monitor's Power Diagram tab](#) which displays all reported voltage data.

Cannot Detect ABS

This issue will be present on 2001 and newer vehicles if there are no data bus messages from the tractor's braking system. If a message is received, then this message will disappear.

The diagnostics aid for the **Cannot Detect ABS** issue is the following warning.



Cannot Detect ABS

Most Likely Repair

This issue will be present if engine faults supported by Most Likely Repair data exist on the connected vehicle.

The diagnostic aid for the **Most Likely Repair** issue is [Most Likely Repairs](#), which shows the most frequent repairs for a fault to aid in successful repairs.

Possible Unrepaired Recalls

This issue will be present if there are potential unrepaired recalls reported for the connected vehicle. The number of reported recalls will be displayed.

The diagnostic aid for the **Possible Unrepaired Recalls** issue is [Possible Unrepaired Recalls](#), which will display the recall information.

ECU Version Check

This issue is present if a newer firmware version is available for supported ECUs. Please see [ECU Version Check](#) for full support details.

JPRO® Road Worthiness


This issue will be present if any of the safety and compliance checks fail when evaluating the vehicle's road worthiness. Please see [JPRO® Road Worthiness](#) for full support details.


Fault Code Information

For heavy duty vehicles, the **Fault Code Information** window displays all active and inactive faults detected on the vehicle data bus. Each fault lists the status, component, description, Lookup Code, FMI and count. When selected, faults classified as active are highlighted in red and inactive faults in yellow.

By default, the displayed faults are sorted by Status so that Active faults are first in the list.

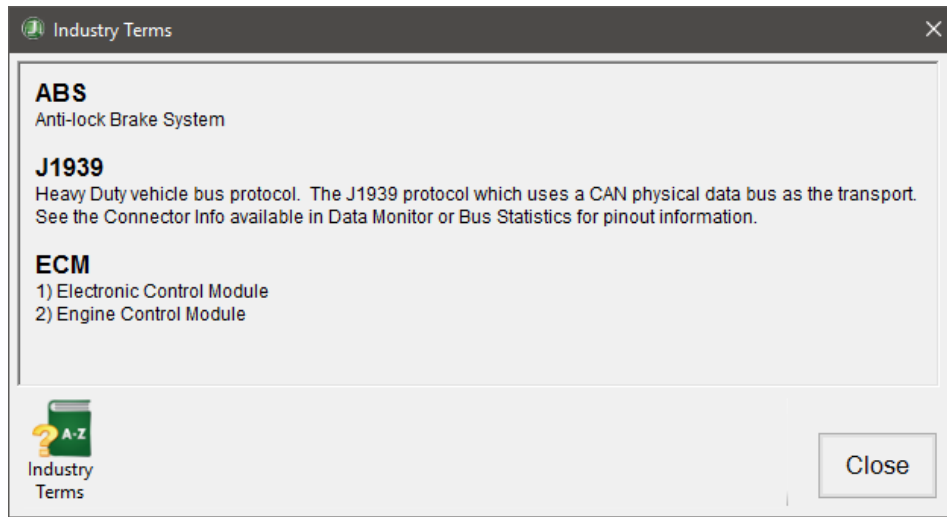
Status /	Component /	Description	Lookup Code /	... /	Count
Active	15.0L ISX1	Aftertreatment Diesel Particulate Filter Differential Pressure - Data Valid But Above Normal Operating Range - Most Severe Level. The soot load of the aftertreatment diesel particulate filter has exceeded the recommended limits. Engine protection derate is enabled.	1922	N/A	1
▶ Active	E Basic(12V) 4S/4M	Left Rear Wheel Sensor Open	SID 3	5	1


Clear
Faults


Maintenance or
Service Data

Heavy Duty Fault Code Information

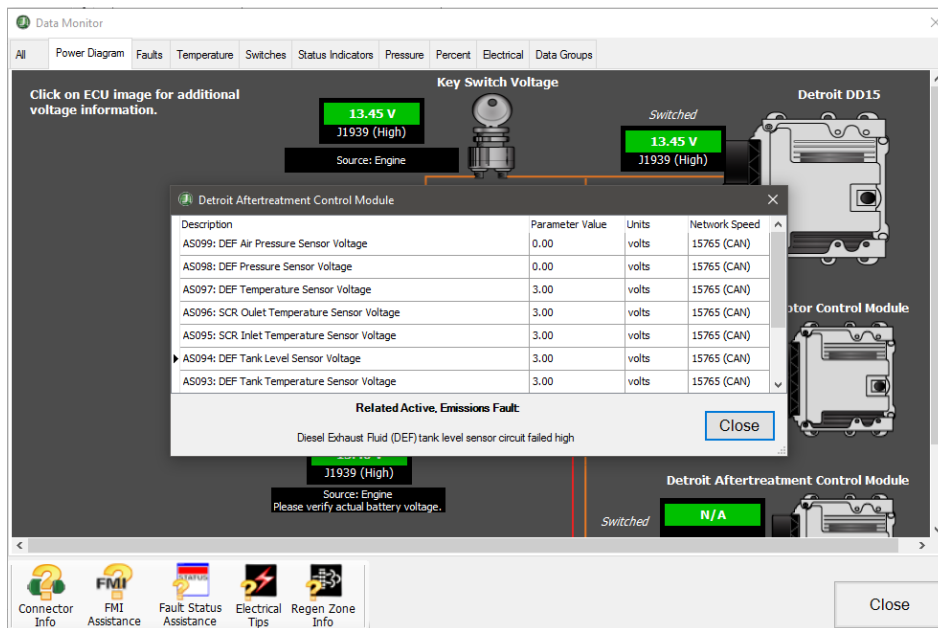
Click in on a fault Description with a hyperlink to view the definition of the industry terms used in that fault description.



Industry Terms popup window


Electrical Fault Information



Click on the **magnifying glass**  button to view reported electrical data related to the fault.



Electrical Fault Additional Information

TPMS Fault Information

Click on the **Stop Sign** button  in the fault grid for TPMS faults to view all the TPMS sensors reporting the fault.

Status /	Component /	Description	Lookup Code /	... /	Count
 Active	SmarTire™ Next GEN TPMS	Tire Pressure Second Level Pressure Low	SPN 241	1	N/A
 Active	SmarTire™ Next GEN TPMS	Tire Pressure First Level Pressure Low	SPN 241	18	N/A

TPMS Fault Display

SPN/FMI	Axle	Wheel	Description	Parameter Value	Units	Protocol
▶ 241-1	2	2	Second level low pressure	Not Available	psi	J1939 (...)

SPN 241 FMI: 1
Tire Pressure Second Level Pressure Low

[Close](#)


TPMS Fault Additional Information


FMI Assistance

Click on the **FMI value** to see a technician friendly description for the fault code FMI value.

FMI: 3 - FMI Lookup Assistance

FMI 3. VOLTAGE ABOVE NORMAL OR SHORTED TO HIGH SOURCE
 FMI 3 is used when a voltage signal has been detected **above** the operational limits predefined by the manufacturer - OR - a voltage signal remains **high** even when the ECM commands it to **low**. In either situation, the associated data parameter may be displayed as an Error value.


 Electrical
Tips

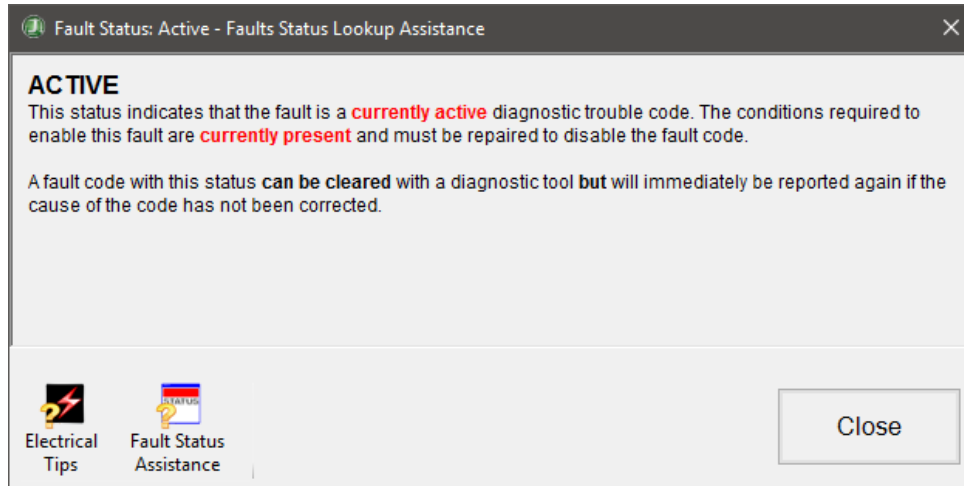

 FMI
Assistance

[Close](#)

FMI Lookup Assistance


Fault Status Lookup Assistance

Click on the **Fault Status** value to see a technician friendly description for the status of a fault.




Fault Status Lookup Assistance

Clearing Faults Functions

Use the **Clear Faults**  button to clear all active and inactive faults.


- ⚠ Clearing faults on WABCO braking systems can cause the ABS lamp to turn on. If all brake system faults have been repaired, driving the vehicle will turn the lamp off.
- ⚠ The Fault Code Information window displays information about all faults detected on the vehicle data bus. Additional information is displayed for the selected vehicle/component and fault at the bottom of the Fault Code Information window.

Maintenance or Service Data

The **Maintenance or Service Data**  button will be visible if JPRO has located a maintenance or service data sheet for the component associated with the selected fault. Clicking this button will open the associated PDF document.

Maintenance or Service Data sheets includes any troubleshooting guides located via the search mechanism provided in the **OEM Application Portal**. If the purchased product is JPRO® Professional Diagnostic Software with NextStep®, then this also automatically includes Wabco, Bendix, and Haldex brakes as well as Eaton transmissions service data sheets.

Launching OEM Applications

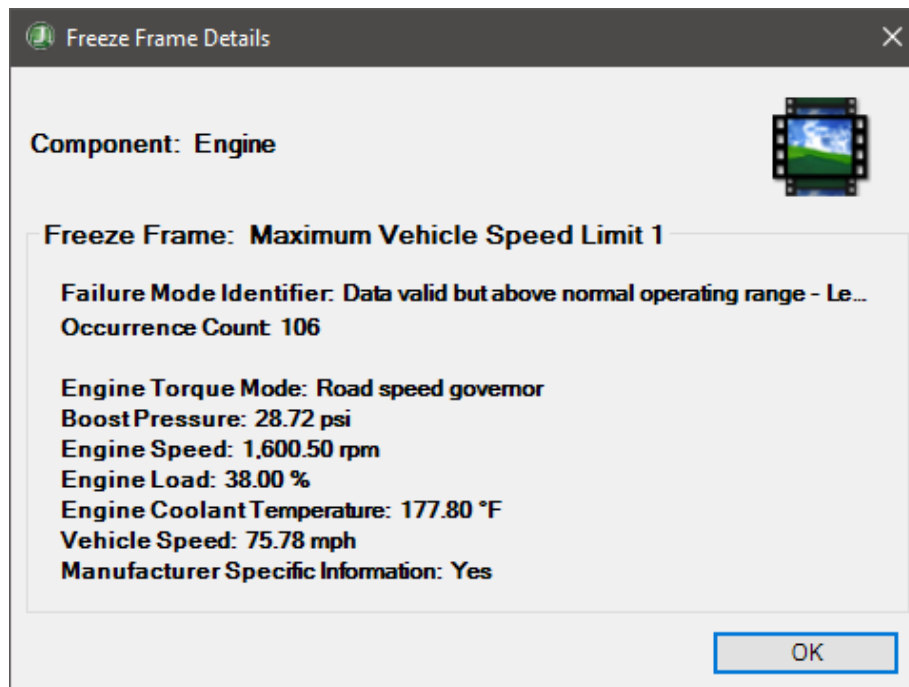
Launch a 3rd party (OEM) diagnostic application by clicking on the application icon (i.e. ). If there are multiple applications available for a given component, a dialog will be presented allowing for the selection of the desired application.

The application will immediately launch while JPRO® Commercial Vehicle Diagnostics continues to execute. If JPRO® Commercial Vehicle Diagnostics is running in live connection mode, the application will disconnect from the data bus before launching the third-party program. Once the launched application is closed, JPRO® Commercial Vehicle Diagnostics will reconnect to the data bus.

NOTE: The automatic reconnect feature is not available when launching Detroit Diesel Diagnostic Link, International Diamond Logic Builder, Meritor-WABCO TOOLBOX™ or ServiceMaxx from JPRO® Commercial Vehicle Diagnostics. The user must reconnect manually after closing these applications.


Freeze Frame Parameters

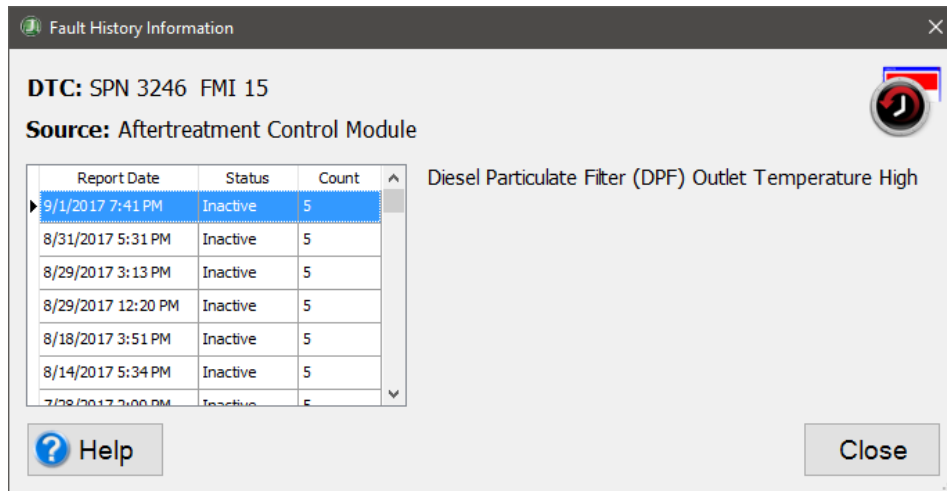
If there is Freeze Frame data available for the selected fault, the **Freeze Frame Parameters**  icon becomes available. Click on the icon to view the **Freeze Frame** data for the currently selected fault.



Freeze Frame Details

Fault History

If there is historical fault data available for the selected fault, the **Fault History**  icon becomes available. Click on the icon to view information about previous reports of the selected fault.



Fault History Details

NOTE: Internet access is required for access to Historical Fault data. In addition, a full 17-digit VIN must be available.

Historical fault data can be used to identify intermittent vehicle issues detected during previous JPRO® connections.

NOTE: Historical fault data is derived from previous Noregon diagnostic application connections and does not represent a Vehicle ECU's internal Fault History. A maximum of 2 years of historical data may be available.

Key Data Points

Various Key Data Point collections exist for the following components: vehicle, engine, transmission and brake. Each Key Data Point collection is graphically illustrated using gauges, thermometers, etc. If a component in the **Vehicle Readiness** window is connected on both high and low speeds, then the high-speed data is used to populate the gauges in the **Key Data Points** window. If the high-speed data is not available, then the low speed data is used.

Lamp information is shown in each of the Key Data Point collections. The vehicle's current lamp status is expected to match what is displayed in all Key Data Points collections. If *any component or fault* indicates a lamp status change, the displayed lamp is updated to reflect that change.

The current status of each of five lamps is shown:



Parking Brake Status: Switch signal that indicates when the parking brake is set. Usually, the switch actuated by the operator's park brake control, whether a pedal, level or other control mechanism.



Malfunction Indicator Lamp: Signals an emissions-related fault code is active.



Protect Lamp: Signals a fault code or condition from a vehicle system that is not usually related to an electronic subsystem, such as "Oil temperature too high".



Red Stop Lamp: Signals a fault code is severe enough to stop the engine.



Amber Warning Lamp: Signals a fault code with a vehicle system but is not severe enough to disable the vehicle.

Each Lamp Status can be shown as: **Off** (least severe), **Flashing**, or **Steady On** (most severe).

Vehicle Data Points

When a vehicle is selected in the **Vehicle Readiness** window, the following are the displayed data points: **Cruise Set Speed Limit, Road Speed Limit, Idle Shutdown Time, Battery Voltage, Total Average Fuel Economy, Total Engine Run Time, Odometer, Engine Speed, DPF Lamp, EHST** (exhaust system high temperature) **Lamp, Trailer and Tractor ABS lamps, DPF Soot Level, DPF Derate, Total Idle Hours, Total Idle Fuel Used,** and **Consumable Fluid Status.**

Click on the [Consumable Fluids](#) status image to view fluid level details.

Clicking the **Idle Shutdown** gauge when **Click to Change** is displayed will launch the [Idle Shutdown](#) test.

Clicking either the **Cruise Speed Limit** or **Road Speed Limit** gauge when **Click to Change** is displayed will launch the appropriate [Road & Cruise Speed Limits](#) test.

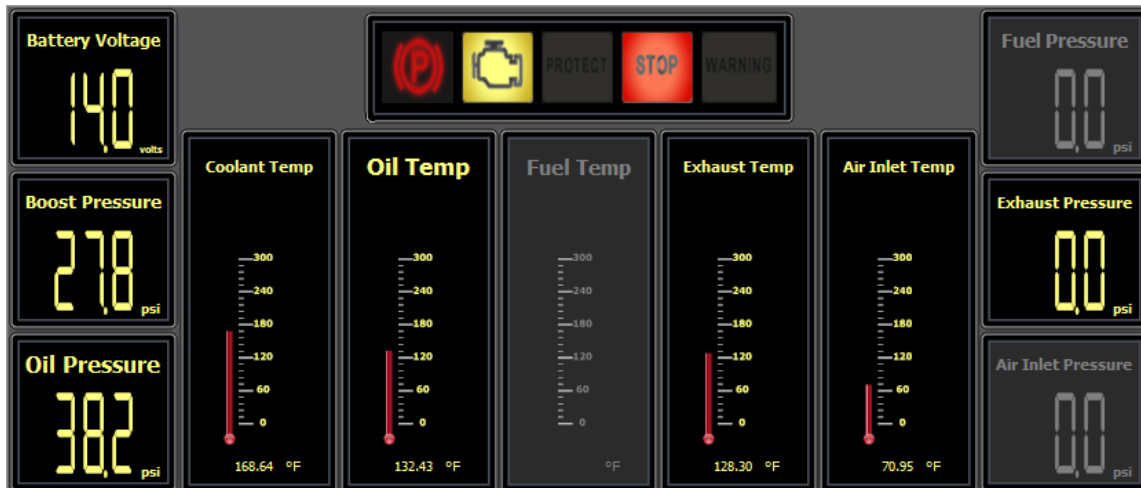
Clicking the **PTO Status** gauge when **Click to Change** is displayed will launch the [PTO Parameters](#) test.



Key Data Points

Engine Data Points

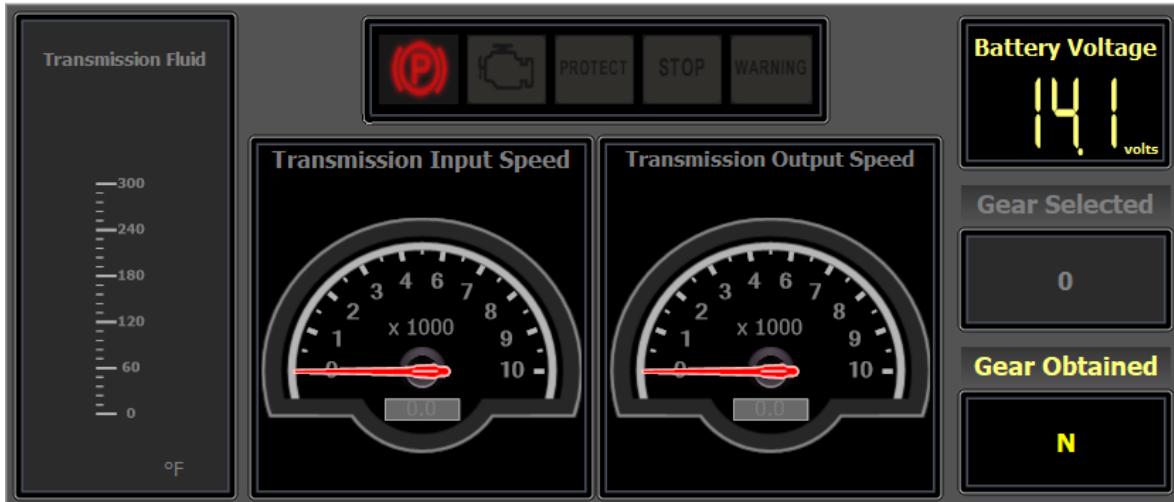
Air Inlet Pressure, Exhaust Pressure, Fuel Pressure, Boost Pressure, Oil Pressure, Oil Temperature, Coolant Temperature, Fuel Temperature, Exhaust Temperature, Air Inlet Temperature, and Battery Voltage.



Engine Data Points

Transmission Data Points

Transmission Input Speed, Transmission Output Speed, Transmission Fluid Temperature, Gear Selected, Gear Obtained, and Battery Voltage.



Transmission Data Points

Brake Data Points

Road Speed, Tractor ABS Lamp, Trailer ABS Lamp, Wheel Speeds (J1708 only), and Relative Wheel Speeds (J1939 only).



Brake Data Points

Bendix Intellipark switches are displayed for the components detected on the vehicle. The Bendix Intellipark lights will match those displayed by the ECU.



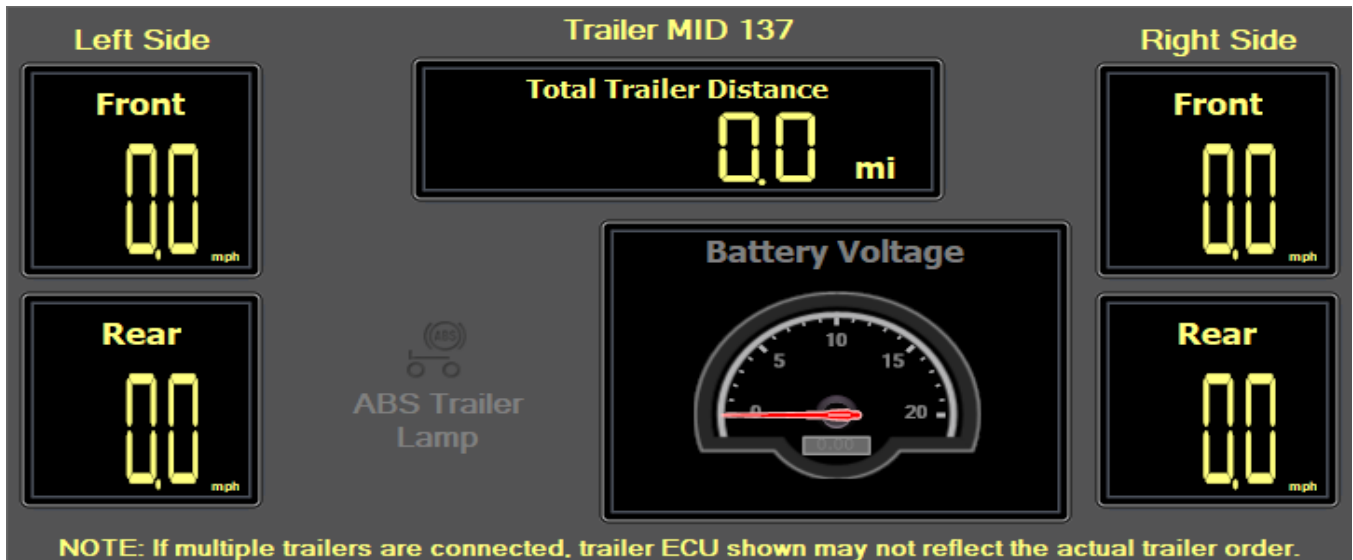
MultiValve: Displays reported switch positions for the red trailer or yellow tractor Intellipark switches.



Push/Pull Switch: Displays reported switch position in either the left or right position, which should match the position of the physical switch in the cab.

Trailer Data Points

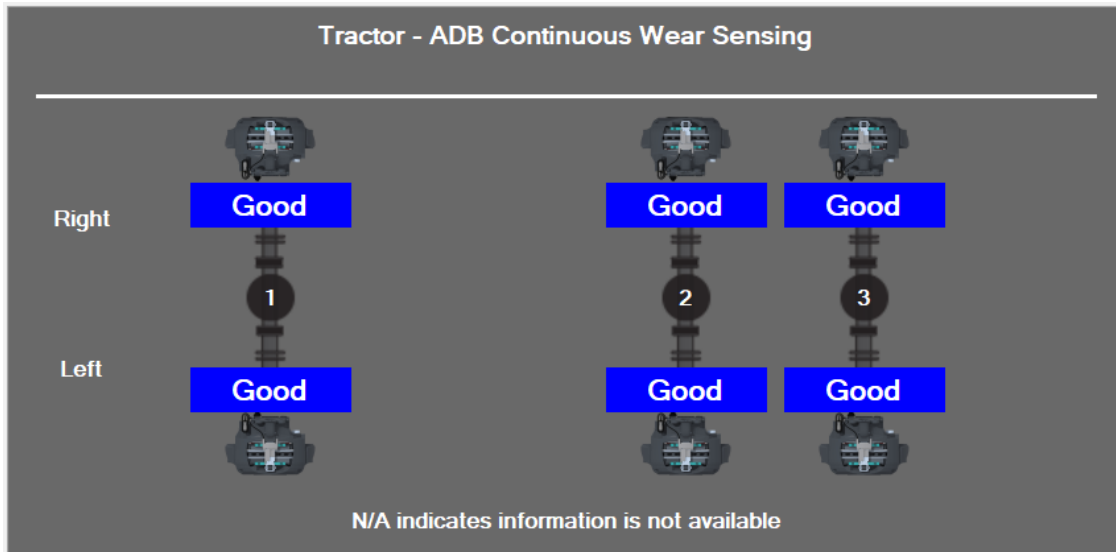
Trailer MID Address, Total Trailer Distance, Trailer ABS Lamp, Battery Voltage, and Wheel Speeds (J1708 only).



Trailer Key Data Points

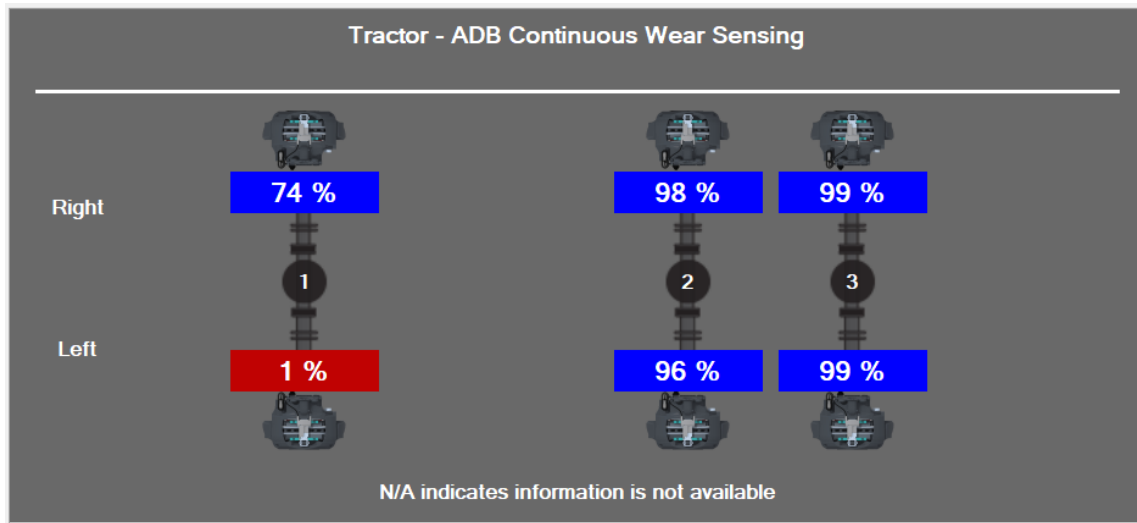
Data Points for Bendix ADB Wear Sensing

When an **ADB Wear Sensing** component is selected, the reported pad wear life status is displayed.



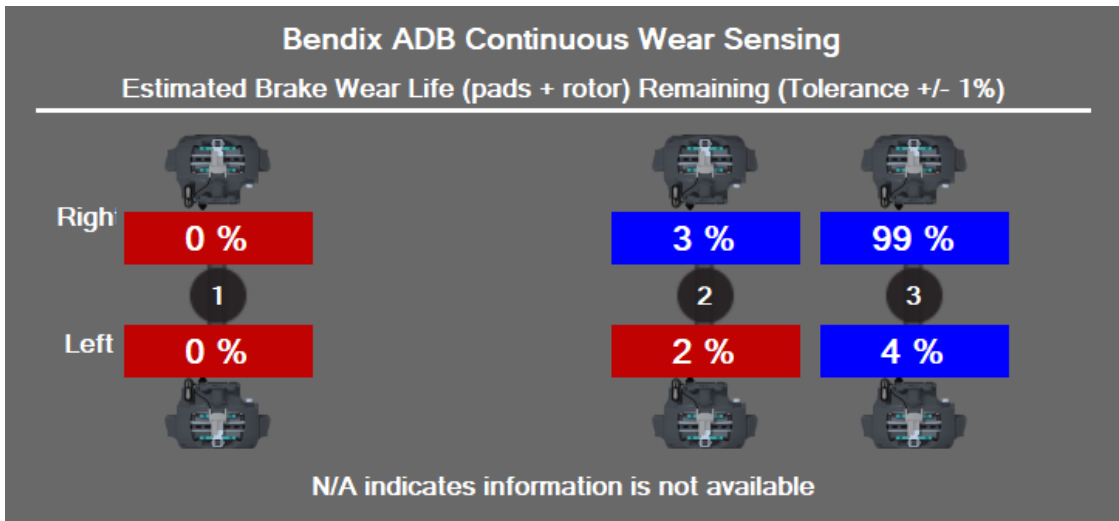
Key Data Points ADB Wear Sensing

When a **Bendix Continuous Wear Sensing** component is selected, the estimated brake wear life (pads plus rotor) remaining is displayed.



Key Data Points ADB Continuous Wear

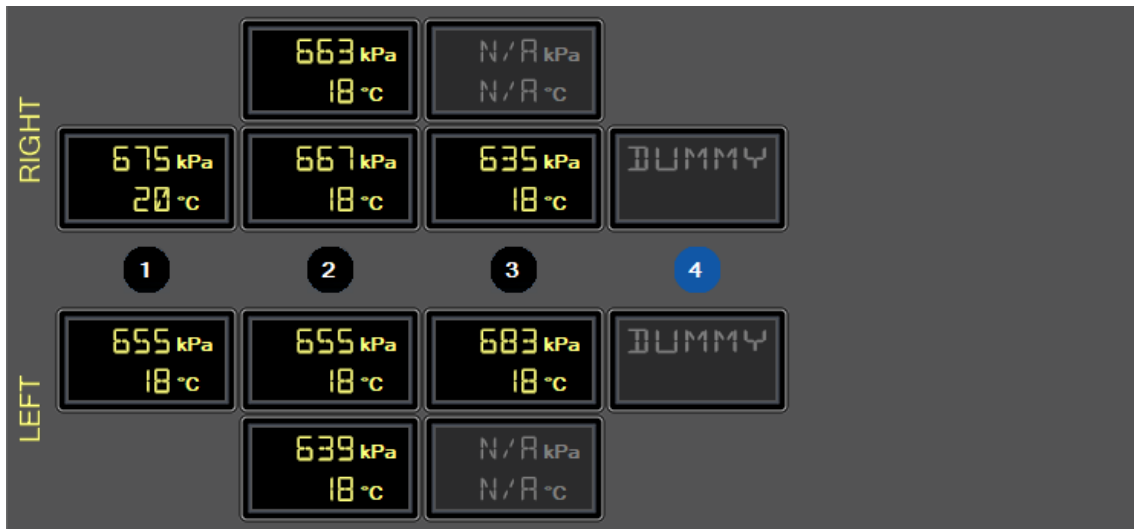
When a **Trailer ADB Continuous Wear Sensing – Standalone** component is selected, the estimated brake wear life (pads plus rotor) remaining is displayed.



Key Data Points Trailer ADB Continuous Wear Sensing – Standalone

Data Points for Bendix TPMS

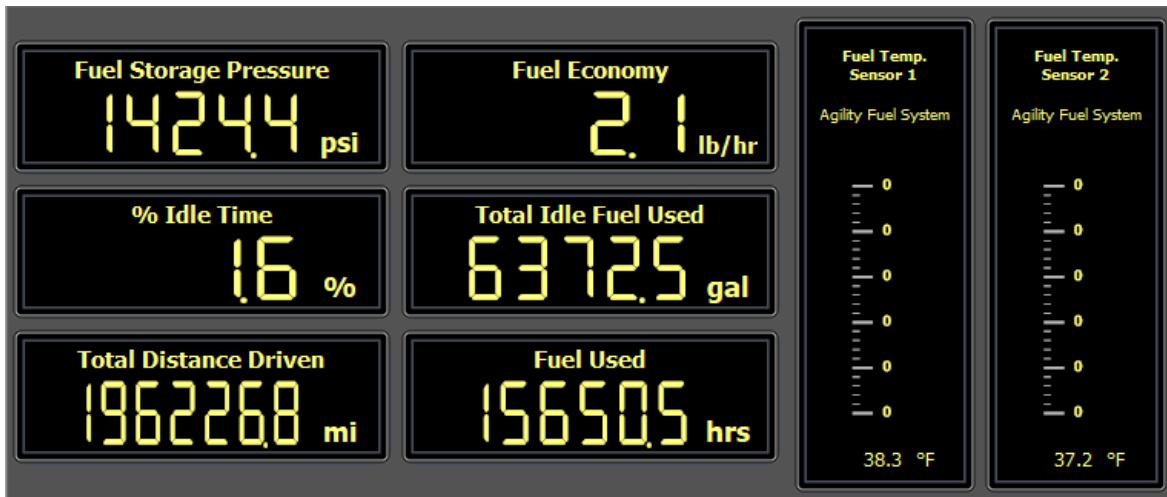
When a **TPMS** component is selected the tire temperature and tire pressure for detected sensors is displayed. Blue axle numbers indicate Spare Tire sensors.



Key Data Points TPMS

Data Points for Agility Fuel System

When an **Agility Fuel System** component is selected the following key data items are displayed: Fuel Storage Pressure, Fuel Economy, Percent Idle Time, Total Idle Fuel Used, Total Distance Driven, Fuel Used, and both Fuel Temperature Sensor Readings.



Agility Fuel System

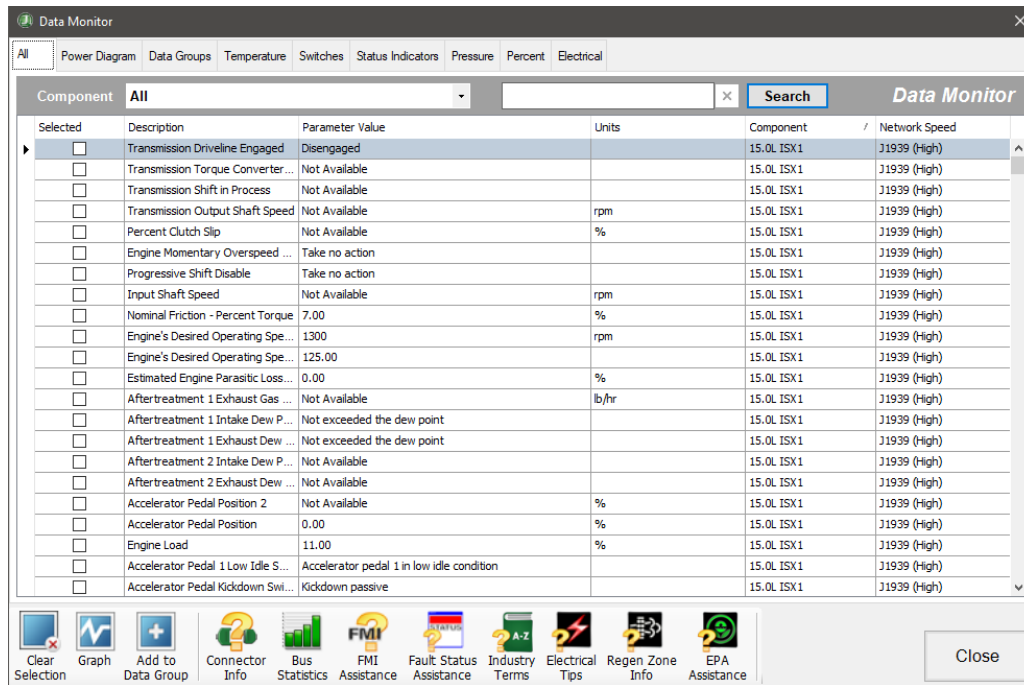
Data Monitor

The **Data Monitor** window displays various data items and parameters, converted to meaningful values with associated units. The data items shown will vary from vehicle to vehicle based on types of sensors available.

The Data Monitor group's messages into related categories by tabs located at the top of the Data Monitor window. Many of these tabs use graphical representations for displaying parameter values.



1. Select **Data Monitor**  button on the main toolbar.

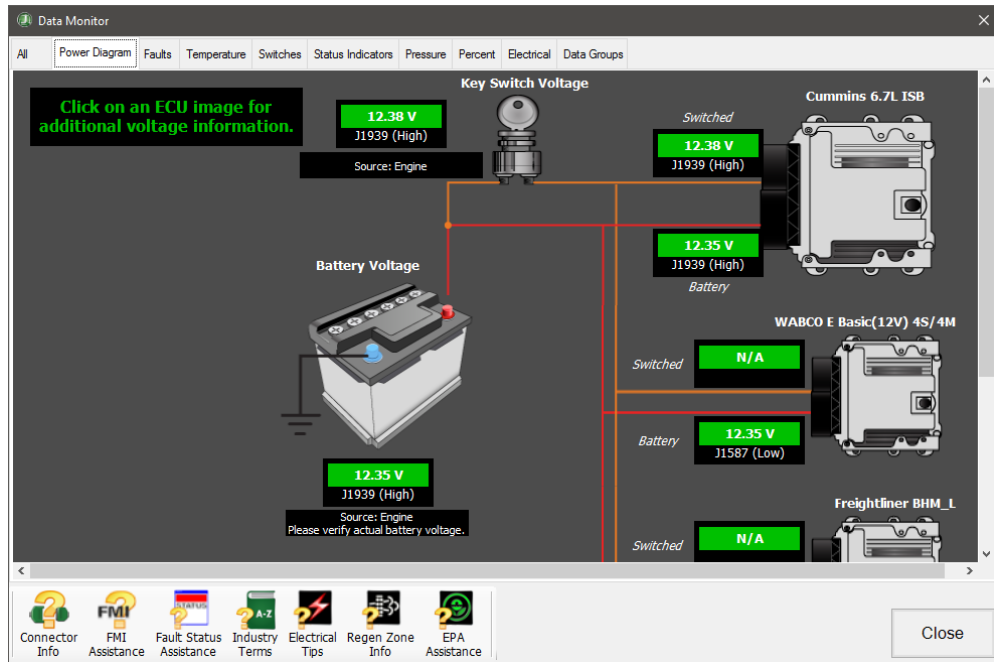
- The **Data Monitor** window is displayed and the initial view defaults to the **All** tab. The **All** tab displays all available data items from all components on the data bus.



Data Monitor All Tab

- Other **Data Monitor** tabs include: Power Diagram, Faults, Temperature, Switches, Status Indicators, Pressure, Percent, Electrical, and Data Groups.
- Filter the **Data Monitor** list by selecting any component from the drop-down list at the top of the window.
- Data Monitor** items can be quickly found by typing in search criteria and clicking the **Search** button. Results will be displayed for all items that have the search criteria in at least 1 column.
- The **Power Diagram** tab will display a graphical representation of the reported voltages for the various modules of the vehicle. This is to aid in the diagnosis of electrical problems.

7. Low voltages will be indicated by a red blinking highlight. An indicator may display next to ECUs with electrical faults. A red exclamation mark  indicates active faults. A yellow triangle  indicates inactive faults.



Data Monitor Power Diagram Tab

8. Select an ECU from the **Power Diagram** to see all electrical data reported by the selected ECU. Electrical data associated with a reported active fault will be highlighted red in the grid display. Data associated with inactive faults will be highlighted in yellow.

The screenshot shows the 'Cummins 6.7L ISB' window with a table of electrical data. The table has four columns: Description, Parameter Value, Units, and Network Speed. The data is as follows:

Description	Parameter Value	Units	Network Speed
▶ Sensor Supply 4	5.00	volts	J1939 (High)
Aftertreatment Diesel Particulate Filter Differential	0.69	volts	J1939 (High)
Water in Fuel Sensor Signal Voltage	3.06	volts	J1939 (High)
Turbocharger Compressor Intake Air Temperature Sensor Signal Voltage	1.44	volts	J1939 (High)
Sensor Supply 6	5.00	volts	J1939 (High)
Sensor Supply 5	5.00	volts	J1939 (High)
Sensor Supply 3	5.00	volts	J1939 (High)
Sensor Supply 2	5.00	volts	J1939 (High)

A 'Close' button is located at the bottom right of the window.

Data Monitor ECU Voltage Information

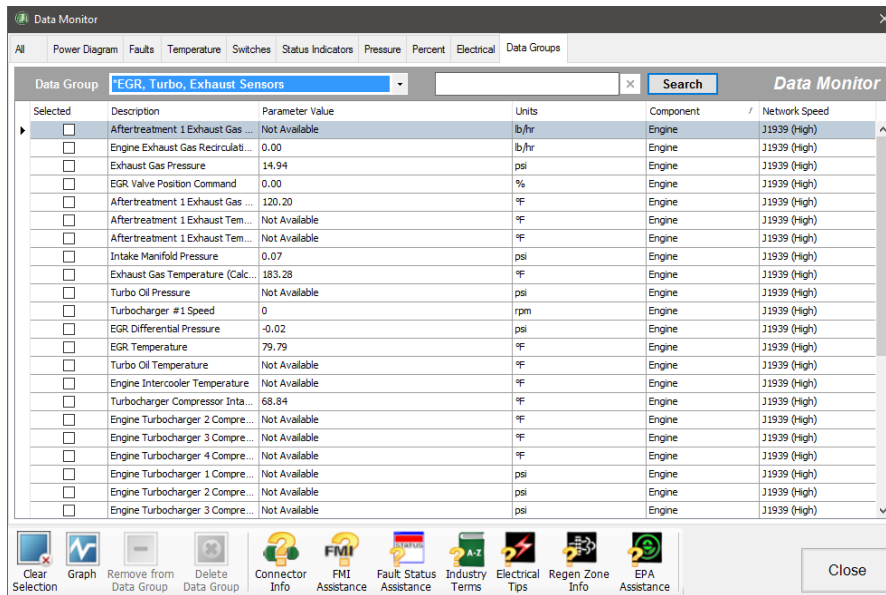
9. To view a graphical display of items in a specific category, select the **Temperature**, **Switches**, **Status Indicators**, **Pressure**, **Percent**, or **Electrical** tab.



Data Monitor Tabs and Graphical Representations

10. The **Data Group** tab will display defined sets of data. Noregon provides pre-defined sets of data to aid in the troubleshooting of electrical problems and common performance complaints. You can create custom user defined sets of data as well.

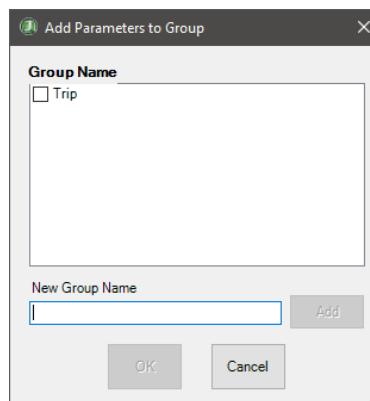
11. Data items that are available on the current vehicle will be displayed when the named group is selected in the **Data Group** dropdown.



Data Monitor Data Groups Tab

12. To add a data item to a custom user defined **Data Group**, simply select the “Selected” checkbox on the **All** tab and then select the **Add to Data Group** button. The **Add Parameters to Group** window will display.

Provide the group name or select from the list of previously defined groups. Selecting the **OK** button will then add the selected data items to the selected groups.



Add Parameters to Group

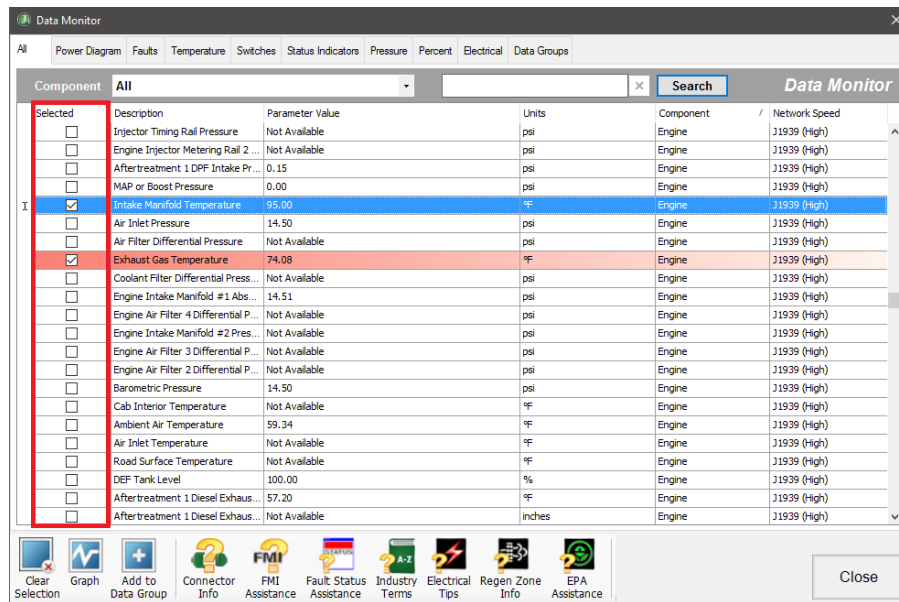
NOTE: Pre-defined Data Groups cannot be edited.

NOTE: Selected data items are component and protocol specific. For example, adding Battery Voltage will not automatically display Battery Voltage reported by every component. Only the selected components Battery Voltage from the selected protocol would display in the Data Group.


Graph Heavy Duty Data

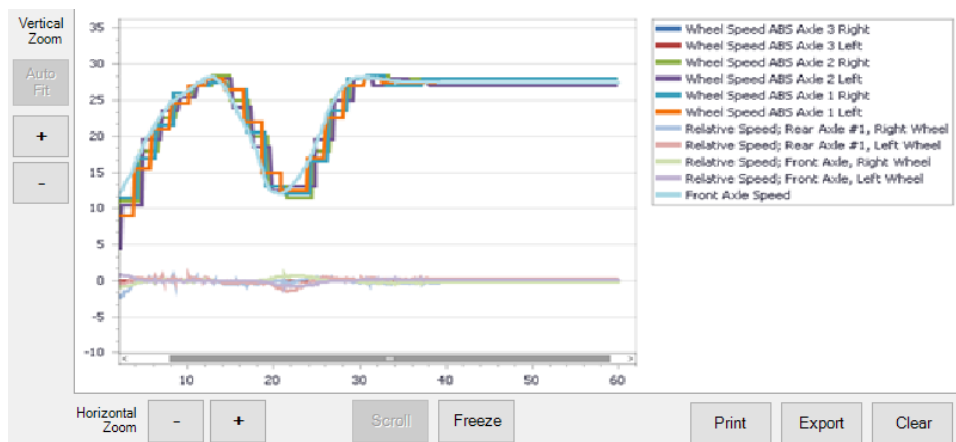
The **Graph** window displays various data items and parameters in a constantly updating graph format, allowing you to view trending information. The graph is configured and launched from the **Data Monitor**.

1. Select data rows of interest in the **Data Monitor** by clicking the **Selected** checkbox. You may clear any previously selected rows by selecting the **Clear Selection**  button.



Data Monitor – Select Items to Graph

2. Click on the **Graph**  button.
3. The **Graph** window is displayed. The data items you selected will be plotted on the graph over time.




Graph


4. To customize the display:
 - a. Hover the cursor over the graph to see the value plotted.
 - b. You can zoom each axis of the graph independently by clicking either the **+** or **-** button.

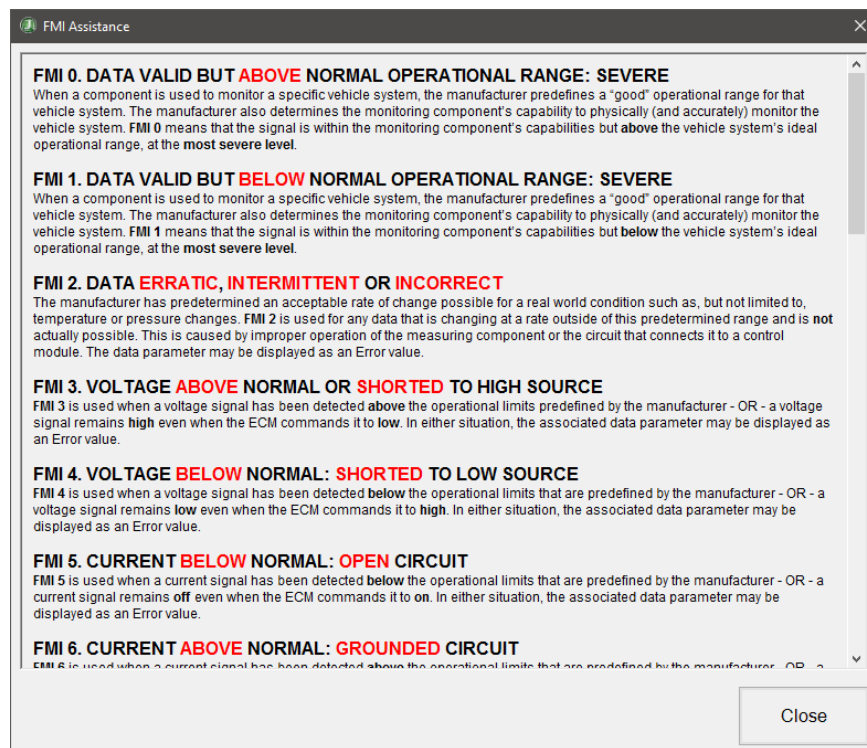
- c. Clicking the **Auto Fit** button will resize the graph to show all plotted data items.
- d. The **Scroll** button automatically moves the graph view to the most current information.
- e. The **Freeze** button allows you to keep the graph view from moving, letting you easily study the data while the graph continues to run.
- f. **Print** allows you to print the current graph view. A color printer is strongly recommended.
- g. **Export** displays a save file dialog. Up to the last 5 minutes of currently graphed data can be saved to the desired location as an XML file.
- h. The **Clear** button removes all data from the graph and begins capturing new data.

Connector Info

The **Connector Info**  button will open the [Connector Info window](#), displaying information about active communications for a live vehicle connection, and providing connector pinouts for diagnosing communication issues.


FMI Assistance

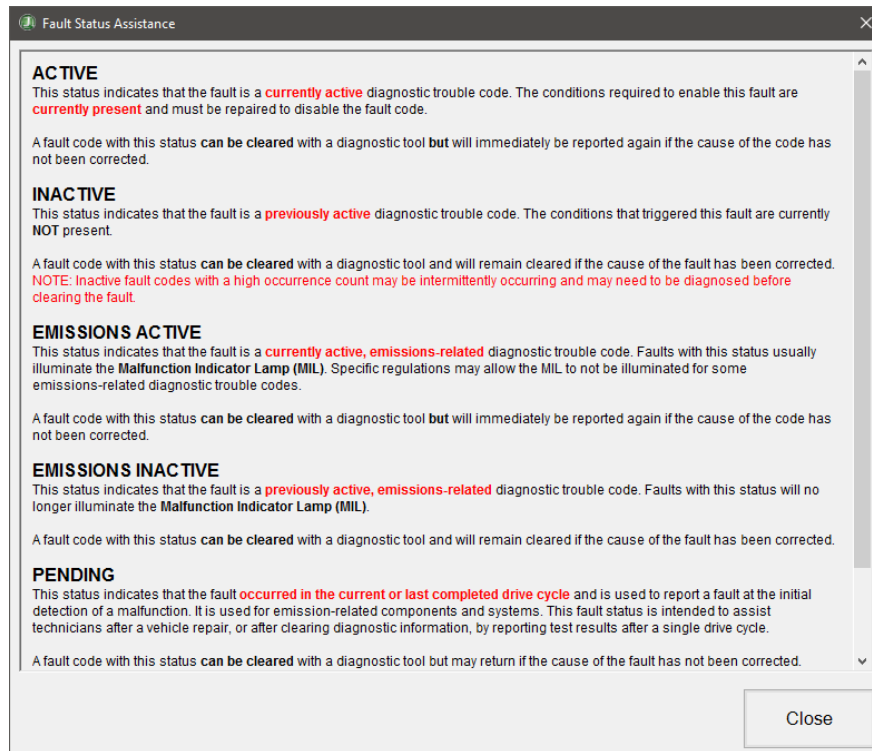
The **FMI Assistance**  button will open a window containing extended FMI descriptions to aid technicians understanding of fault code FMI meaning.



FMI Assistance


Fault Status Assistance

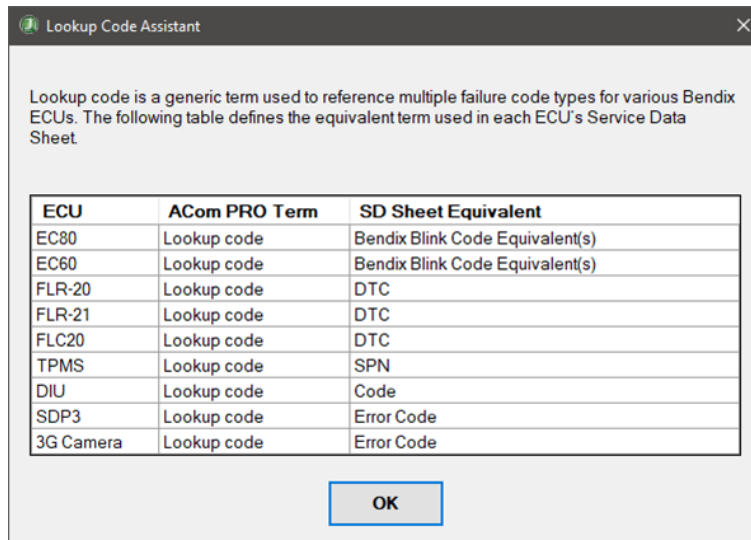
The **Fault Status Assistance**  button will open a window containing extended Status descriptions for faults to aid technicians understanding of fault Status meaning.



Fault Status Assistance


Lookup Code Assistant

The **Lookup Code Assistant**  button will open a window that provides the equivalent Service Data Sheet term for each Bendix ECU to aid technicians in referencing the SD Sheets.



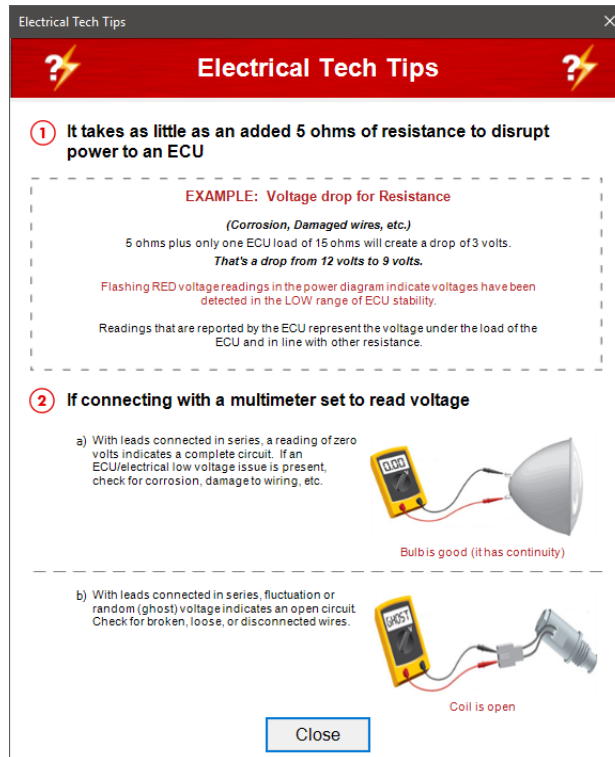
Lookup Code Assistant

Industry Terms

The **Industry Terms**  button opens a PDF file containing industry term definitions.

Electrical Tips

The **Electrical Tips**  button displays information to help diagnose potential electrical problems.



Electrical Tech Tips

1 It takes as little as an added 5 ohms of resistance to disrupt power to an ECU

EXAMPLE: Voltage drop for Resistance
(Corrosion, Damaged wires, etc.)
5 ohms plus only one ECU load of 15 ohms will create a drop of 3 volts.
That's a drop from 12 volts to 9 volts.
Flashing RED voltage readings in the power diagram indicate voltages have been detected in the LOW range of ECU stability.
Readings that are reported by the ECU represent the voltage under the load of the ECU and in line with other resistance.

2 If connecting with a multimeter set to read voltage

a) With leads connected in series, a reading of zero volts indicates a complete circuit. If an ECU/electrical low voltage issue is present, check for corrosion, damage to wiring, etc.

Bulb is good (it has continuity)

b) With leads connected in series, fluctuation or random (ghost) voltage indicates an open circuit. Check for broken, loose, or disconnected wires.

Coil is open

Close


Electrical Tech Tips

Regen Zone Info

The **Regen Zone Info**  button will open the [Regen Zone Information](#) window, displaying information concerning regeneration zones.

NOTE: The Regen Zone Info is only available on EPA 07 and new vehicles.

EPA Assistance

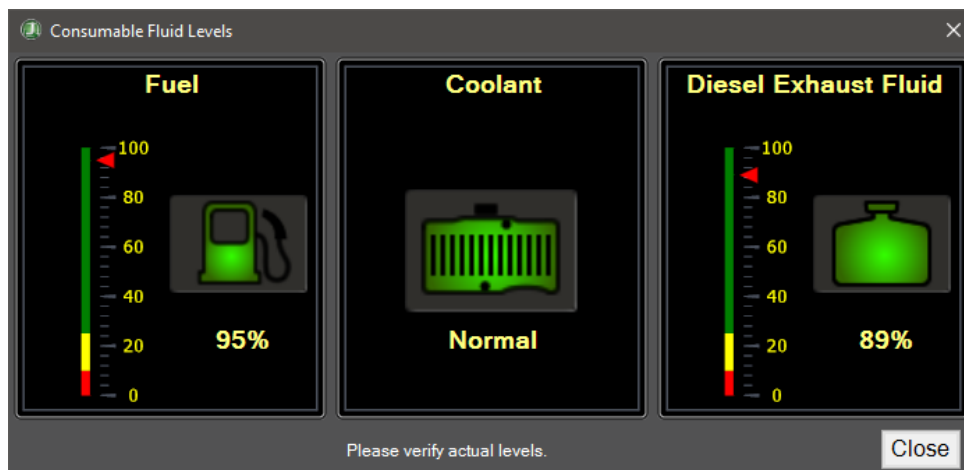
The **EPA Assistance**  button opens a PDF file containing a basic explanation of EPA standards, the systems and technologies involved as well as manufacturer examples.

Consumable Fluids

The **Consumable Fluids** view displays the status of fluids in the vehicle and allows you to quickly and easily determine the status of vehicle fluids in a single display.





The **Consumable Status** window displays fluid types:

- Coolant
- Diesel Exhaust Fluid
- Engine Oil
- Engine Oil Reservoir
- Fuel
- Hydraulic Brake Fluid
- Transmission Oil
- Washer Fluid



Consumable Fluids

NOTE: A fluid level is only shown if the value is measured and reported by the vehicle.

1. Select the **Consumable Fluids**  button on the main toolbar. The button image will change to indicate fluid level status:
 -  **Green** indicates the fluid level is normal
 -  **Yellow** indicates the fluid level is low.
 -  **Red** indicates the fluid level is critically low.
2. The **Consumable Fluids** window displays data about important fluids in the vehicle. Status will be indicated by the color of the gauge. Green indicates the fluid level is normal. Yellow indicates the fluid level is low. Red indicates the fluid level is critically low.

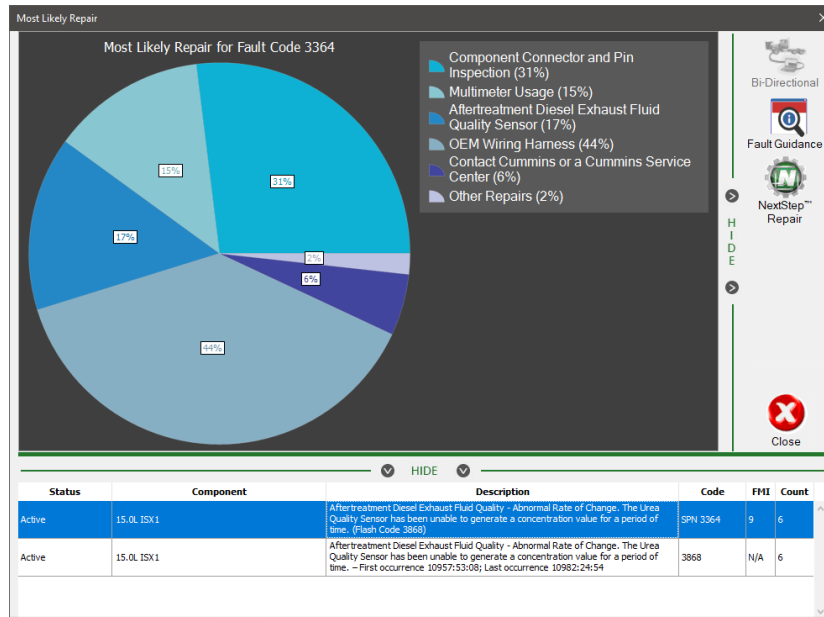
Most Likely Repair

Most Likely Repair provides information on the most frequent repairs for a fault, and how likely each repair is to fix the cause of the fault.

1. Select **Most Likely Repair**  from **Repair Mentor** or **Fault Guidance**.

NOTE: If you are not connected or if no reported engine faults are currently supported, the *Most Likely Repair* button will not be available.

2. The **Most Likely Repair** window appears. Upon initial launch, no fault will be selected. You must select the fault to troubleshoot from the faults grid at the bottom of the window.
3. Select the fault to troubleshoot. The repair data will be displayed.



Most Likely Repair

NOTE: Internet access is required for access to Noregon's Most Likely Repair information.

4. To view information for a different fault, select the fault from the faults list.
5. Select the **Bi-Directional** button to access JPRO's Bi-Directional features.

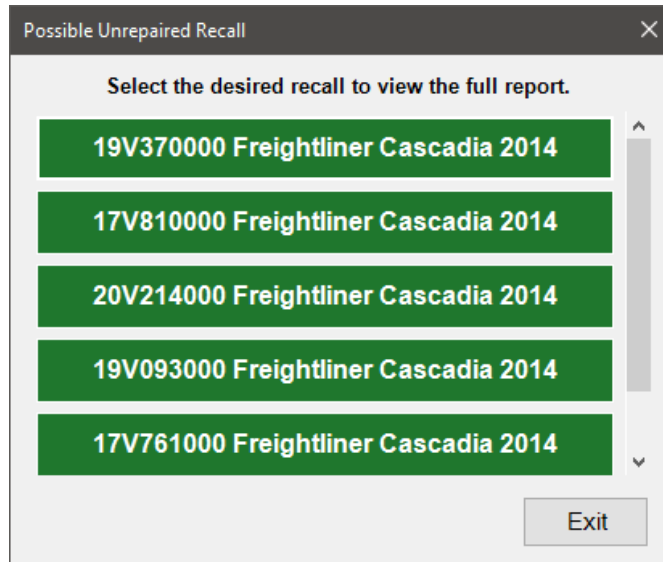
NOTE: The Bi-Directional button is not available during playback.

6. Select the **Fault Guidance** button to access Noregon's online troubleshooting information.
7. Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site.


Possible Unrepaired Recalls

Possible Unrepaired Recalls shows recalls associated with the Make, Model, and Year of the connected vehicle.

NOTE: The recalls provided may be dependent on vehicle configuration and may not apply to the connected vehicle.



Possible Unrepaired Recall

1. Select **Possible Unrepaired Recalls**  from Repair Mentor or Fault Guidance.
2. If there is only 1 recall, it will open as a PDF. If more than 1 recall is reported for the connected vehicle, the Possible Unrepaired Recall screen will be displayed. Select the desired report to view it as a pdf.

ECU Version Check

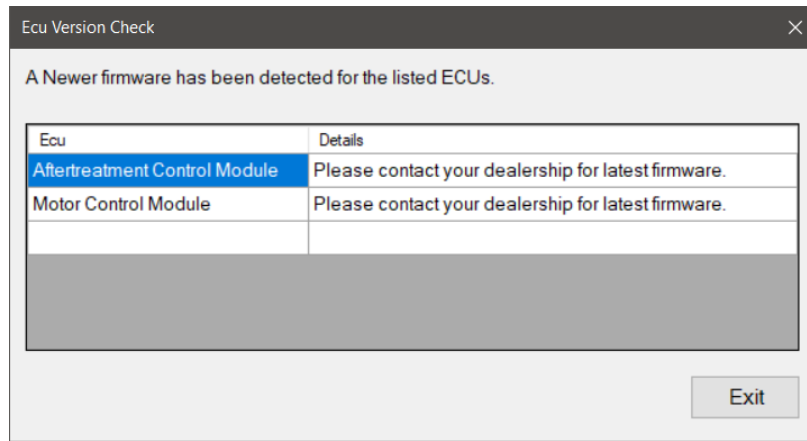
ECU Version Check reports when a firmware update is available for:

- ✓ Cummins ECMs.
- ✓ Detroit Diesel CPC, MCM, and ACM ECUs.

NOTE: Visiting the dealership or having the correct OEM software is required to flash an ECU to the latest firmware.

1. Select **ECU Version Check** from Repair Mentor or Fault Guidance.

2. The **ECU Version Check** window will display all supported ECUs reporting a firmware update is available.




ECU Version Check

Bendix Diagnostics

Bendix Diagnostics menu will be available only if Bendix components are detected on the data bus. Bendix Diagnostics provides access to component specific diagnostic information screens. This can include:

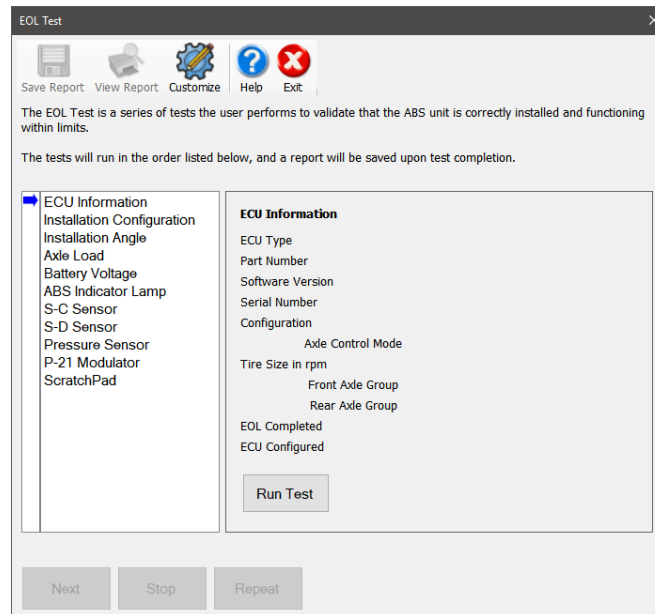
- ABS Monitor
- TPMS Diagnostics
- Event History
- CPC Configuration Layout

EOL Test

The EOL (End of Line) Test  button on the main toolbar allows you to perform the TABS EOL Test. The EOL Test is a series of End of Line (EOL) tests that confirm the trailer ABS unit is installed and configured correctly. This test may not be run with active faults present, except for "TABS EOL Test Not Completed (SID 254 FMI 14).".

1. While connected to a **TABS-6™ Advanced Single-Channel Trailer ABS**, **TABS-6™ Multi-Channel Trailer ABS**, or **TABS-8™ Trailer ABS** unit, select the **EOL Test**  button on the **main toolbar**.

2. If there are no active faults except for the “EOL Test Not Completed” fault, the **EOL Test screen** will appear.



EOL Test Customization Screen

3. See [EOL Test](#) for more information about the individual tests as well as the **EOL Test** as a whole.

ABS Monitor

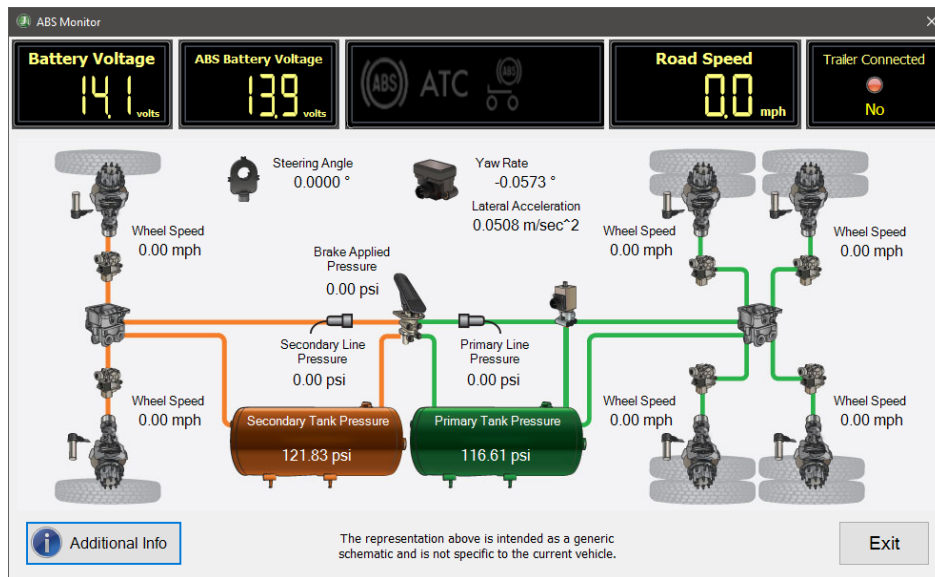
The Bendix ABS Monitor provides an at-a-glance assessment of the health of the related ABS pneumatic and electrical systems. It is only available for Bendix ABS systems. This information can include:

- Wheel Speeds
- Electrical Voltages
- Pneumatic Tank Pressures
- ABS Dashboard Lamp Status

The following information is only displayed if the related components are detected on the vehicle:

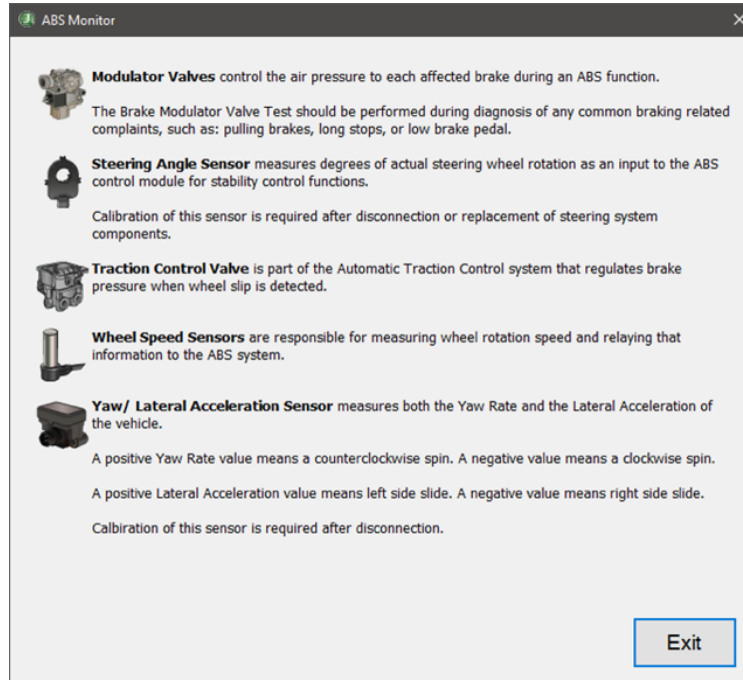
- Steering Angle Sensor
- Yaw Rate/ Lateral Acceleration Sensor
- Hill Start Aid

- Pneumatic Line Pressure Sensors



ABS Monitor

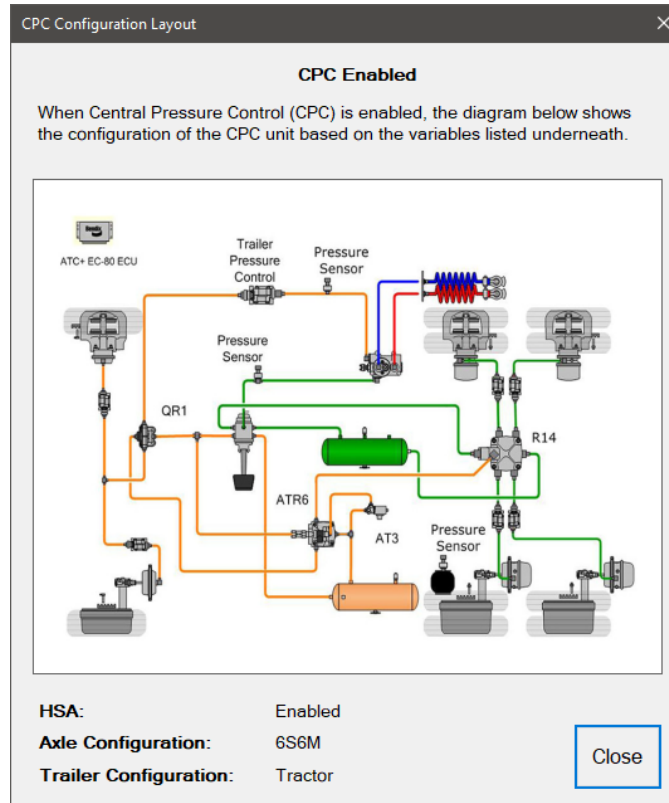
Clicking the **Additional Info** button displays a new window with explanations of the various components displayed in the **ABS Monitor**. The components displayed will change based on which components are detected on the vehicle.



ABS Monitor Additional Info

CPC Configuration Layout

The **Bendix CPC Configuration Layout** displays the Central Pressure **Controller** diagram for the reported EC-80 CPC on the vehicle.



CPC Configuration Layout

Event History

The **Bendix Event History** screen provides a detailed historical record of events reported by components that support this type of information. It is only available if a Bendix component supporting **Event History** records is available on the data bus.

The **DTC Events** tab displays event information related to reported faults. The **Info Events** tab displays informational events logged by the component. The **ESP Counters** and **Event Counters** tabs display event occurrence counters for EC-60 or EC-80 event triggers.

The displayed events can be filtered by component by selecting an option from the **Component** drop down box. Clicking **Clear History** will erase the record of events for the selected tab when available.

NOTE: Bendix advises against clearing history records as it may negatively impact field issue investigation and/or your ability to be reimbursed for warranty returns.

The **Refresh** button rereads the Event History information from all supported components. The data is automatically refreshed every time the **Event History** screen is opened.

Component	Description	Count	Power Up Time	Vehicle Velocity	Event Stamp	Event Specific Data	Latitude/Lon...	Date Time
Brakes	ABS Dash Indicator Circuit DTC	1	< 10 s	78 mph	12 power cycles			
Brakes	ECU DTC (1_D1) or (A_F)	1	< 10 s	78 mph	12 power cycles			
Brakes	Steer Axle Left WSS Open or Shorted	1	< 10 s	78 mph	12 power cycles			
Brakes	Drive Axle Left PMV Common Open Circuit	1	< 10 s	78 mph	12 power cycles			
Brakes	Drive Axle Right WSS Open or Shorted	1	< 10 s	78 mph	12 power cycles			
Brakes	Drive Axle Left WSS Open or Shorted	1	< 10 s	78 mph	12 power cycles			
Brakes	Steer Axle Right WSS Open or Shorted	1	< 10 s	78 mph	12 power cycles			
Brakes	Drive Axle Right Common Open Circuit	1	< 10 s	78 mph	12 power cycles			
Brakes	Steer Axle Right PMV Common Open	1	< 10 s	78 mph	12 power cycles			
Brakes	Steer Axle Left PMV Common Open Circuit	1	< 10 s	78 mph	12 power cycles			
Brakes	All faults cleared by diagnostic tool	1	< 10 s	0 mph	3 power cycles			
Brakes	Event History Initialize	1	< 10 s	0 mph	3 power cycles			

Event History

TPMS Diagnostics

The **Bendix TPMS Diagnostics** displays the number and arrangement of tire sensors managed by the TPMS Controller. It is only available for Bendix TPMS systems. Clicking on a tire image will display the specific information for the selected tire sensor.

NOTE: The number and arrangement of axles reported may not match the physical truck layout.

The TPMS Diagnostics screen displays the overall status of the Tire Pressure Monitoring System.

Click a tire to view its specific information.

RIGHT

LEFT

Description	Value	Unit	Protocol
Sensor ID	101	N/A	11939 (High)
Pressure	NA	psi	11939 (High)
Deviation	NA	psi	11939 (High)
Temperature	NA	°F	11939 (High)
RSSI	NA	dBm	11939 (High)
Battery	NA	volts	11939 (High)

Legend:

- Configured Sensor
- No Sensor Assigned
- Spare Tire
- Dummy Sensor
- Trailer Sensor
- Active Fault

Exit

TPMS Diagnostics

Subsystem Diagnostics



The **Subsystem Diagnostics** menu is available for heavy-duty connections only. It provides access to the following screens that provide data specific to important vehicle subsystems to assist in troubleshooting and repair:

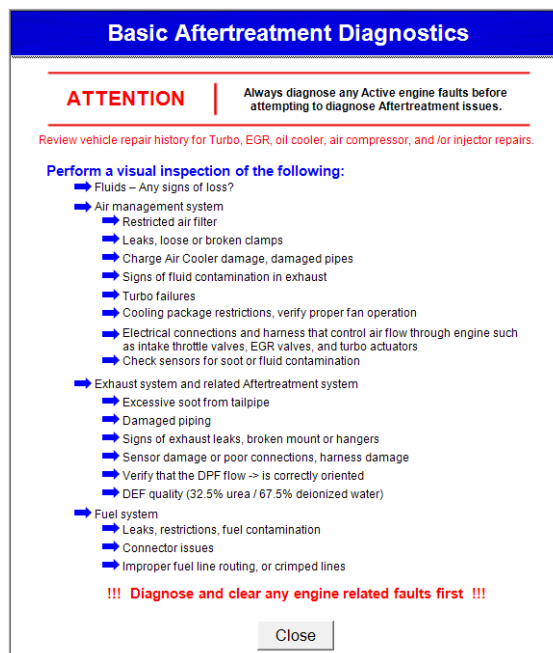
- Aftertreatment Diagnostics
- Coolant System
- Fuel System
- Oil System
- ADAS

Aftertreatment Diagnostics

Aftertreatment Diagnostics are only available on EPA 07 or newer heavy-duty vehicles with J1939 data available. It displays data items related to the **Aftertreatment** system including the Diesel Particulate Filter (DPF) Lamps, **Status, Inhibits** and **Diagnostic DPF, EGR, SCR** and **DEF Tank Sensor Readings** in an easy-to-understand graphical format.

The **Aftertreatment Diagnostics** button is not available until after all initial vehicle data is completely read.

1. Select **Aftertreatment Diagnostics**  button on the main toolbar.
2. If connected to a vehicle, the **Aftertreatment Instructions** are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. Once closed, the instructions can be reopened by the **Instructions**  button.



Basic Aftertreatment Diagnostics

ATTENTION | Always diagnose any Active engine faults before attempting to diagnose Aftertreatment issues.

Review vehicle repair history for Turbo, EGR, oil cooler, air compressor, and/or injector repairs.

Perform a visual inspection of the following:

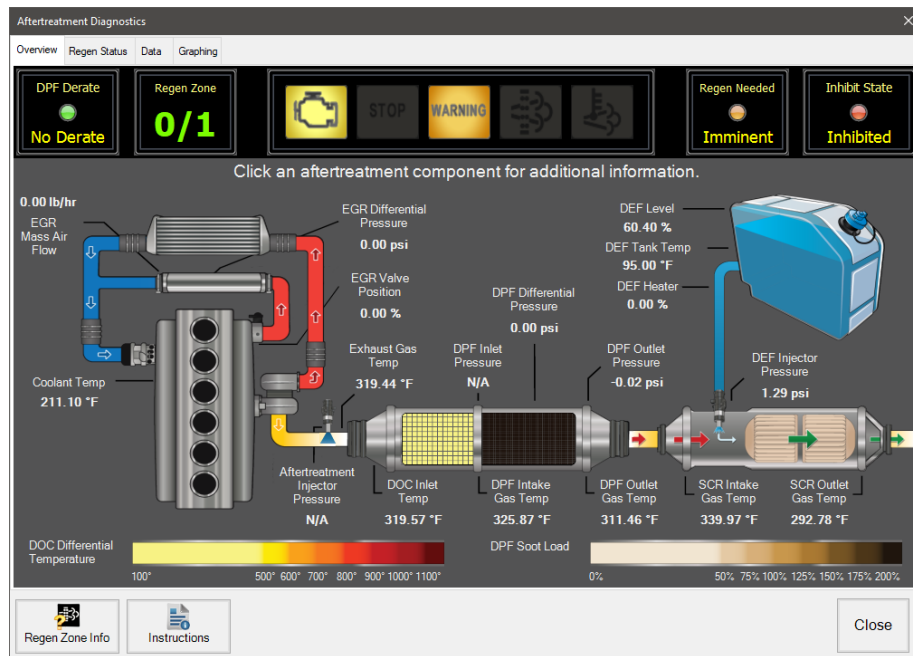
- Fluids – Any signs of loss?
- Air management system
 - Restricted air filter
 - Leaks, loose or broken clamps
 - Charge Air Cooler damage, damaged pipes
 - Signs of fluid contamination in exhaust
 - Turbo failures
 - Cooling package restrictions, verify proper fan operation
 - Electrical connections and harness that control air flow through engine such as intake throttle valves, EGR valves, and turbo actuators
 - Check sensors for soot or fluid contamination
- Exhaust system and related Aftertreatment system
 - Excessive soot from tailpipe
 - Damaged piping
 - Signs of exhaust leaks, broken mount or hangers
 - Sensor damage or poor connections, harness damage
 - Verify that the DPF flow -> is correctly oriented
 - DEF quality (32.5% urea / 67.5% deionized water)
- Fuel system
 - Leaks, restrictions, fuel contamination
 - Connector issues
 - Improper fuel line routing, or crimped lines

!!! Diagnose and clear any engine related faults first !!!

Close

Aftertreatment Diagnostic Instructions

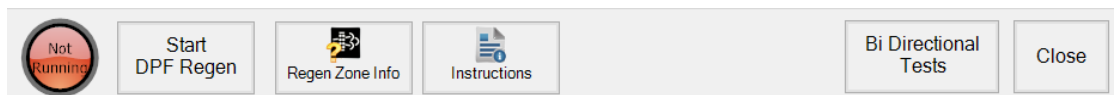
- The **Aftertreatment Diagnostics Overview** window is displayed, and an **Overview** tab displays a schematic of the aftertreatment system. Key data points labeled include the **DPF**, **EGR**, **SCR**, and **DEF Tank Sensor** readings.



Aftertreatment Diagnostics Overview

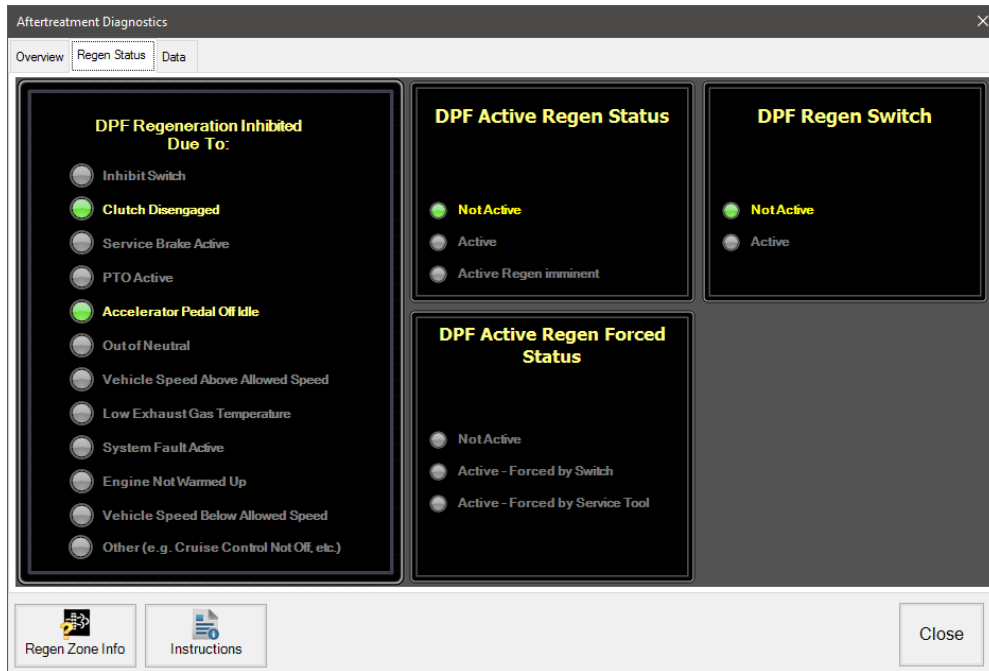
NOTE: On EPA 2007 engines, the schematic does not include the SCR and DEF Tank.

- Click the **Engine**, **DPF**, **SCR**, or **DEF Tank** to view additional information for the selected component. The **Bi-Directional Test** button, if available, will change to match the selected component. Clicking the button displays a filtered list of aftertreatment Bi-Directional tests for the selected component.
- At the top of the **Overview** tab are the appropriate lamps including the **Stop Engine**, **Check Engine**, **Diesel Particulate Filter (DPF) Lamp**, and the **Exhaust High Temperature Lamp** as well as the **DPF Derate**, **Regen Zone**, **Regen Needed** indicator and **Inhibit DPF Regen State**.
- On live vehicle connections, if available, there may be additional buttons to allow you to start DPF Regen or access other bi-directional test functionality. Please see the [Heavy Duty Bi-Directional – DPF Service Regen](#) section in this document for more information.



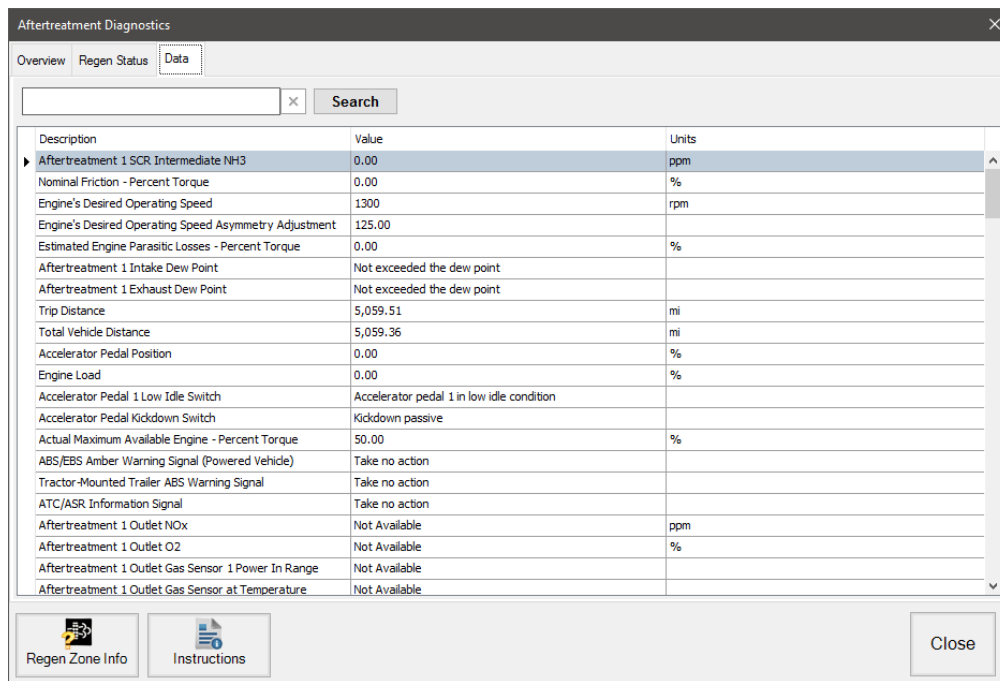
Aftertreatment Diagnostics with Bi-Directional Capabilities

7. Select the **Regen Status** tab to see the details for the Inhibit and DPF status.



Aftertreatment Diagnostics Regen Status

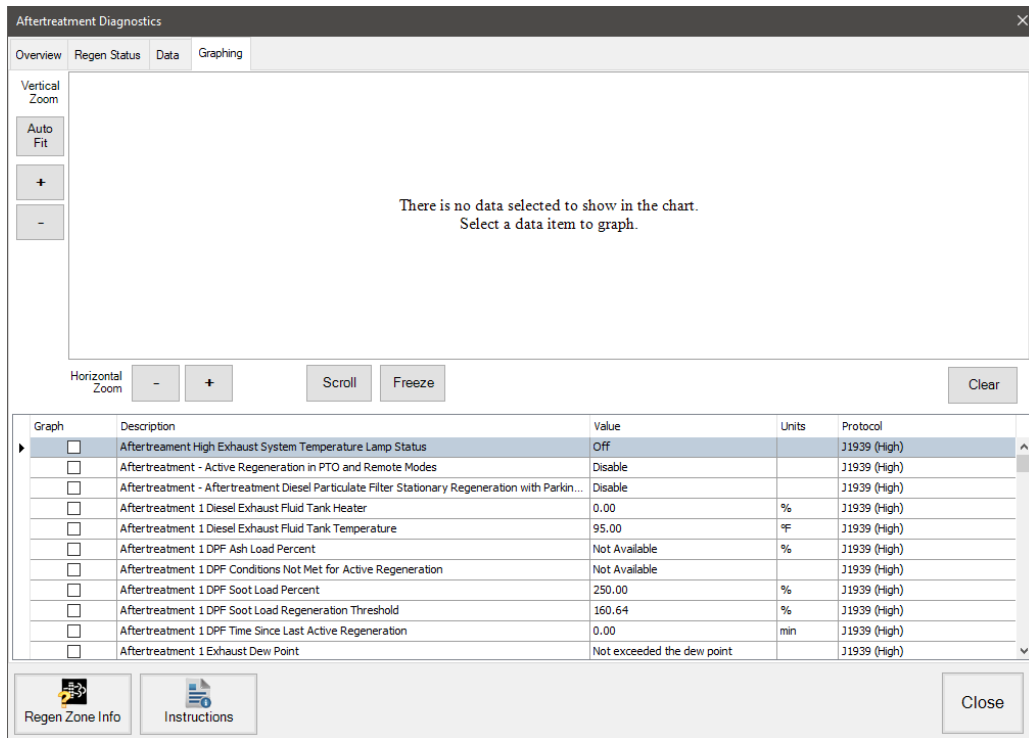
8. Select the **Data** tab to see all aftertreatment data displayed in an easily searched and sorted grid format.




Aftertreatment Diagnostics Data

9. Data can be quickly found by typing in search criteria and clicking the **Search** button. Results will be displayed for all items that have the search criteria in at least 1 column.

10. Select the **Graphing** tab to select and view available data items in a constantly updating graph format.



Aftertreatment Diagnostics Graphing

11. To customize the display:
- Hover the cursor over the graph to see the value plotted.
 - You can zoom each axis of the graph independently by clicking either the **+** or **-** button.
 - Clicking the **Auto Fit** button will resize the graph to show all plotted data items.
 - The **Scroll** button automatically moves the graph view to the most current information.
 - The **Freeze** button allows you to keep the graph view from moving, letting you easily study the data while the graph continues to run.
 - Print** allows you to print the current graph view. A color printer is strongly recommended.
 - Export** displays a save file dialog. Up to the last 5 minutes of currently graphed data can be saved to the desired location as an XML file.
 - The **Clear** button removes all data from the graph and begins capturing new data.
12. Select the **Regen Zone Info**  button to see detailed information concerning regeneration zones.

Engine Data

Clicking on the Engine in the **Aftertreatment Overview** screen opens the **Engine Data** screen which displays additional engine related aftertreatment data items. It includes data from the EGR, Engine, Intake, and Turbocharger. Click **Back** to return to **Aftertreatment Diagnostics Overview**.

Clicking the **Engine Tests** button displays a filtered list of engine aftertreatment Bi-Directional tests.

Description	Value	Units	Location
EGR Differential Pressure	0.00	psi	EGR
EGR Temperature	191.50	°F	EGR
EGR Valve Position Command	0.00	%	EGR
Engine Exhaust Gas Recirculation (EGR) Mass Flow Rate	0.00	lb/hr	EGR
Engine Coolant Temperature	211.10	°F	Engine
Engine Oil Temperature	211.99	°F	Engine
Engine Speed	0	rpm	Engine
Injector Metering Rail Pressure	48.72	psi	Engine
Intake Manifold Pressure	0.02	psi	Engine
Engine Desired Throttle Valve 1 Position	0.40	%	Intake
Intake Manifold Air Temperature	174.08	°F	Intake
Mass Air Flow	0.00	lb/hr	Intake
Turbocharger #1 Speed	0	rpm	Turbocharger
Turbocharger Compressor Intake Air Temperature	152.97	°F	Turbocharger

Aftertreatment Engine Data

DOC & DPF Data

Clicking the **Diesel Oxidation Catalyst (DOC)** and **Diesel Particulate Filter (DPF)** in the **Aftertreatment Overview** screen to open the **DOC & DPF Data** screen provides additional data. It includes data from the DOC Intake, the DPF, DPF Intake, and DPF Outlet. Click **Back** to return to **Aftertreatment Diagnostics Overview**.

Clicking the **DOC & DPF Tests** button displays a filtered list of DOC & DPF aftertreatment Bi-Directional tests.

Description	Value	Units	Location
Aftertreatment 1 Exhaust Gas Temperature	319.44	°F	DOC Intake
Aftertreatment Diesel Oxidation Catalyst Intake Temperature	319.57	°F	DOC Intake
Engine Fuel Mass Flow Rate	Not Available	lbs/sec	DOC Intake
Aftertreatment 1 DPF Soot Load Percent	250.00	%	DPF
Aftertreatment Diesel Particulate Filter Differential Pressure	0.00	psi	DPF
Aftertreatment 1 DPF Intake Pressure (High Resolution)	Not Available	psi	DPF Intake
Aftertreatment Diesel Particulate Filter Intake Temperature	325.87	°F	DPF Intake
Aftertreatment Diesel Particulate Filter Outlet Pressure	-0.02	psi	DPF Outlet
Aftertreatment Diesel Particulate Filter Outlet Temperature	311.46	°F	DPF Outlet
Exhaust Gas Pressure	14.72	psi	DPF Outlet

Aftertreatment DOC & DPF Data

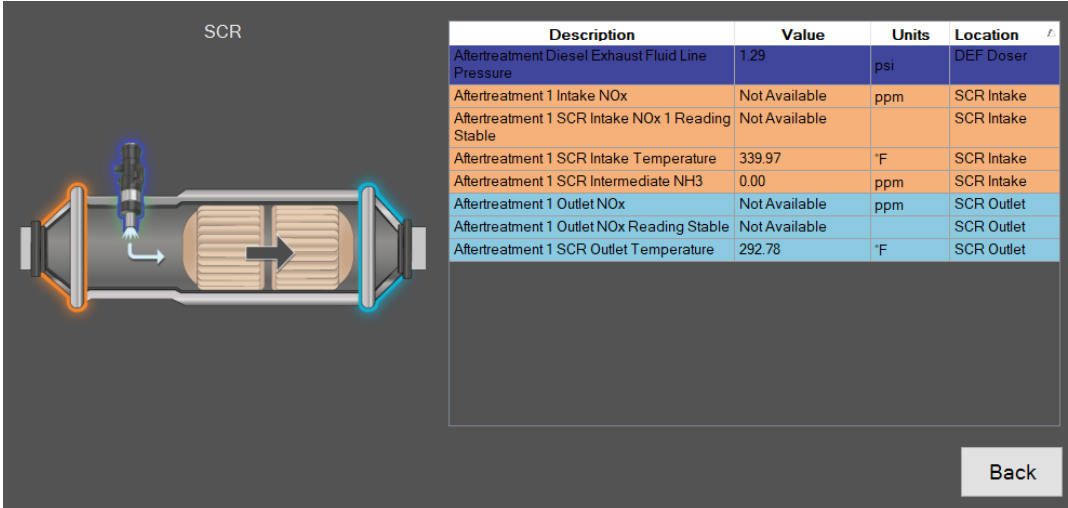
The DOC image color will change, displaying a gradient based on the DOC Intake and DPF Intake temperatures. Refer to the **DOC Differential Temperature** legend.

The DPF image color will change based on reported **Soot Load** beginning with 0%  up to >200% . Refer to the **DPF Soot Load** legend.

SCR Data

Clicking on the **Selective Catalytic Reduction (SCR)** component in the **Aftertreatment Overview** screen opens the **SCR Data** screen which provides additional data related to the SCR system. It includes data from the DEF Doser, SCR Intake, and SCR Outlet. Click **Back** to return to **Aftertreatment Diagnostics Overview**.

Clicking the **SCR Tests** button displays a filtered list of SCR aftertreatment Bi-Directional tests.



The screenshot displays the SCR Data screen. On the left is a diagram of the SCR system with a DEF doser injecting fluid into the exhaust stream. On the right is a table with the following data:

Description	Value	Units	Location
Aftertreatment Diesel Exhaust Fluid Line Pressure	1.29	psi	DEF Doser
Aftertreatment 1 Intake NOx	Not Available	ppm	SCR Intake
Aftertreatment 1 SCR Intake NOx 1 Reading Stable	Not Available		SCR Intake
Aftertreatment 1 SCR Intake Temperature	339.97	'F	SCR Intake
Aftertreatment 1 SCR Intermediate NH3	0.00	ppm	SCR Intake
Aftertreatment 1 Outlet NOx	Not Available	ppm	SCR Outlet
Aftertreatment 1 Outlet NOx Reading Stable	Not Available		SCR Outlet
Aftertreatment 1 SCR Outlet Temperature	292.78	'F	SCR Outlet

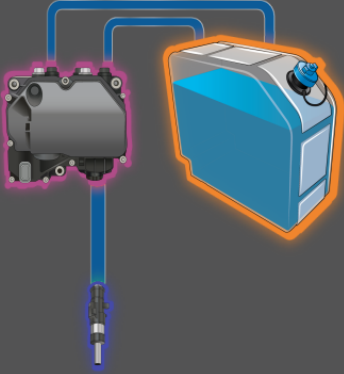
A "Back" button is located at the bottom right of the screen.

Aftertreatment SCR Data

DEF System Data

Clicking the **Diesel Exhaust Fluid (DEF) Tank** in the **Aftertreatment Overview** screen opens the **DEF System Data** screen which displays additional DEF system related data items. It includes data from the DEF Doser, DEF Tank, DEF Pump, and Line Heaters.

Clicking the **DEF System Tests** button displays a filtered list of DEF System aftertreatment Bi-Directional tests.





Description	Value	Units	Location
Aftertreatment Diesel Exhaust Fluid Line Pressure	1.29	psi	DEF Doser
Aftertreatment 1 Diesel Exhaust Fluid Concentration	0.00	%	DEF Tank
Aftertreatment 1 Diesel Exhaust Fluid Conductivity	Not Available	S/in	DEF Tank
Aftertreatment 1 Diesel Exhaust Fluid Property	Urea concentration too high		DEF Tank
Aftertreatment 1 Diesel Exhaust Fluid Tank Heater	0.00	%	DEF Tank
Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	95.00	°F	DEF Tank
DEF Tank Level	60.40	%	DEF Tank
Aftertreatment Diesel Exhaust Fluid Line Heater 1 Status	Heater inactive		Line Heater
Aftertreatment Diesel Exhaust Fluid Line Heater 2 Status	Heater inactive		Line Heater
Aftertreatment Diesel Exhaust Fluid Line Heater 3 Status	Heater inactive		Line Heater

Back

Aftertreatment DEF Data

The **DEF Tank** image will change based on the reported DEF Tank Level:

	> 85%
	> 50%
	> 25%
	> 15%
	< 15%

The **DEF Doser** image will change from closed  to dosing  if a positive DEF Line Pressure is reported.

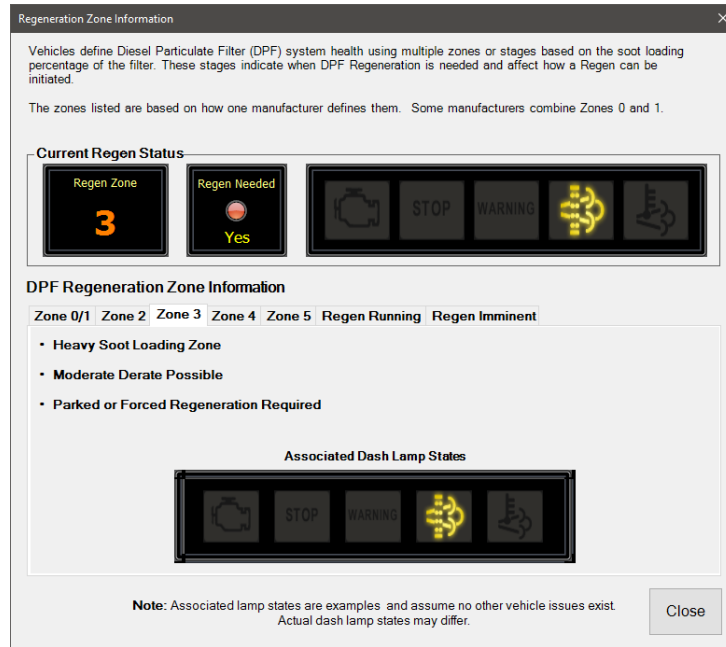
Click **Back** to return to **Aftertreatment Diagnostics** overview.

Regen Zone Information

The **Regen Zone Information** window is an educational feature that helps you understand DPF systems on today's diesel trucks. It is available from the [Aftertreatment Diagnostics](#) screen and the [Data Monitor](#) screen.

The **Regen Zone** window explains the meaning behind each Regen Zone and helps you understand:

- How each Zone relates to DPF soot loading and engine derate.
- When you need to perform a regeneration.
- When forcing a regeneration is most beneficial to the specific application of the vehicle.




Regeneration Zone Information

When displayed, the selected tab will display information specific to the current Regen Zone. Information for all Zones, including the special states of Regen Running and Regen Imminent are also available.

Coolant System

The **Coolant System** screen is available for all heavy-duty vehicles. It displays data from related components to assist in troubleshooting coolant system issues.

NOTE: Coolant System display for CAT components not currently available.

1. Select **Coolant System**  button from the main toolbar's **Subsystem Diagnostics**  menu.

2. The **Coolant System** window opens, displaying coolant system related data items.

Description	Value	Units	Location
Auxiliary Heater Coolant Pump Request	Don't care/Take no action		Engine
Coolant Filter Differential Pressure	Not Available	psi	Engine
Coolant Pressure	Not Available	psi	Engine
Engine Aftercooler Coolant Level	Not Available	%	Engine
Engine Coolant Temperature	71.60	°F	Engine
Engine Coolant Temperature (High Resolution)	72.89	°F	Engine
Estimated Percent Fan Speed	0.00	%	Radiator
Requested Percent Fan Speed	Not Available	%	Radiator
Coolant Level	100.00	%	Reservoir
Engine Coolant Thermostat Opening	Not Available	%	Thermostat
Engine Coolant Pump Differential Pressure	Not Available	psi	Water Pump
Engine Coolant Pump Outlet Temperature	69.80	°F	Water Pump

Coolant System

3. Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site. Please see the [NextStep® Repair](#) section in this document for more information.

Fuel System

The **Fuel System** screen displays data from related components to assist in troubleshooting fuel system issues for the following heavy-duty vehicle engine types:

- Single Common Rail
- Dual Common Rail
- Hydraulically-activated Electronically-controlled Unit Injector (HEUI)
- Compressed Natural Gas (CNG)

NOTE: Fuel System display for Mack and Volvo components not currently available.

The **Fuel System** button is not available until after all initial vehicle data is completely read.

1. Select **Fuel System**  button from the main toolbar's **Subsystem Diagnostics**  menu.

- The **Fuel System** window opens, displaying fuel system related data items.

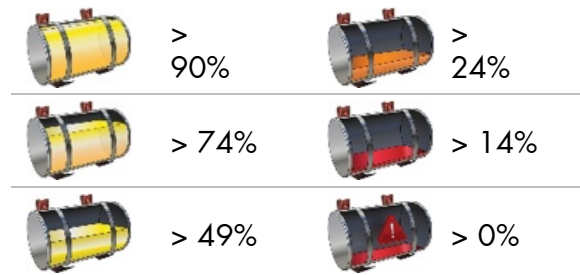
The screenshot shows the 'Fuel System' window for a 'Single Common Rail Engine'. On the left is a schematic diagram with components labeled: Fuel Tank, Fuel Filter, Fuel Pump, Fuel Shutoff Manifold, Aftertreatment Injector, ECM, and Accelerator Pedal. A green button labeled 'Click to Launch CCO' is overlaid on the diagram. On the right is a data table with the following columns: Description, Value, Units, and Location.

Description	Value	Units	Location
Aftertreatment Fuel Pressure	43.52	psi	Aftertreatment...
Accelerator Pedal Position	0.00	%	Engine
Barometric Air Pressure	14.34	psi	Engine
Commanded Engine Fuel Injection Control Pressure	Not Available	psi	Engine
Commanded Engine Fuel Rail Pressure	36,403.89	psi	Engine
Engine Desired Throttle Valve 1 Position	100.00	%	Engine
Engine Injector Metering Rail 2 Pressure	Not Available	psi	Engine
Engine Load	11.00	%	Engine
Engine Oil Level	Not Available	%	Engine
Engine Oil Pressure	38.22	psi	Engine
Engine Oil Temperature	132.43	°F	Engine
Engine Speed	651	rpm	Engine
Fuel Delivery Pressure	Not Available	psi	Engine
Fuel Rate (Instantaneous)	0.75	gal/hr	Engine
Injection Control Pressure	Not Available	psi	Engine
Injector Metering Rail Pressure	6,612.25	psi	Engine
Injector Timing Rail Pressure	Not Available	psi	Engine
Intake Manifold Temperature	95.00	°F	Engine



At the bottom of the window are three buttons: 'NextStep™ Repair', 'Bi-Directional', and 'Close'.

Fuel System - Single Common Rail

- Click the engine when **Click to Launch CCO** is displayed to launch the **Cylinder Cut-Out** test.
- Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site. Please see the [NextStep® Repair](#) section in this document for more information.
- On live vehicle connections the **Bi-Directional** button will be available. Please see the [Heavy-Duty Bi-Directional](#) section in this document for more information.
- The **Fuel Tank** image will change based on the reported Fuel Tank Level:





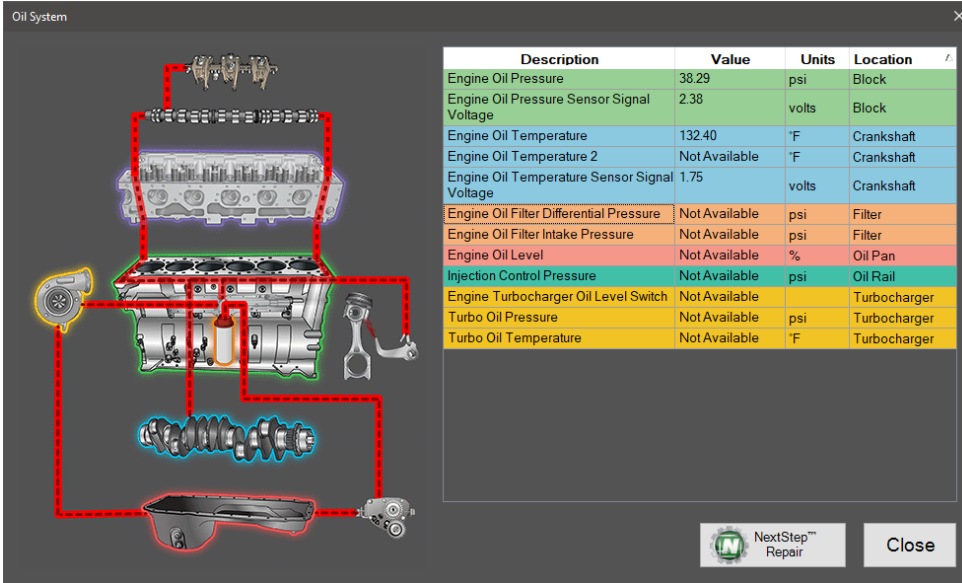
NOTE: The fuel tank image displayed may vary, but fuel level displayed will be similar.

The **Aftertreatment Doser** image will change from closed  to dosing  if a positive Aftertreatment Fuel Pressure is reported.

Oil System

The **Oil System** screen is available for all heavy-duty vehicles. It displays data from related components to assist in troubleshooting oil system issues

1. Select **Oil System**  button from the main toolbar's **Subsystem Diagnostics**  menu.
2. The **Oil System** window opens, displaying oil system related data items.





Description	Value	Units	Location
Engine Oil Pressure	38.29	psi	Block
Engine Oil Pressure Sensor Signal Voltage	2.38	volts	Block
Engine Oil Temperature	132.40	F	Crankshaft
Engine Oil Temperature 2	Not Available	F	Crankshaft
Engine Oil Temperature Sensor Signal Voltage	1.75	volts	Crankshaft
Engine Oil Filter Differential Pressure	Not Available	psi	Filter
Engine Oil Filter Intake Pressure	Not Available	psi	Filter
Engine Oil Level	Not Available	%	Oil Pan
Injection Control Pressure	Not Available	psi	Oil Rail
Engine Turbocharger Oil Level Switch	Not Available		Turbocharger
Turbo Oil Pressure	Not Available	psi	Turbocharger
Turbo Oil Temperature	Not Available	F	Turbocharger



Oil System

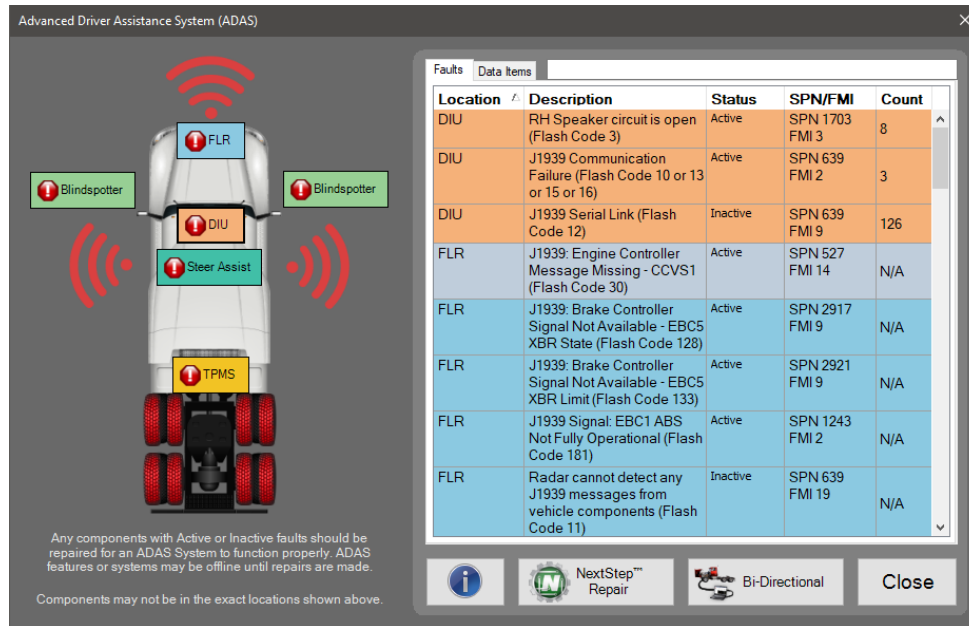
Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site. Please see the [NextStep® Repair](#) section in this document for more information.

ADAS


The **ADAS screen** is available for all Heavy-Duty vehicles with Advanced Driver Assistance System components. It displays faults and data from related components to assist in troubleshooting ADAS issues.

1. Select **ADAS**  button from the main toolbar's Subsystem Diagnostics  menu.

- The **ADAS** window opens, displaying **Advanced Driver Assistance System** faults. Components with Active faults are indicated by a red exclamation point . Components without Active faults are indicated by a green check mark .




ADAS

- Clicking the **Data Items** tab will display related data items. Clicking an ECU from the graphic will filter the faults and data items to the selected ECU. Items can be quickly found by typing in the search bar. Results will be displayed for all items that have the search criteria in at least 1 column.
- Select the **Information**  button to view additional ADAS related information.
- Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site. Please see the [NextStep® Repair](#) section in this document for more information.

On live vehicle connections the Bi-Directional button will be available. Clicking the **Bi-Directional** button displays bi-directional test selection. Please see the [Heavy-Duty Bi-Directional](#) section in this document for more information.

JPRO Road Worthiness

JPRO Road Worthiness assesses a vehicle's safety and compliance for over-the-road operations by checking that:

- ✓ No ABS faults reported, or lamps illuminated
 - ✓ Max Road Speed < 80 mph
 - ✓ DPF Pressure is reported
- Select **JPRO® Road Worthiness**  button from the main toolbar.

- JPRO® **Road Worthiness** opens, displaying a banner indicating the overall status of the vehicle, and the evaluated diagnostic rules.



The title banner color will be **green** if one or more diagnostic rules report "**Pass**" and none report "**Fail**".



The title banner color will be **red** if one or more diagnostic rules report "Fail".



If all diagnostic rules report a value of **N/A**, the title banner color will be grey.

All evaluated diagnostic rules display their value and status, clearly indicating the issues affecting the vehicle's safety and compliance.

The screenshot shows a window titled "JPRO® Road Worthiness" with a red header. Below the header is a table with three columns: Description, Value, and Status. The table contains five rows of diagnostic rules. Below the table is an attention message and a "Close" button.

Description	Value	Status
No ABS / SRS Faults	1 Active Faults	FAIL
No ABS Lamps	ABS Lamp(s) On	FAIL
Road Speed < 80 mph	72.00 mph	PASS
DPF Pressure > 0 psi	0.06 psi	PASS
Safety Issues	Coming Soon!!	N/A

ATTENTION For an accurate reading, please ensure that test is performed within 5 minutes of powering down the engine OR perform test while the engine is running.
Engine must be running and up to temperature for accurate DPF Pressure readings.

Close

JPRO® Road Worthiness Heavy-Duty Bi-Directional

HEAVY DUTY BI-DIRECTIONAL

Bi-Directional allows you to run tests and perform calibrations on the vehicle. This is only available if the current connected vehicle has supported bi-directional features and those features are enabled with the current JPRO license.

The following tests and calibrations are available to be run:

Bi-Directional Test or Calibration	Supported On
ABS Air Bag Pressure Test	Bendix Tractor Brakes
ABS Configuration	Bendix Tractor Brakes
ABS Engine Limiting Test	Bendix Tractor Brakes
ABS Indicator Lamp Test	Bendix Trailer Brakes
ABS Pressure Test	Bendix Tractor Brakes
ABS Self Config Test	Bendix Tractor Brakes
Actuator Test	International engines
Activate Air Shut Off Valve	PACCAR engines
Activate Fuel Dosing Valve	PACCAR engines
Aftertreatment Fuel Enable Actuator Leak Test	International engines
Aftertreatment Hydrocarbon Doser Leak Test	International engines
Aftertreatment Hydrocarbon Dosing System Test	International engines
Aftertreatment Injector Activation for Flow Test	Mack and Volvo engines
Aftertreatment Injector Flow Test	Cummins engines Komatsu equipment
Aftertreatment Injector Leak Test	Cummins engines Komatsu equipment
Aftertreatment Injector Shutoff Valve Test	Cummins engines Komatsu equipment
Aftertreatment Maintenance Reset	Cummins engines
Aftertreatment Reset	International engines
ATC Configuration	Bendix Tractor Brakes
Automated Cylinder Performance Test	PACCAR engines
AutoVue Configuration	Bendix Driver Assistance Systems (DAS)
Auxiliary Engine Speed Control (PTO) Parameters	International engines

Bi-Directional Test or Calibration	Supported On
Axle Load Test	Bendix Trailer Brakes
Battery Voltage Test	Bendix Tractor Brakes Bendix Trailer Brakes
Blindspotter Configuration	Bendix Driver Assistance Systems (DAS)
Braking System Switches Test	Bendix Tractor Brakes
Camera Snapshot Test	Bendix Driver Assistance Systems (DAS)
Cartridge Lifetime Prediction Reset Test	Bendix Air Treatment Systems
CDPF Reset	International engines
Check Internal DEF Pump Module Heater	PACCAR engines
Chuff Test	Bendix Trailer Brakes
Clear Stored Events and Videos	Bendix Driver Assistance Systems (DAS)
Clutch Apply Leak Test	Detroit Diesel transmissions
CTIS Pressure Tests	Dana
CTIS Supply Tank Pressure Test	Dana
Cylinder Compression Test	PACCAR engines

Bi-Directional Test or Calibration	Supported On
Cylinder Cut-Out Test	Ammann equipment ASV equipment Bergman equipment Caterpillar On-Highway engines Caterpillar Off-Highway engines Cummins On-Highway engines Detroit Diesel engines Ditch Witch equipment Dynapac equipment Hitachi equipment Hydrema equipment Hyundai CE equipment International engines JCB equipment Kalmar equipment Kawasaki KCM equipment Komatsu equipment Kubota engines Leeboy equipment Leibherr equipment Link-Belt equipment Liugong equipment Mack and Volvo engines Manitowac equipment Mercedes-Benz engines PACCAR engines Pettibone equipment Sakai equipment Sany equipment Sennebogen equipment Tadano Faun equipment Terex equipment Tiger Cat equipment Vermeer equipment Wirtgen equipment Wollard equipment XCMG equipment ZoomLion equipment

Bi-Directional Test or Calibration	Supported On
Cylinder Misfire Monitor Test	Cummins engines
Dashboard Lamp Tests	Bendix Tractor Brakes Wabco Tractor Brakes
DEF Coolant Valve Control Test	Detroit Diesel engines
DEF Doser Pump Override Test	Cummins engines International engines Komatsu equipment
DEF Doser Pump Test	PACCAR engines
DEF Dosing Valve Test	Mack and Volvo engines
DEF Heater Test	PACCAR engines
DEF Pressure System Test	Mack and Volvo engines
DEF Quantity Test	Detroit Diesel engines
DEF System Heater Test	Cummins engines
DEF System Leak Test	Cummins engines
DIU Configuration	Bendix Driver Assistance Systems (DAS)
DOC Face Plug Cleaning	Detroit Diesel engines
DOC/DPF Replacement Reset	International engines
Door Switch Status Test	Bendix Trailer Brakes
DPF Ash Accumulator Reset	Detroit Diesel engines

Bi-Directional Test or Calibration	Supported On
DPF Service Regen	Ammann equipment ASV equipment Bergman equipment Caterpillar On-Highway engines Cummins On-Highway engines Detroit Diesel engines Ditch Witch equipment Dynapac equipment Hitachi equipment Hydrema equipment Hyundai CE equipment International engines JCB equipment Kalmar equipment Kawasaki KCM equipment Komatsu equipment Kubota engines Leeboy equipment Leibherr equipment Link-Belt equipment Liugong equipment Mack and Volvo engines Manitowac equipment Mercedes-Benz engines PACCAR engines Pettibone equipment Sakai equipment Sany equipment Sennebogen equipment Tadano Faun equipment Terex equipment Vermeer equipment Wirtgen equipment Wollard equipment XCMG equipment ZoomLion equipment
DPF System Reset	Mack and Volvo engines
Drag Torque Test	Bendix Tractor Brakes

Bi-Directional Test or Calibration	Supported On
ECU Configuration	Bendix Trailer Brakes
ECU Information Reset	Bendix Trailer Brakes
ECU Reset	Bendix Tractor Brakes
EGR Actuator Slow Learn	Detroit Diesel engines
EGR Delta Pressure Sensor Recalibration	Detroit Diesel engines
EGR Function Test	Mack and Volvo engines
Enable or Disable Cruise Control	Mack and Volvo engines
Enable Regeneration after Aftertreatment System Repair	PACCAR engines
Enable/Disable ATC (Automatic Traction Control)	Wabco Tractor Brakes
Engine Protection Parameters	Cummins engines
ESP Lamp Test	Bendix Tractor Brakes
Evaluate NOx Sensors Test	PACCAR engines
Exit Inducement Test	Mack and Volvo engines
Fan Activation Test	Mack and Volvo engines
Fan Override Test	Cummins engines
Forced Active Regen	International engines
Fuel Injector Calibration	Cummins engines
Fuel Injector Performance Test	Cummins engines Komatsu equipment
Fuel Injector Reset	Cummins engines

Bi-Directional Test or Calibration	Supported On
Fuel Leakage Test	Bergman equipment Cummins On-Highway engines Ditch Witch equipment Dynapac equipment Hitachi equipment Hydrema equipment Hyundai CE equipment JCB equipment Kalmar equipment Kawasaki KCM equipment Komatsu equipment Leibherr equipment Link-Belt equipment Liugong equipment Manitowac equipment Sany equipment Sennebogen equipment Tadano Faun equipment Terex equipment Tiger Cat equipment Vermeer equipment Wirtgen equipment Wollard equipment XCMG equipment ZoomLion equipment
Fuel Pressure Adaptation Reset	International engines
Fuel Shut-off Valve Test	Mack and Volvo engines
General Output Functions Test	Bendix Trailer Brakes
Hydrocarbon Doser Purge	Detroit Diesel engines
Hydrocarbon Dosing Control Valve Test	Mack and Volvo engines
Idle Shutdown	Caterpillar engines Cummins engines Detroit Diesel engines International engines Mack and Volvo engines
Indicator Component Tests	Bendix Driver Assistance Systems (DAS)
Injection Actuator Pressure Test	Caterpillar engines

Bi-Directional Test or Calibration	Supported On
Injector Solenoid Test	Caterpillar engines
Injector Trim Calibration	Caterpillar engines
Installation Angle Test	Bendix Trailer Brakes
Installation Configuration Test	Bendix Trailer Brakes
Install a New or Cleaned DPF	PACCAR engines
Intake Throttle Valve Test	Detroit Diesel engines
Intake Valve Actuator Solenoid Test	Caterpillar engines
Intake Valve Actuator Test	Caterpillar engines
J1939 Datalink Control Test	Cummins engines
KOEO Injector Test	International engines
KOEO Standard Test	International engines
KOER Air Management Test	International engines
KOER Standard Test	International engines
Lamp Component Tests	Bendix Driver Assistance Systems (DAS)
LDW Configuration	Bendix Driver Assistance Systems (DAS)
Learned Data Reset	Mack and Volvo engines
Lift Axle Control Test	Bendix Trailer Brakes
Lift Axle Sensing Test	Bendix Trailer Brakes
Lift Lower Test	Bendix Trailer Brakes
Low Pressure Warning Emergency Test	Bendix Trailer Brakes
Low Pressure Warning Service Test	Bendix Trailer Brakes
Maintenance Mode	Bendix Tractor Brakes
Memorized Components Reset	Wabco Tractor Brakes
Metering Unit Flood Routine	Detroit Diesel engines
Modulator Valve (Chuff) Test	Bendix Tractor Brakes Wabco Tractor Brakes
NOx Conversion Monitor Test	Mack and Volvo engines
Output Component Tests	Bendix Driver Assistance Systems (DAS)
P-21 Delivery Test	Bendix Trailer Brakes
P-21 Modulator Test	Bendix Trailer Brakes
P-22 Delivery Test	Bendix Trailer Brakes
P-22 Modulator Test	Bendix Trailer Brakes

Bi-Directional Test or Calibration	Supported On
Pad Wear Test	Bendix Trailer Brakes
Parked SCR Efficiency Test	Detroit Diesel engines
Performance Check Low Temp ATD	Detroit Diesel engines
Pressure Sensor Test	Bendix Trailer Brakes
Pressure Trimming and Coil Polarity Test	Bendix Driver Assistance Systems (DAS)
Prime the System with the Pump for DEF	PACCAR engines
PTO Parameters	Cummins engines Detroit Diesel engines
Purge Air Valve Test	Mack and Volvo engines
Radar Alignment	Detroit Assurance radars
Radar Service Alignment	Bendix Driver Assistance Systems (DAS)
Reset the Soot Level	PACCAR engines
Road & Cruise Speed Limits	Caterpillar engines Cummins engines Detroit Diesel engines International engines Mack and Volvo engines
Safety Direct Event Configuration	Bendix Driver Assistance Systems (DAS)
Safety Direct Event Selection Configuration	Bendix Driver Assistance Systems (DAS)
S-C and S-D Sensor Tests	Bendix Trailer Brakes
S-E and S-F Sensor Tests	Bendix Trailer Brakes
SCR Air Pressure System Check	Detroit Diesel engines
SCR Airless Doser System (ADS) Self Check	Detroit Diesel engines
SCR Faults Reset	International engines
SCR Output Component Test	Detroit Diesel engines


Bi-Directional Test or Calibration	Supported On
SCR Performance and System Test	Ammann equipment ASV equipment Bergman equipment Cummins On-Highway engines Ditch Witch equipment Dynamac equipment Hitachi equipment Hydrema equipment Hyundai CE equipment JCB equipment Kalmar equipment Kawasaki KCM equipment Komatsu equipment Leeboy equipment Leibherr equipment Link-Belt equipment Liugong equipment Manitowac equipment Pettibone equipment Sakai equipment Sany equipment Sennebogen equipment Tadano Faun equipment Terex equipment Tiger Cat equipment Vermeer equipment Wirtgen equipment Wollard equipment XCMG equipment ZoomLion equipment
SCR Regeneration	Mack and Volvo engines
Scratchpad Test	Bendix Trailer brakes
SDP3 Configuration	Bendix Driver Assistance Systems (DAS)
SDP5 Configuration	Bendix Driver Assistance Systems (DAS)
SDP5 System Configuration	Bendix Driver Assistance Systems (DAS)
Speaker Volume Configuration	Bendix Driver Assistance Systems (DAS)
SPTAC Calibration	Bendix Driver Assistance Systems (DAS)

Bi-Directional Test or Calibration	Supported On
Startup Chirp Volume Setting	Bendix Driver Assistance Systems (DAS)
Steering Angle Test and Calibration	Bendix Tractor brakes
Tilt Sensor Calibration	Detroit Diesel transmissions
Tire Inflation System Test	Bendix Trailer brakes
TPMS Ambient Sensor Configuration	Bendix Tire Pressure Monitoring System
TPMS Backup and Restore	Bendix Tire Pressure Monitoring System
TPMS Configuration	Bendix Tire Pressure Monitoring System
TPMS Lamp Display Configuration	Bendix Tire Pressure Monitoring System
TPMS Parameters	Bendix Tire Pressure Monitoring System
TPMS Scratchpad	Bendix Tire Pressure Monitoring System
TPMS Signal Strength Test	Bendix Tire Pressure Monitoring System
TPMS Statistics	Bendix Tire Pressure Monitoring System
Transmission Learn Procedure Test	Detroit Diesel transmissions
Trip Information Parameters	Cummins engines
Trip Reset	Cummins engines Mack and Volvo engines
TSR Configuration	Bendix Driver Assistance Systems (DAS)
Turbo Actuator Effort Test	PACCAR engines
VGT Electronic Actuator Installation and Calibration	Cummins engines Mack and Volvo engines
VGT Function Test	Mack and Volvo engines
VGT Hysteresis Test	Cummins engines Komatsu equipment
VGT Monitor Test	Mack and Volvo engines
VSS Parameters	Cummins engines Detroit Diesel engines International engines
Warm Hold Function Test	Wabco Tractor brakes
Wear Sensing Test	Bendix Trailer brakes

Bi-Directional Test or Calibration	Supported On
Wheel Speed Chart Test	Bendix Tractor brakes Bendix Trailer brakes Hyundai CE equipment Link-Belt equipment Liugong equipment Manitowoc equipment Wabco Tractor brakes Wirtgen equipment XCMG equipment All tractor braking systems that report wheel speeds
Wheel Speed Window Test	Bendix Tractor brakes Bendix Trailer brakes Wabco Tractor brakes All tractor braking systems that report wheel speeds

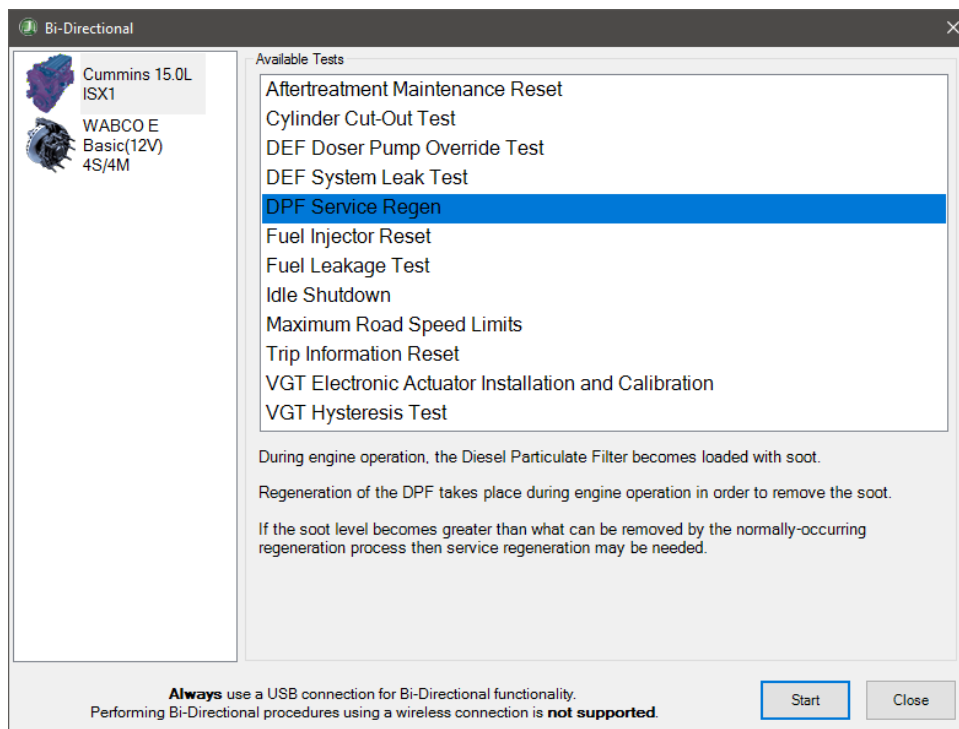
Bi-Directional Test or Calibration	Supported On
Wiggle Test/Performance Issue Monitoring	All heavy-duty engines Agility fuel systems Ammann equipment ASV equipment Bendix Tractor brakes Bergman equipment Ditch Witch equipment Dynapac equipment Hitachi equipment Hydrema equipment Hyundai CE equipment JCB equipment Kalmar equipment Kawasaki KCM equipment Komatsu equipment Leeboy equipment Leibherr equipment Link-Belt equipment Liugong equipment Manitowac equipment Pettibone equipment Sennbogen equipment Tadano Faun equipment Terex equipment Tiger Cat equipment Wirtgen equipment Wollard equipment XCMG equipment ZoomLion equipment
Wingman FLR Configuration	Bendix Driver Assistance Systems (DAS)
Wingman Fusion Blindness Adjustment	Bendix Driver Assistance Systems (DAS)
Yaw Rate and Lateral Accel. Test and Calibration	Bendix Tractor brakes

Bi-Directional Test Selection

Selecting the **Bi-Directional** button  displays the test selection dialog. The list of tests available will vary based on the vehicle connected.

To start a test, select the test of interest and press Enter or the **Start** button. Select **Close** to exit the Bi-Directional test selection dialog.

NOTE: The Bi-Directional button is available only on a live vehicle connection after a complete vehicle snapshot has been collected. This may take a minute or more.



Bi-Directional Test Selection

ABS / Brake Tests

ABS Air Bag Pressure Test

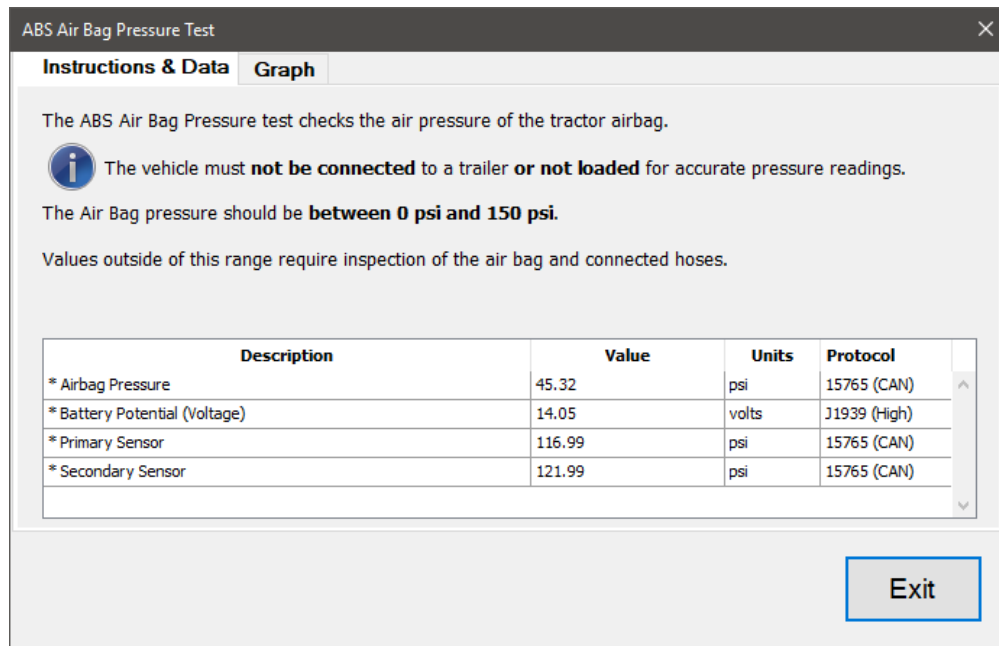
The **ABS Air Bag Pressure Test** is available on:

- ✓ Bendix EC-60 Advanced braking systems
- ✓ Bendix EC-80 ESP/ESP+ braking systems

This test provides pressure ranges for determining the health of the tractor air bag.

1. Select the **ABS Air Bag Pressure Test** and press Enter or the *Start* button.

2. The test dialog will be displayed.



ABS Air Bag Pressure Test

3. Observe the **Airbag Pressure** data value and compare against the specified acceptable pressure range. Click the **Graph** tab at any time to view a graph of the monitored data values.
4. When done, press the **Exit** button to return to the test selection dialog.

ABS Configuration

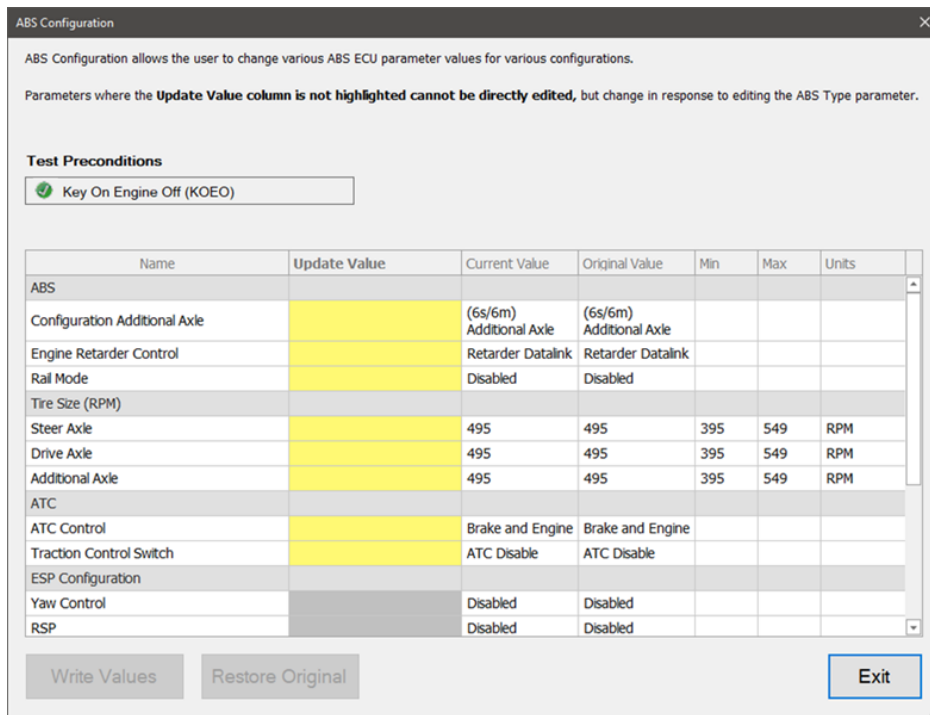
The **ABS Configuration** test is available on:

- ✓ Bendix EC-60 and EC-80 braking systems

This test allows the editing of ABS system parameters.

1. Select ABS Configuration and press Enter or the **Start** button.

2. The test dialog will be displayed.



ABS Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

ABS Engine Limiting Test

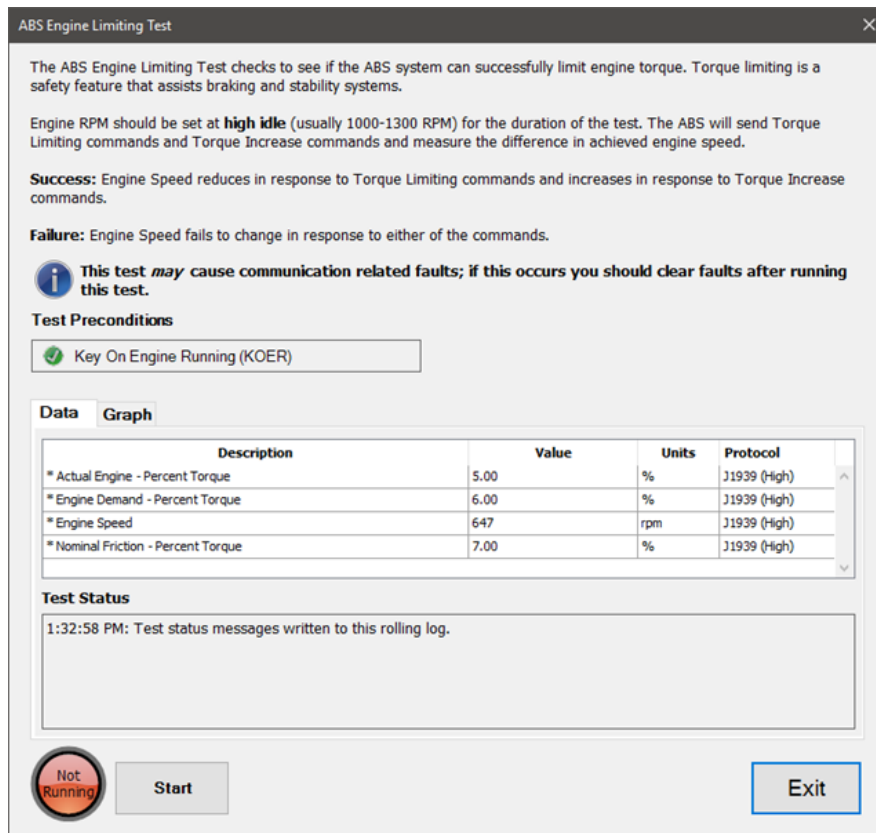
The **ABS Engine Limiting Test** is available on:

- ✓ Bendix EC-60 Premium or Advanced braking systems
- ✓ Bendix EC-80 ATC or ESP braking systems

This test checks if the ABS system can raise and lower torque limits on a running engine.

1. Select the **ABS Engine Limiting Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



ABS Engine Limiting Test

3. Select the **Start** button to initiate the test. Test Status will display the commands as they are sent to the engine. A difference in engine speed can be observed as well as a change in engine sound. Click the *Graph* tab at any time to view a graph of the monitored data values.
4. Select the **Stop** button to stop the test at any point. The test will automatically stop after it has performed an increase and decrease cycle twice. The braking system will reset when the test ends which can be observed by audible clicking from the brake modulator valves.
5. When done, press the **Exit** button to return to the test selection dialog.

ABS Pressure Test

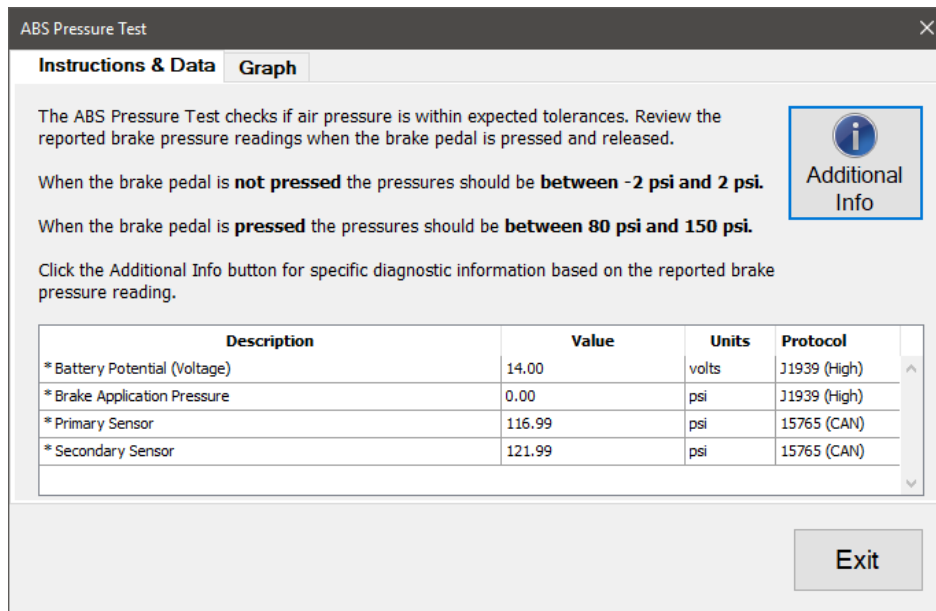
The **ABS Pressure** test is available on:

- ✓ Bendix EC-60 Advanced braking systems
- ✓ Bendix EC-80 ESP/ESP+ braking systems

This test checks ABS system air pressure values when the brake pedal is pressed and released.

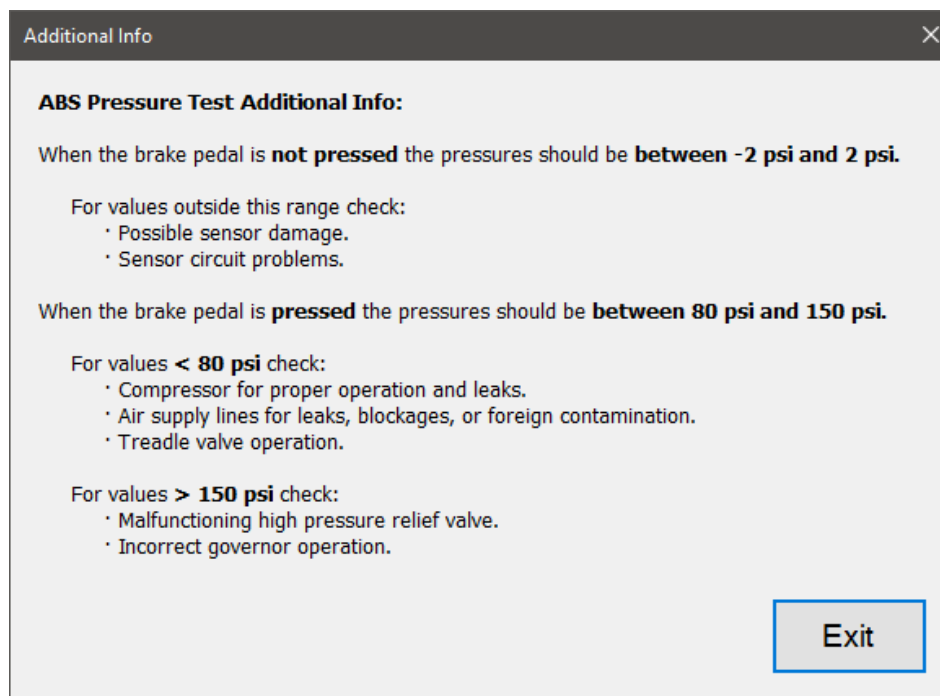
1. Select the **ABS Engine Limiting** test and press **Enter** or the **Start** button.

- The test dialog will be displayed.



ABS Pressure Test

- Observe **the Brake Application Pressure** data value while the brake pedal is pressed and released, then compare against the specified acceptable pressure ranges. Click the **Graph** tab at any time to view a graph of the monitored data values.
- Clicking the **Additional Info** button will display additional test information. Click **OK** to close this window.



ABS Pressure Test Additional Info

- When done, press the **Exit** button to return to the test selection dialog.

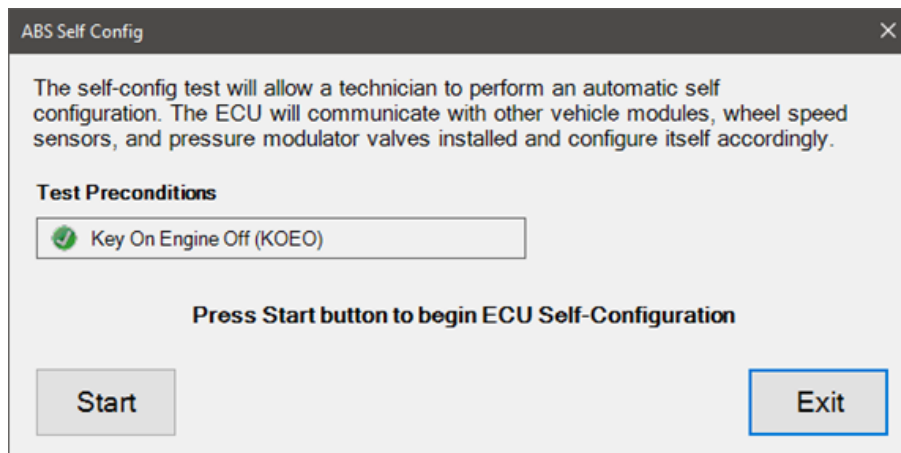
ABS Self Config Test

The **ABS Self Config** test is available on:

- ✓ EC-60 braking systems
- ✓ EC-80 ABS and ATC braking systems

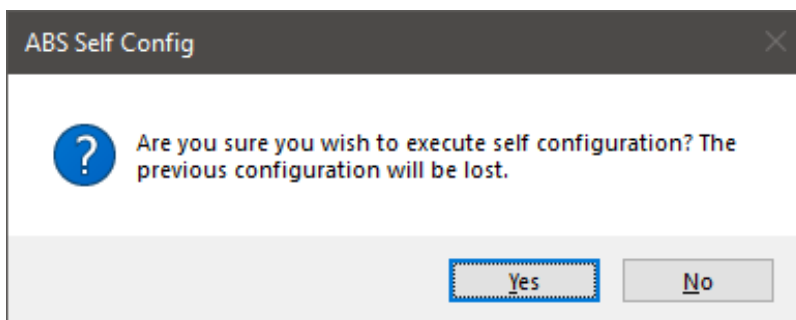
This test performs an automatic self-configuration of the ABS ECU based on all installed and detected components and sensors.

1. Select the **ABS Self Config** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



ABS Self Config

3. Click **Start** to begin the Self Config procedure, which will update the brake ECU configuration to match the currently detected ABS sensors and components. A confirmation window will display. Click Yes to begin the Self Config.



ABS Self Config Confirmation

4. The configuration process will begin. All controls on the test dialog will be disabled and a progress bar will be displayed. When configuration is completed a successful status message will appear and the controls will be enabled.
5. When done, press the **Exit** button to return to the test selection dialog.

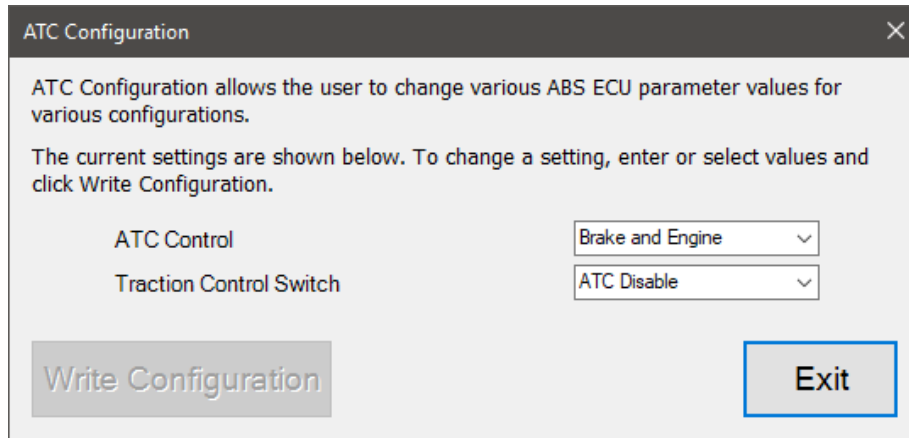
ATC Configuration Test

The **ATC Configuration** test is available on:

- ✓ EC-80 ATC or ESP braking systems

This test allows editing of ATC parameters for EC-80 braking systems.

1. Select the **ATC Configuration** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



ATC Configuration

3. Select the new values and click **Write Configuration** button to have the new values sent to the vehicle.
4. When done, press the **Exit** button to return to the test selection dialog.

Battery Voltage Test

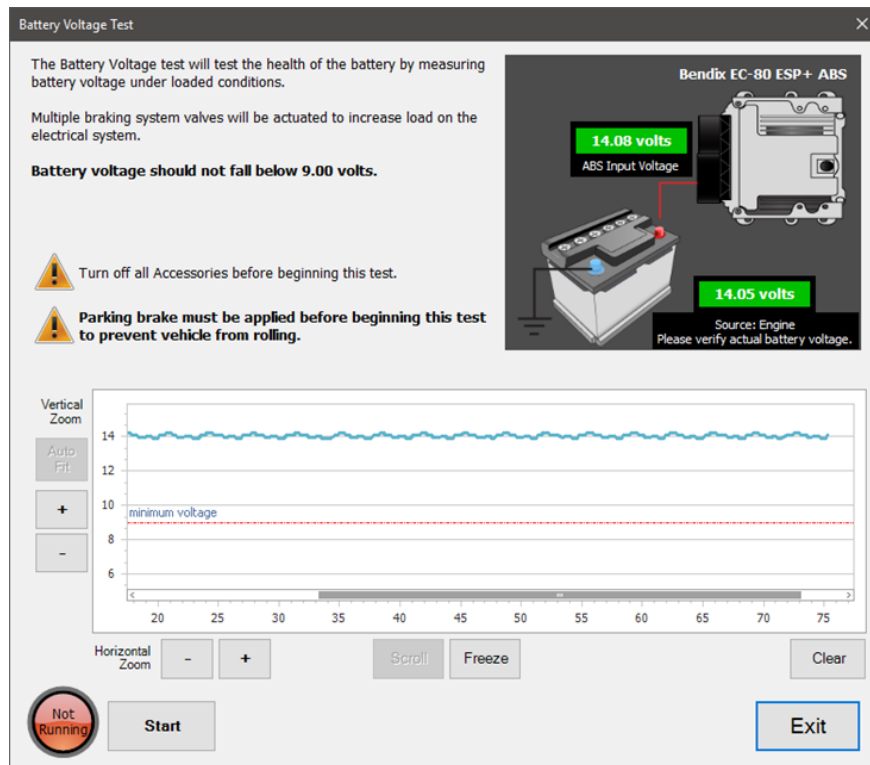
The **Battery Voltage** test is available on:

- ✓ Bendix EC-60 and EC-80 braking systems

This test checks the health of the battery by measuring voltage levels under loaded conditions.

1. Select the **Battery Voltage** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Battery Voltage Test

3. Select the **Start** button to begin the test. Multiple braking system valves will be actuated at the same time to increase load on the electrical system. Vertical lines will appear on the graph to indicate the start and end of the test. Observe the graphed battery voltage.

NOTE: The parking brake must be set before running this test. Simultaneous actuation of the braking system valves can cause the vehicle to freely roll during test duration.

4. Select the **Stop** button at any time to stop the test. The test will automatically stop after a few seconds.
5. When done, press the **Exit** button to return to the test selection dialog.

Braking System Switches Test

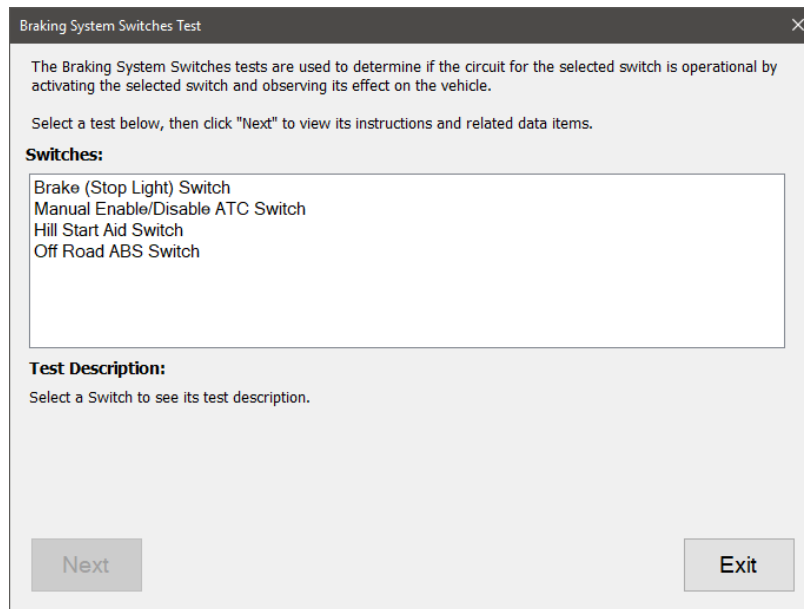
The **Braking System Switches** test is available on:

- ✓ Bendix EC-60 and EC-80 braking systems

This test provides the ability to troubleshoot multiple switches that are part of the ABS system by toggling the selected switch and observing the effect on the vehicle.

1. Select the **Braking System Switches** test and press **Enter** or the **Start** button.

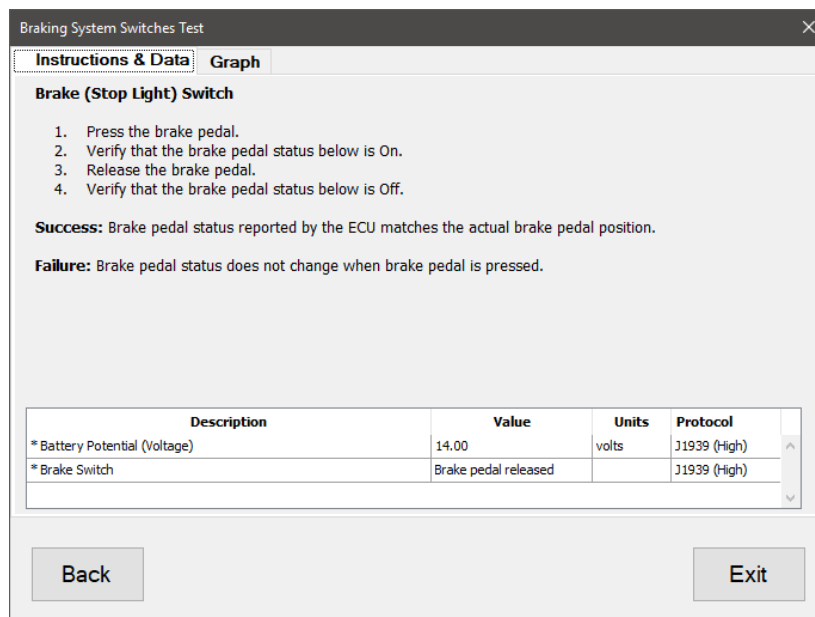
- The test dialog will be displayed.



Braking System Switches Test

NOTE: The specific switches available for selection is dependent on the configuration of the ABS ECU.

- Select a switch to test from the available options. Specific **Test Description** information will be displayed for the selected option. Click the **Next** button to begin the selected switch test.



Braking System Switches Test Instructions

- Follow the test instructions and observe the data values as actions are performed on the vehicle. Click the **Graph** tab at any time to view a graph of the monitored data values.
- Select the **Back** button to return to the switches test selection.

6. When done, press the **Exit** button to return to the test selection dialog.

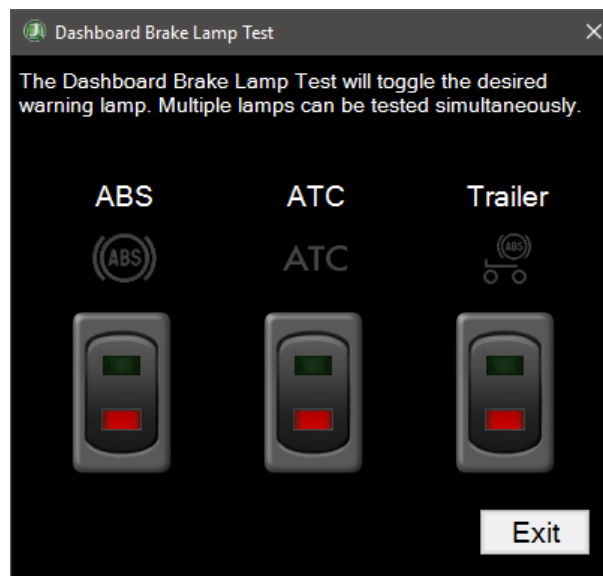
Dashboard Brake Lamp Tests

The **Dashboard Brake Lamp** test is available on:

- ✓ All Wabco braking systems except the mBSP
- ✓ Bendix EC-60 and EC-80 braking systems.

This test provides the ability to test the dashboard warning and information lamps related to the braking system.

1. Select **Dashboard Lamp** tests and press **Enter** or press **Start** Button.
2. The Dashboard Lamp Test dialog will be displayed.



Dashboard Brake Lamp Test Dialog

NOTE: If lamp status of a lamp is not available, the lamp test for that corresponding lamp will be disabled.

3. Click the button under the desired lamp. Observe the light change on the truck dashboard. Repeat for all lamps of interest.
4. When done, press the **Exit** button to return to the test selection dialog.

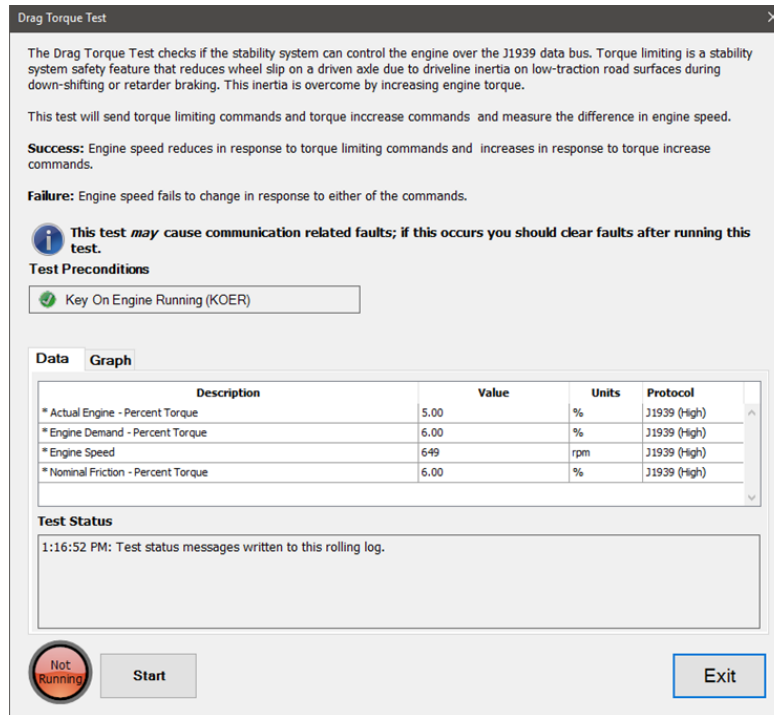
Drag Torque Test

The **Drag Torque** test is available on:

- ✓ Bendix EC-60 Premium or Advanced braking systems
- ✓ Bendix EC-80 ATC or ESP braking systems

This test raises and lowers torque limits and tests how the engine responds.

1. Select the **Drag Torque** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Drag Torque Test

3. Select the **Start** button to initiate the test. Test Status will display the commands as they are sent to the engine. A difference in engine speed and torque values can be observed as well as a change in engine sound. Click the **Graph** tab at any time to view a graph of the monitored data values.
4. Select the **Stop** button to stop the test at any point. The test will automatically stop after it has performed an increase and decrease cycle twice. The braking system will reset when the test ends which can be observed by audible clicking from the brake modulator valves.
5. When done, press the **Exit** button to return to the test selection dialog.

ECU Reset Test

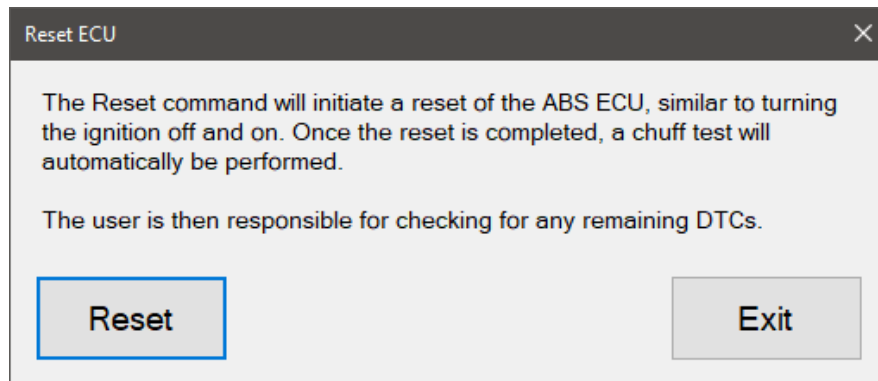
The **ECU Reset** test is available on:

- ✓ EC-60 and EC-80 braking systems

This test resets the brake ECU, similar to turning the ignition off and on. During the reset any braking system related dashboard lamps will flash. Once the reset is completed, a chuff test will automatically be performed.

1. Select the **ECU Reset** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



ECU Reset Test

3. Select the **Reset** button to initiate the test. A confirmation message will appear.
4. Click **Yes** to perform the ECU reset. A countdown timer will be displayed while the reset is occurring. The test cannot be abandoned during the reset.
5. When done, press the **Exit** button to return to the test selection dialog.

Enable/Disable ATC (Automatic Traction Control)

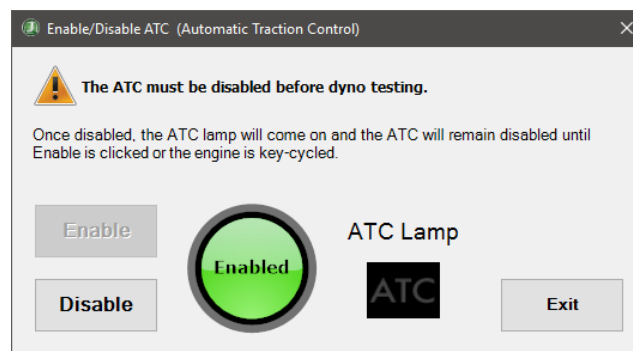
The **Enable/Disable ATC** test is available on:

- ✓ Wabco HPB brakes and all pneumatic braking systems where the J1587 communication protocol is available

The **Enable/Disable ATC** test provides the ability to temporarily disable and/or re-enable the ATC on the brake system. Once disabled, the ATC will remain disabled until the user re-enables it or the engine is key-cycled.

The ATC must be disabled prior to performing dyno testing.

1. Select the **Enable/Disable ATC** (Automatic Traction Control) and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Enable/Disable ATC Test Dialog

3. The **Disable** button will disable the ATC and the Enable button will re-enable ATC. The center lamp will display the current state of the vehicle.
4. The ATC lamp indicator reflects the current state of the ATC dash lamp on the vehicle. It is expected that the ATC lamp indicator will be **on** when the ATC is **disabled** and **off** when the ATC is **enabled**.
5. Select **Exit** to return to the Test Selection window.

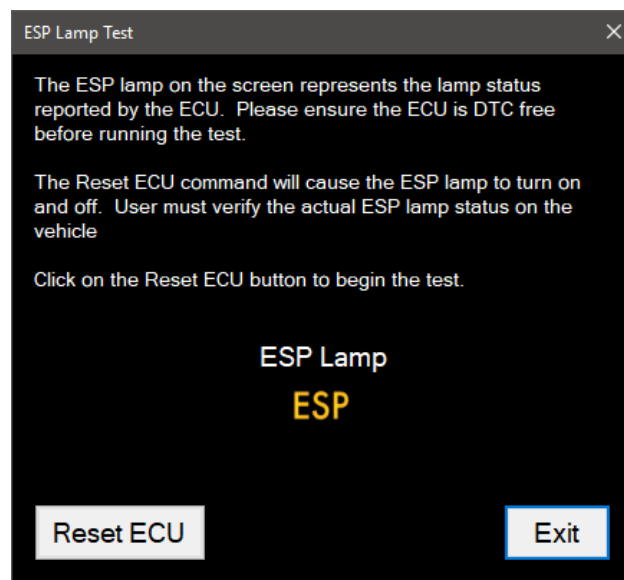
ESP Lamp Test

The **ESP Lamp** test is available on:

- ✓ Bendix EC-80 ESP/ESP+ braking systems

This tests if the dashboard Enhanced Stability Program (ESP) lamp is functioning properly by commanding the lamp to change status. User must verify that the dashboard ESP lamp changes to match the test commands.

1. Select the **ESP Lamp** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



ESP Lamp Test

3. Click **Reset ECU** to cause the ESP lamp to turn off and on. This will also reset the braking system which can be observed by audible clicking from the brake modulator valves. Compare the ESP Lamp status reported by the ECU to the dashboard ESP lamp.
4. When done, press the **Exit** button to return to the test selection dialog.

Maintenance Mode

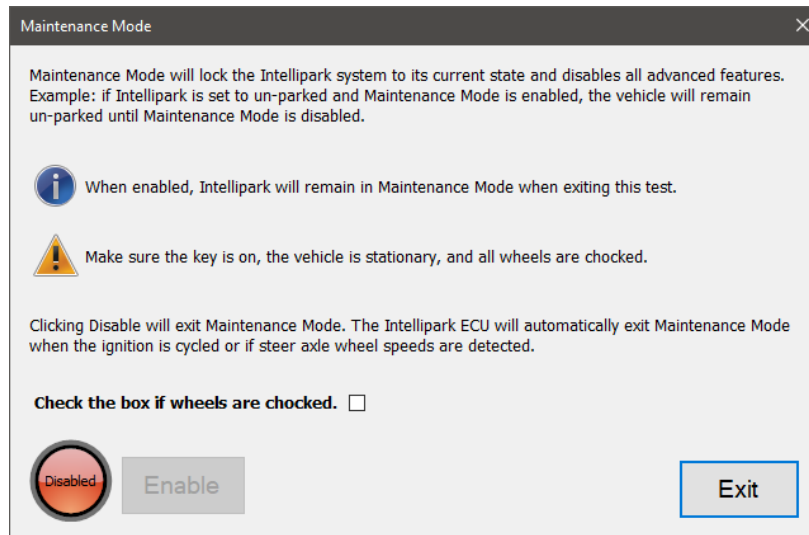
The **Maintenance Mode** test is available on:

- ✓ Intellipark systems

This test puts the Intellipark ECU into maintenance mode, which locks the ECU to its current state and disables all advanced features.

NOTE: When enabled, Intellipark will remain in maintenance mode when exiting this test. Maintenance mode can be disabled by performing this test again, cycling the ignition, or when steer axle wheel speeds are detected.

1. Select **Maintenance Mode** and press **Enter** or the **Start** Button.
2. The test dialog will be displayed.



Intellipark Maintenance Mode

NOTE: Vehicle must be secured from rolling before enabling maintenance mode.

3. Click the checkbox to confirm that the vehicle's wheels have been chocked. The **Enable** button will become available.
4. Click **Enable** to set maintenance mode to the Intellipark's current state. Maintenance mode will remain enabled even after this test dialog is closed, allowing other tests and maintenance procedures to be performed.
5. Maintenance mode will remain enabled until this test is run again to disable maintenance mode. Maintenance mode will automatically disable if the ignition is cycled or if steer axle wheel speeds are detected.
6. When done, press the **Exit** button to return to the test selection dialog.

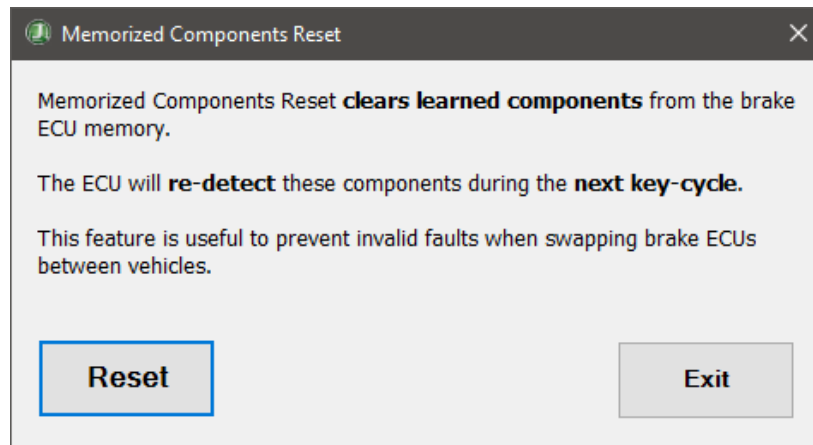
Memorized Components Reset

The **Memorized Components Reset** is available on:

- ✓ All Wabco pneumatic and hydraulic braking systems where the J1587 communication protocol is available

Memorized Components Reset causes the brake ECU to relearn which optional components are installed during the next key-cycle. This is necessary to prevent faults when swapping brake ECUs between vehicles.

1. Select the **Memorized Components Reset** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Memorized Components Reset Dialog

3. Select the **Reset** button to initiate the reset operation.
4. Reset operation will be executed.
5. Success or failure will be indicated in a popup message.
6. Select **Exit** to return to the Test Selection window.

Modulator Valve (Chuff) Test

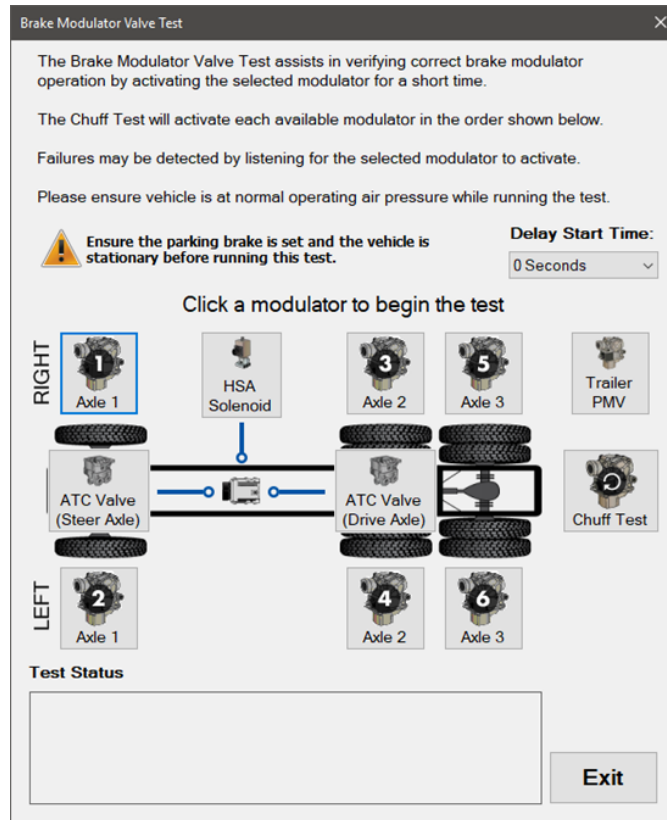
The **Modulator Valve (Chuff)** test is available on:

- ✓ All Wabco pneumatic braking systems
- ✓ Bendix EC-60 and EC-80 braking systems

This test assists in verifying correct brake modulator operation by activating the selected modulator for a short time. Ensure the vehicle is at normal operating air pressure while running the test.

1. Select the **Modulator Valve (Chuff) Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Modulator Valve (Chuff) Test

NOTE: The modulator valves displayed is dependent on the ABS system ECU and the number of physical brake modulator valves installed on the vehicle.

3. If desired, select a delay start time. This allows you to leave the computer and get closer to the modulator valve, so you can better hear the actuations.
4. Select the modulator to test. You should hear a clicking or chuffing sound indicating successful actuation. While the test is running the selected button will have a green background and all other modulator buttons will be disabled. The **Test Status** window will update to indicate progress. Click the selected button again to stop the test early.
5. Selecting the **Chuff Test** button will activate all modulators in the order indicated. The application will actuate each valve in sequence. You should hear a clicking or chuffing sound indicating a successful actuation. The Test Status window will update to indicate progress.
6. The braking system will reset after each modulator test ends which can be observed by audible clicking from the brake modulator valves.
7. When done, press the **Exit** button to return to the test selection dialog.

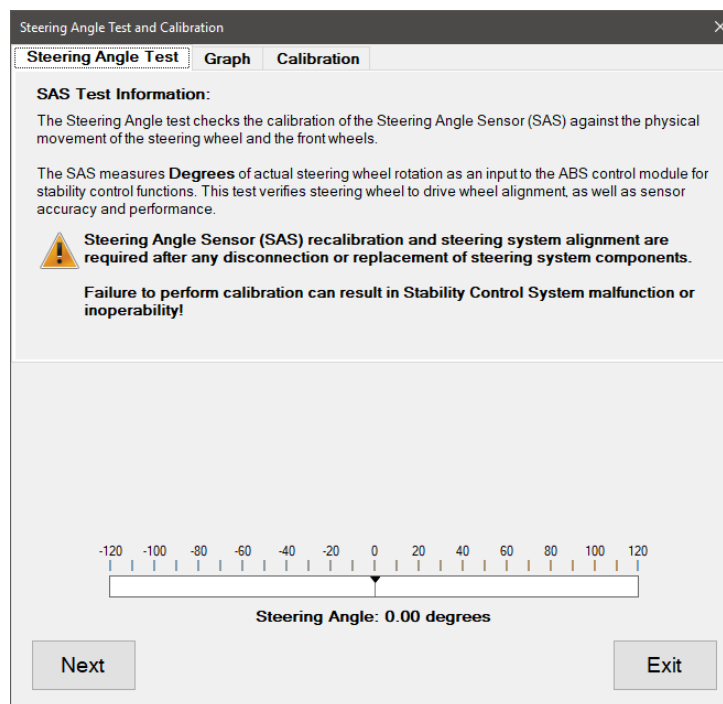
Steering Angle Test and Calibration

The **Steering Angle** test and Calibration is available on:

- ✓ Bendix EC-60 Advanced braking systems
- ✓ Bendix EC-80 ESP/ESP+ braking systems

This test allows for verification of steering angle sensor functionality and provides recalibration ability if necessary.

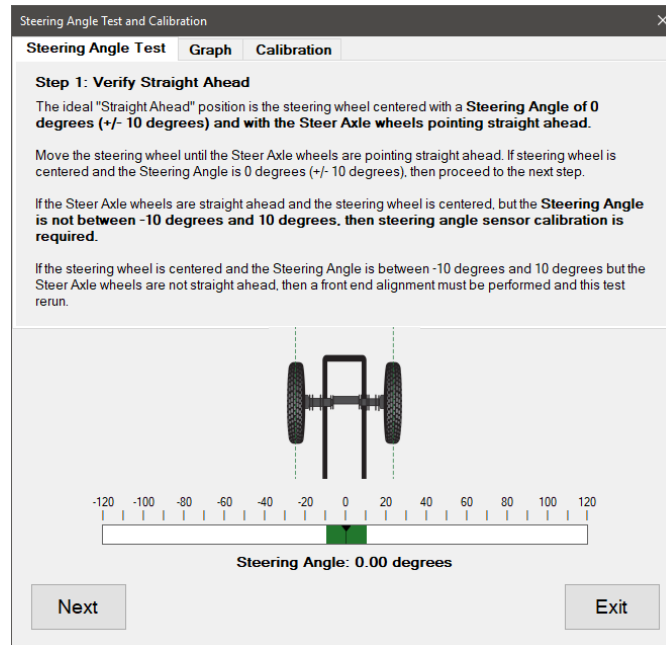
1. Select the **Battery Voltage** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Steering Angle Test and Calibration

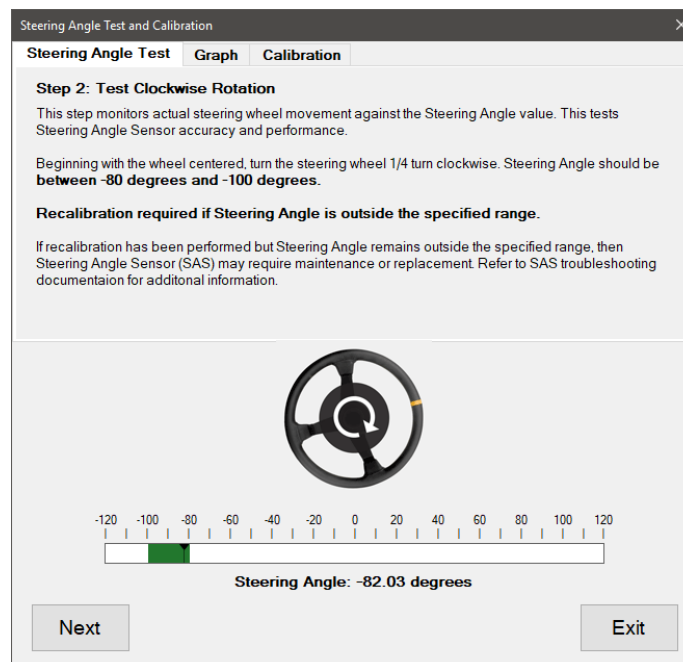
3. The **Steering Angle Test** tab guides the user through the diagnostic steps for ensuring proper steering angle alignment.
4. Select the **Graph** tab to view a graph of the monitored steering angle.
5. Select **Calibration** to run the recalibration procedure which relearns the current steering angle position as 0 degrees.

- To begin the **Steering Angle** test, select the **Next** button. Step 1 of the procedure provides instructions to verify straight ahead position of the steer axle wheels compared to the steering wheel. The green area on the steering angle number line shows the acceptable target range.



Steering Angle Test Verify Straight Ahead

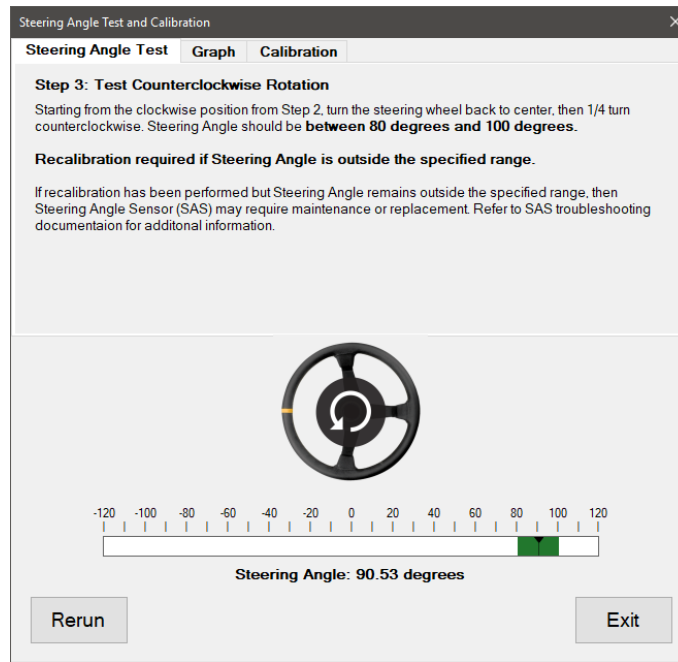
- Select the **Next** button to continue.
- Step 2 requires turning the steering wheel $\frac{1}{4}$ turn clockwise to the position indicated by the graphic. Compare the steering angle to the acceptable range which is also noted by the green target area on the number line.



Steering Angle Test Clockwise Rotation

9. Click the **Next** button to continue.

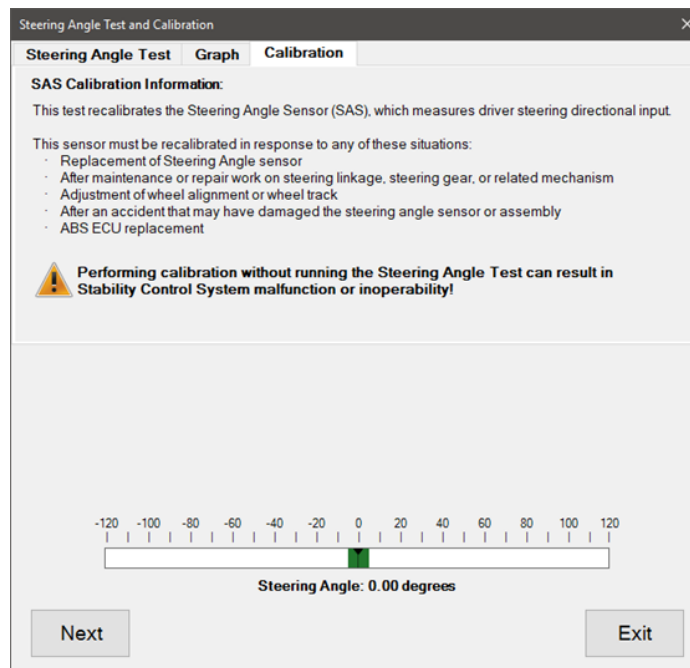
10. Step 3 requires turning the steering wheel ½ turn counterclockwise to the position indicated by the graphic. Compare the steering angle to the acceptable range which is also noted by the green target area on the number line.



Steering Angle Test Counterclockwise Rotation

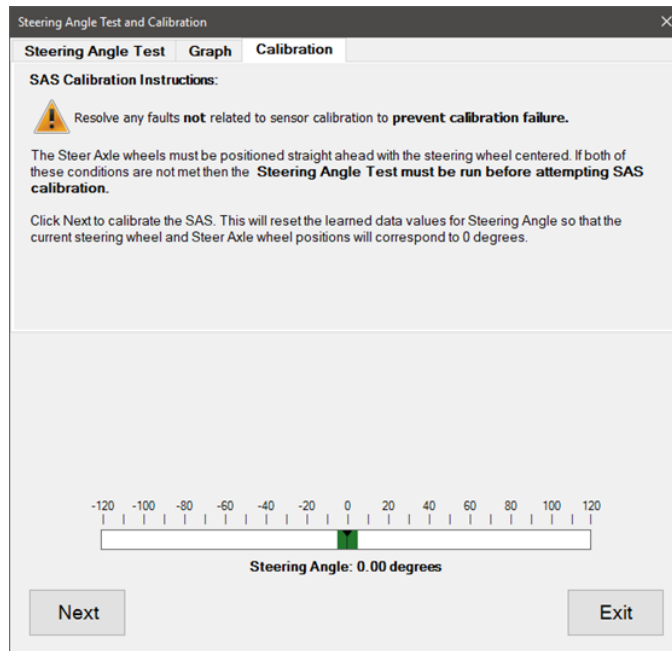
11. Selecting **Rerun** will return to step 1 of the **Steering Angle** test.

12. To perform Steering Angle Calibration, select the **Calibration** tab. Click **Next** to begin the calibration test.



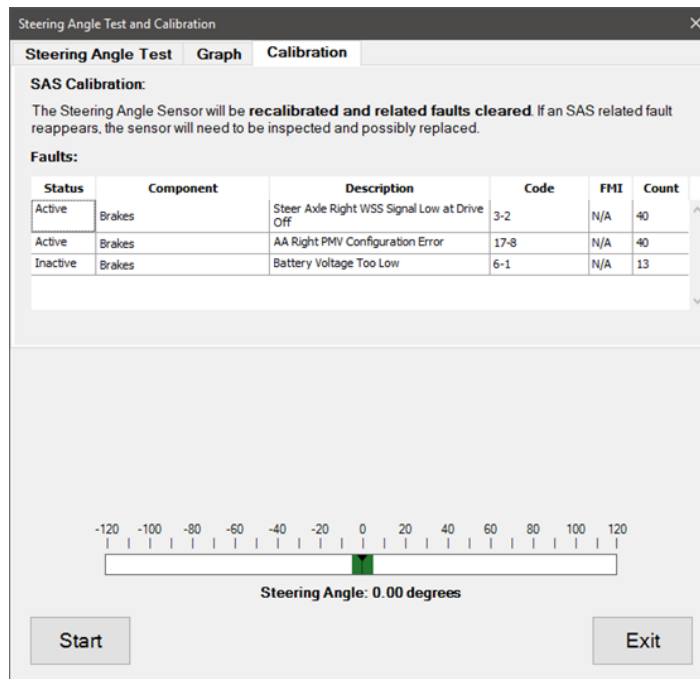
Steering Angle Calibration

13. Test instructions are displayed which must be followed to ensure successful calibration. Any faults not related to the steering angle sensor must be resolved before attempting calibration. The steer axle wheels must also be positioned straight ahead with the steering wheel centered. Click **Next**.



Steering Angle Calibration Instructions

14. The SAS Calibration screen provides a fault grid that will only display braking system related faults. Click the **Start** button to perform the calibration.



Steering Angle Calibration

15. When the test is completed a **Calibration Successful** message will be displayed. Click **OK** to dismiss this message.
16. When done, press the **Exit** button to return to the test selection dialog.

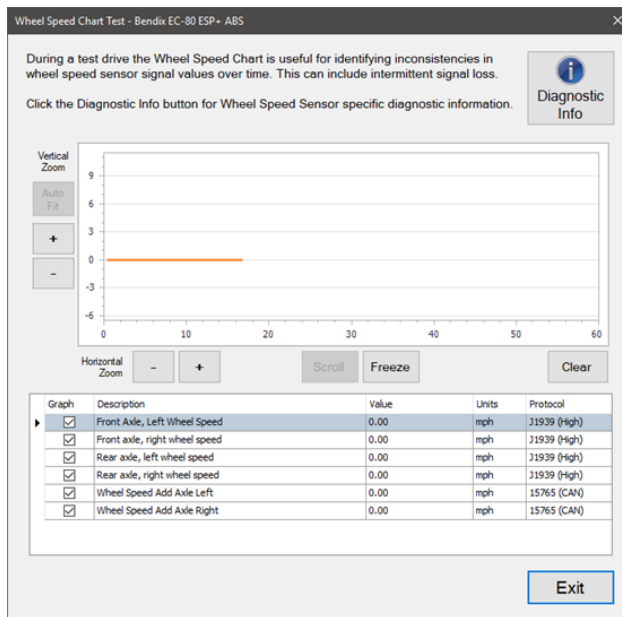
Wheel Speed Chart Test or Wheel Speed Window Test

The **Wheel Speed Window** test is available for:

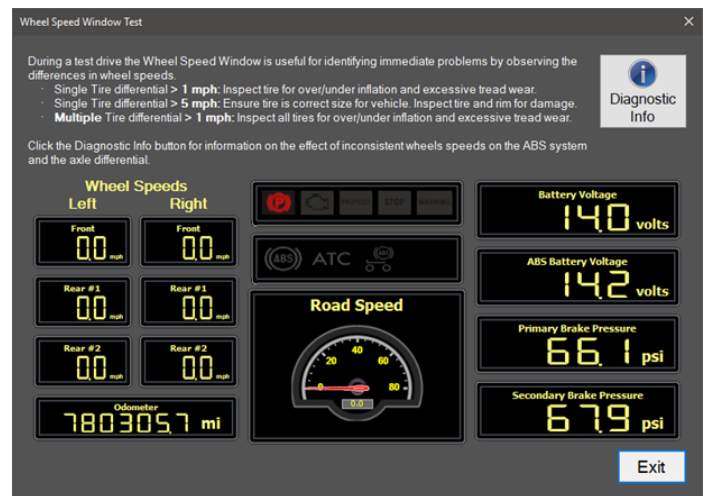
- ✓ Any tractor and trailer braking system that report wheel speed data.
- ✓ Cummins Tier 3: all QSX
- ✓ Cummins Tier 4: all QSX

This test can be used to verify and test wheel speed sensors and confirm fault codes before and after a repair or replacement.

1. Select Wheel Speed Chart Test or the Wheel Speed Window Test and press **Enter** or press **Start** Button.
2. The test dialog will be displayed.



Wheel Speed Chart Test



Wheel Speed Window Test

3. Lift the suspect axle(s) to allow free spinning wheel(s). While looking at the test screen, spin the wheel(s) to check for changes in the graph or digital readout to match the wheel being spun.
4. Click **Diagnostic Info** to view additional diagnostic information related to wheel speed readings.
5. Press **Exit** button when ready to exit this test and return to the test selection dialog.

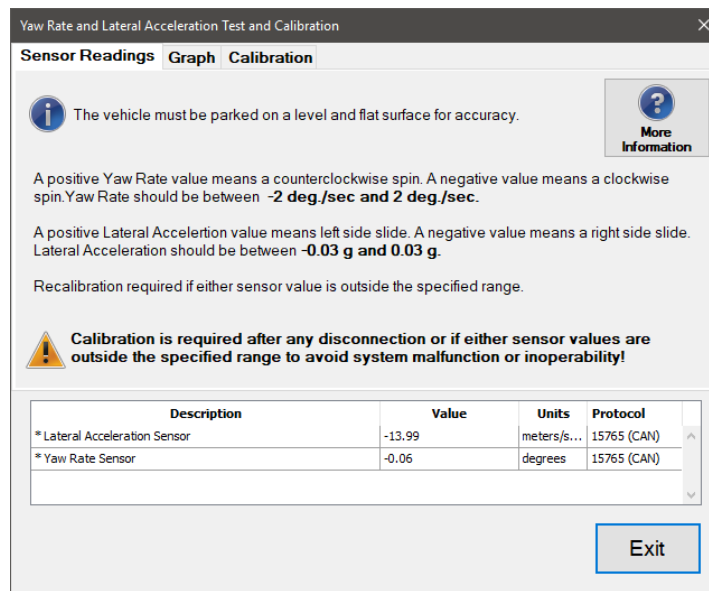
Yaw Rate and Lateral Accel. Test and Calibration

The **Yaw Rate and Lateral Accel.** test and calibration is available on:

- ✓ Bendix EC-60 Advanced braking systems
- ✓ Bendix EC-80 ESP/ESP+ braking systems

This test checks the calibration of the Yaw Rate/ Lateral Acceleration sensor when the vehicle is stationary. It also provides the ability to recalibrate the sensor if its values are found to be out of bounds.

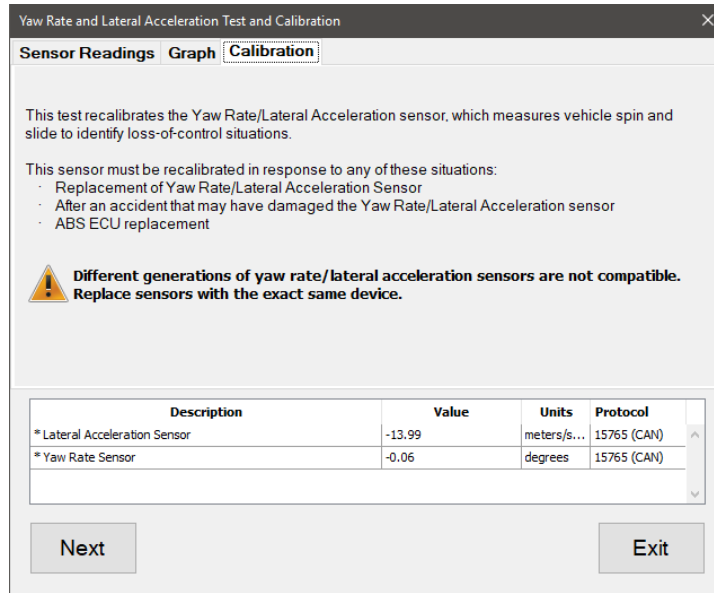
1. Select the **Yaw Rate and Lateral Accel.** test and calibration and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Yaw Rate and Lateral Acceleration Test and Calibration

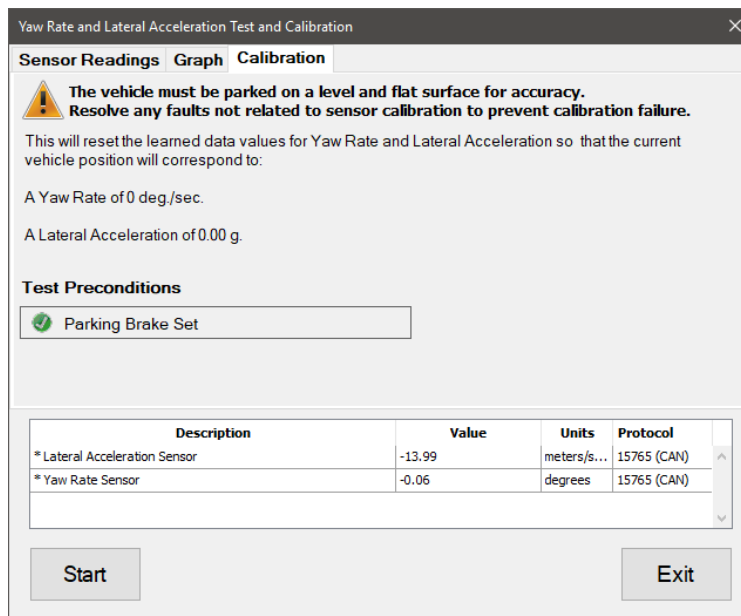
3. From the **Sensor Readings** tab observe the monitored data values and compare them to the defined acceptable ranges. Select the **Graph** tab to view a graph of the monitored data values.

- Select the **Calibration** tab to perform recalibration of the Yaw Rate/Lateral Acceleration sensor. Important test information is displayed for review. Select the **Next** button to continue.



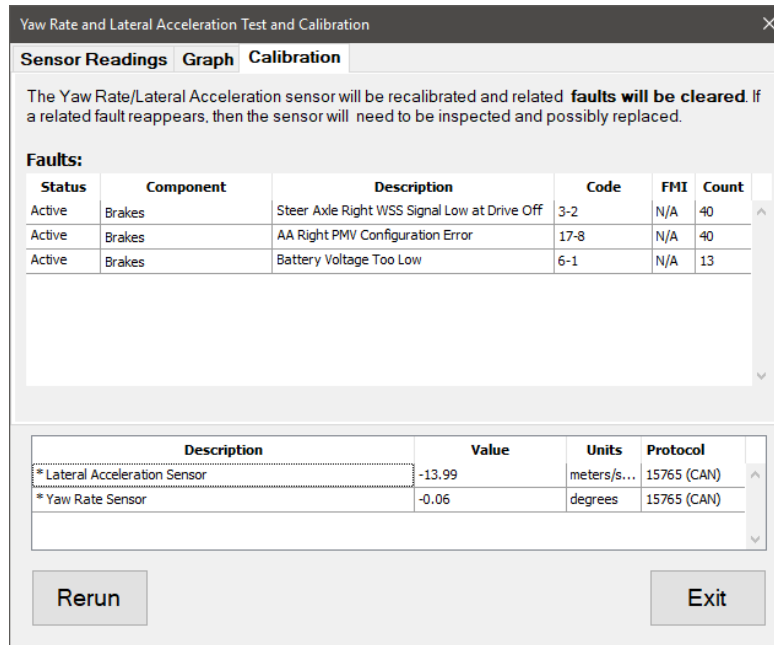
Yaw Rate and Lateral Acceleration Calibration Instructions

- Click the **Start** button to begin the recalibration.



Yaw Rate and Lateral Acceleration Calibration Preconditions

- When recalibration begins the test information will be replaced with a fault display for related braking system faults. When calibration is completed a success message will be displayed. Click **OK** to dismiss this message.



Yaw Rate and Lateral Acceleration Calibration Faults Display

- If desired the recalibration can be performed again by clicking the **Rerun** button to return to calibration instructions.
- When done, press the **Exit** button to return to the test selection dialog.

Aftertreatment System Tests

Activate Air Shut Off Valve

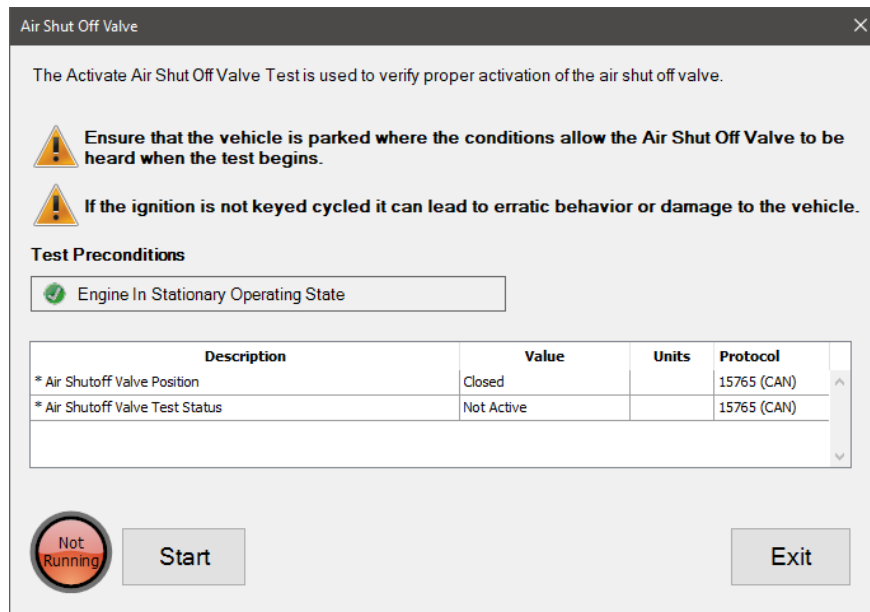
The **Activate Air Shut Off Valve** test is supported on:

- ✓ PACCAR GHG17 to GHG21 all MX engines

The Activate Air Shut Off Valve test is used to verify proper activation of the air shut off valve. Ensure the vehicle is parked where the Air Shut Off Valve actuation can be heard.

- ⚠ Failure to cycle ignition key when prompted can lead to erratic vehicle behavior.

1. Select the **Activate Air Shut Off Valve** test and press Enter or the *Start* button.
2. The **Activate Air Shut Off Valve** test dialog will display.



Activate Air Shut Off Valve

3. Ensure all preconditions are met, then click the **Start** button to begin the test.
4. When prompted, cycle the key off until instructed to key the ignition back on. A message will appear, delaying the test until conditions allow the valve to be heard. Click **OK** to start the **Activate Air Shut Off Valve** routine. Listen for the valve operation when the routine begins.
5. When the routine ends, a question dialog will ask if the air shut off valve was audible. Click **Yes** if the valve actuation was audible.
6. When prompted, cycle the key off again until instructed to key the ignition back on. The results of the test will be displayed.
7. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Aftertreatment Fuel Enable Actuator Leak Test

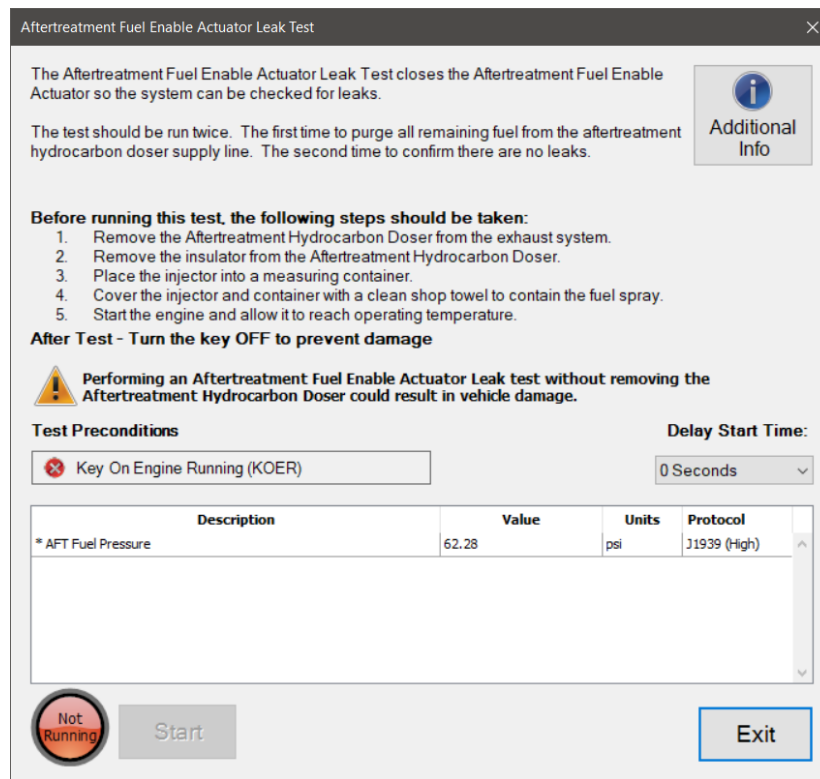
Aftertreatment Fuel Enable Actuator Leak test is supported on:

- ✓ International A26 GHG17 engines.

The Aftertreatment Fuel Enable Actuator Leak Test is used to check the aftertreatment hydrocarbon doser for leaks. The test should be run twice. The first time is used to purge fuel from the doser supply line. The second time is used to confirm there are no leaks.

- ⚠ The aftertreatment hydrocarbon doser must be removed before running this test to prevent vehicle damage.

1. Select **Aftertreatment Fuel Enable Actuator Leak** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Aftertreatment Fuel Enable Actuator Leak Test

3. Once all instructions have been followed and preconditions have been met, select a Delay Start Time, if desired, and click the **Start** button to begin the test.
4. When the test has completed, Click the **Exit** button to return to the test selection dialog.

Aftertreatment History

Aftertreatment History is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX
- ✓ Cummins EPA 13: all ISB, ISL, ISX
- ✓ Cummins GHG17: all B6.7, L9, X15
- ✓ Cummins GHG21: all B6.7, L9, X15

The Aftertreatment History Bi-Directional is used to view a historical representation of the last 10 aftertreatment test ran on a particular vehicle.

1. Select **Aftertreatment History** and press **Enter** or the **Start** button.

2. The history dialog will be displayed.

Aftertreatment History

Ten most recent regens, starting with the most recent:

Aftertreatment History

ECM Time (Key On Time)	Starting Diesel Particulate Filter Soot Load	Ending Diesel Particulate Filter Soot Load	Starting Diesel Oxidation Catalyst Intake Temperature	Maximum Diesel Particulate Filter Intake Temperature	Maximum Diesel Particulate Filter Outlet Temperature	Maximum Diesel Particulate Filter Differential Pressure
000435:32:04	Normal	Normal	720.275 F	1045.006 F	1072.738 F	0.995 inHg
001575:28:41	Normal	Normal	690.406 F	1084.100 F	1094.900 F	1.590 inHg
001550:35:55	Normal	Normal	672.406 F	1041.406 F	1068.238 F	1.032 inHg
001525:35:02	Normal	Normal	572.675 F	1048.100 F	1063.569 F	0.796 inHg
001500:26:14	Normal	Normal	653.900 F	1029.538 F	1053.275 F	0.832 inHg
001475:04:19	Normal	Normal	623.638 F	1042.869 F	1067.506 F	1.111 inHg
001449:05:09	Normal	Normal	706.100 F	1064.638 F	1078.138 F	1.049 inHg
001423:47:16	Normal	Normal	589.100 F	945.275 F	946.569 F	1.014 inHg
001398:51:07	Normal	Normal	539.038 F	930.875 F	877.606 F	0.652 inHg
001373:06:51	Normal	Normal	672.069 F	1059.575 F	1068.800 F	1.487 inHg

Starting Conditions

Condition	ECM Time (Key On Time)	Diesel Particulate Filter Soot Load	Diesel Oxidation Catalyst Intake Temperature	Diesel Particulate Filter Intake Temperature	Diesel Particulate Filter Outlet Temperature	Diesel Particulate Filter Differential Pressure
Maximum Soot Load Condition	000000:10:03	Normal	482.000 F	482.000 F	482.000 F	0.995 inHg
Maximum Diesel Particulate Filter Outlet Temperature Condition	000000:10:03	Normal	482.000 F	482.000 F	482.000 F	0.995 inHg

Save Exit

Aftertreatment History

3. Once all data has been populated, users can view and save the presented data as a .csv file.
4. Click the **Exit** button to return to the test selection dialog.

Aftertreatment Hydrocarbon Doser Leak Test

Aftertreatment Hydrocarbon Doser Leak test is supported on:

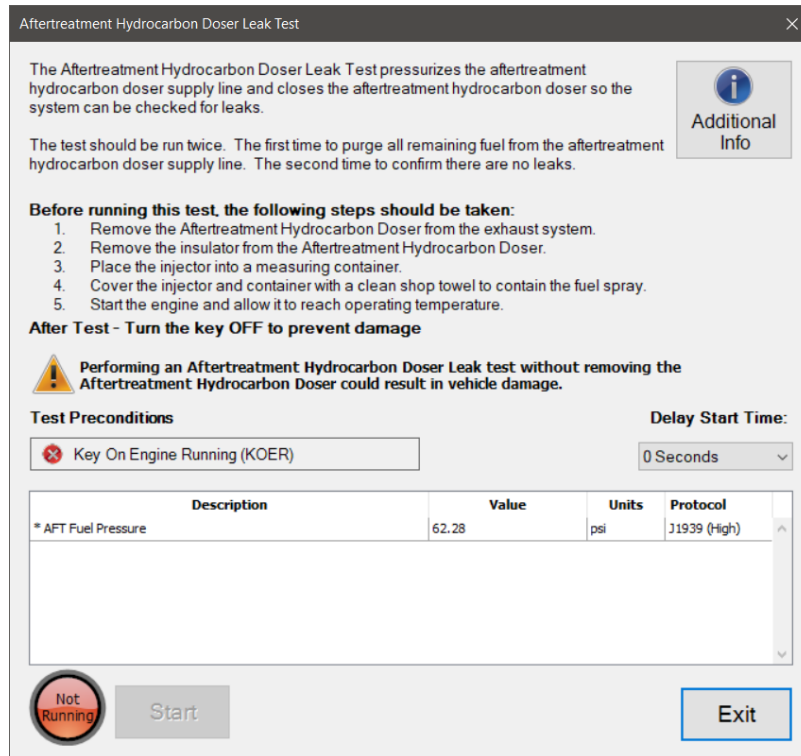
- ✓ International A26 GHG17 engines.

The Aftertreatment Hydrocarbon Doser Leak Test pressurizes the supply line and closes the doser so the system can be checked for leaks. The test should be run twice. The first time is used to purge fuel from the doser supply line. The second time is used to confirm there are no leaks.

⚠ The aftertreatment hydrocarbon doser must be removed before running this test to prevent vehicle damage.

1. Select **Aftertreatment Hydrocarbon Doser Leak** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Aftertreatment Hydrocarbon Doser Leak Test

3. Once all instructions have been followed and preconditions have been met, select a Delay Start Time, if desired, and click the **Start** button to begin the test.
4. The test should complete after about 60 seconds.
5. A message will display indicating test completion.
6. Click the **Exit** button to return to the test selection dialog.

Aftertreatment Hydrocarbon Dosing System Test

Aftertreatment Hydrocarbon Dosing System Test is supported on:

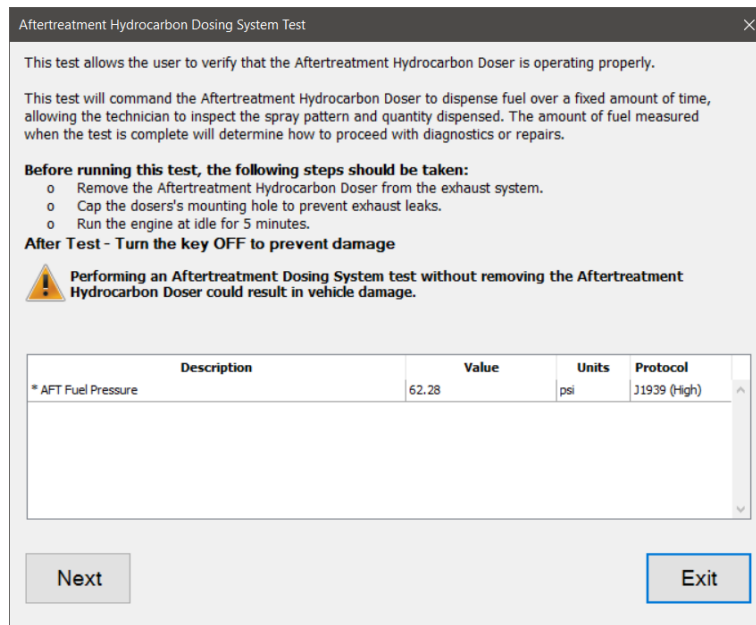
- ✓ International A26 GHG17 engines.

The **Aftertreatment Hydrocarbon Dosing System** test is used to verify proper operation of the aftertreatment hydrocarbon doser. It allows for inspection of the spray pattern and quantity of fuel dispensed.

⚠ The aftertreatment hydrocarbon doser must be removed and the mounting hole capped before running this test to prevent vehicle damage.

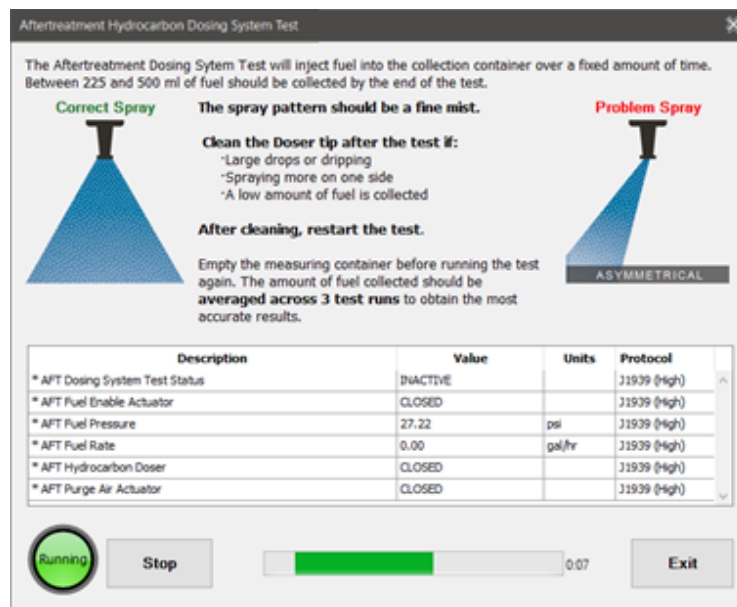
1. Select **Aftertreatment Hydrocarbon Dosing System** test and press **Enter** or the **Start** button.

- The test dialog will be displayed.



Aftertreatment Hydrocarbon Dosing System Test

- Once all instructions have been followed and preconditions have been met, click the **Next** button to proceed.
- Select a **Delay Start Time**, if desired, and click the **Start** button to begin the test. The hydrocarbon doser should start pumping out fuel into the measuring container over a period of 3 minutes.
- The dialog displays examples of correct and problem spray patterns that can be detected by observing the doser as it dispenses fuel into the collection container.



Aftertreatment Hydrocarbon Dosing System Test Running

- When the test is completed, results information is displayed, including steps to take depending on how much fuel was dispensed.

Test Complete
 Measure the collected fuel volume. The amount of fuel collected should be **between 225 ml and 500 ml**.

If fuel collected is **NOT between 225 ml and 500 ml**, clean the **Aftertreatment Hydrocarbon Doser** and perform **Aftertreatment Hydrocarbon Dosing System Test** a second time.

If the average amount of fuel collected is still **NOT between 225 ml and 500 ml** specifications, replace the **Aftertreatment Hydrocarbon Doser**.

Repeat this test after maintenance has been performed to verify that the correct volume of fuel is being injected. Be sure to empty the measuring container before running the test again.

Always clean the **Aftertreatment Hydrocarbon Doser** and replace the insulator before reinstallation.

Description	Value	Units	Protocol
* AFT Dosing System Test Status	INACTIVE		J1939 (High)
* AFT Fuel Enable Actuator	CLOSED		J1939 (High)
* AFT Fuel Pressure	27.22	psi	J1939 (High)
* AFT Fuel Rate	0.00	gal/hr	J1939 (High)
* AFT Hydrocarbon Doser	CLOSED		J1939 (High)
* AFT Purge Air Actuator	CLOSED		J1939 (High)

Rerun Exit

Aftertreatment Hydrocarbon Dosing System Test Results

- If desired, you may select the **Rerun** button to rerun the test.
- Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Aftertreatment Injector Activation for Flow Test

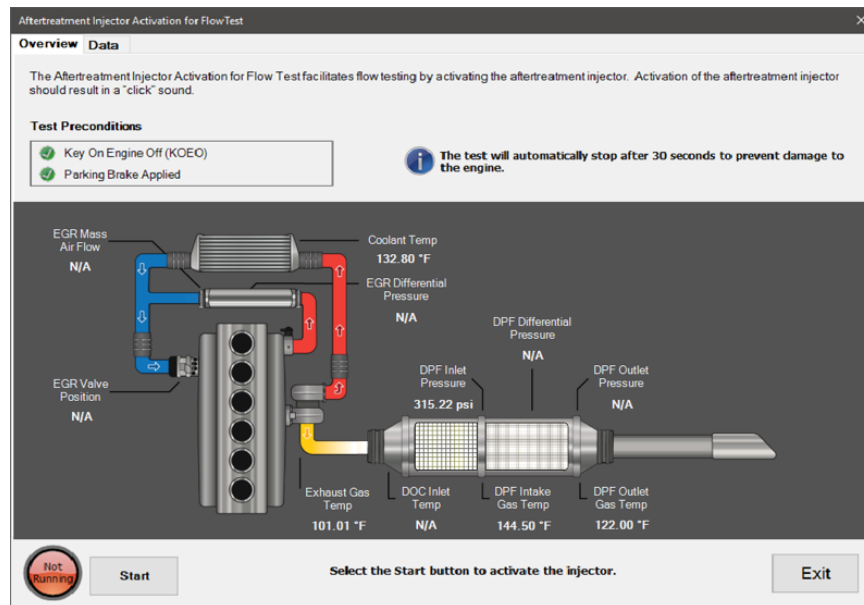
Aftertreatment Injector Activation for Flow test is supported on:

- ✓ Mack and Volvo EPA 07 engines.

The Aftertreatment Injector Activation for Flow Test activates the injectors to test flow.

- Select **Aftertreatment Injector Activation for Flow** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Aftertreatment Injector Activation for Flow Test

3. Select the **Start** button to begin the test.
4. Activation of the aftertreatment injector should result in a “click” sound. Monitor the displayed data values.
5. Select the **Stop** button to stop the test.

NOTE: To prevent damage to the engine, the test will automatically stop after 30 seconds.

6. When the test has completed, click the Exit button to return to the test selection dialog.

Aftertreatment Injector Flow Test

The **Aftertreatment Injector Flow** test is available on:

- ✓ Cummins EPA 07: all ISX (15L)
- ✓ Cummins EPA 10: all ISX (12 and 15L)
- ✓ Cummins EPA 13: all ISX (12 and 15L)
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

This test is used to verify the aftertreatment fuel injector is operating properly by inspecting the nozzle spray and measuring the amount of fuel dispensed.

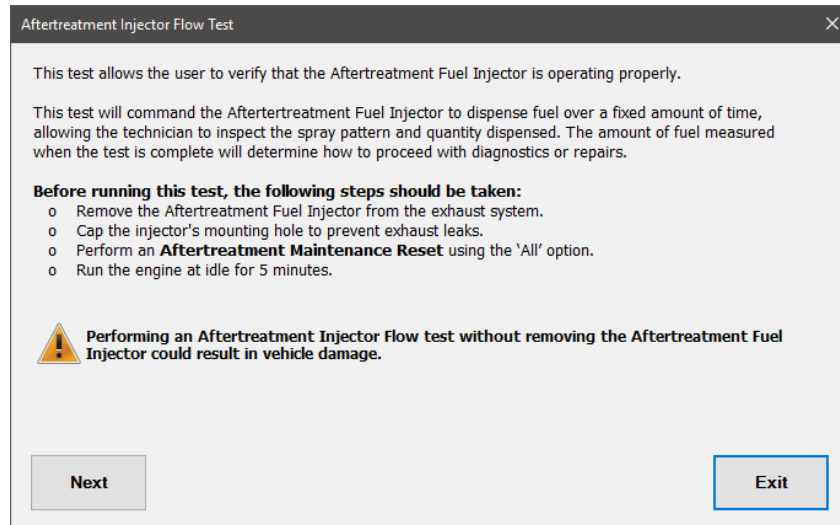
Before running this test, you must:

- Remove the Aftertreatment Fuel Injector from the exhaust system.
- Cap the injector’s mounting hold to prevent exhaust leaks.

- Perform an Aftertreatment Maintenance Reset using the 'All' option.
- Run the engine at idle for 5 minutes.

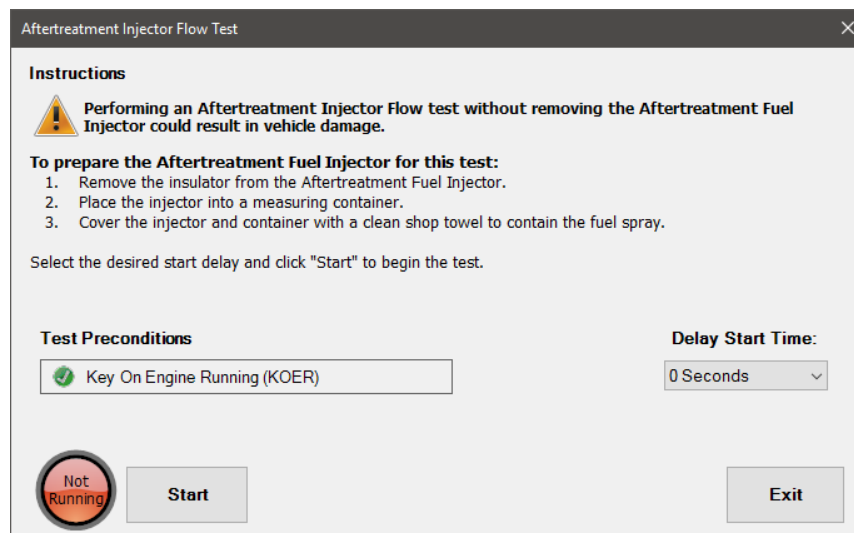
⚠ Performing an Aftertreatment Injector Flow Test without removing the Aftertreatment Fuel Injector could result in vehicle damage.

1. **Select Aftertreatment Injector Flow** test and press Enter or the **Start** button.
2. The test dialog will be displayed.



Aftertreatment Injector Flow Test

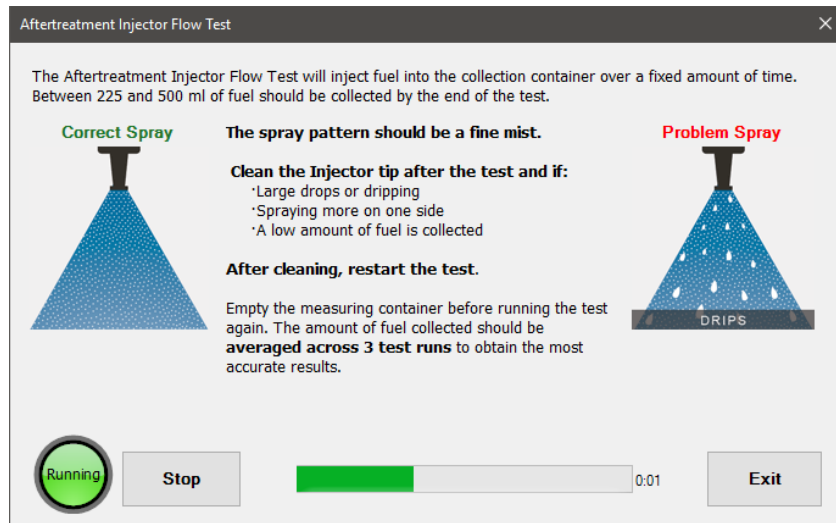
3. Select the **Next** button to see further instructions and preconditions.



Aftertreatment Injector Flow Test – Start Screen

4. Once all instructions have been followed and preconditions are met, select a **Delay Start Time** from the dropdown, if desired, and click the **Start** button to begin the test.

5. The dialog displays examples of correct and problem spray patterns that can be detected by observing the valve as it dispenses DEF into the collection container.



Aftertreatment Injector Flow Test – Running Screen

6. When the test is completed, results information is displayed, including steps to take depending on how much DEF was dispensed.

NOTE: If the test needs to be performed again (due to cleaned or replaced injector), click the *Rerun* button to return to the start screen.

7. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Aftertreatment Injector Leak Test

The **Aftertreatment Injector Leak** test is available on:

- ✓ Cummins EPA 07: all ISX (15L)
- ✓ Cummins EPA 10: all ISX (12 and 15L)
- ✓ Cummins EPA 13: all ISX (12 and 15L)
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

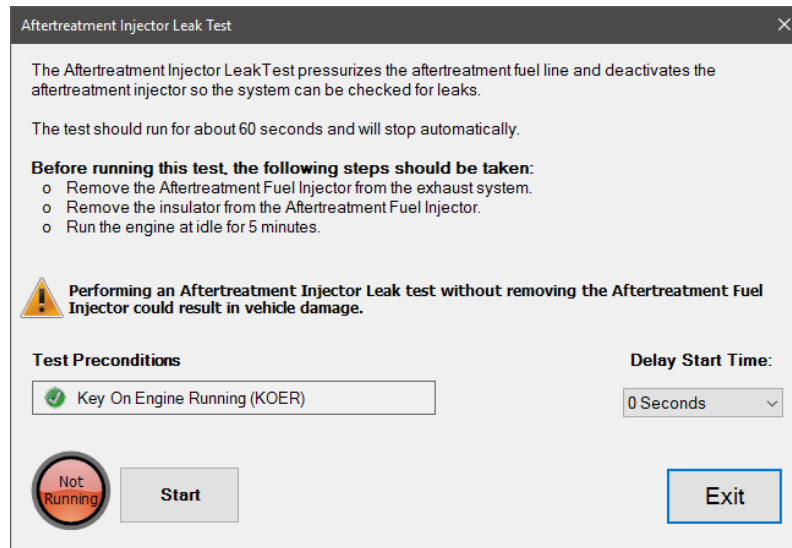
This test is used to check the aftertreatment fuel injection system for leaks by pressurizing the aftertreatment fuel line and deactivating the aftertreatment injector

Before running this test, you must:

- Remove the Aftertreatment Fuel Injector from the exhaust system.
- Remove the insulator from the Aftertreatment Fuel Injector.
- Run the engine at idle for 5 minutes.

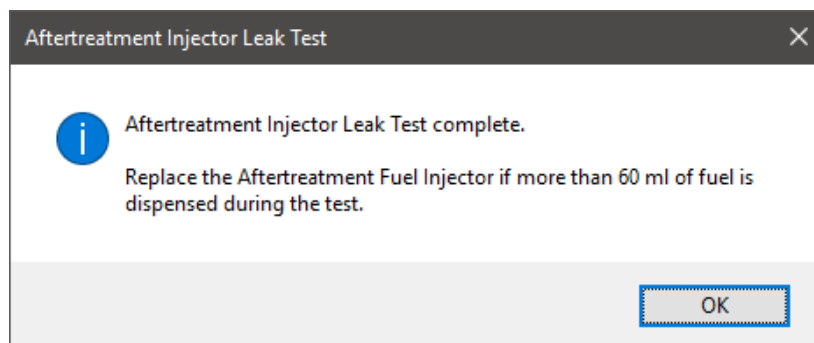
⚠ Performing an Aftertreatment Injector Leak Test without removing the Aftertreatment Fuel Injector could result in vehicle damage.

1. Select **Aftertreatment Injector Flow** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Aftertreatment Injector Leak Test

3. Once all instructions have been followed and preconditions are met, select a **Delay Start Time** from the dropdown, if desired, and click the **Start** button to begin the test.
4. The test should complete after about 60 seconds.
5. A message will display indicating test completion.



Aftertreatment Injector Leak Test – Completion Message

6. Click the **Exit** button to return to the test selection dialog.

Aftertreatment Injector Shutoff Valve Test

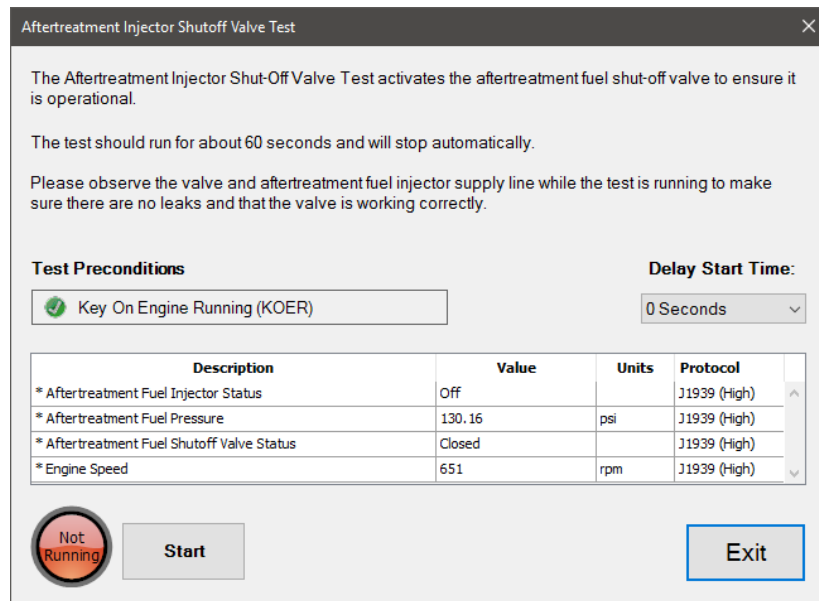
The Aftertreatment Injector Flow test is available on:

- ✓ Cummins EPA 07: all ISX (15L)
- ✓ Cummins EPA 10: all ISX (12 and 15L)

- ✓ Cummins EPA 13: all ISX (12 and 15L)
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

This test is used to verify that the aftertreatment shutoff valve is operating properly.

1. Select **Aftertreatment Injector Shutoff Valve** test and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Aftertreatment Injector Shutoff Valve Test

3. Once all preconditions are met, select a **Delay Start Time** from the dropdown, if desired, and click the **Start** button to begin the test.
4. Observe the shutoff valve and aftertreatment fuel injector supply line while the test is running to make sure there are no leaks and that the valve is working correctly. The test should complete after about 60 seconds.
5. A message will display indicating test completion.
6. Click the **Exit** button to return to the test selection dialog.

Aftertreatment Reset

Aftertreatment Reset is supported on:

- ✓ International EPA 07 and EPA 10 Maxxforce 11 and 13 engines.

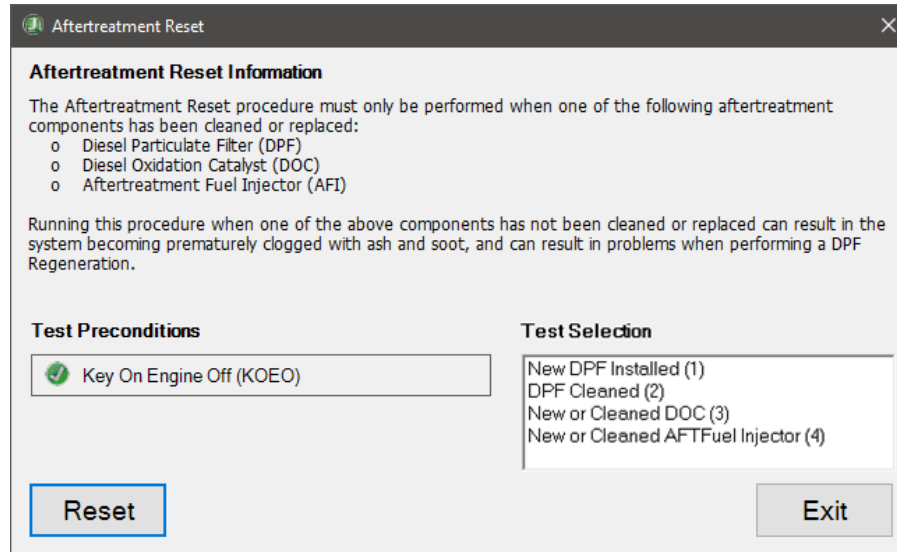
The Aftertreatment Reset provides the ability to reset the soot level after an aftertreatment component has been cleaned or replaced. It must only be performed when one of the following components has been cleaned or replaced.

- Diesel Particulate Filter (DPF)
- Diesel Oxidation Catalyst (DOC)

- Aftertreatment Fuel Injector (AFI)

⚠ Running this procedure when one of the above components has not been cleaned or replaced can result in the system becoming prematurely clogged with ash and soot, and can result in problems when performing a DPF Regeneration.

1. Select **Aftertreatment Reset** and press **Enter** or the **Start** button.
2. The Aftertreatment Reset dialog will be displayed.



Aftertreatment Reset for International EPA 07

NOTE: On International EPA 10 and EPA 13 engines, the Aftertreatment Reset window will not have the Test Selection options.

3. On EPA 07 International engines, select the appropriate Test Selection from the selection box. Selection options include: 'New DPF Installed', 'DPF Cleaned', 'New or Cleaned DOC' or 'New or Cleaned AFT Fuel Injector'.
4. Test Selection does not apply to EPA 10 or EPA 13 International engines.
5. Ensure all preconditions are met and select the **Reset** button to initiate the reset operation. Follow the instructions given on the dialog.
6. Turn off the ignition and select the **Continue** button (previously was the Reset button).
7. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to 'Please turn ignition on to re-establish communications.' displays.
8. Turn the ignition on. Wait for communication to be re-established.
9. Once the status updates to 'Procedure Successfully Completed', press **Exit** to return to the test selection dialog.

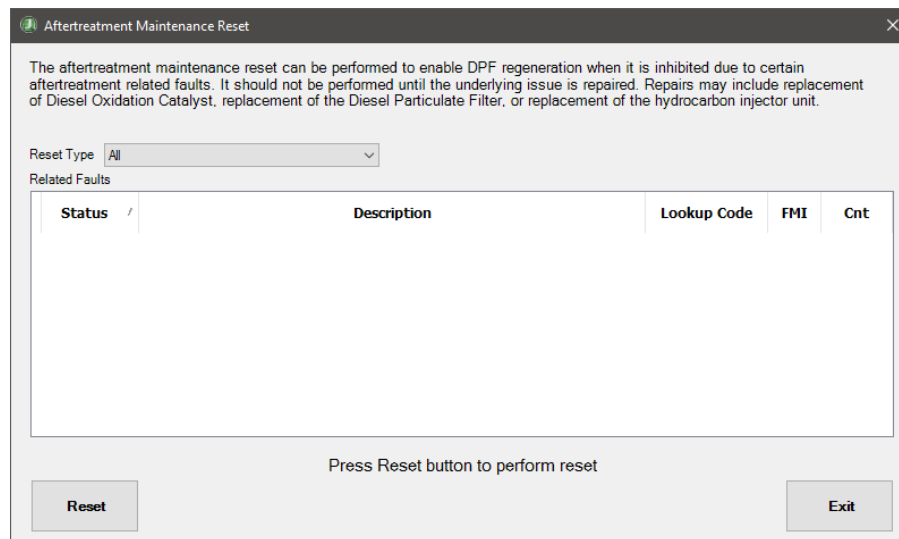
Aftertreatment Maintenance Reset

Aftertreatment Maintenance Reset is supported on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

The **Aftertreatment Maintenance Reset** provides the ability to enable DPF Regen when it has been inhibited due to certain faults. The technician would perform this after fixing the underlying issue. Repairs may include replacement of the Diesel Oxidation Catalyst, replacement of the Diesel Particulate Filter, or replacement of the hydrocarbon injector unit.

1. Select **Aftertreatment Maintenance Reset** and press **Enter** or the **Start** button.
2. The **Aftertreatment Maintenance Reset** dialog will be displayed.



Aftertreatment Maintenance Reset

3. Select the **Reset Type** from the selection box. Selection options include: 'All', 'DPF Reset' or 'DOC Maintenance Reset'.
4. Select the **Reset** button to initiate the reset operation. Follow the instructions given on the dialog.
5. Turn off the ignition and select the **OK** button (previously was the Reset button).
6. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to 'Please turn ignition on to re-establish communications.' displays.
7. Turn the ignition on. Wait for communication to be re-established.
8. Once the status updates to 'Aftertreatment Maintenance Reset Complete', press **Exit** to return to the test selection dialog.

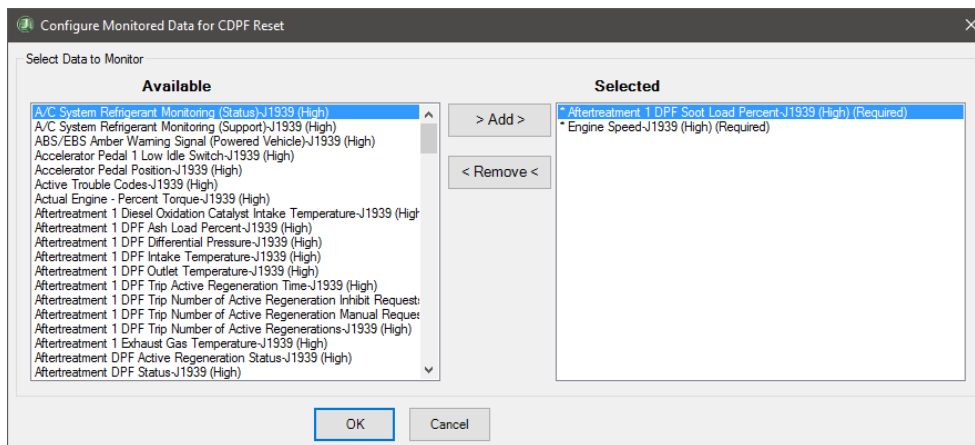
CDPF Reset

CDPF Reset is supported on:

- ✓ International EPA 10 Maxxforce DT, 9 and 10 engines.

CDPF Reset is an aftertreatment reset request that provides the ability to reset the soot level after an aftertreatment component has been cleaned or replaced.

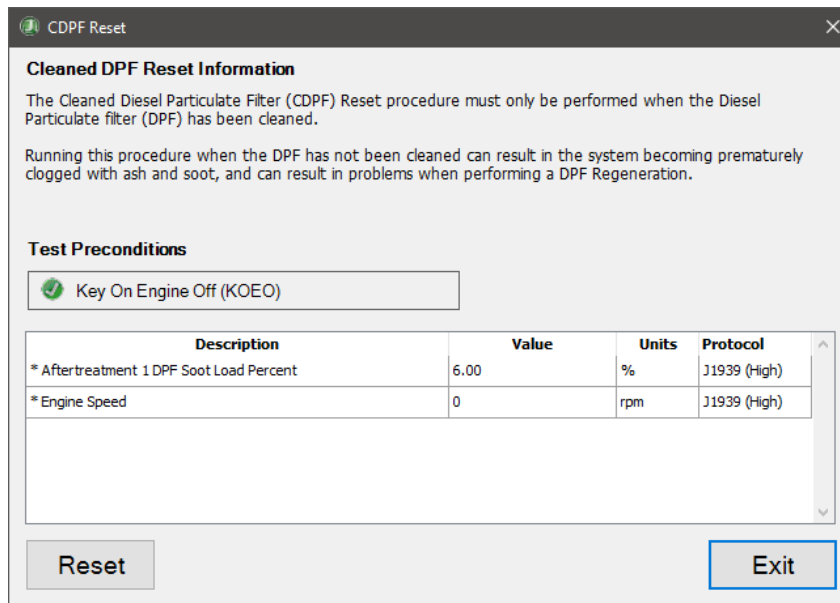
1. Select **CDPF Reset** and press Enter or the **Start** button.
2. The **Configure Monitored Data** for CDPF Reset dialog will be displayed.



Configure Monitored Data for CDPF Reset Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

6. Pressing **OK** button will cause the **CDPF Reset** dialog to be displayed



CDPR Reset Dialog

7. Select the **Reset** button to initiate the reset operation. Follow the instructions given on the dialog.
8. Turn off the ignition and select the **OK** button (previously was the Reset button).
9. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to 'Please turn ignition on to re-establish communications.' displays.
10. Turn the ignition on. Wait for communication to be re-established.
11. Once the status updates to 'Procedure Successfully Completed', press **Exit** to return to the test selection dialog.

Check Internal DEF Pump Module Heater

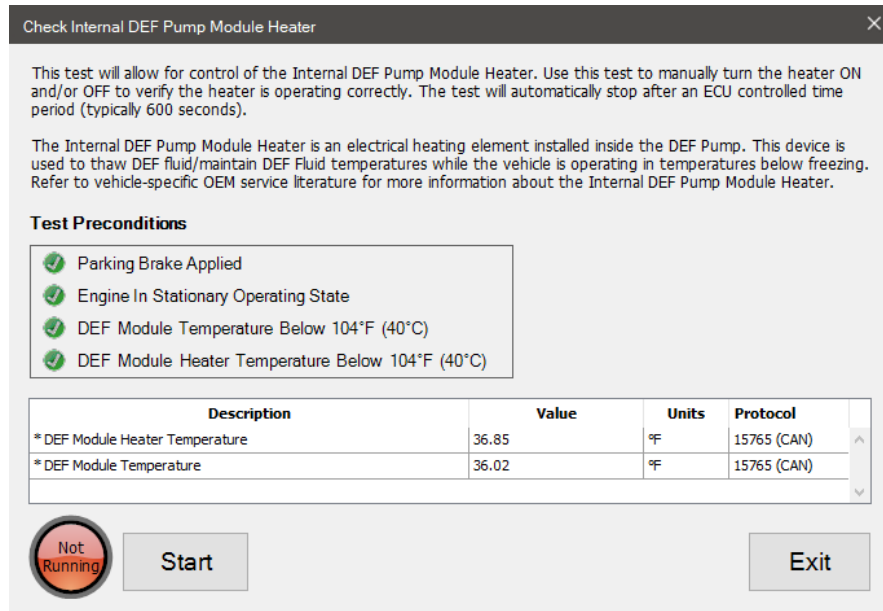
Check **Internal DEF Pump Module Heater** is supported on:

- ✓ PACCAR EPA 13 all MX engines.

The Check Internal DEF Pump Module Heater test is used to verify that the heater is operating correctly.

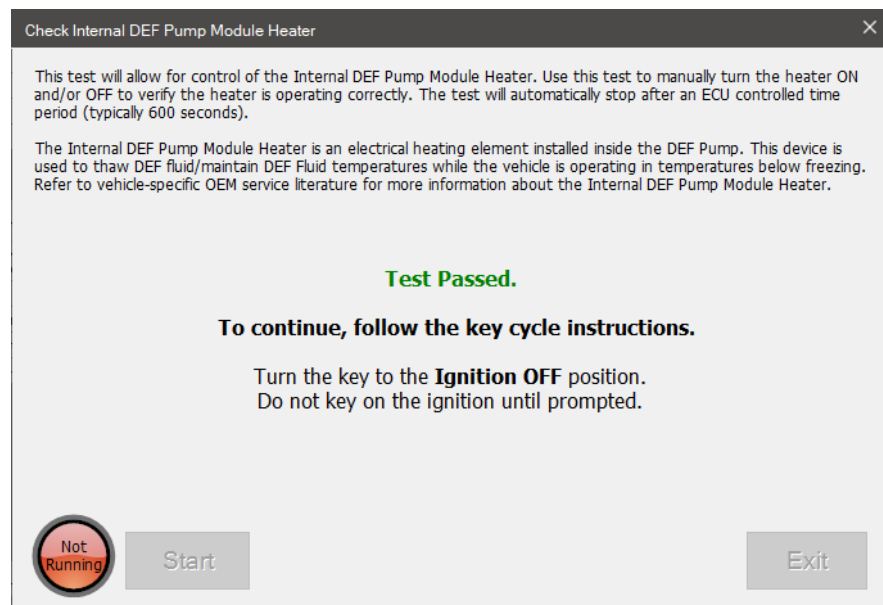
1. Select **Check Internal DEF Pump Module Heater** and press Enter or the **Start** button.

- The **Configure Monitored Data for CDPF Reset** dialog will be displayed.



Check Internal DEF Pump Module Heater

- To begin the test, press the **Start** button. The Internal DEF Pump Module Heater is turned on and temperatures are monitored to ensure proper function. The test will run for up to 10 minutes.



Check Internal DEF Pump Module Heater Result

- When the test has completed, the results and instructions to key off the engine will be displayed.
- After engine has been keyed off, a countdown will begin.
- At the end of the countdown, instructions to key on the engine will be displayed.
- After the engine has been keyed on, click the *Exit* button to return to the test selection dialog.

DEF Coolant Valve Control Test

DEF Coolant Valve Control Test is supported on:

- ✓ Detroit Diesel any supported CPC with ACM02T and MCM02T
- ✓ Detroit Diesel any supported CPC with MCM21T and with ACM21T or ACM301T

NOTE: This test is only available for [Supported ECU Software Versions](#).

The DEF Coolant Valve Control test is used after repairing the diesel exhaust fluid (DEF) cooling system to purge any remaining air from the system. It can also be used to aid in diagnosing issues with the following:

- Diagnostic codes indicating the coolant valve is stuck open or stuck closed.
- DEF tank coolant line routing issues
- SCR system heating issues

9. Select the **DEF Coolant Valve Control Test** and press Enter or the *Start* button.

10. The **DEF Coolant Valve Control** test dialog will display.

The DEF Coolant Valve Control is used after repairing the DEF cooling system in order to purge any remaining air from the system, or if there are:

- Diagnostic codes indicating the coolant valve is stuck open or stuck closed.
- DEF tank coolant line routing issues.
- SCR system heating issues.

Test Duration (Between 1 - 300 seconds):

Vertical Zoom:

Horizontal Zoom:

Legend:
ASL005: Coolant Temperature-Motor Control Module(15765 (CAN))
AS022: DEF tank Temperature-Aftertreatment Control Module(15765 (CAN))

Description	Value	Units	Protocol
* AS022: DEF tank Temperature	44.94	°F	15765 (CAN)
* ASL005: Coolant Temperature	52.81	°F	15765 (CAN)
D5005: Coolant Valve	off/ disabled/ false		15765 (CAN)

Not Running

DEF Coolant Valve Control Test

11. Enter the **Test Duration** time between 1 and 300 seconds. It will default to 30 seconds.

12. To begin the test, press the **Start** button. The lamp to the left of the **Start** button will change from “Not Running” to “Running” and highlight as well. The button will change to **Stop**.

13. A vertical line will be added to the graph indicating when the test was started.

14. When the test completes, another vertical line will be added to the graph indicating the test was ended. The **Stop** button will be changed back to a *Start* button and the lamp to the left will change to “Not Running”.

- To end test early, press the **Stop** button.
- To leave this dialog, select the **Exit** button

DEF Dosing Valve Test

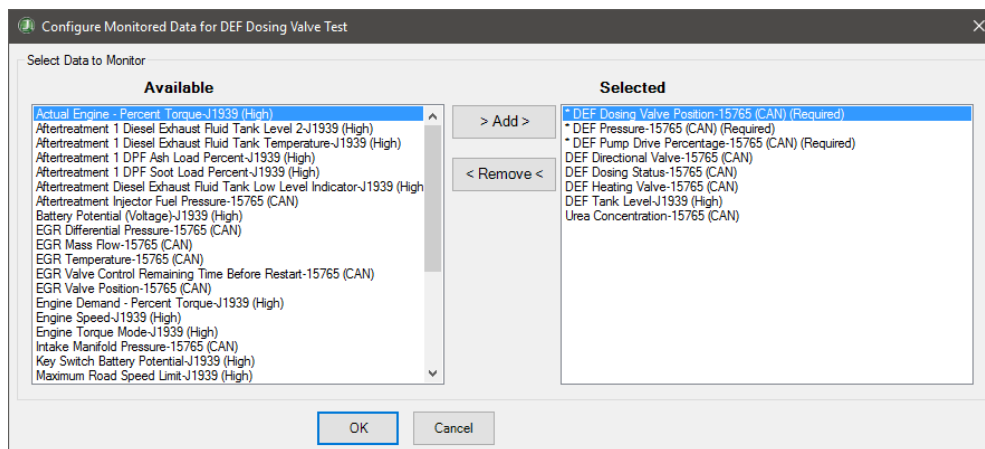
DEF Dosing Valve Test is supported on:

- ✓ Mack and Volvo EPA 13 to GHG17 engines

The Diesel Exhaust Fluid (DEF) Dosing Valve Test checks to ensure the dosing system is operating properly. It can also be used after a dosing valve replacement to exit inducement mode and clear any related Diagnostic Troubleshooting Codes (DTC).

This test will prime the DEF Dosing Valve and then inject the specified amount of DEF fluid into the measuring container over the specified time, allowing you to inspect the spray pattern and the DEF quantity. The amount of DEF measured when the test is completed will determine how to proceed with diagnostics or repairs.

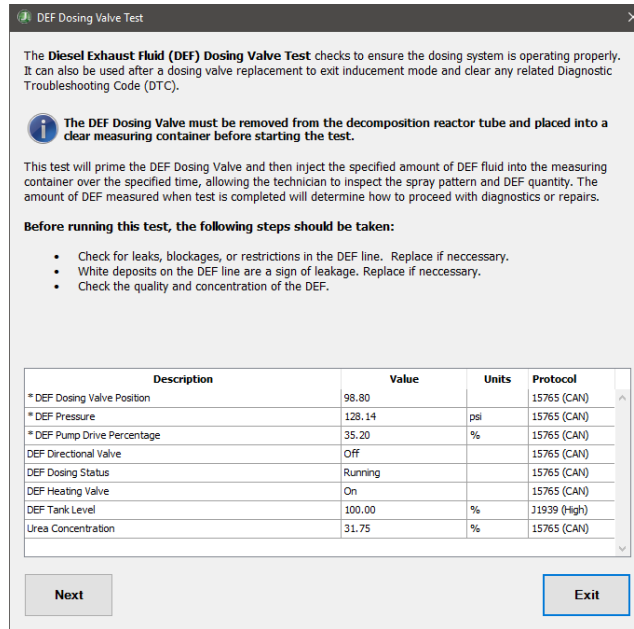
- Select the **DEF Dosing Valve Test** and press **Enter** or the **Start** button.
- The **Configure Monitored Data for DEF Dosing Valve** test will be displayed.



Configure Monitored Data for DEF Dosing Valve Test Dialog

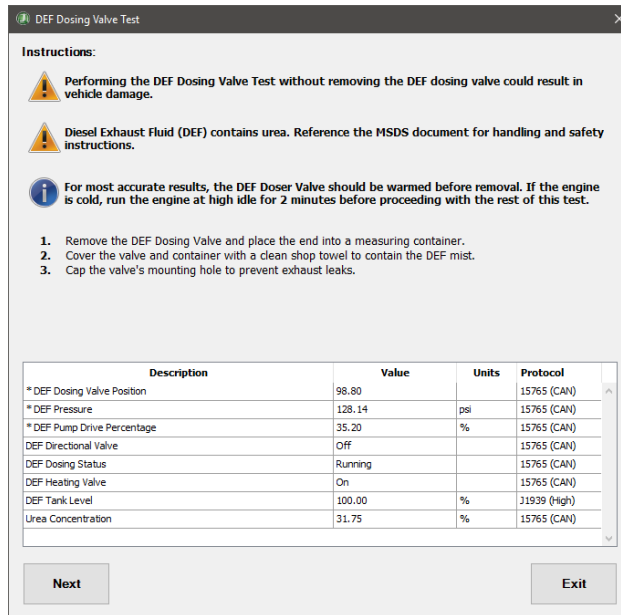
- Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
- To remove parameters from the **Selected** list, highlight the parameter in the list and press the **< Remove <** button. The parameter will be returned to the **Available** list.
- When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

6. The **DEF Dosing Valve Test** dialog displays, providing important information about steps to take before running the test.



DEF Dosing Valve Test

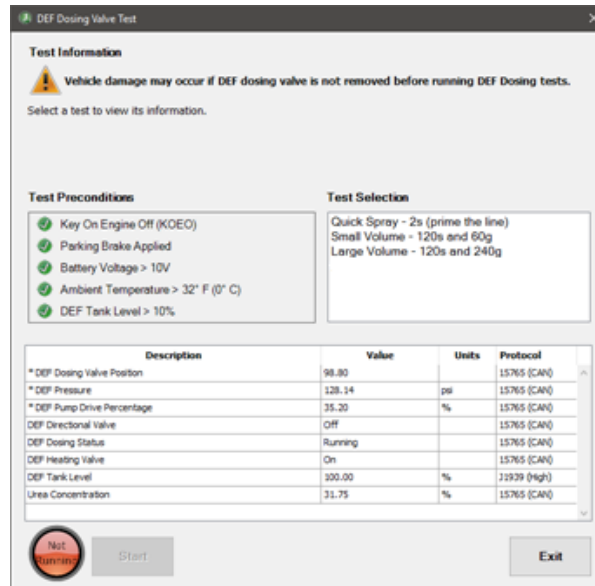
7. Click the **Next** button for test Instructions.



DEF Dosing Valve Test Instructions

8. Follow instructions concerning removing the DEF Dosing Valve.

9. Click the **Next** button to continue.

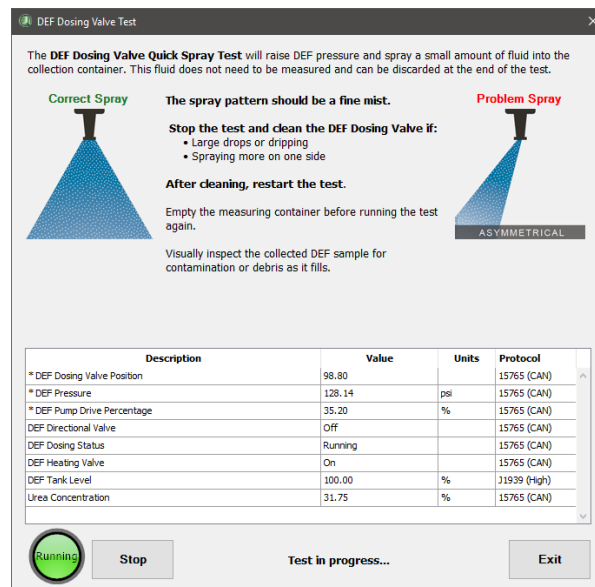


DEF Dosing Valve Test Selection

10. Ensure all preconditions are met and select the specific DEF Dosing Valve test to perform.

11. Click the *Start* button to begin the test, which can take several minutes to complete.

12. The dialog displays examples of correct and problem spray patterns that can be detected by observing the valve as it dispenses DEF into the collection container.



DEF Dosing Valve Test Running

13. When the test is completed, results information is displayed, including steps to take depending on how much DEF was dispensed.

NOTE: If the test needs to be performed again, click the *Test Selection* button to return to the selection screen.

14. Once done, following instructions to ensure sufficient post ventilation of the dosing system and click the **Exit** button to return to the bi-directional test selection dialog.

DEF Doser Pump Test

DEF Doser Pump Test is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.
- ✓ International N9, N10, and 2013 N13 engines
- ✓ PACCAR EPA 10 to GHG17 all MX engines

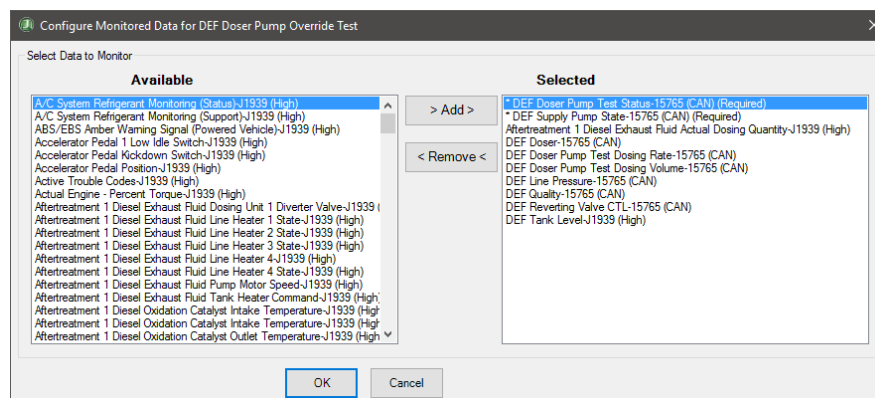
Cummins and International call this test the DEF Doser Pump Override Test.

NOTE: The DEF Doser Pump Override Test contains some manufacturer specific information that will change depending on the make of the vehicle, but the major steps listed below remain the same.

The DEF Doser Pump Test is an aftertreatment diagnostic test that checks the performance of the DEF Doser Pump. By observing the spray of DEF from the valve, and measuring how much fluid was dispensed, it can be determined if the valve needs cleaning or needs to be replaced.

1. Select **DEF Doser Pump Test** and press Enter or the *Start* button.
2. The **Configure Monitored Data for DEF Doser Pump Override Test** dialog will be displayed.

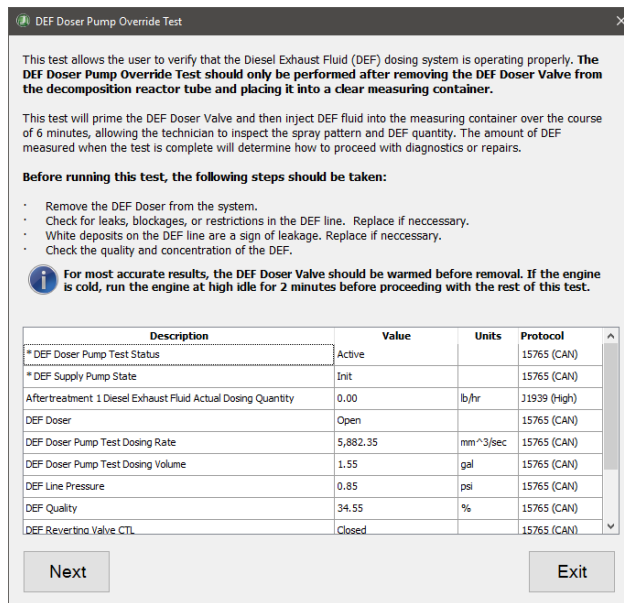
NOTE: Data display and therefore configuring of data is not available for Cummins engines.



Configure Monitored Data for DEF Doser Pump Override Test Dialog

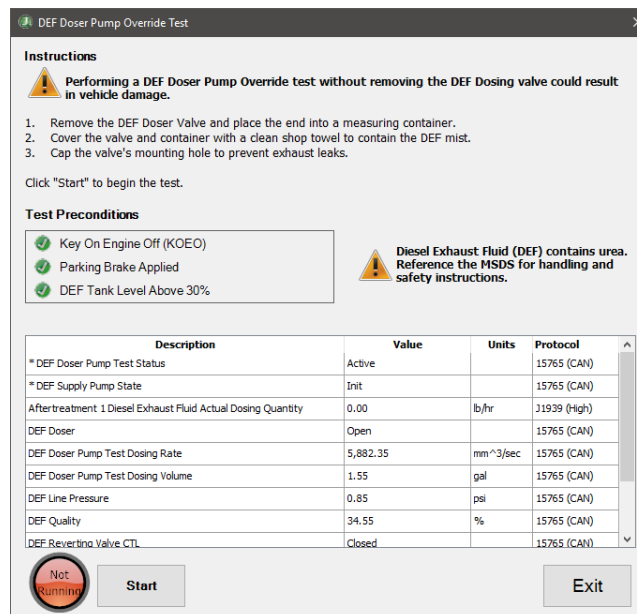
3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.

- To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
- When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
- The **DEF Doser Pump Test** dialog displays, providing important information about steps to take before running the test.



DEF Doser Pump Override Test Main Screen (International)

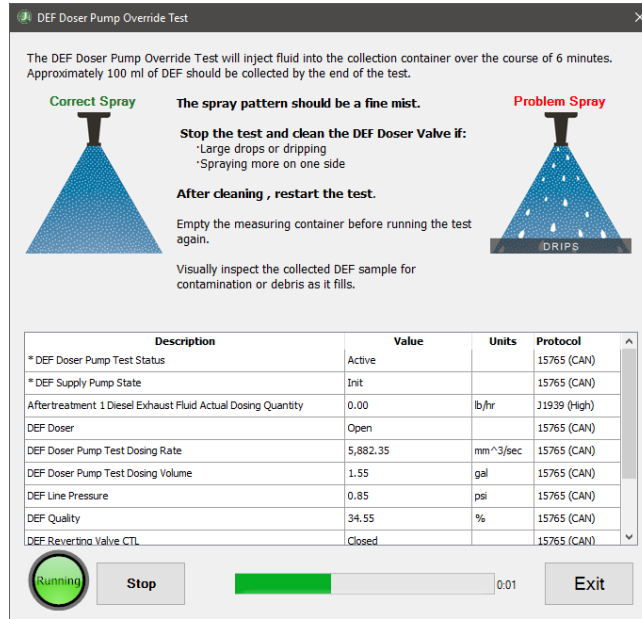
- Click the **Next** button for test Instructions and to view the status of **Test Preconditions**.



DEF Doser Pump Override Test Instructions (International)

- Ensure all preconditions are met.

9. Click the **Start** button to begin the test, which can take several minutes to complete.
10. The dialog displays examples of correct and problem spray patterns that can be detected by observing the valve as it dispenses DEF into the collection container.



DEF Doser Pump Override Test Running (International)

11. When the test is completed, results information is displayed, including steps to take depending on how much DEF was dispensed.

NOTE: If the test needs to be performed again (due to cleaned or replaced DEF Dosing Valve), click the *Rerun* button to return to the Instructions screen.

12. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

DEF Heater Test

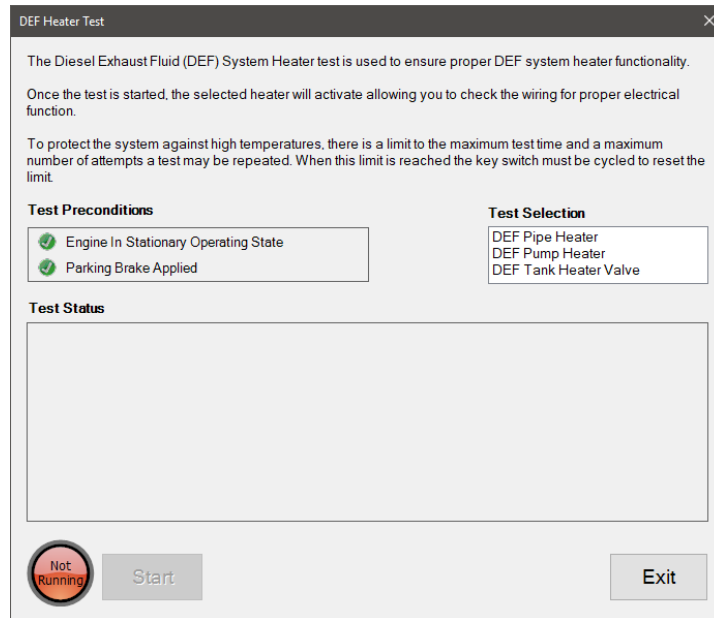
The **DEF Heater Test** is supported on:

- ✓ PACCAR EPA 10 to GHG17 all MX engines.

This test is used to check the functionality of the DEF Heaters available on the vehicle.

1. Select **DEF Pressure System Test** and press **Enter** or the **Start** button.

2. The **DEF Heater Test** dialog will be displayed.



DEF Heater Test

3. Select a heater to test and click **Start** to begin the test.
4. The **Start** button will change to a **Stop** button and the lamp next to the button will indicate the test is Running.
5. During the procedure, the status is monitored and updated in the Status window.
6. Select the **Stop** button to stop the test at any point.
7. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

DEF Pressure System Test

The **DEF Pressure System Test** is supported on:

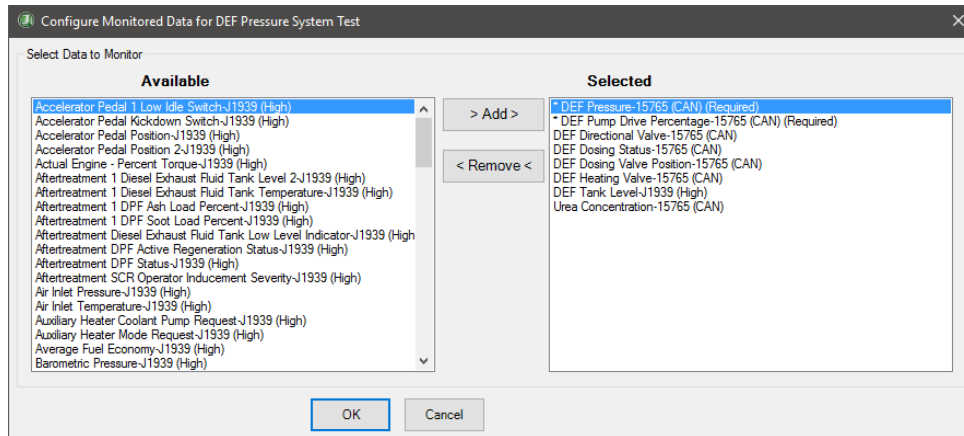
- ✓ Mack and Volvo EPA 10 to GHG17 engines.

This test checks the system integrity of the DEF system, enabling the discovery of leakage from the pump or hoses. It can be used to check that repaired, serviced or replaced dosing system is working correctly.

There are two test options available on EPA 13 and GHG17 engines:

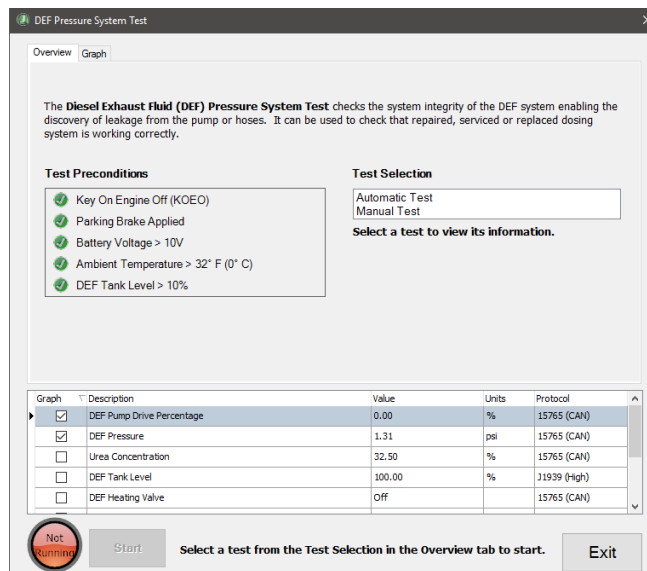
- **Automatic Pressure Test:** activates the pump and forces a pressure build up for about 2 minutes before stopping automatically. This test can be used to evaluate electrical failures that can be detected when the pump is turned on.
- **Manual Pressure Test:** activates the pump to check if the pressure buildup holds for an extended period (usually up to 5 minutes). This test must be stopped by the user. For EPA 10 engines, only the **Manual Pressure Test** applies.

1. Select **DEF Pressure System Test** and press **Enter** or the **Start** button.
2. The **Configure Monitored Data for DEF Pressure System Test** dialog will be displayed.



Configure Monitored Data for DEF Pressure System Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
6. Pressing **OK** button will cause the **DEF System Pressure Test** dialog to be displayed, providing important information about steps to take before running the test.



DEF Pressure System Test Dialog

NOTE: On Mack and Volvo EPA 10 engines, the Test Selection option is not shown as only the Manual Test option applies.

7. Ensure all preconditions are met.
8. Select the appropriate test option (automatic or manual).
9. Select the **Start** button to begin the test.
10. Monitor the displayed data values to detect issues with the DEF system.
11. Values for selected data items will be graphed as the test progresses. Click the checkbox next to any data item to add or remove it from the graph. Select the Graph tab to view the selected data items.
12. If performing a **Manual Pressure Test**, select the **Stop** button to stop the test.
13. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

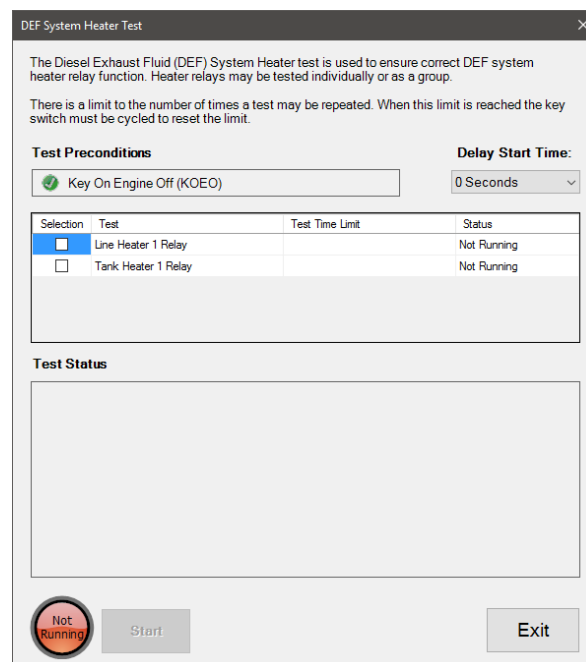
DEF System Heater Test

The **DEF System Heater Test** is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

The Diesel Exhaust Fluid (DEF) System Heater Test provides the ability to activate the relays controlling the DEF system heaters to ensure they are working properly.

1. Select **DEF System Heater Test** and press **Enter** or the **Start** button.
2. The **DEF System Heater Test** dialog displays, providing important information about the test.



DEF System Heater Test Dialog

3. Select the heater(s) to test and select the **Delay Start Time** if one is desired.
4. Select the **Start** button to begin the test.
5. The heater relay(s) will be activated after the delay start time has elapsed if a delay time is specified. The Test Status log will update as each selected test is started.
6. Select the **Stop** button to stop the test at any point.
7. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

DEF System Leak Test

The **DEF System Leak Test** is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X12, X15
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

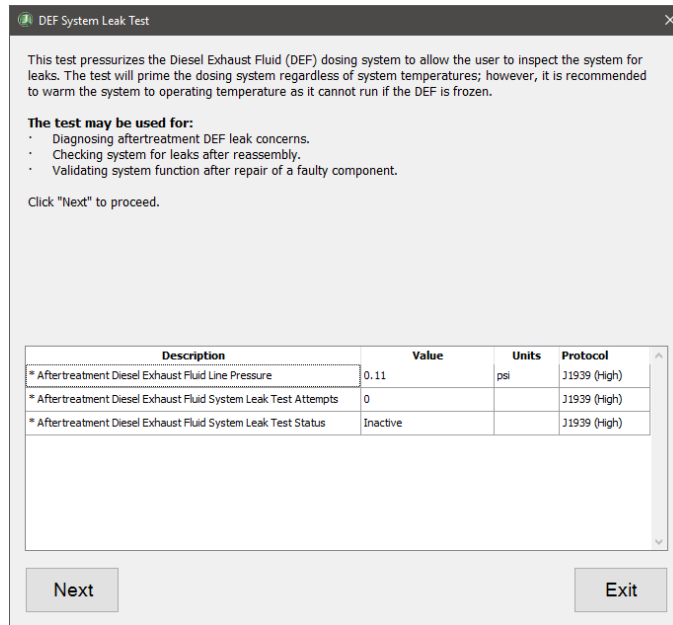
The DEF System Leak Test is used to check the system connections, joints, fluid lines, and other components for Diesel Exhaust Fluid (DEF) leaks. It is a mechanical test that will require you to inspect the system while the test is running.

For this test, the DEF dosing unit is primed by drawing fluid from the DEF tank and pressurizing the DEF dosing valve supply line. This pressure is maintained throughout the test, allowing you to visually inspect the system for leaks and other problems. At the end of the test, the system is purged, and all fluid is returned to the DEF tank.

The test will prime the dosing system regardless of system temperatures; however, it is recommended to warm the system to operating temperatures as it cannot run if the DEF is frozen.

1. Select **DEF System Leak Test** and press **Enter** or the **Start** button.

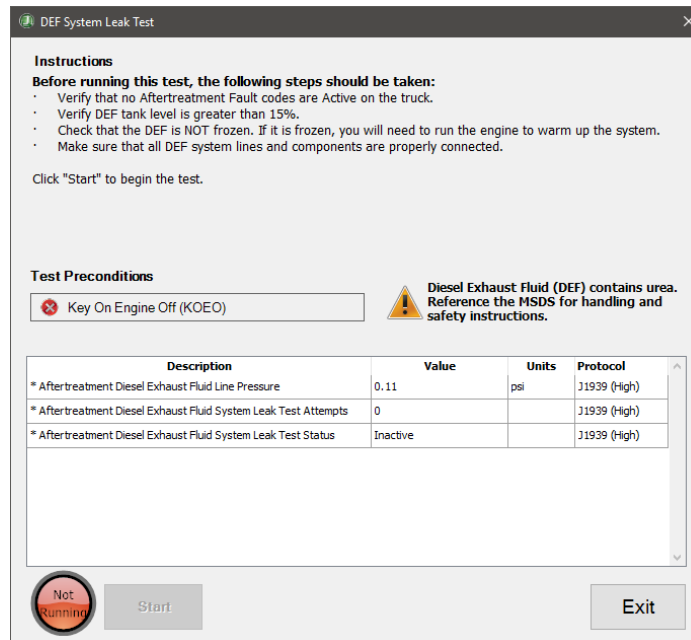
2. The **DEF System Leak Test** dialog displays, providing important information about the test.



DEF System Leak Test Dialog

3. Select **Next**.

4. Follow displayed instructions to ensure all test preconditions are met.



DEF System Leak Test Instructions

5. Select the **Start** button to begin the test. The DEF system should begin priming and pressurizing the DEF lines.

6. Monitor the displayed data values.

7. Select the **Stop** button to stop the test at any point. The test will automatically stop after 20 minutes.
8. The DEF system is purged, and all fluid is returned to the DEF tank.
9. Look for fluid leaks from the DEF system and check for active fault codes.
10. If desired, you may select the **Rerun** button to attempt the test again.
11. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

DEF Quantity Test

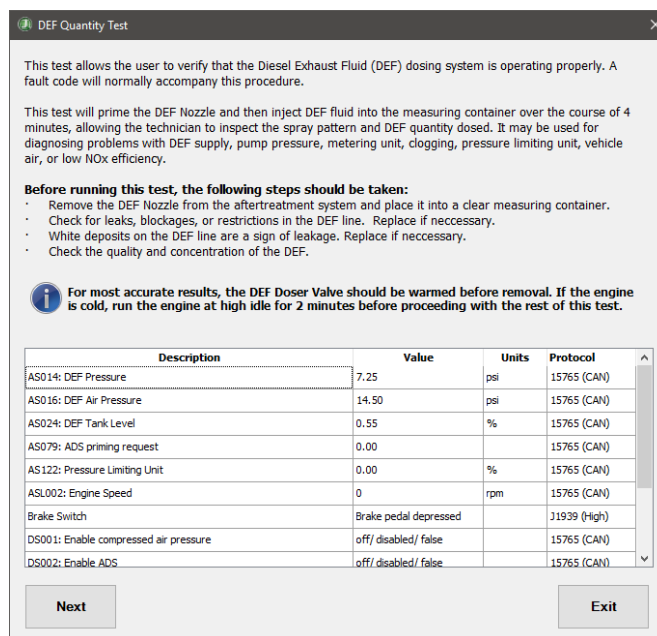
The **DEF Quantity Test** is supported on:

- ✓ Detroit Diesel any supported CPC with ACM02T, ACM21T, or ACM301T

NOTE: This test is only available for [Supported ECU Software Versions](#).

The DEF Quantity Test provides the ability to troubleshoot the diesel exhaust fluid (DEF) dosing system by inspecting the nozzle spray pattern and measuring the amount of DEF dispensed. It may be used for diagnosing problems with DEF supply, pump pressure, metering unit, clogging, pressure limiting unit, vehicle air, and low NOx efficiency.

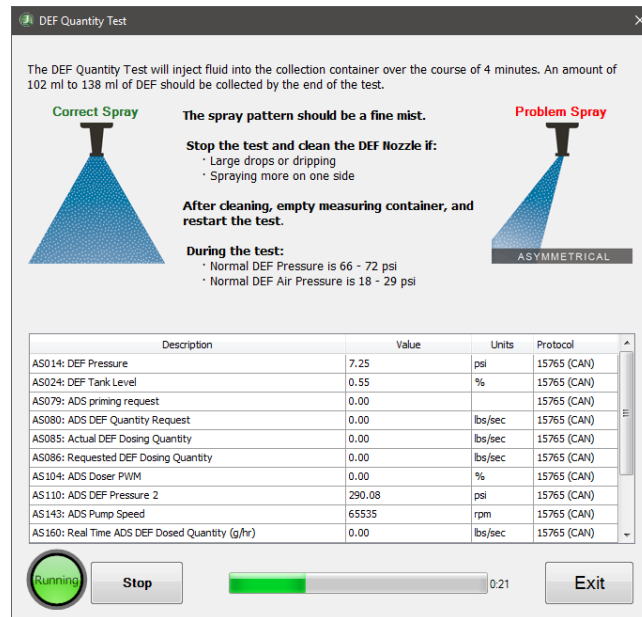
1. Select the **DEF Quantity Test** and press **Enter** or the **Start** button.
2. The **DEF Quantity Test** dialog displays, providing important information about steps to take before running the test.



DEF Quantity Test

3. Select the **Next** button once all instructions have been read and followed.
4. Ensure all preconditions have been met.

5. Select the **Start** button to begin the test. The DEF Doser should start pumping out DEF fluid into the measuring container over a period of 4 minutes.
6. The dialog displays examples of correct and problem spray patterns that can be detected by observing the valve as it dispenses DEF into the collection container.



DEF Quantity Test in Progress

7. When the test is completed, results information is displayed, including steps to take depending on how much DEF was dispensed.
8. If desired, you may select the **Rerun** button to rerun the test.
9. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

DOC/DPF Replacement Reset

DOC/DPF Replacement Reset is supported on:

- ✓ International N9, N10, 2013 N13 and A26 GHG17 engines.

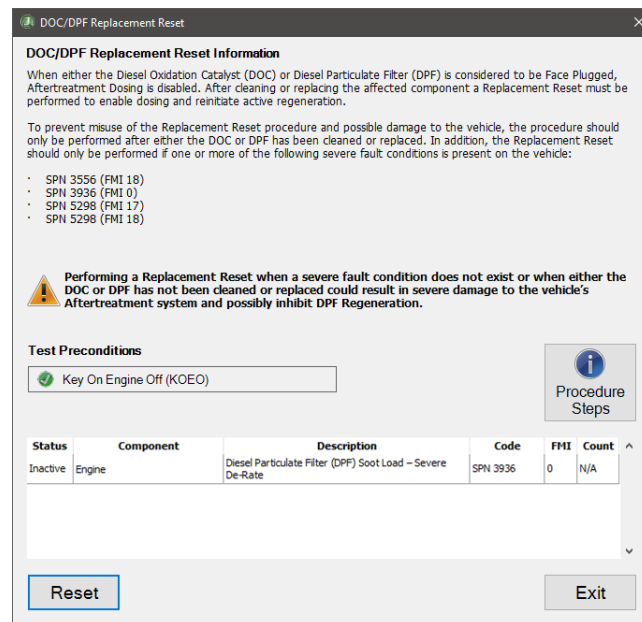
The DOC/DPF Replacement Reset test is an aftertreatment reset request that provides the ability to reset an aftertreatment maintenance component that has been cleaned or replaced.

When either the Diesel Oxidation Catalyst (DOC) or Diesel Particulate Filter (DPF) is considered to be Face Plugged, Aftertreatment Dosing is disabled. After cleaning or replacing the affected component a Replacement Reset must be performed to enable dosing and reinitiate active regeneration.

The DOC/DPF Replacement Reset should only be performed after either the DOC or DPF has been cleaned or replaced and if one or more of the following severe fault conditions is present on the vehicle:

- SPN 3556 – FMI 18 - Aftertreatment Fuel Pressure 2 (AFTFP2) below Warning Pressure
- SPN 3936 – FMI 0 - Diesel Particulate Filter (DPF) Soot Load – Severe De-Rate

- SPN 5298 – FMI 17 – Diesel Oxidation Catalyst (DOC) Conversion Efficiency below minimum
 - SPN 5298 – FMI 18 – Diesel Oxidation Catalyst (DOC) Conversion Efficiency below Warning Pressure
- ⚠ Performing a Replacement Reset when a severe fault condition does not exist or when either the DOC or DPF has not been cleaned or replaced could result in severe damage to the vehicle’s Aftertreatment system and possibly inhibit DPF Regeneration.
1. Select **DOC/DPF Replacement Reset** and press **Enter** or press **Start** Button.
 2. The **DOC/DPF Replacement Reset** dialog displays.



DOC/DPF Replacement Reset

3. Ensure all preconditions are met.
4. Click the **Reset** button to initiate the reset procedure.
5. Turn off the ignition and select the **Continue** button (previously was the Reset button).
6. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to ‘Please turn ignition on to re-establish communications.’ displays.
7. Turn the ignition on. Wait for communication to be re-established.
8. Once the status updates to ‘Procedure Successfully Completed’, press **Exit** to return to the test selection dialog.

DOC Face Plug Cleaning

The **DOC Face Plug Cleaning** test is available on:

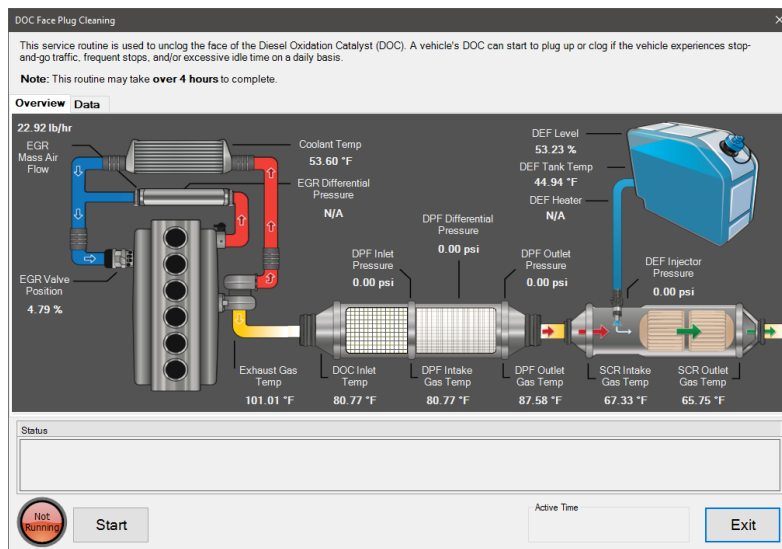
- ✓ Detroit Diesel CPC02T with MCM02T
- ✓ Detroit Diesel CPC04T with MCM02T or MCM21T

NOTE: This test is only available for [Supported ECU Software Versions](#).

This test is used to unclog the face of the Diesel Oxidation Catalyst (DOC). A vehicle's DOC can start to plug up or clog if the vehicle experiences stop-and-go traffic, frequent stops, and/or excessive idle times daily.

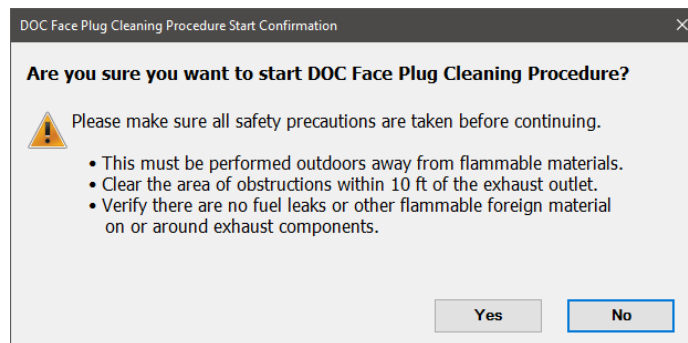
NOTE: This test may take over 4 hours to complete.

1. Select the DOC Face Plug Cleaning and press Enter or click the **Start** button.
2. If not previously shown, the Aftertreatment Instructions are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the Close button on the window.
3. The **DOC Face Plug Cleaning** dialog will be displayed.



DOC Face Plug Cleaning

4. To begin the **DOC Face Plug Cleaning**, press the **Start** button. You will be prompted to confirm that all appropriate safety precautions have been taken.



DOC Face Plug Cleaning Confirmation

5. After confirming all safety precautions, click the **Yes** button. You will then be prompted to press and hold the regen switch on the dash for 5 seconds to start the **DOC Face Plug Cleaning** process.

6. The **Start** button will change to a **Stop** button and the lamp next to the button will indicate the test is Running.
7. As the test runs, status will be updated in the status window. The **Active Time** counter will indicate how long the procedure has been running.
8. Select the **Data tab** to view additional data related to the aftertreatment system. Click the checkbox next to any data item to add or remove it from the graph.
9. Once the procedure completes, the **Stop** button will change back to the **Start** button and the status will revert to Not Running.
10. Click the **Exit** button to return to the test selection dialog.

DPF Ash Accumulator Reset

The DPF Ash Accumulator Reset is supported on:

- ✓ Detroit Diesel CPC02T with ACM02T
- ✓ Detroit Diesel CPC04T with ACM21T
- ✓ Detroit Diesel CPC302T with ACM21T or ACM301T and with MCM21T
- ✓ Detroit Diesel CPC501T with MCM21T and with ACM21T or ACM301T

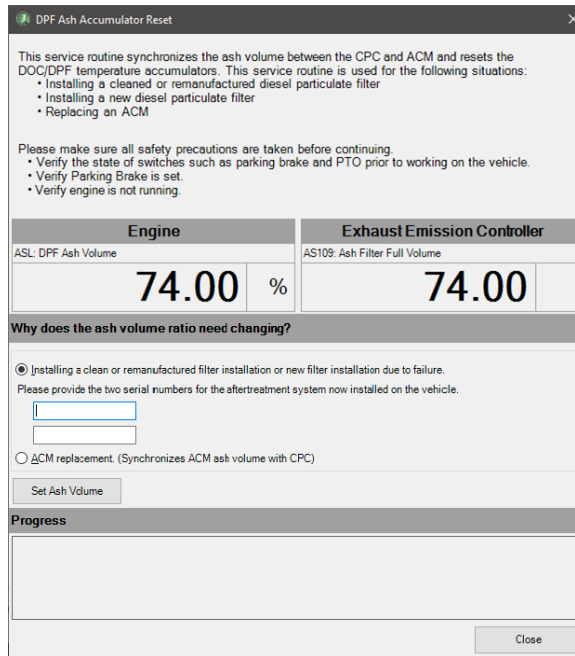
NOTE: This test is only available for [Supported ECU Software Versions](#).

This service routine synchronizes the ash volume between the CPC and ACM and resets the DOC/DPF temperature accumulators.

It should be used when performing one of the following actions:

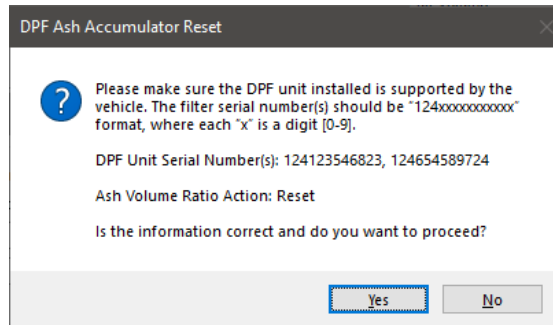
- Installing a cleaned or remanufactured filter.
 - Installing a new filter due to failure.
 - Replacing an ACM
1. Select **DPF Ash Accumulator Reset** and press **Enter** or press **Start** Button.

2. The **DPF Ash Accumulator Reset** dialog will be displayed.



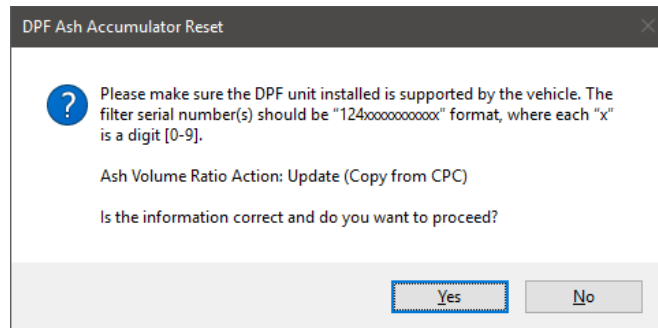
DPF Ash Accumulator Reset Dialog

3. If reset is due to filter changes, select “Installing a clean or remanufactured installation or new filter installation due to failure” option and enter the required serial number(s). Depending on the ECU, only 1 serial number may be required. After entering the serial number(s), click the **Set Ash Volume** button.
4. The user will be asked to verify and confirm the operation. Click **Yes** to proceed.



Confirm Ratio Reset Dialog

5. If reset is due to changing an ACM, select **“ACM replacement”** option and click the **Set Ash Volume** button. The user will be asked to verify and confirm the operation. Click Yes to proceed.



Confirm Ratio Update Dialog

6. During the procedure, the progress and status message will be displayed in the progress box. The **Close** button will be temporary disabled until the procedure completes.
7. After the procedure completes, the **Progress** box will indicate the results of the requested action. If successful, the **Progress** box will display a success message. Otherwise, it will display the error message.
8. Press **Close** button when ready to exit this test and return to the test selection dialog.

DPF Service Regen

DPF Service Regen is supported on:

- ✓ Caterpillar EPA 07: C7 and C15 ACERT engines
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSF, QSL, QSX, B6.7, B4.5, F3.8
- ✓ Detroit Diesel CPC02T
- ✓ Detroit Diesel CPC04T
- ✓ Detroit Diesel CPC302T
- ✓ Detroit Diesel CPC501T with ACM02T, ACM21T, or ACM301T

NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

- ✓ International EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines

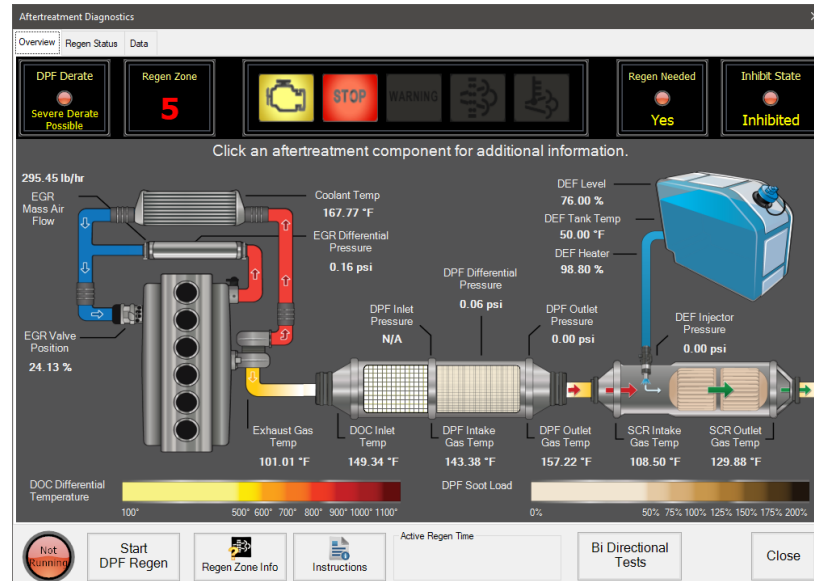
- ✓ International EPA 10 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International N9, N10, 2013 N13, 2015 N13 and A26 GHG17 engines
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.
- ✓ Kubota V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment
- ✓ Mack and Volvo EPA 07 to GHG17 engines
- ✓ MBE 900 and 4000 EPA 07 engines
- ✓ PACCAR EPA 10 to GHG17 all MX engines

During engine operation, the Diesel Particulate Filter becomes loaded with soot. Regeneration of the DPF takes place during engine operation in order to remove the soot. If the soot level becomes greater than what can be removed by the normally-occurring regeneration process, then service regeneration may be needed.

1. Select **DPF Service Regen** and press **Enter** or press **Start** Button.

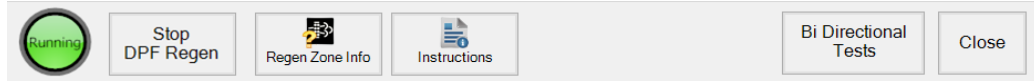
NOTE: This feature is also available from the **Aftertreatment Diagnostics** window.

2. If not previously shown, the Aftertreatment Instructions are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the **Close** button on the window.
3. The **Aftertreatment Diagnostics** dialog will display with the DPF Service Regen options shown.



DPF Service Regen Dialog

4. To begin the DPF Service Regen, press the **Start DPF Regen** button. The lamp to the left of the **Start** button will change from "Not Running" to "Running" and highlight as well. The button will change to **Stop DPF Regen**.



DPF Service Regen Running

5. To end the regen early, the user should press the **Stop DPF Regen** button. If the **Stop** button does not respond the user can engage the accelerator pedal or disengage the e-brake.
6. To leave this dialog without starting a regen or after stopping a regen, select the **Close** button.
7. Select the **Bi-Directional Test** button to select a different test to execute.

DPF System Reset

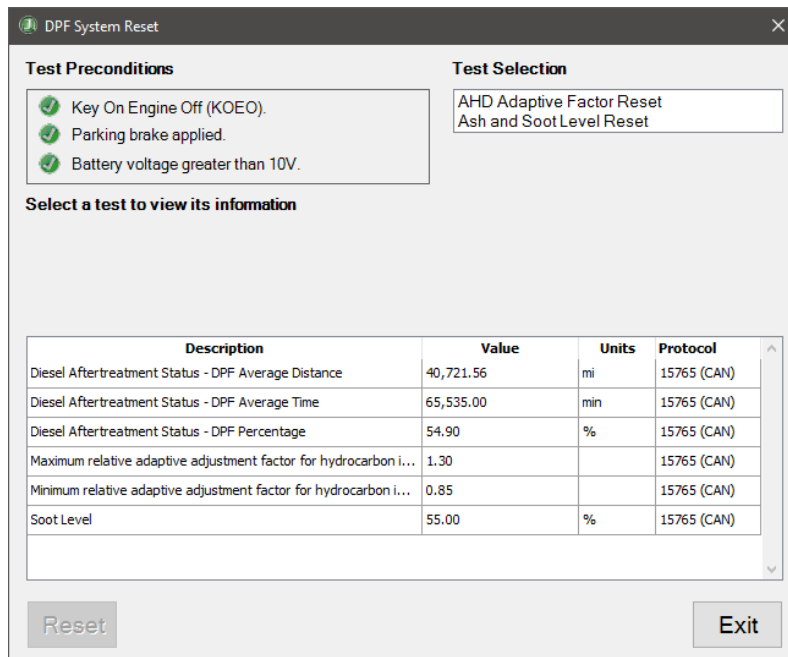
DPF System Reset is supported on:

- ✓ Mack and Volvo EPA 07 to GHG17 engines.

The purpose of the DPF System Reset test is to perform reset on system values based on the components replaced or cleaned.

- Aftertreatment Hydrocarbon Doser (AHD) Adaptive Factor Reset
After cleaning or replacing the AHD, the hydrocarbon dosing control valve adapter factor should be reset.
- Ash and Soot Level Reset
After cleaning or replacing the diesel particulate filter, the soot ratio value must be reset.

1. Select **DPF System Reset** and press **Enter** or click the **Start** button.
2. The **DPF System Reset dialog** will be displayed.



DPF System Reset Dialog

3. Select the appropriate Test Selection from the selection box. Selection options include: **“AHD Adaptive Factor Reset”** or **“Ash and Soot Level Reset”**.
4. Ensure all preconditions are met and select the **Reset** button to initiate the reset operation. Follow the instructions given on the dialog.
5. Reset operation will be executed. If the reset completed successfully then a status message will be displayed at the bottom of the window.
6. Repeat for the other Test Selection option if appropriate. Otherwise, select **Exit** to return to the Test Selection window.

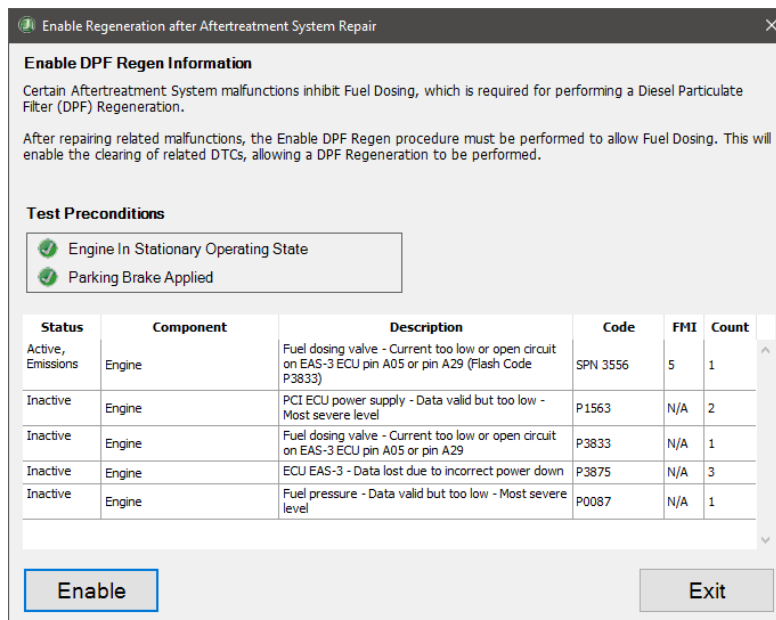
Enable Regeneration after Aftertreatment System Repair

Enable Regeneration after Aftertreatment System Repair is supported on:

- ✓ PACCAR EPA 10 to EPA 13 all MX engines.

Certain Aftertreatment System malfunctions inhibit Fuel Dosing, which is required for performing a Diesel Particulate Filter (DPF) Regeneration. After repairing related malfunctions, the Enable DPF Regen procedure must be performed to allow Fuel Dosing. This will enable the clearing of related DTCs, allowing a DPF Regeneration to be performed.

1. Select the **Enable Regeneration after Aftertreatment System Repair** and press **Enter** or click **Start** button.
2. **The Enable Regeneration after Aftertreatment System Repair** dialog will be displayed.



Enable Regeneration after Aftertreatment System Repair

3. Ensure all preconditions are met.
4. Click the **Enable** button to execute the enable operation.

5. If the enable operation completes successfully, a status message will be displayed at the bottom of the window and you will be prompted to Clear Faults after exiting this window.
6. Click **Exit** to return to test selection.
7. Close the **Test Selection** dialog.
8. Click [Clear Faults](#) on the faults display to complete the enable procedure.

Evaluate NOx Sensors Test

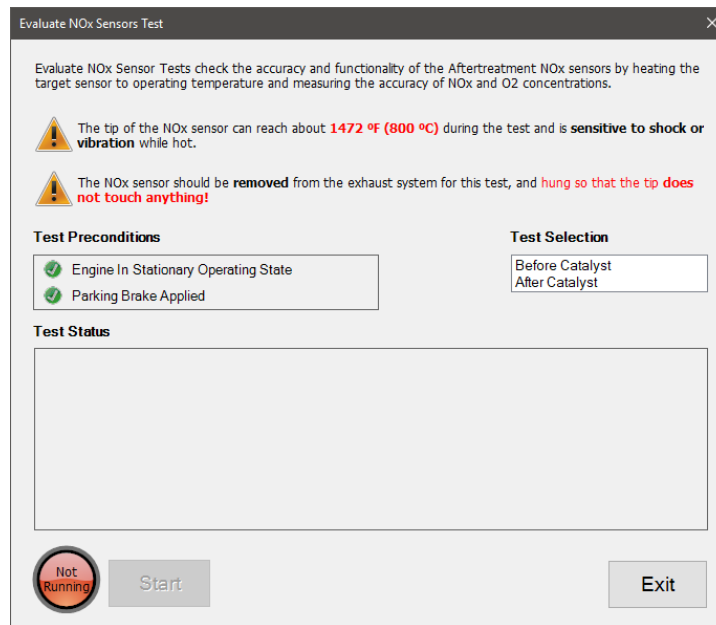
The **Evaluate NOx Sensors Test** is supported on:

- ✓ PACCAR EPA 13 all MX engines.

This test is used to verify the accuracy and functionality of the SCR system's NOx sensors.

- ⚠ The tip of the NOx sensor will become extremely hot during the test and must be suspended away from anything flammable or sensitive to heat.

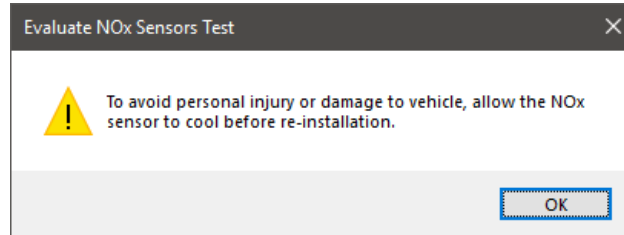
1. Select **the Evaluate NOx Sensors Test** and press **Enter** or click the **Start** button.
2. The test dialog will be displayed.



Evaluate NOx Sensors Test

3. Select the sensor to test and click the **Start** button to begin the test.
4. The **Start** button will change to a **Stop** button and the lamp next to the button will indicate the test is Running.
5. During the procedure, the status is monitored and updated in the Status window. The NOx sensor will heat for approximately 10 minutes before sensor evaluation.

6. Select the **Stop** button to stop the test at any point.
7. Once the test has been completed, click the **Exit** button. A warning to allow the NOx sensor to cool before re-installation is displayed. Click **OK** to return to the test selection dialog.



Evaluate NOx Sensors Test Dialog

Exit Inducement Test

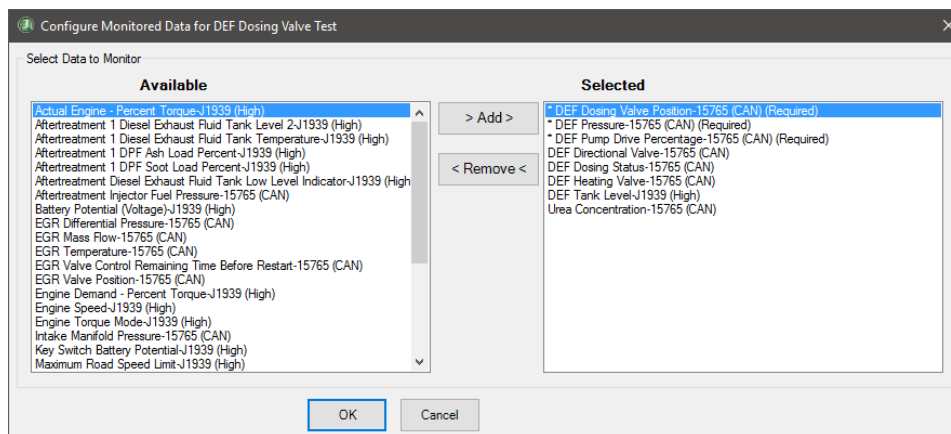
Exit Inducement Test is supported on:

- ✓ Mack and Volvo EPA 10 to GHG17 engines

The Exit Inducement Test checks to ensure the dosing system is operating properly after a dosing valve replacement and clears any related Diagnostic Troubleshooting Codes (DTC).

This test will prime the DEF Dosing Valve and then inject the specified amount of DEF fluid into the measuring container over the specified time, allowing you to inspect the spray pattern and the DEF quantity.

1. Select the **DEF Dosing Valve Test** and press **Enter** or the **Start** button.
2. The **Configure Monitored Data for Exit Inducement Test** will be displayed.



Configure Monitored Data for Exit Inducement Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

6. The **Exit Inducement Test** dialog displays, providing important information about steps to take before running the test.

The **Exit Inducement Test** is used after a dosing valve replacement to exit inducement mode and clear any related Diagnostic Troubleshooting Code (DTC).

The DEF Dosing Valve must be removed from the decomposition reactor tube and placed into a clear measuring container before starting the test.

This test will prime the DEF Dosing Valve and then inject the specified amount of DEF fluid into the measuring container over the specified time, allowing the technician to inspect the spray pattern and DEF quantity. The amount of DEF measured when test is completed will determine how to proceed with diagnostics or repairs.

Before running this test, the following steps should be taken:

- Check for leaks, blockages, or restrictions in the DEF line. Replace if necessary.
- White deposits on the DEF line are a sign of leakage. Replace if necessary.
- Check the quality and concentration of the DEF.

Description	Value	Units	Protocol
* DEF Dosing Valve Position	98.80		15765 (CAN)
* DEF Pressure	128.14	psi	15765 (CAN)
* DEF Pump Drive Percentage	35.20	%	15765 (CAN)
DEF Directional Valve	Off		15765 (CAN)
DEF Dosing Status	Running		15765 (CAN)
DEF Heating Valve	On		15765 (CAN)
DEF Tank Level	100.00	%	11939 (High)
Urea Concentration	31.75	%	15765 (CAN)

Next Exit

Exit Inducement Test

7. Click the **Next** button for test Instructions.

Instructions:

Performing the Exit Inducement Test without removing the DEF dosing valve could result in vehicle damage.

Diesel Exhaust Fluid (DEF) contains urea. Reference the MSDS document for handling and safety instructions.

For most accurate results, the DEF Doser Valve should be warmed before removal. If the engine is cold, run the engine at high idle for 2 minutes before proceeding with the rest of this test.

1. Remove the DEF Dosing Valve and place the end into a measuring container.
2. Cover the valve and container with a clean shop towel to contain the DEF mist.
3. Cap the valve's mounting hole to prevent exhaust leaks.

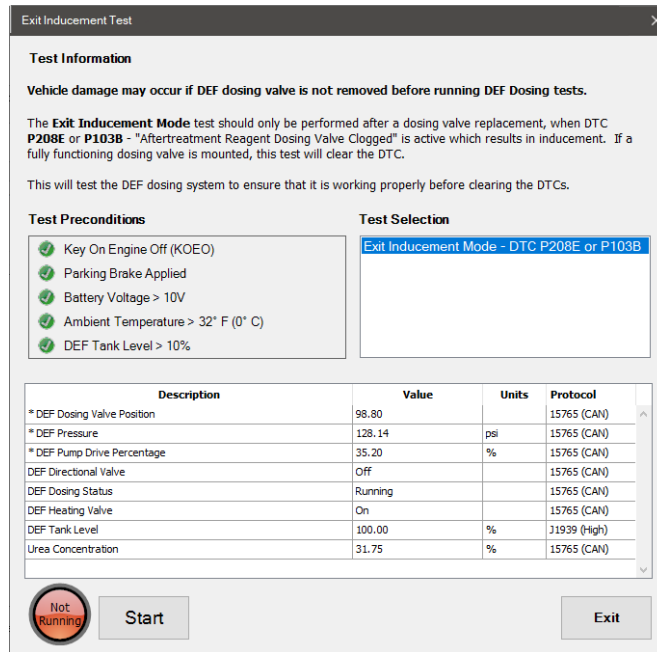
Description	Value	Units	Protocol
* DEF Dosing Valve Position	98.80		15765 (CAN)
* DEF Pressure	128.14	psi	15765 (CAN)
* DEF Pump Drive Percentage	35.20	%	15765 (CAN)
DEF Directional Valve	Off		15765 (CAN)
DEF Dosing Status	Running		15765 (CAN)
DEF Heating Valve	On		15765 (CAN)
DEF Tank Level	100.00	%	11939 (High)
Urea Concentration	31.75	%	15765 (CAN)

Next Exit

Exit Inducement Test Instructions

8. Follow instructions concerning removing the DEF Dosing Valve.

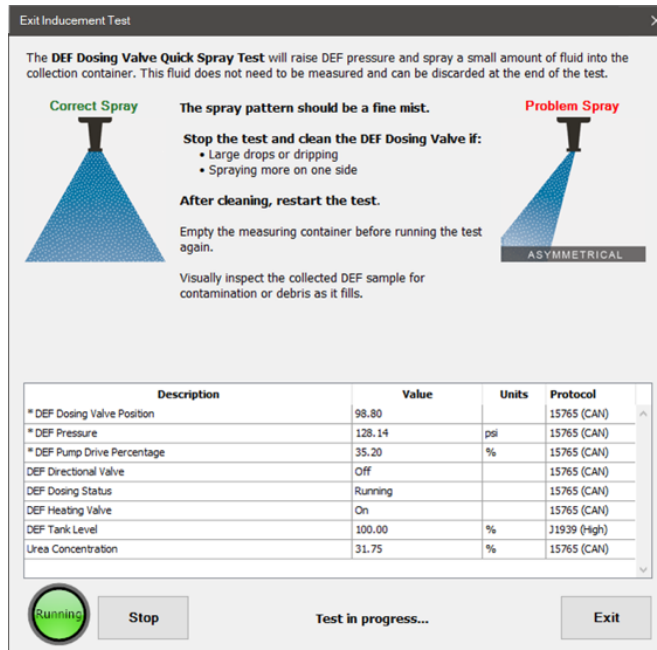
9. Click the **Next** button to continue.



Exit Inducement Test Selection

10. Ensure all preconditions are met, then click the **Start** button to begin the test, which can take several minutes to complete.

11. The dialog displays examples of correct and problem spray patterns that can be detected by observing the valve as it dispenses DEF into the collection container.



Exit Inducement Test Running

12. When the test is completed, results information is displayed, including steps to take depending on how much DEF was dispensed.

NOTE: If the test needs to be performed again, click the *Test Selection* button to return to the selection screen.

13. Once done, following instructions to ensure sufficient post ventilation of the dosing system and click the **Exit** button to return to the bi-directional test selection dialog.

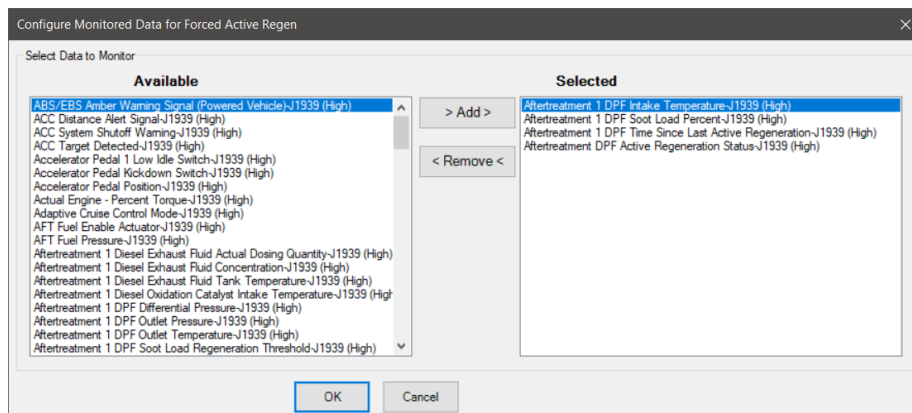
Forced Active Regen

The **Forced Active Regen** test is supported on:

- ✓ International A26 GHG17 engines

The **Forced Active Regen** test allows the vehicle to automatically perform a regen while driving at highway speeds by resetting the Time Since Last Active Regeneration parameter.

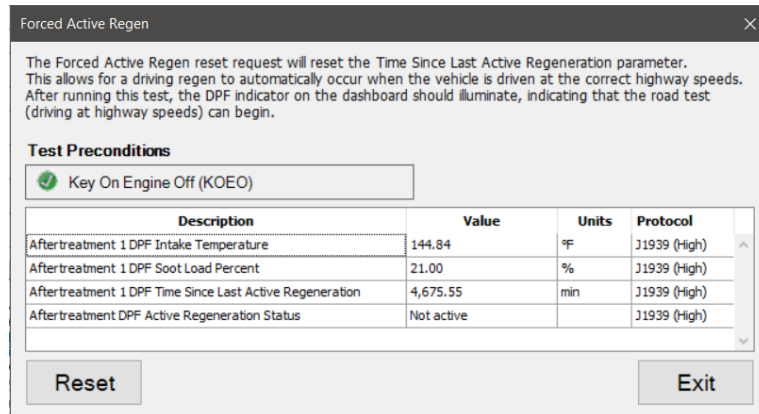
1. Select the **Forced Active Regen test** and press **Enter** or the **Start** button.
2. The **Configure Monitored Data for Forced Active Regen dialog** will be displayed.



Configure Monitored Data for Forced Active Regen

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

6. The **Forced Active Regen test dialog** will display.



Forced Active Regen

7. Ensure all preconditions are met, then click the **Start** button to begin the test.
8. The Time Since Last Active Regeneration parameter value will be reset and the DPF indicator on the dashboard should illuminate, indicating the road test can begin.
9. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Hydrocarbon Doser Purge

The **DOC Face Plug Cleaning** test is available on:

- ✓ Detroit Diesel any supported CPC with MCM02T or MCM21T

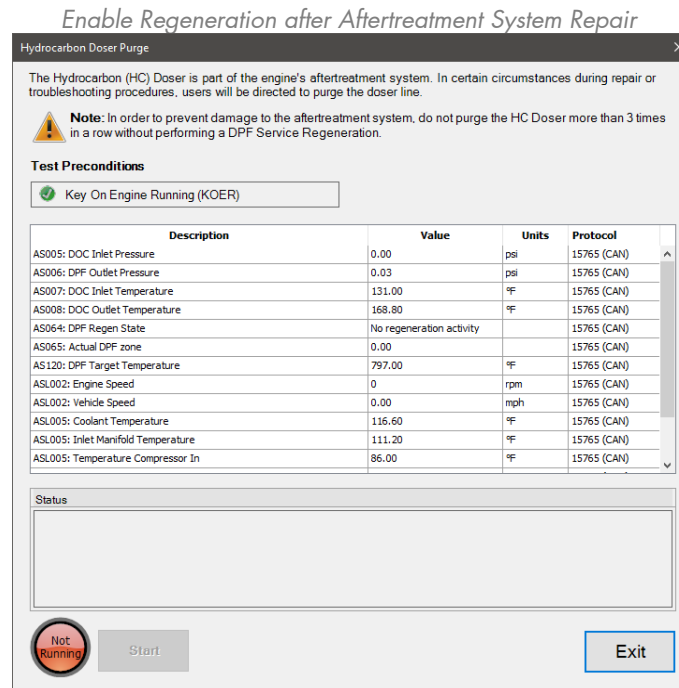
NOTE: This test is only available for [Supported ECU Software Versions](#).

This test is used to purge the Doser line as part of repairing or troubleshooting procedures for the engine's aftertreatment system.

- ⚠ In order to prevent damage to the aftertreatment system, do not purge the Hydrocarbon (HC) Doser more than 3 times in a row without performing a DPF Service Regeneration.

1. Select the **Hydrocarbon Doser Purge** and press Enter or click the **Start** button.

- The test dialog will be displayed.



- Select the **Start** button to begin the test.
- The **Start** button will change to a **Stop** button and the lamp next to the button will indicate the test is Running.
- During the procedure, the status is monitored and updated in the Status window.
- Once the procedure completes, the **Stop** button will change back to the **Start** button and the status will revert to Not Running.
- Click the **Exit** button to return to the test selection dialog.

Hydrocarbon Dosing Control Valve Test

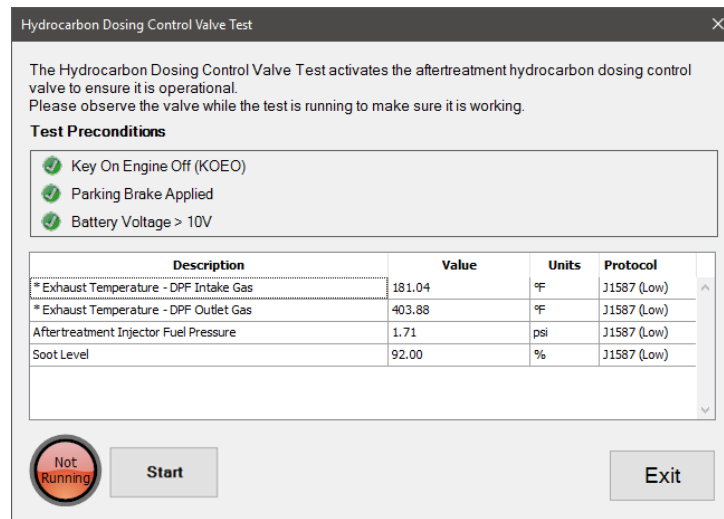
The **Hydrocarbon Dosing Control Valve Test** is supported on:

- ✓ Mack and Volvo all EPA 10 engines

The **Hydrocarbon Dosing Control Valve Test** activates the aftertreatment dosing control valve to ensure it is operational. You must observe the valve while the test is running to make sure it is working

- Select **Hydrocarbon Dosing Control Valve Test** and press **Enter** or click **Start** button.

- The test dialog will be displayed.



Hydrocarbon Dosing Control Valve Test

- Select the **Start** button to begin the test. The valve will be activated for a maximum of 5 seconds.
- Observe the valve while the test is running to make sure it is working properly.
- Select the **Stop** button to stop the test at any point. The test will automatically stop after 5 seconds.
- Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Install a New or Cleaned DPF

Install DPF is supported on:

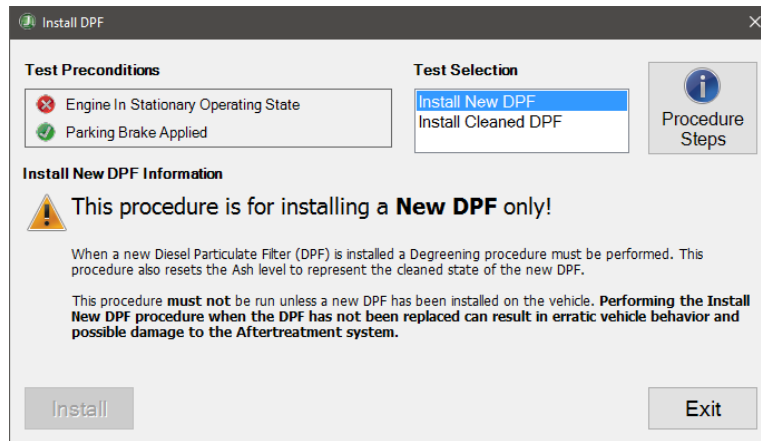
- ✓ PACCAR EPA 10 to EPA 13 all MX engines.

The **Install DPF** test is for installing either a new or cleaned DPF. The **Install Cleaned/New DPF procedure** must only be performed after a cleaned or new diesel particulate filter has been installed.

This procedure will reset the vehicle's ash level to reflect that status of the DPF.

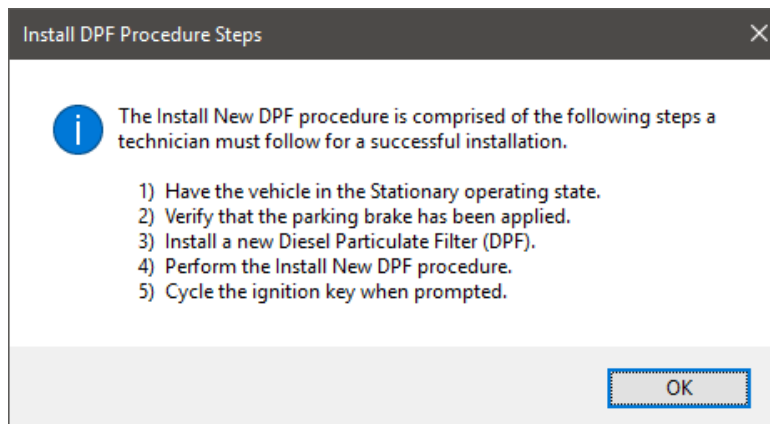
- Select **Install DPF** and press **Enter** or click **Start** button.
- The **Install DPF** dialog will be displayed.

3. Select either **Install New DPF** or **Install Cleaned DPF** from the Test Selection. Test specific information will be displayed depending on which test is selected.



Install New DPF Test Selected

4. Select the **Procedure Steps** to view detailed instructions for a successful installation.



Install New DPF Procedure Steps

5. Ensure all preconditions are met.
6. Click the **Install** button to begin the procedure.
7. When the procedure has completed, instructions to key off the engine will be displayed.
8. After engine has been keyed off, a countdown will begin on the Install DPF dialog.
9. At the end of the countdown, instructions to key on the engine will be displayed.
10. After engine has been keyed on, **Procedure Successfully Completed** will be displayed.
11. Click the **Exit** button to return to test selection.

Metering Unit Flood Routine

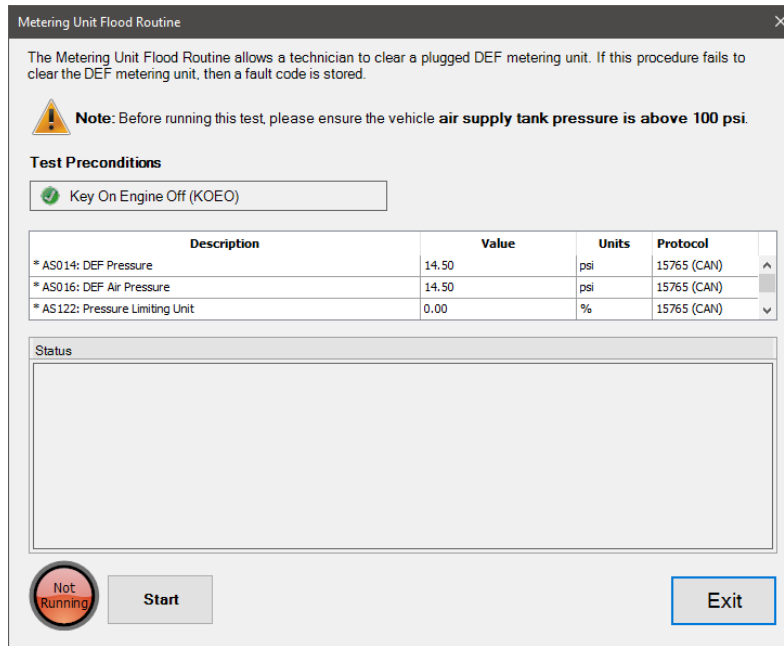
The Metering Unit Flood Routine is available on:

- ✓ Detroit Diesel any supported CPC with MCM02T

NOTE: This test is only available for [Supported ECU Software Versions](#).

This test is used to clear a plugged diesel exhaust fluid (DEF) metering unit.

1. Select the **Metering Unit Flood Routine** and press Enter or select the **Start** button.
2. The **Metering Unit Flood Routine** dialog will be displayed.



Metering Unit Flood Routine

3. To begin the test, press the **Start** button. The lamp to the left of the **Start** button will change from "Not Running" to "Running" and highlight as well. The button will change to **Stop**.
 - ▲ Ensure the air supply tank pressure is above 100 psi before starting this test.
4. As the test runs, the status area will show what is occurring and the current state. Once the test completes, the status area will display the test results.
5. To end test at any time, press the **Stop** button.
6. To leave this dialog, select the **Exit** button

NOx Conversion Monitor Test

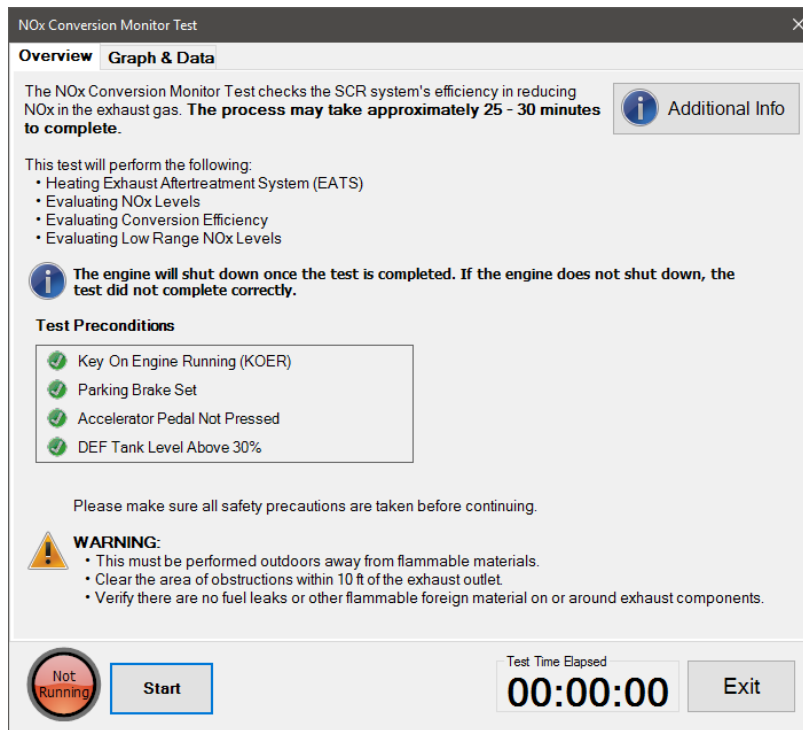
The **NOx Conversion Monitor Test** is supported on:

- ✓ Mack and Volvo EPA 13 to GHG17 engines

The NOx Conversion Monitor Test checks the SCR system's efficiency in reducing NOx in the exhaust gas. The test can be used for confirmation of active DTCs, DEF quality check, and comparing system behavior before and after repair.

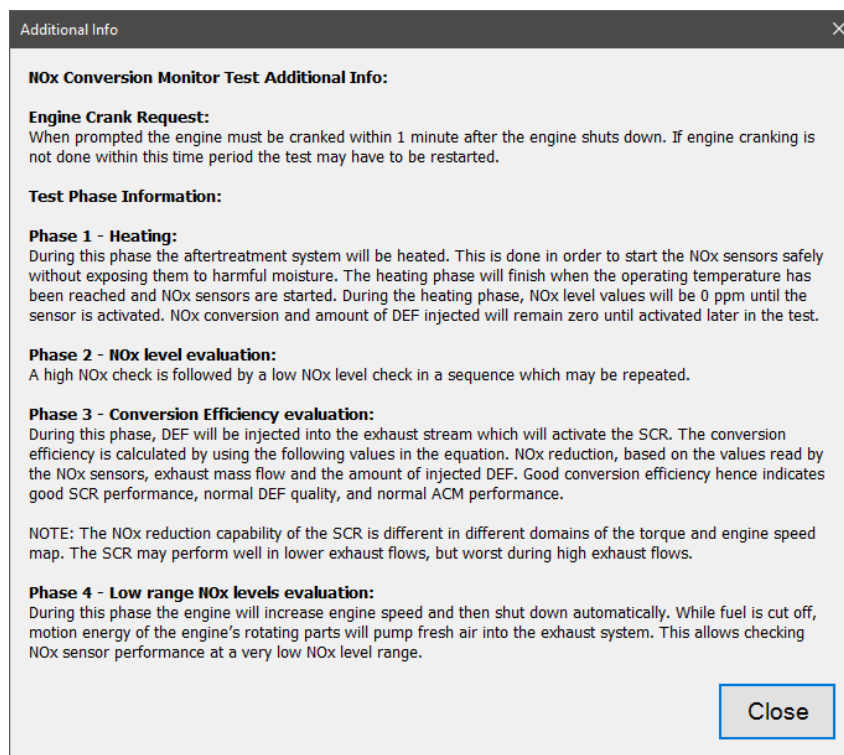
1. Select the **NOx Conversion Monitor Test** and press **Enter** or select the **Start** button.

2. The **NOx Conversion Monitor Test** dialog will be displayed.



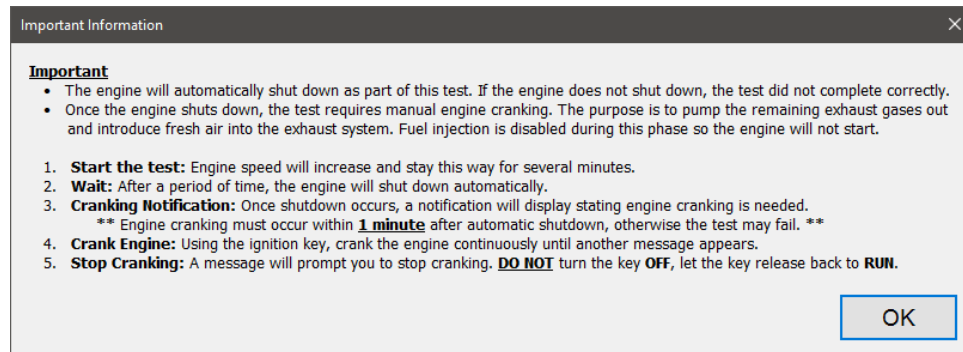
NOx Conversion Monitor Test

3. Select the **Additional Info** button to view additional details concerning this test.



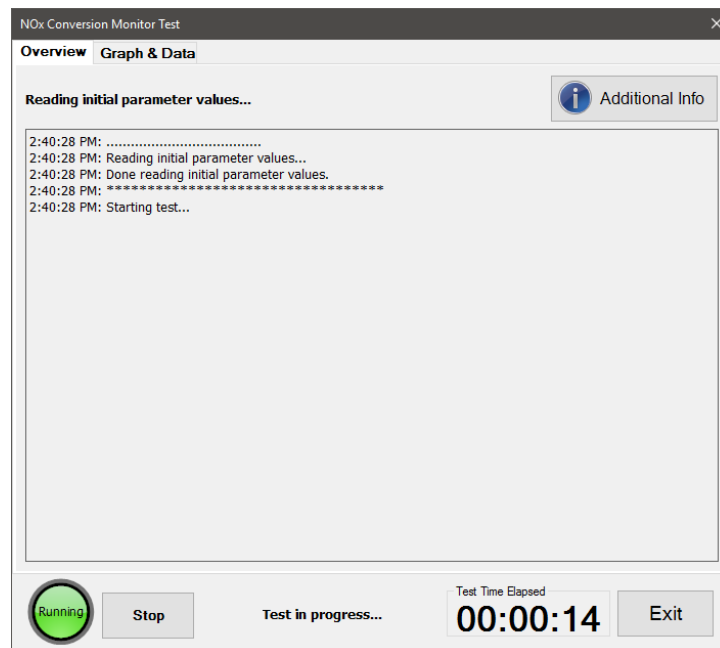
NOx Conversion Monitor Test - Additional Information

- To begin the test, press the **Start** button. The lamp to the left of the **Start** button will change from “Not Running” to “Running” and highlight as well. The button will change to **Stop**.
- A confirmation message box will display the first time the test executes. After reading this important information, select **Ok**.



NOx Conversion Monitor Test – Confirmation Message

- As the test runs, the status area will show what is occurring and the current state. Once the test completes, the status area will display the test results.



NOx Conversion Monitor Test – Test Running

- To end test at any time, press the **Stop** button.
- To leave this dialog, select the **Exit** button.

Parked SCR Efficiency Test

The Parked SCR Efficiency Test is supported on:

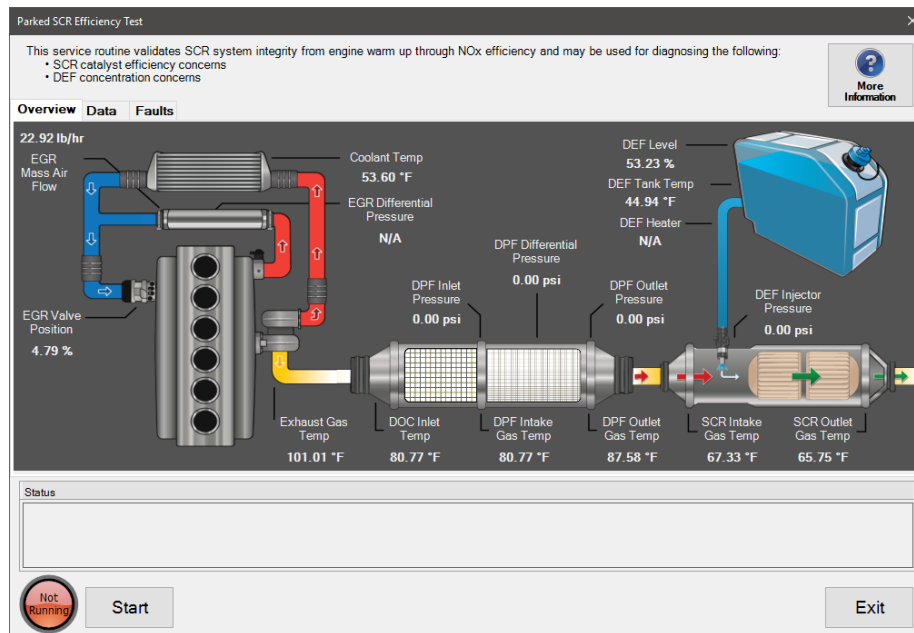
- ✓ Detroit Diesel CPC02T with ACM02T

- ✓ Detroit Diesel CPC04T with ACM02T or ACM21T
- ✓ Detroit Diesel CPC302T with ACM21T or ACM301T
- ✓ Detroit Diesel CPC501T with ACM21T or ACM301T

NOTE: This test is only available for [Supported ECU Software Versions](#).

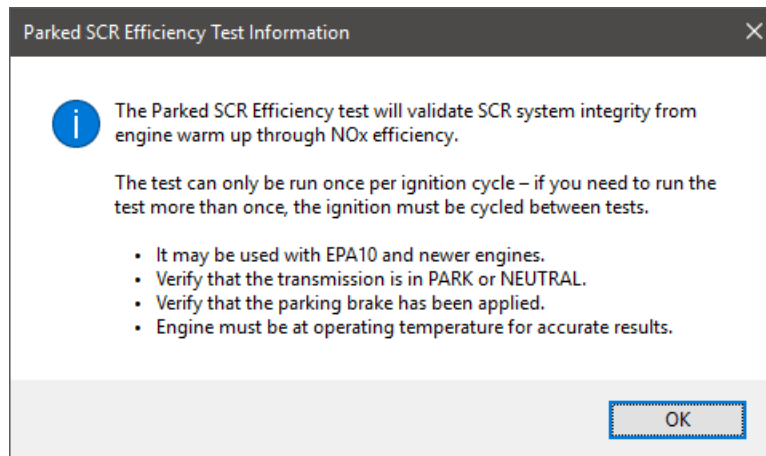
The Parked SCR Efficiency Test validates the SCR system integrity from engine warm up through NOx efficiency. It may be used for diagnosing SCR catalyst efficiency or DEF concentration concerns.

1. Select the **Parked SCR Efficiency Test** and press **Enter** or select the **Start** button.
2. If not previously shown, the Aftertreatment Instructions are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the **Close** button on the window.
3. The **Parked SCR Efficiency Test** dialog will be displayed.



Parked SCR Efficiency Test Dialog

4. Select the **More Information** button to view additional details concerning this test.



Parked SCR Efficiency Test Information

5. Select the **Data** tab to view data related to the aftertreatment system as well as a graph of temperature values.
6. Select the **Faults** tab to view all active fault conditions for the engine and aftertreatment system.
7. To begin the test, press the **Start** button. The lamp to the left of the **Start** button will change from “Not Running” to “Running” and highlight as well. The button will change to **Stop**.

NOTE: The transmission must be in park or neutral and the parking brake must be applied prior to starting the test.
NOTE: The engine must be at operating temperature for accurate results.

8. As the test runs, the status area will show what is occurring and the current state. Once the test completes, the status area will display the test results.
9. To end test at any time, press the **Stop** button.
10. To leave this dialog, select the **Exit** button.

Performance Check Low Temp ATD

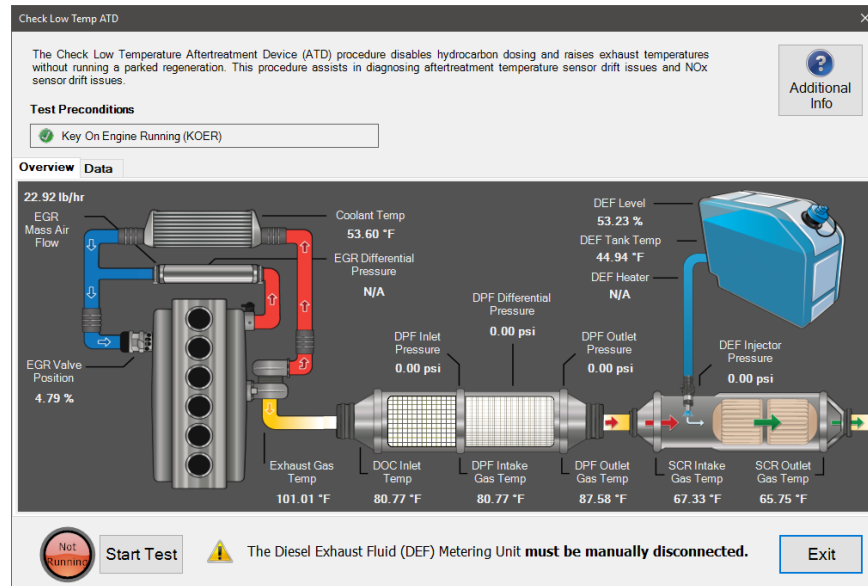
The **Performance Check Low Temp ATD** is supported on:

- ✓ Detroit Diesel CPC02T with MCM02T
- ✓ Detroit Diesel CPC04T with ACM02T or ACM21T
- ✓ Detroit Diesel CPC302T with ACM21T

NOTE: This test is only available for [Supported ECU Software Versions](#).

The Performance Check Low Temp ATD test disables hydrocarbon dosing and raises exhaust temperatures without running a parked regeneration. This helps diagnose Aftertreatment temperature and NOx sensor drift issues.

1. Select the **Performance Check Low Temp ATD** and press **Enter** or select the **Start** button.
2. If not previously shown, the Aftertreatment Instructions are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the Close button on the window.
3. The Performance Check Low Temp ATD dialog will be displayed.



Performance Check Low Temp ATD Dialog

4. Select the **More Information** button to view information concerning the **Diesel Exhaust Fluid Metering Unit** location.

NOTE: The Diesel Exhaust Fluid Metering Unit must be manually disconnected to run the Performance Check Low Temp ATD test.

5. Select the **Data** tab to view data related to the aftertreatment system as well as a graph of temperature values.
6. To begin the test, press the **Start Test** button. The lamp to the left of the **Start Test** button will change from "Not Running" to "Running" and highlight as well. The button will change to **Stop**.
7. The test will stop after 30 minutes. To end the test earlier, press the **Stop Test** button.
8. To leave this dialog, select the **Exit** button.

Prime the System with the Pump for DEF

The **Prime the System with the Pump for DEF** test is supported on:

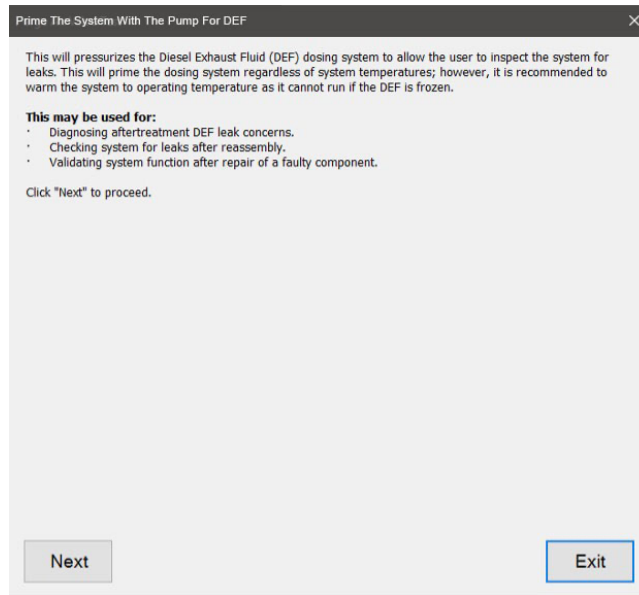
- ✓ PACCAR GHG17 all MX engines

The Prime the System with the Pump for DEF test should be performed after DEF system repair or maintenance. The test will prime the system with DEF and maintain pressure to ensure the system is free of leaks. The technician

should visually inspect all hoses and connections for leaks. It is not required to remove the DEF dosing valve for this test.

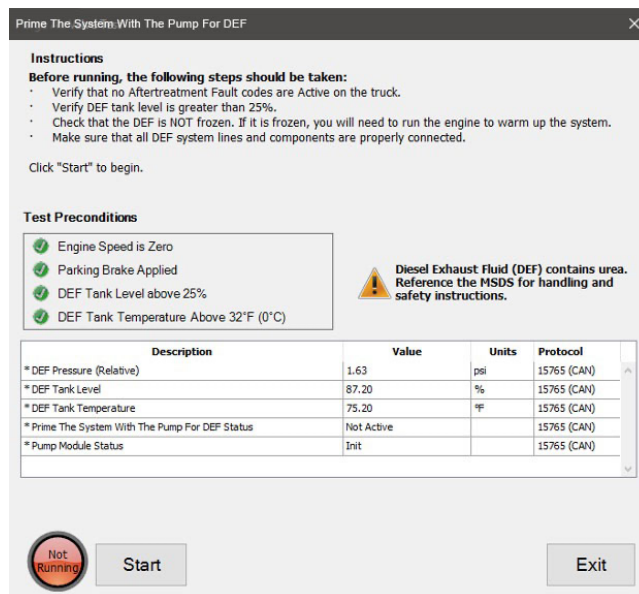
⚠ Failure to cycle ignition key when prompted can lead to erratic vehicle behavior.

1. Select the **Prime the System with the Pump for DEF** test and press Enter or the *Start* button.
2. The Prime the System with the Pump for DEF test dialog will display.



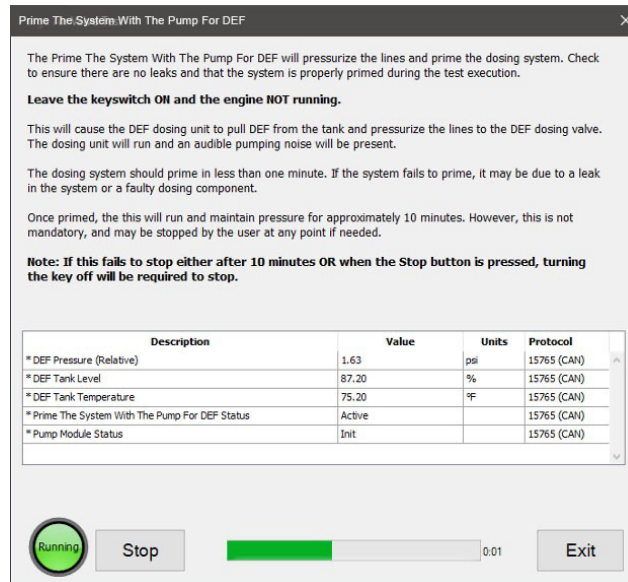
Prime the System with the Pump for DEF Info Page

3. Select the **Next** button to begin the test.
4. When prompted, cycle the key off until instructed to key the ignition back on. After the key cycle is complete, the test dialog will display further instructions and preconditions.



Prime the System with the Pump for DEF Dialog

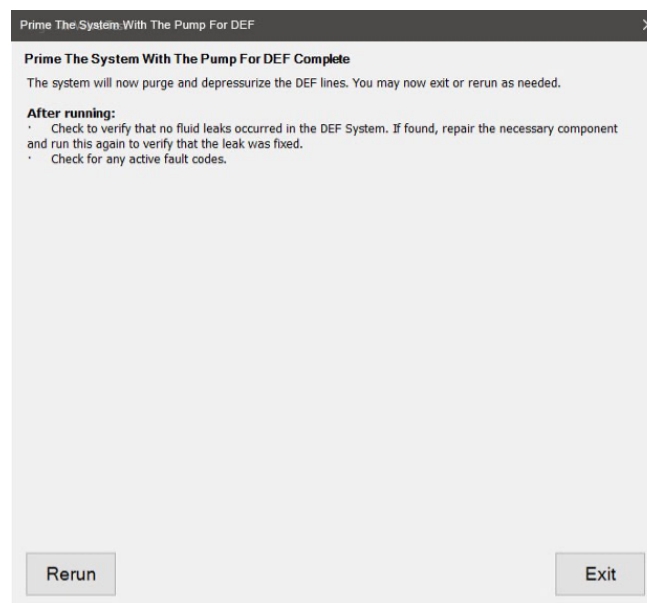
- Once all instructions have been followed and preconditions are met, select the **Start** button to begin the test.
- The test screen will display additional information as the test runs.



Prime the System with the Pump for DEF Test Running

- When the test has completed, cycle the key off until instructed to key the ignition back on. After the key cycle is complete, post-test instructions are displayed.

NOTE: If the test needs to be performed again, click the *Rerun* button to return to the start screen.



Prime the System with the Pump for DEF Test Completed

- Once the test has been completed, click the **Exit** button to return to the test selection dialog.

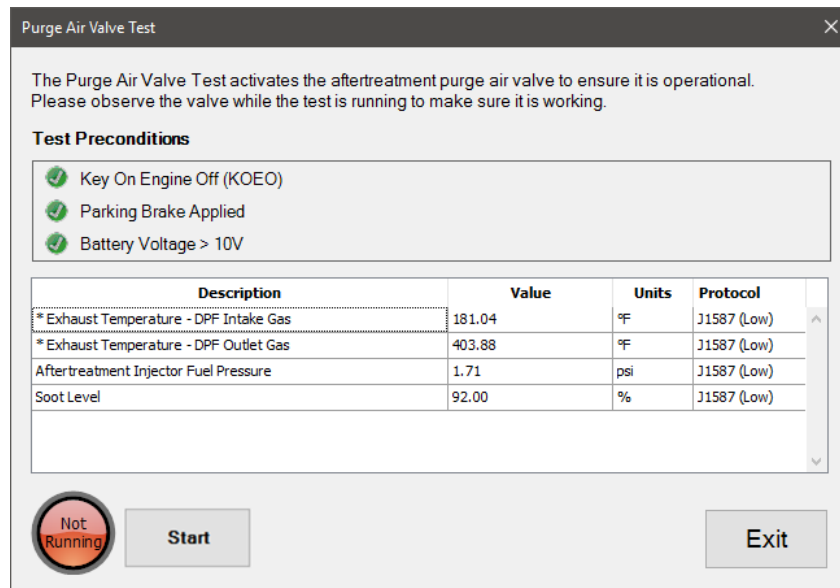
Purge Air Valve Test

The **Purge Air Valve Test** is supported on:

- ✓ Mack and Volvo all EPA 10 engines

The Purge Air Valve Test activates the purge air valve to ensure it is operational. You must observe the valve while the test is running to make sure it is working

1. Select the **Purge Air Valve Test** and press **Enter** or the **Start** button.
2. The **Purge Air Valve Test** dialog displays.



Purge Air Valve

3. Select the **Start** button to begin the test. The valve will be activated for a maximum of 20 seconds.
4. Observe the valve while the test is running to make sure it is working properly.
5. Select the **Stop** button to stop the test at any point. The test will automatically stop after 20 seconds.
6. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Reset the Soot Level

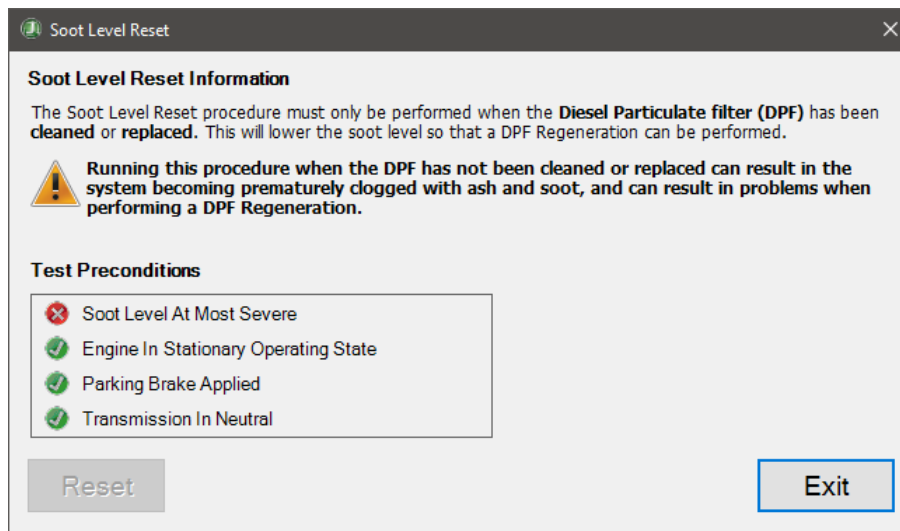
Reset the Soot Level test is supported on:

- ✓ PACCAR EPA 10 to EPA 13 all MX engines

Reset the Soot Level procedure will reset the vehicle's soot level to reflect the status of the Diesel Particulate Filter (DPF). It must only be performed after the DPF has been cleaned or replaced or the Soot Level Sensor is found faulty and replaced. This will lower the soot level so that a DPF Regeneration can be performed.

- ⚠ Running this procedure when the DPF has not been cleaned or replaced can result in the system becoming prematurely clogged with ash and soot and can result in problems when performing a DPF Regeneration.

1. Select **Reset the Soot Level** and press Enter or the **Start** button.
2. The **Soot Level Reset** dialog will be displayed.



Reset the Soot Level

3. Ensure all preconditions are met and select the **Reset** button to initiate the reset operation.
4. Reset operation will be executed. If the reset completed successfully then a status message will be displayed at the bottom of the window.
5. Press **Exit** button when ready to exit this test and return to the test selection dialog.

SCR Airless Doser System (ADS) Self Check

The **SCR Airless Doser System Self Check** is supported on:

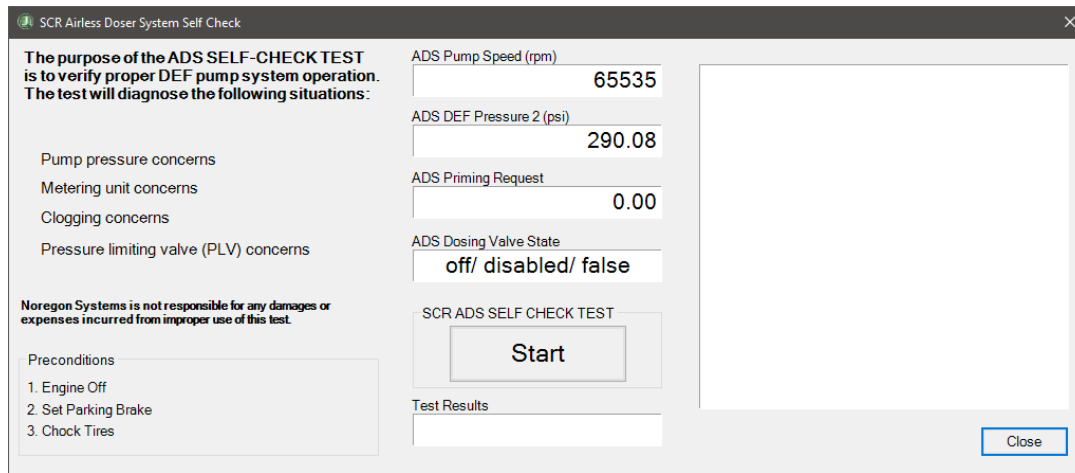
- ✓ Detroit Diesel any supported CPC with ACM02T or ACM21T

NOTE: This test is only available for [Supported ECU Software Versions](#).

The SCR Airless Doser System (ADS) Self Check ensures that the SCR system is operating properly. This test will diagnose pump pressure, metering unit, clogging, and pressure limiting valve (PLV) concerns.

1. Select **SCR Airless Doser System Self Check** and press **Enter** or press **Start** Button.

- The **SCR Airless Doser System Self Check** dialog will be displayed. Different ADS component indicators will be displayed to the user for monitoring. The status and progress of each step of the test will be tracked on the box to the right.



SCR Airless Doser System Self Check Test Dialog

- Press the **Start** button to begin the test.
If engine RPM is detected the user will be alerted and the test will not start. Otherwise, the test will proceed to start.
- During the test, the **Start** button will change to the **Stop** button and the status and progress of each step of the test will be displayed on the right. To manually stop the current test, press the **Stop** button.
- After the test completes, the **Test Results** box will display the outcome of the test.
- Press **Close** button when ready to exit this test and return to the test selection dialog.

SCR Air Pressure System Check

SCR Air Pressure System Check is available on:

- ✓ Detroit Diesel any supported CPC with ACM02T

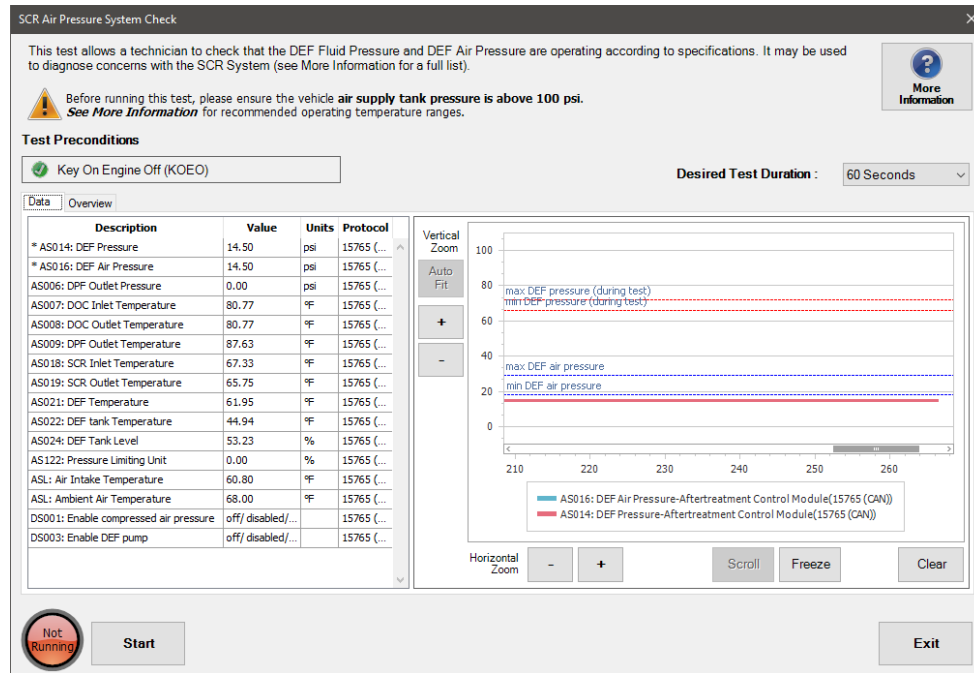
NOTE: This test is only available for [Supported ECU Software Versions](#).

This test allows a technician to check that the diesel exhaust fluid (DEF) pressure and DEF air pressure are within specification.

It may also be used for diagnosing concerns the following:

- Pneumatic switching valve
- Pump pressure
- Metering unit
- Nozzle clogging
- Pressure limiting unit
- Vehicle air

1. Select the **SCR Air Pressure System Check** test and press Enter or click the **Start** button.
2. The **SCR Air Pressure System Check** dialog will be displayed.



SCR Air Pressure System Check

3. Select the **More Information** button to view additional details about the SCR Air Pressure System Check.
4. Select the **Desired Test Duration** from the dropdown. It will default to 60 seconds.
5. To begin the test, press the **Start** button. The lamp to the left of the **Start** button will change from "Not Running" to "Running" and highlight as well. The button will change to **Stop**.
6. A vertical line will be added to the graph indicating when the test was started.
7. Select the **Overview** tab to see the aftertreatment graphic with displayed data items.
8. When the test completes, another vertical line will be added to the graph indicating the test was ended. The **Stop** button will be changed back to a **Start** button and the lamp to the left will change to "Not Running".
9. To end test early, press the **Stop** button.
10. To leave this dialog, select the **Exit** button

SCR Faults Reset

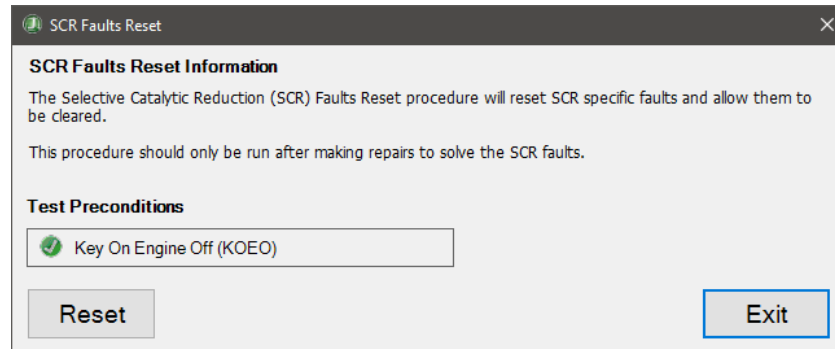
The **SCR Faults Rest** is supported on:

- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

The SCR Faults Reset is an aftertreatment reset test that provides the ability to clear SCR faults that are not cleared with a normal clear faults request.

This procedure should only be run after making repairs to solve the SCR faults.

1. Select **SCR Faults Reset** and press **Enter** or the **Start** button.
2. The **SCR Faults Reset** dialog will be displayed.



SCR Faults Reset

3. Ensure all preconditions are met and select the **Reset** button to initiate the reset operation. Follow the instructions given on the dialog.
4. Turn off the ignition and select the **Continue** button (previously was the Reset button).
5. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to 'Please turn ignition on to re-establish communications.' displays.
6. Turn the ignition on. Wait for communication to be re-established.
7. Once the status updates to 'Procedure Successfully Completed', press **Exit** to return to the test selection dialog.

SCR Output Component Test

The **SCR Output Component Test** is supported on:

- ✓ Any supported CPC with ACM02T and MCM02T or MCM21T
- ✓ Any supported CPC with ACM21T and MCM02T or MCM21T

NOTE: This test is only available for [Supported ECU Software Versions](#).

This test routine is used as a sanity check for components related to the Aftertreatment system. It is performed at KOEO (key on, engine off).

1. Select **SCR Output Component Test** and press **Enter** or press **Start** Button.

- The **SCR Output Component Test** dialog will be displayed.

This test is used as a sanity check for components related to the Aftertreatment system. The test is performed at KOEO (key on, engine off).

Overview Data Faults

22.92 lb/hr
EGR Mass Air Flow
EGR Valve Position 4.79 %
Coolant Temp 53.60 °F
EGR Differential Pressure N/A
DEF Level 53.23 %
DEF Tank Temp 44.94 °F
DEF Heater N/A
DPF Differential Pressure 0.00 psi
DPF Inlet Pressure 0.00 psi
DPF Outlet Pressure 0.00 psi
DEF Injector Pressure 0.00 psi
Exhaust Gas Temp 101.01 °F
DOC Inlet Temp 80.77 °F
DPF Intake Gas Temp 80.77 °F
DPF Outlet Gas Temp 87.58 °F
SCR Intake Gas Temp 67.33 °F
SCR Outlet Gas Temp 65.75 °F

Status

Start Test Result **Not Started** NOTE • This feature is used only with EPA10 and newer engines. • The test can only be run once per ignition cycle - if you need to run the test more than once, the ignition must be cycled between tests. Exit

SCR Output Component Test Dialog

- The **Status** box in the bottom will display the progress of each step of the test. The **Overview** tab displays different emissions sensor values to be monitored for the test.
- The **Data** tab displays important sensor data to be monitored for the test in a grid on the left. On the right of the Data tab is a strip chart of temperature values monitored for the test.

This test routine is used as a sanity check for components related to the Aftertreatment system. The test is performed at KOEO (key on, engine off).

Overview **Data** Faults

Description	Value	Units	Protocol
* Aftertreatment 1 DPF Intake Temperature	160.19	°F	J1939 (H...
* Aftertreatment 1 DPF Outlet Temperature	94.61	°F	J1939 (H...
* Aftertreatment 1 Exhaust Gas Temperature	160.19	°F	J1939 (H...
AS009: DPF Outlet Temperature	93.20	°F	15765 (...)
AS035: SCR Outlet NOx Sensor	1,650.00	ppm	15765 (...)
AS036: SCR Inlet NOx Sensor	1,650.00	ppm	15765 (...)
AS080: ADS DEF Quantity Request	0.00	lbs/sec	15765 (...)
AS085: Actual DEF Dosing Quantity	0.00	lbs/sec	15765 (...)
AS086: Requested DEF Dosing Quantity	0.00	lbs/sec	15765 (...)
AS101: Nox conversion efficiency	0.03		15765 (...)
AS110: ADS DEF Pressure 2	145.27	psi	15765 (...)
AS143: ADS Pump Speed	1111	rpm	15765 (...)
ASL002: Engine Speed	600	rpm	15765 (...)

Vertical Zoom: Auto Fit, +, -

Horizontal Zoom: -, +, Scroll, Freeze, Clear

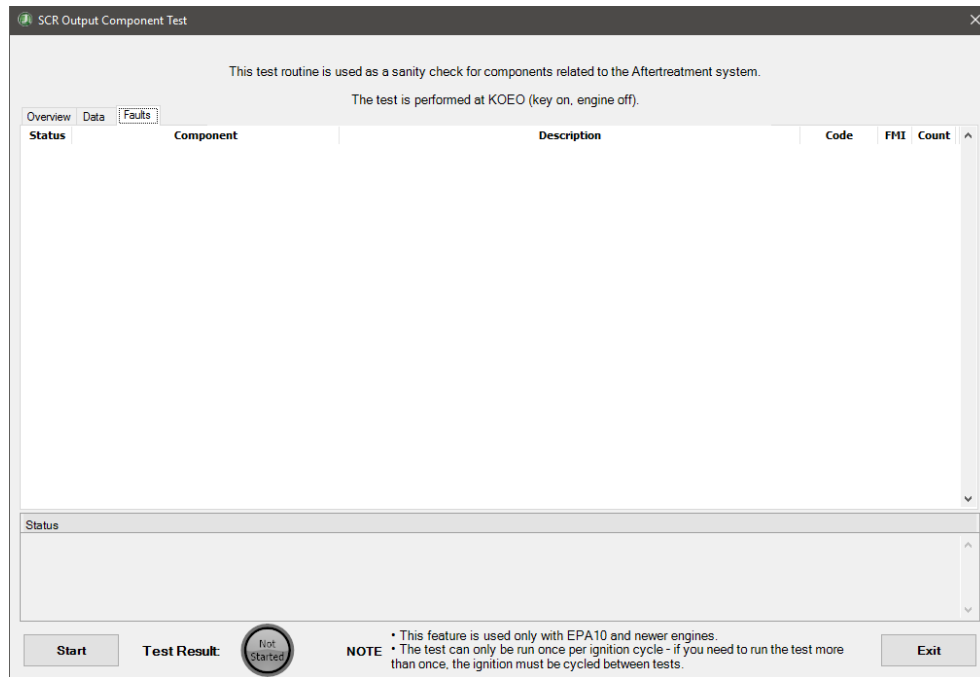
Status

14:17:13: Exhaust Emission Controller :In Progress
 14:17:13: Motor Control Module :Failed - Check Fault Codes
 14:17:13: Exhaust Emission Controller :Failed - Check Fault Codes
 14:17:18: Motor Control Module :Failed - Check Fault Codes
 14:17:19: Test Run Status :Completed

Start Test Result **Failed** NOTE • This feature is used only with EPA10 and newer engines. • The test can only be run once per ignition cycle - if you need to run the test more than once, the ignition must be cycled between tests. Exit

SCR Output Component Test – Data Tab

- The **Faults** tab displays faults. That will include existing faults and any new faults that will occur during the test.



SCR Output Component Test – Faults Tab

- Press **Start** button to begin the test. If the engine RPM is detected the user will be alerted and the test will not start. Otherwise, the test will proceed.
- During the test, the **Start** button will become the **Stop** button. The progress of each step will be displayed in the **Status** box and the **Test Result** indicator will display “Running”. To manually stop the current test, press the **Stop** button.
- When the test completes, the **Test Results** indicator will show “Pass” if successful or “Failed” if it was not successful. Any other additional messages will be displayed in the **Status** box.
- Press **Exit** button when ready to exit this test and return to the test selection dialog.

SCR Performance and System Test

The **SCR Performance and System Test** is supported on:

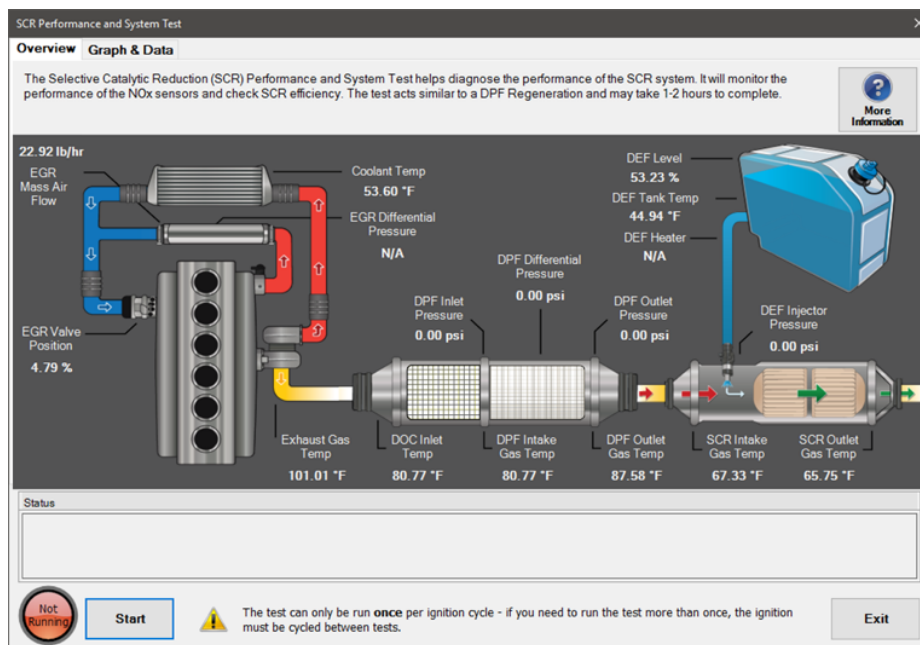
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSF, QSL, QSX, B6.7, B4.5, F3.8
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

The **Selective Catalytic Reduction (SCR) Performance and System Test** helps diagnose issues with the performance of the SCR system. It monitors the performance of the NOx sensors and checks SCR efficiency.

The test can be run only once per ignition cycle. You must cycle the ignition between tests.

NOTE: This test may take 1 – 2 hours to complete depending on the state of the aftertreatment system.

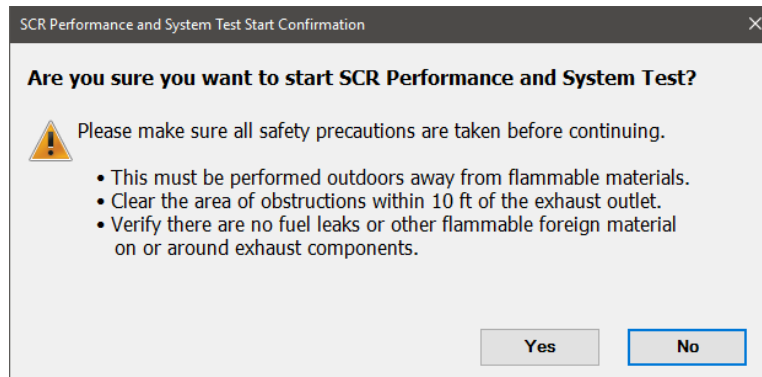
1. Select the **SCR Performance and System Test** and press **Enter** or click the **Start** button.
2. If not previously shown, the **Aftertreatment Instructions** are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the **Close** button on the window.
3. The **SCR Performance and System Test** dialog displays.



SCR Performance and System Test Dialog

4. Select the **More Information** button to view detailed test information.

5. Select the **Start** button to begin the test. You will be asked to confirm the test start to verify that all necessary safety precautions have been taken.



SCR Performance and System Test Confirmation Dialog

6. As the test runs, the **Status** area will update indicating test progress.
7. Select the **Graph & Data** tab to view additional sensor data details. Click the checkbox next to any data item to add or remove it from the graph.
8. Once the test completes, the status area will indicate the test results.
9. Press **Exit** button when ready to exit this test and return to the test selection dialog.

SCR Regeneration

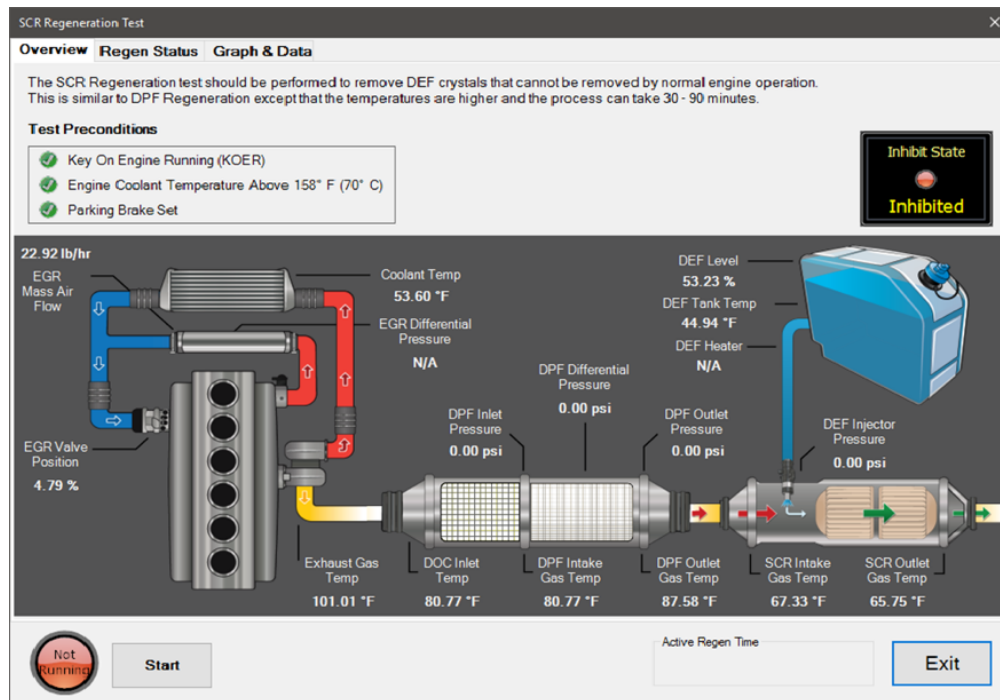
SCR Regeneration is supported on:

- ✓ Mack and Volvo EPA 13 to GHG17 engines

The SCR Regeneration test should be performed to remove DEF crystals that cannot be removed by normal engine operation. This is like the DPF Regeneration except that the temperatures are higher, and the operation may take approximately 30 – 90 minutes to complete.

1. Select **SCR Regeneration** and press **Enter** or press **Start** Button.
2. If not previously shown, the **Aftertreatment Instructions** are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the Close button on the window.

- The **SCR Regeneration** dialog displays.



SCR Regeneration

- Select the **Regen Status** tab to see the details for the Inhibit and DPF status.
- Select the **Start** button to begin the SCR Regeneration process.
- Select the **Graph & Data** tab see data items related to the test. Values for selected data items will be graphed as the test progresses. Click the checkbox next to any data item to add or remove it from the graph.
- Select the **Stop** button at any time to stop the test early.
- Once the test completes, press the **Exit** button to return to the test selection dialog.

Air Treatment Systems

Cartridge Lifetime Prediction Reset Test

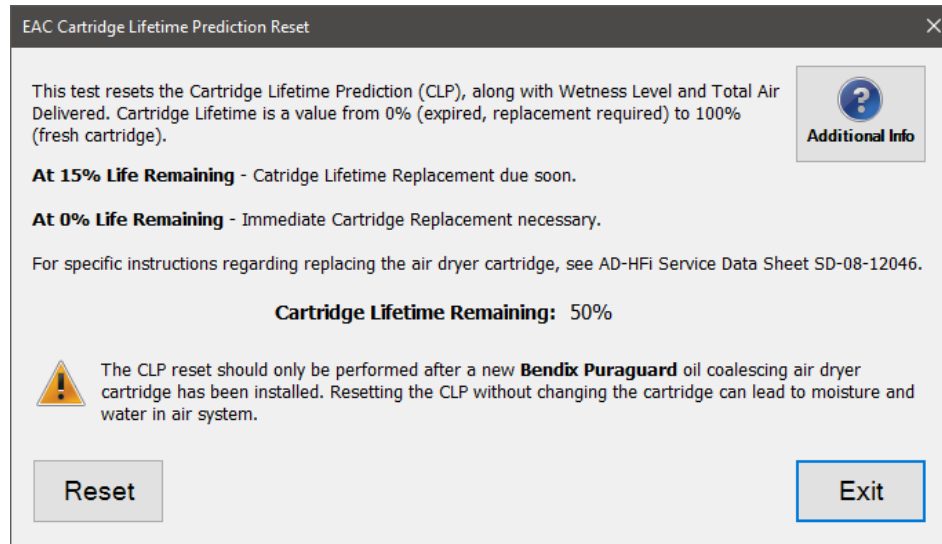
The **Cartridge Lifetime Prediction Reset** test is available on:

- ✓ EAC (EC-80 Integrated)
- ✓ EAC (Standalone)

This test provides the ability to reset the Cartridge Lifetime Remaining value to 100% after a new air dryer cartridge has been installed.

- Select **EAC Cartridge Lifetime Prediction Reset** test and press **Enter** or the **Start** Button.

- The **EAC Cartridge Lifetime Prediction Reset** test dialog will be displayed.

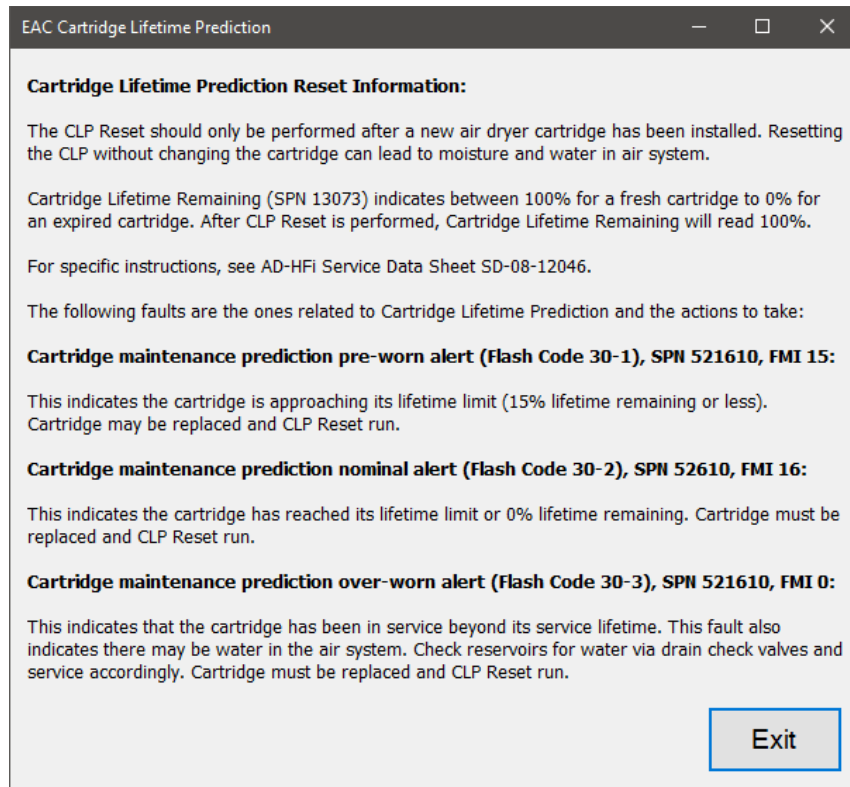


Cartridge Lifetime Prediction Reset Test

NOTE: Reset should only be performed after a new air dryer cartridge has been installed.

- Click the **Reset** button to reset the Cartridge Lifetime Remaining value to 100%. The Wetness Level and Total Air Delivered values will also be reset.

4. Selecting **Additional Info** will display important test and repair information, including explanations for related faults. Click **Exit** to close this screen.



Cartridge Lifetime Prediction Reset Test Additional Info

5. When done, press the **Exit** button to return to the test selection dialog.

Cartridge Reset Test

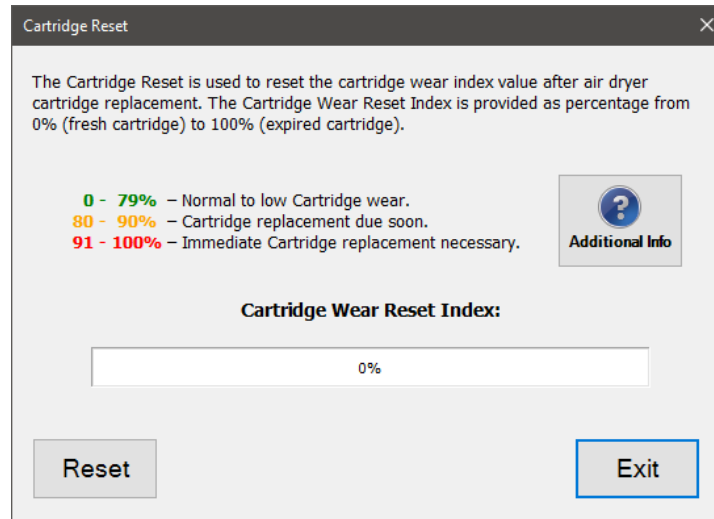
The **Cartridge Reset** test is available on:

- ✓ iAPU

The **Cartridge Reset Test** provides the ability to reset the cartridge wear index measurement value to 0% after a new air dryer cartridge has been installed.

1. Select **Cartridge Reset** test and press **Enter** or the **Start** Button.

2. The test dialog will be displayed.



Cartridge Reset Test

3. Select **Reset** to begin the test. A warning message that the existing cartridge must be replaced before running this test is displayed. When ready to perform the test, select the **OK** button. The test will complete, resetting the cartridge wear index measurement value.
4. When done, press the **Exit** button to return to the test selection dialog.

Oil Change Reset Test

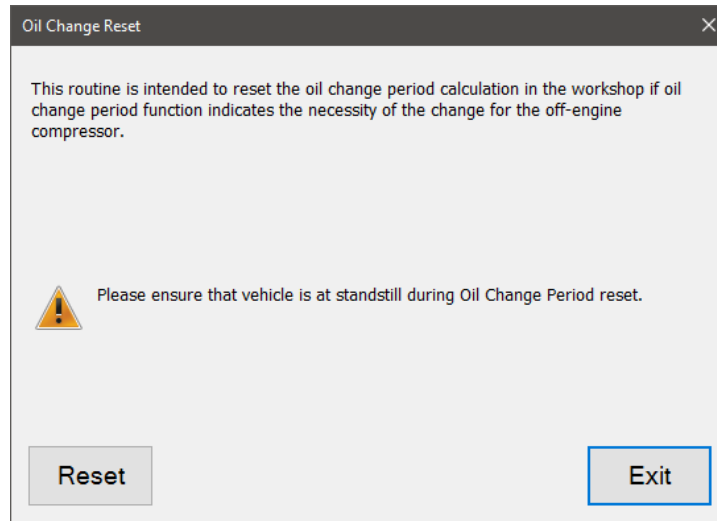
The **Oil Change Reset** test is available on:

- ✓ iAPU

The **Oil Change Reset Test** will reset the oil change period calculation after an oil change has been performed.

1. Select **Oil Change Reset** test and press **Enter** or the **Start** Button.

2. The test dialog will be displayed.



Oil Change Reset Test

3. Ensure the vehicle is stationary, then select **Reset** to begin the test. The oil change period value will be reset.
4. When done, press the **Exit** button to return to the test selection dialog.

CTIS Tests

CTIS Pressure Test

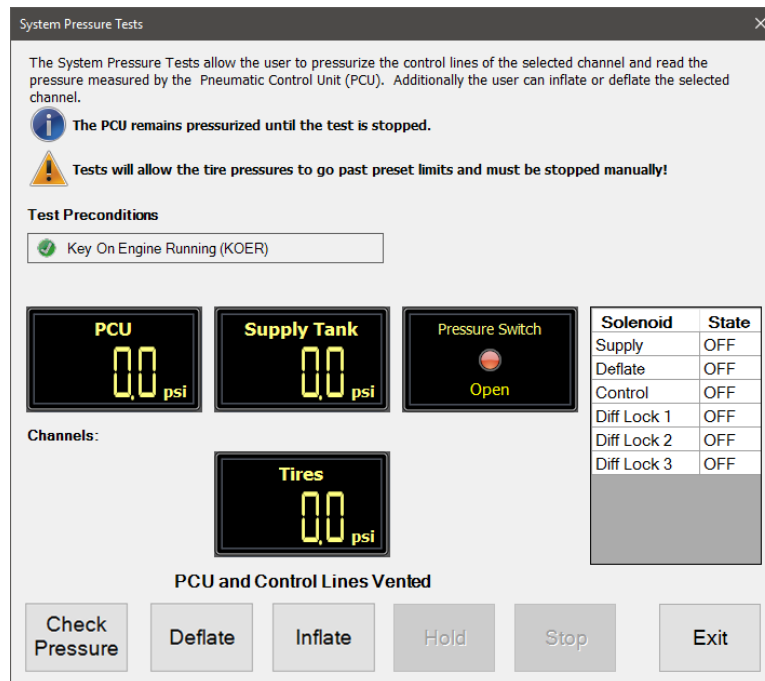
The **CTIS Pressure Test** is supported on:

- ✓ Dana CTIS where J1939 communications are available

The **CTIS Pressure test** allow you to measure the pressure of a selected axle group by pressurizing the control lines and reading the pressure in the Pneumatic Control Unit (PCU).

1. Select **CTIS Pressure Tests** and press **Enter** or click the **Start** button.

2. The test dialog will be displayed.



CTIS Pressure Test

3. Select the **Check Pressure** button to refresh the displayed data values.
 4. Select the **Deflate** button to start deflating the tires.
 - a. The **Hold** and **Stop** buttons will enable.
 - b. Status will alternate between "Tires Deflating" and "Checking Pressure in Tires".
 - c. Monitor the displayed data values.
 - d. Select the **Hold** button to pause the deflation and check tire pressure.
 - e. Select the **Stop** button to stop the deflation.
 5. Select the **Inflate** button to start inflating the tires.
 - a. The **Hold** and **Stop** buttons will enable.
 - b. Status will alternate between "Tires Inflating" and "Checking Pressure in Tires".
 - c. Monitor the displayed data values.
 - d. Select the **Hold** button to pause the inflation and check tire pressure.
 - e. Select the **Stop** button to stop the inflation.
- ⚠ The CTIS system will allow the tire pressures to go past preset limits and must be stopped manually.
6. When the test has completed, click the **Exit** button to return to the test selection dialog.

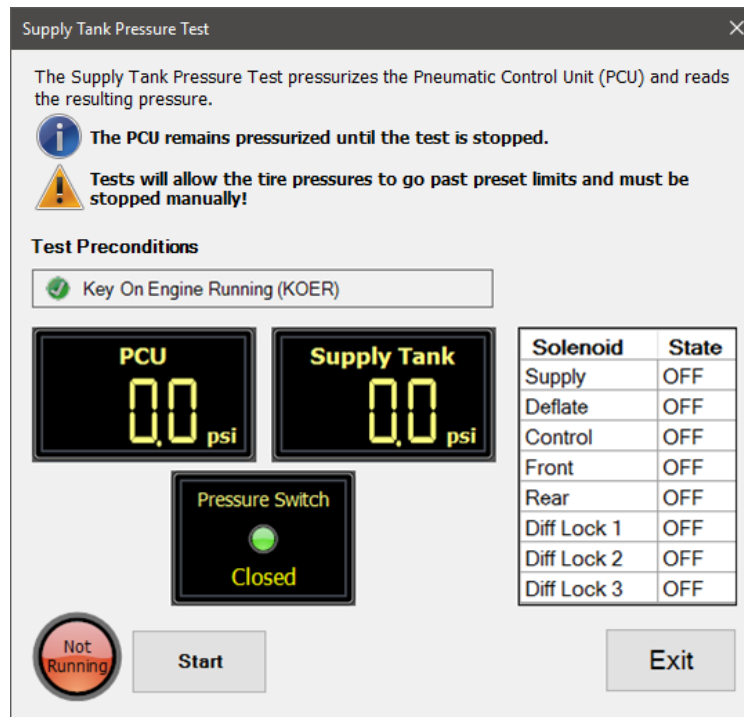
CTIS Supply Tank Pressure Test

The **CTIS Supply Tank Pressure Test** is supported on:

- ✓ Dana CTIS where J1939 communications are available

The **CTIS Supply Tank Pressure Test** allows you to measure the supply tank pressure by pressurizing the Pneumatic Control Unit (PCU) and reading the pressure measured by the PCU.

1. Select **CTIS Supply Tank Pressure Test** and press **Enter** or click the **Start** button.
2. The test dialog will be displayed.



CTIS Supply Tank Pressure Test

3. Select the **Start** button to begin the test.
4. Monitor the displayed data values.
5. Select the **Stop** button to stop the test. The PCU will remain pressurized until the test is stopped.
 - ⚠ The CTIS system will allow the tire pressures to go past preset limits and must be stopped manually.
6. When the test has completed, click the **Exit** button to return to the test selection dialog.

Driver Assistance Systems (DAS) Tests

AutoVue 3G Configuration

The **AutoVue Configuration** test is available on:

- ✓ Bendix AutoVue® 3G LDW System

This test allows the editing of configuration parameters.

1. Select **SDP3 Configuration** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.

Parameter	Value
Enable Startup Chirps	Enabled
Radio Mute Output Enable	Enabled
Allow Driver Volume Control	Enabled
LDW Warning Alert Type	Audio
LDW Minimum Operating Speed (kph) [min: 60 / max: 80]	80
Sample Interval (minutes) [min: 0 / max: 300]	300

AutoVue Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Blindspotter Configuration

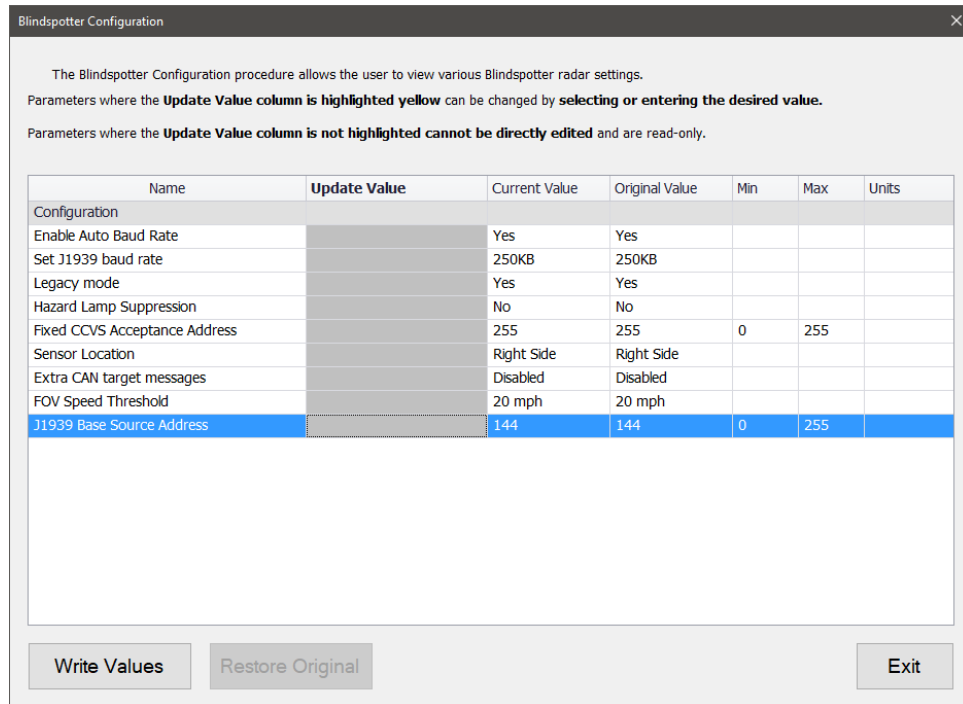
The **Blindspotter Configuration** is available on:

- ✓ Bendix Blindspotter® Radar

This test allows viewing the parameter values for the Blindspotter radar.

1. Select **Blindspotter Configuration** and press **Enter** or the **Start** button.

- The test dialog will be displayed showing the current parameter values of the **Blindspotter** radar.



Blindspotter Configuration

- When done, press the **Exit** button to return to the test selection dialog.

Camera Snapshot Test

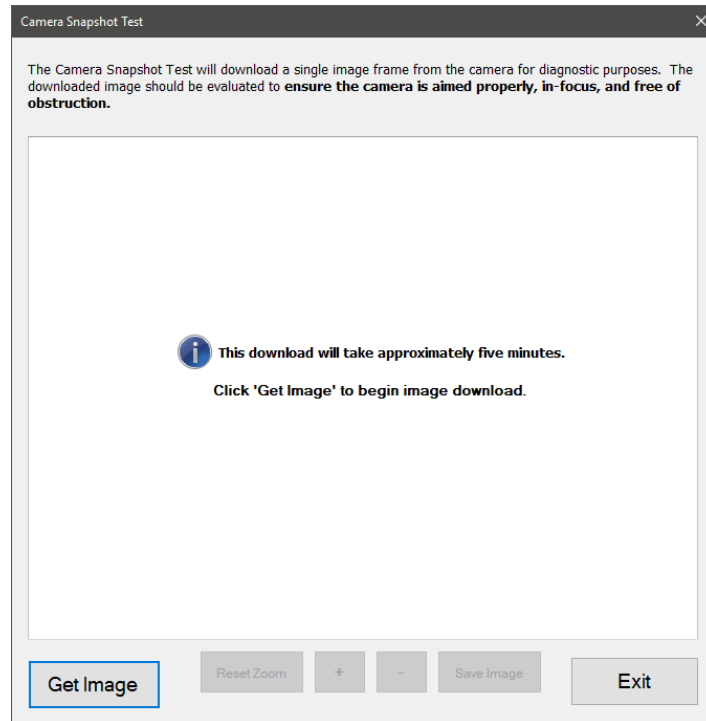
The **Camera Snapshot Test** is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test commands the camera to take a snapshot and downloads the image for viewing to ensure proper camera alignment, focus, and visibility.

- Select **Camera Snapshot Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Camera Snapshot Test

3. Select the **Get Image** button to take a snapshot with the camera and download it to the viewer window. Review the downloaded image to ensure proper camera placement and function. Click the **+** and **-** buttons to change image zoom. Click **Reset Zoom** to return the image to its default full screen view. Click **Save Image** to save the picture to your hard drive.

NOTE: Downloading the image can take approximately 5 minutes.

4. When done, press the **Exit** button to return to the test selection dialog.

Clear Stored Events and Videos

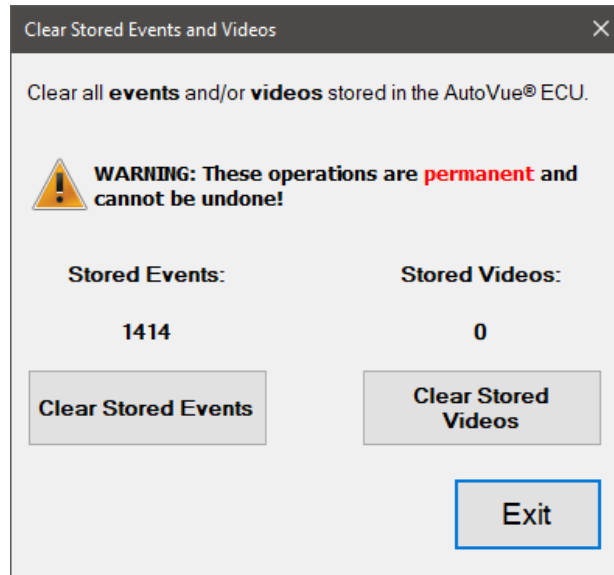
The **Clear Stored Events and Videos** test is available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (3G and 5G)

This test allows the clearing of any events or videos stored in the AutoVue® ECU. Clearing events or videos is permanent and cannot be undone.

1. Select the **Clear Stored Events and Videos** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Clear Stored Events and Videos

3. Select the **Clear Stored Events** button to clear the log of stored events.
4. Select the **Clear Stored Videos** button to clear all videos stored in memory. After the selected clear event completes the related counter will be reset to 0.

NOTE: Clearing stored events or videos is a permanent process that cannot be undone.

5. When done, press the **Exit** button to return to the test selection dialog.

DIU Configuration

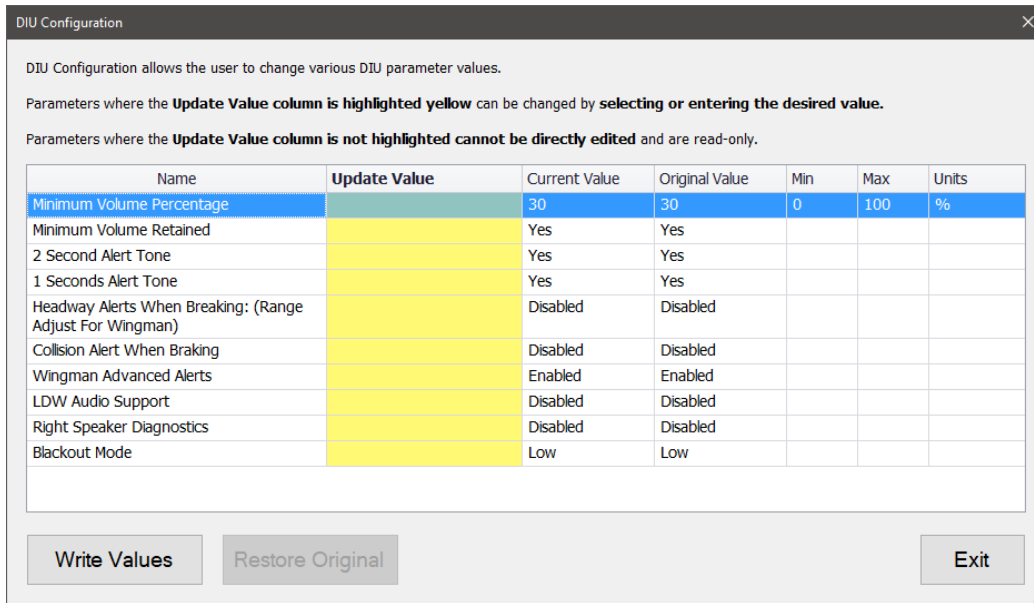
The **DIU Configuration** is available on:

- ✓ Bendix Driver Interface Unit

This test allows the editing of configuration parameters.

1. Select **DIU Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



DIU Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Indicator Component Tests

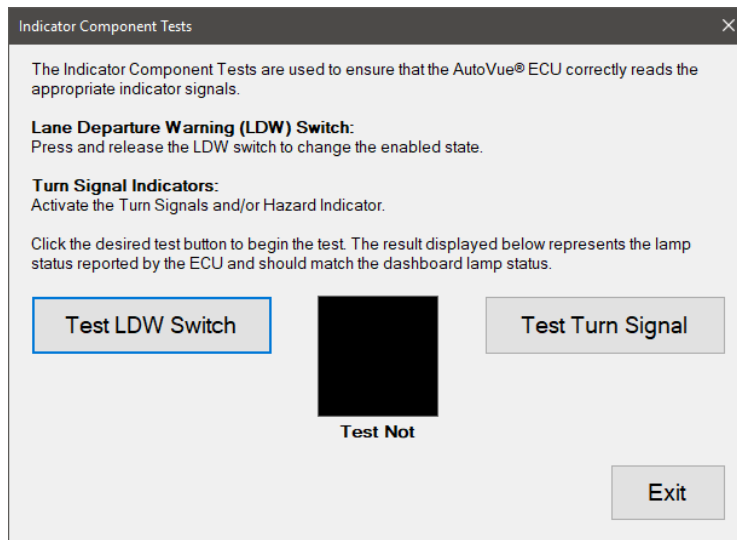
The **Indicator Component Tests** are available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (5G)

This test is used to ensure the ECU is correctly reading input from the following indicator components: Lane Departure Warning (LDW) switch, and the Turn Indicators.

1. Select the **Indicator Component Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Indicator Component Tests

3. This test verifies the ECUs ability to correctly read indicator signals. Select **Test LDW Switch** to begin reading the status of the lane departure warning switch. Toggle the physical LDW switch in the vehicle cab and observe the test to see if the change in status is reported. Click **Stop Test** to stop monitoring the LDW status.
4. Select **Test Turn Signal** and observe the test while using the turn signals to see if the change in status is reported. The Hazard light switch can also be toggled. Click **Stop Test** to stop monitoring the turn signals.
5. When done, press the **Exit** button to return to the test selection dialog.

Lamp Component Test

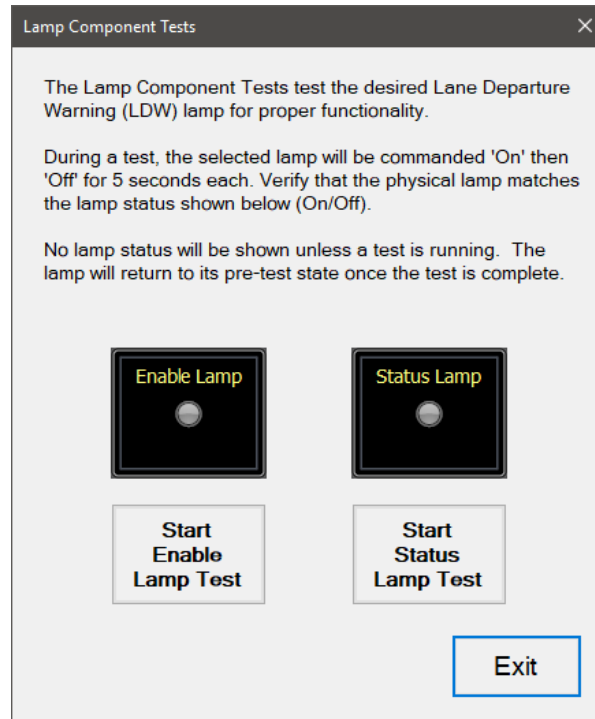
The **Lamp Component Tests** are available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (5G)

The **Lamp Component Test** tests proper functionality of the Lane Departure Warning Enable/Disable lamp and the Status Lamp.

1. Select the **Lamp Component Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Lamp Component Tests

3. Select the desired lamp test button. The selected lamp will be commanded “**On**” for 5 seconds and then “**Off**” for 5 seconds. Observe the lamps to see if their status changes to match the commanded status displayed on the test screen.
4. When done, press the **Exit** button to return to the test selection dialog.

LDW Configuration

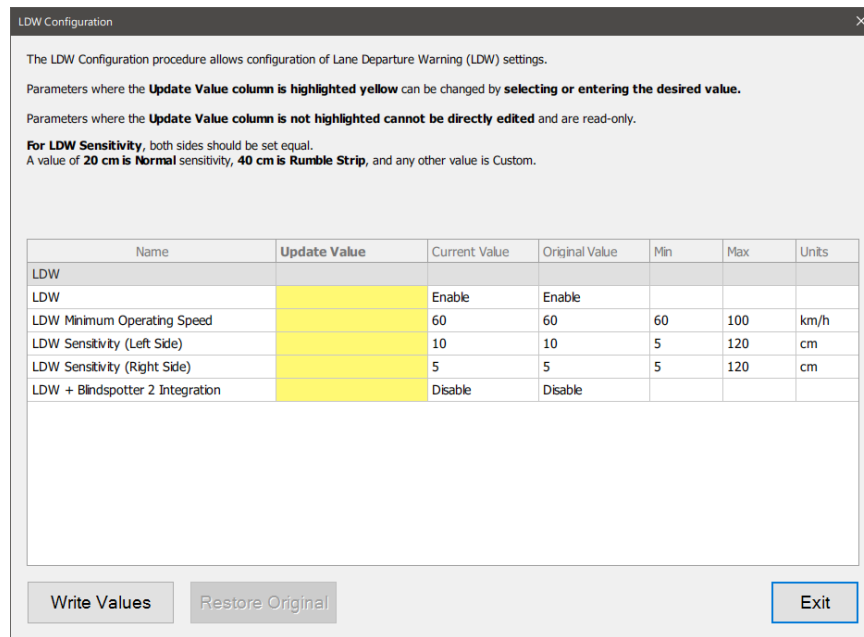
The **Lane Departure Warning (LDW) Configuration** test is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows editing of configuration parameters.

1. Select **LDW Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



LDW Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Output Component Tests

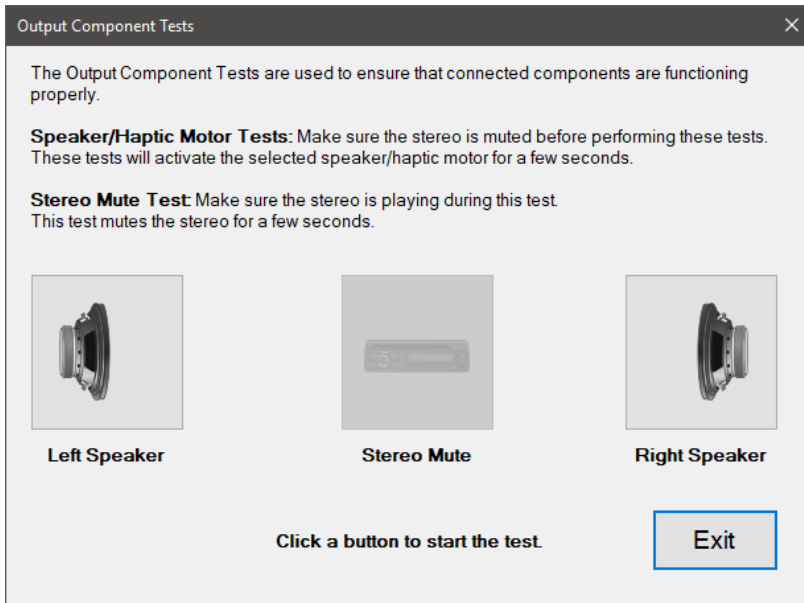
The **Output Component Tests** are available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (3G and 5G)

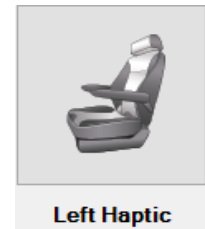
This test checks for proper functionality of connected alert systems, including: Speaker Feedback, Haptic Feedback, and Stereo Mute.

1. Select **the Output Component Tests** and press Enter or the *Start* button.

2. The test dialog will be displayed.



Output Component Tests



Haptic Image

3. Ensure the stereo is muted, then click the desired left or right test button. The selected speaker or haptic motor will be activated until the selected button is clicked again to stop the test.
4. To perform the **Stereo Mute** test, ensure the stereo is turned on before clicking the button to begin the test. Select the button again to stop the test.
5. When done, press the **Exit** button to return to the test selection dialog.

Pressure Trimming and Coil Polarity Test

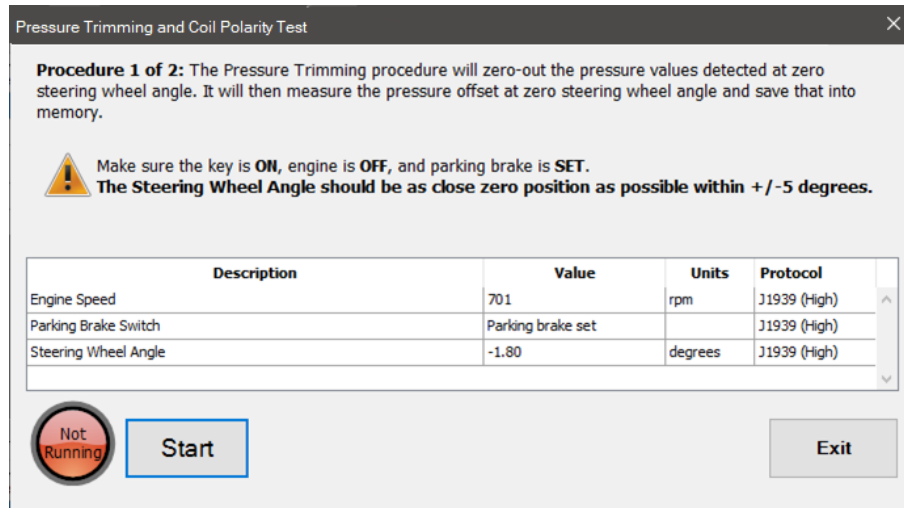
The **Pressure Trimming and Coil Polarity Test** is available on:

- ✓ Active Steering by Bendix CVS components

This test will reset the pressure values to zero and should only be performed when the steering wheel angle is zero.

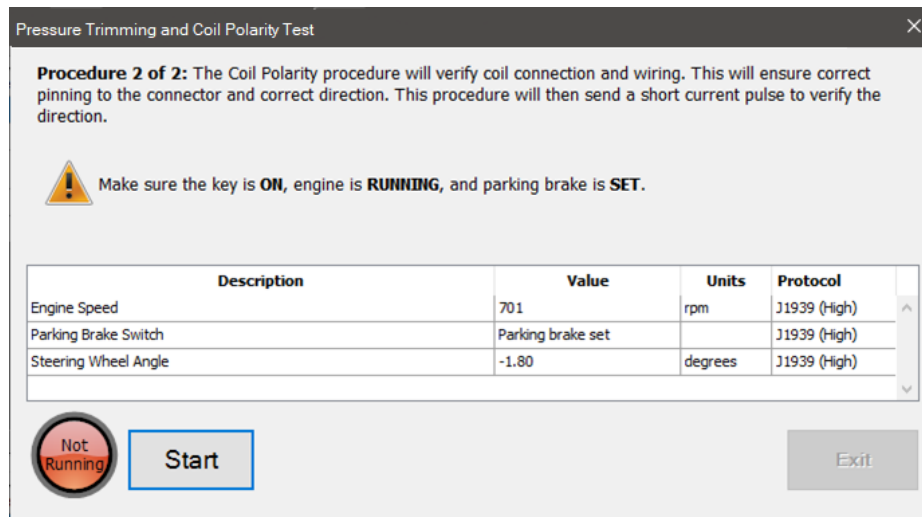
1. Select **Pressure Trimming Test** and press **Enter** or the **Start** button.

- The test dialog will be displayed.



Pressure Trimming Test

- Once the **Steering Wheel Angle** is as close to zero as possible, click **Start** to begin the test. The pressure values will be reset to zero and the offset will be written to memory.
- The test will move to the second procedure. Click **Start** to perform the test. The coil connection and status will be verified. The test results will be displayed upon completion.



Coil Polarity Procedure

- When done, press the **Exit** button to return to the test selection dialog.

Radar Alignment

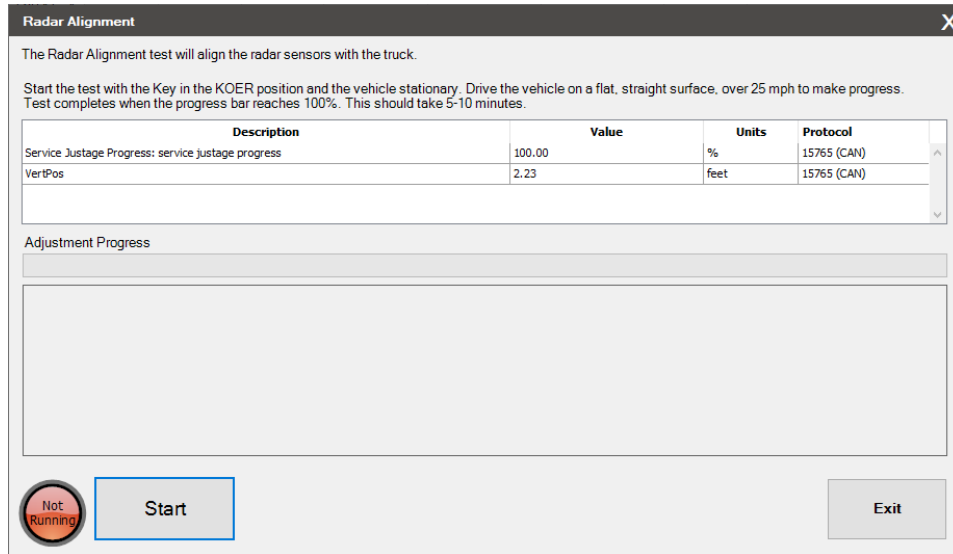
The **Radar Service Alignment** test is available on:

- ✓ Detroit Assurance Radar Frontend 2

This test allows the user to align the radar to the vehicle. After beginning the test, the vehicle must be driven for 5 to 10 minutes for the radar to align. Rough road conditions or erratic driving can cause the alignment process to take longer.

NOTE: This test must remain connected to the vehicle for the full duration of the test.

1. Select **Radar Alignment** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Radar Alignment

3. Click the **Start** button to begin the test. Begin driving the vehicle above 25 mph for approximately 10 minutes, until the test progress bar reaches 100%. The test will stop when progress has reached 100%.
4. When done, press the **Exit** button to return to the test selection dialog.

Radar Parameters

The **Radar Parameters** test is available on:

- ✓ Detroit Assurance Radar Frontend 2

This test allows the editing of radar configuration parameters.

1. Select the **Radar Parameters test** and press Enter or the **Start** button.

- The Radar Parameters test dialog will display showing the current parameter values of the Radar Frontend 2.

Radar Parameters

To change the following parameters, enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

✖ Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
Radar Height		A0004478349-001 Height_680m m	A0004478349-001 Height_680m m	N/A	N/A	None

Ensure that you have permission to write these values, and are in compliance with all legal and contractual obligations. Licensee assumes all responsibility for legal, warranty, or safety violations.

Program Restore Original Exit

Radar Parameters

- Select a new value in one or more rows of the grid. Click the **Program** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
- When done, press the **Exit** button to return to the test selection dialog.

Radar Service Alignment

The **Radar Service Alignment** test is available on:

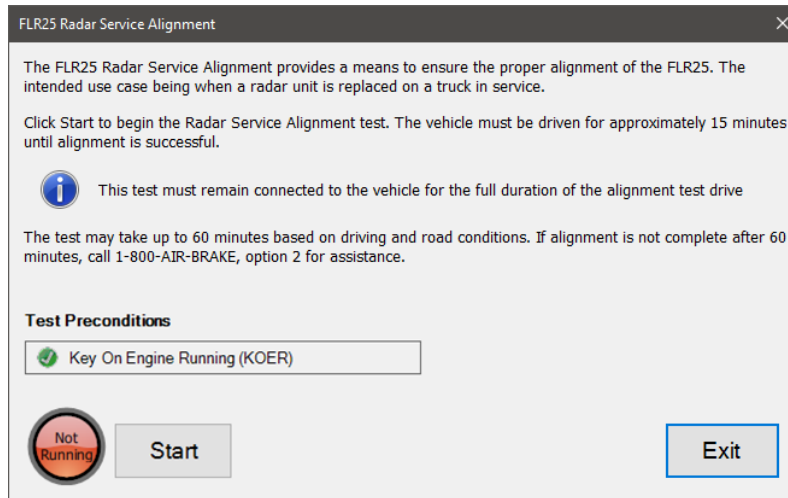
- ✓ Wingman® FLR25™ Radar

This test allows the user to align the FLR25 radar to the vehicle. After beginning the test, the vehicle must be driven above 25 mph for at least 15 minutes for the radar to align. Rough road conditions or erratic driving can cause the alignment process to take longer.

NOTE: This test must remain connected to the vehicle for the full duration of the test.

- Select **Radar Service Alignment** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



FLR25 Radar Service Alignment

3. Click the **Start** button to begin the test. A misalignment fault will be set as active. A timer will begin, showing the test duration. Begin driving the vehicle for approximately 15 minutes. When Alignment is complete the timer will be replaced with "Alignment is successful" and the misalignment fault will become inactive.
4. If alignment has not completed after 60 minutes of driving, the test will end with alignment unsuccessful. Call the displayed support number for assistance.
5. When done, press the **Exit** button to return to the test selection dialog.

Safety Direct Event Configuration

The **Safety Direct Event Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (3G and 5G)

This test allows the user to configure triggers and parameters for safety events.

1. Select **Safety Direct Event Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.

Safety Direct Event Configuration

Safety Direct Event Configuration allows certain ECU parameter values to be changed for various configurations.

Parameters where the **Update Value** column is highlighted yellow can be changed by selecting or entering the desired value.

Parameters where the **Update Value** column is not highlighted cannot be directly edited and are read-only.

Name	Update Value	Current Value	Original Value	Min	Max	Units
ECU Setup						
SafetyDirect Event Reporting		Enable	Enable			
SD Event Collection						
Record Time Before Event Trigger		10	10	0	10	seconds
Record Time After Event Trigger		10	10	0	10	seconds
SD Manual Event Video Length		180	180	0	180	seconds
SD Event Triggers						
Hard Braking Force		1	1	0.1	1	g
Severe Hard Braking Force		1	1	0.1	1	g
Excessive Turning Force		1	1	0.1	1	g
Severe Excessive Turning Force		1	1	0.1	1	g
Following Distance Time		60	60	0	60	seconds
Following Distance Duration		180	180	0	180	seconds
Severe Following Distance Duration		3600	3600	0	3600	seconds
SD Severe Lane Mark No. Track Time		255	255	0	255	minutes
Vehicle Speeding Limit		250	250	30	250	kph
Speeder Time		2600	2600	0	2600	seconds

Write Values Restore Original Exit

Safety Direct Event Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Safety Direct Event Selection Configuration

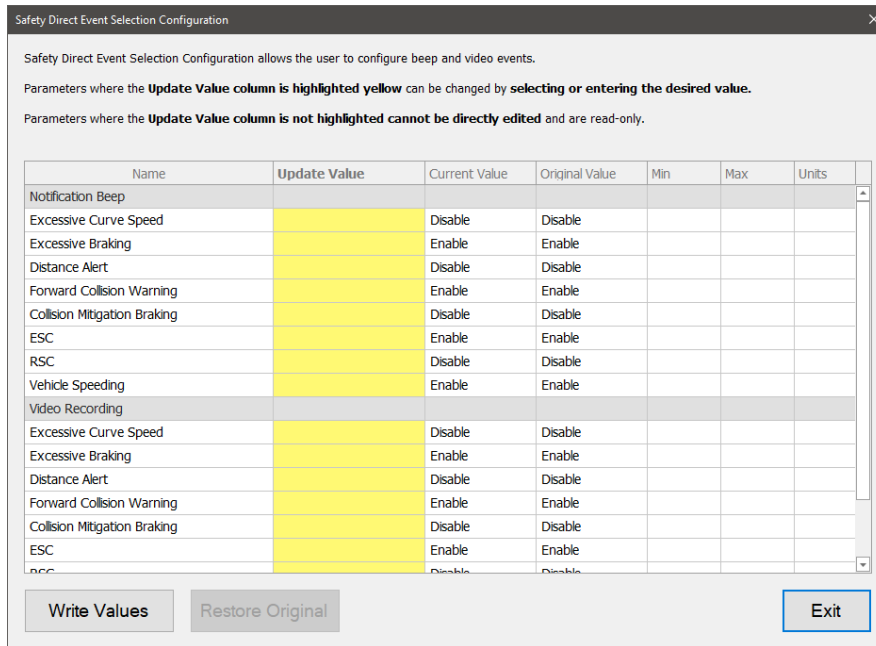
The **Safety Direct Event Selection Configuration** test is available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (3G and 5G)

This configuration tool allows the user to configure beep and video events.

1. Select **Safety Direct Event Selection Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Safety Direct Event Selection Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

SDP3 Configuration

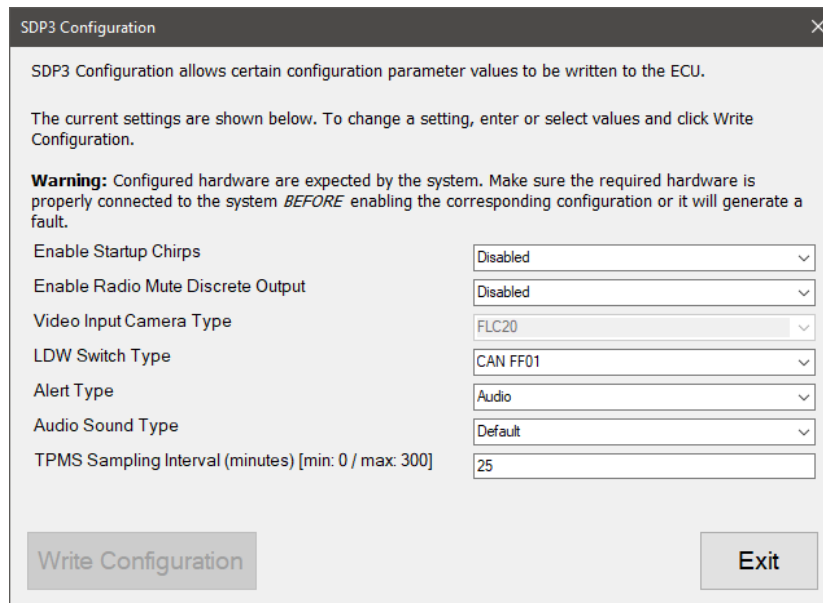
The **SDP3 Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (3G)

This test allows the editing of configuration parameters.

1. Select **SDP3 Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



The image shows a software dialog box titled "SDP3 Configuration". It contains the following text and controls:

SDP3 Configuration allows certain configuration parameter values to be written to the ECU.

The current settings are shown below. To change a setting, enter or select values and click Write Configuration.

Warning: Configured hardware are expected by the system. Make sure the required hardware is properly connected to the system *BEFORE* enabling the corresponding configuration or it will generate a fault.

Enable Startup Chirps	Disabled
Enable Radio Mute Discrete Output	Disabled
Video Input Camera Type	FLC20
LDW Switch Type	CAN FF01
Alert Type	Audio
Audio Sound Type	Default
TPMS Sampling Interval (minutes) [min: 0 / max: 300]	25

At the bottom of the dialog, there are two buttons: "Write Configuration" and "Exit".

SDP3 Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

SPD5 Configuration

The **SDP5 Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (5G)

This test allows the editing of configuration parameters.

1. Select **SDP5 Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.

SDP5 Configuration allows certain configuration setup parameter values to be written to the ECU.

The current settings are shown below. To change a setting, enter or select values and click Write Configuration.

Warning: Configured hardware are expected by the system. Make sure the required hardware is properly connected to the system *BEFORE* enabling the corresponding configuration or it will generate a fault.

Enable Startup Chirps	Enabled
Enable Radio Mute Discrete Output	Off
Video Input Camera Type	FLC20
LDW Switch Type	CAN FF01
Alert Type	Audio
Audio Sound Type	Rumble Strip
DVR Options	DVR Disabled
Cellular Enable	Enabled
Read SafetyDirect Event Video Storage Count [min: 0 / max: 65535]	0
TPMS Sampling Interval (minutes) [min: 0 / max: 300]	25

Write Configuration Exit

SDP5 Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

SPD 5 System Configuration

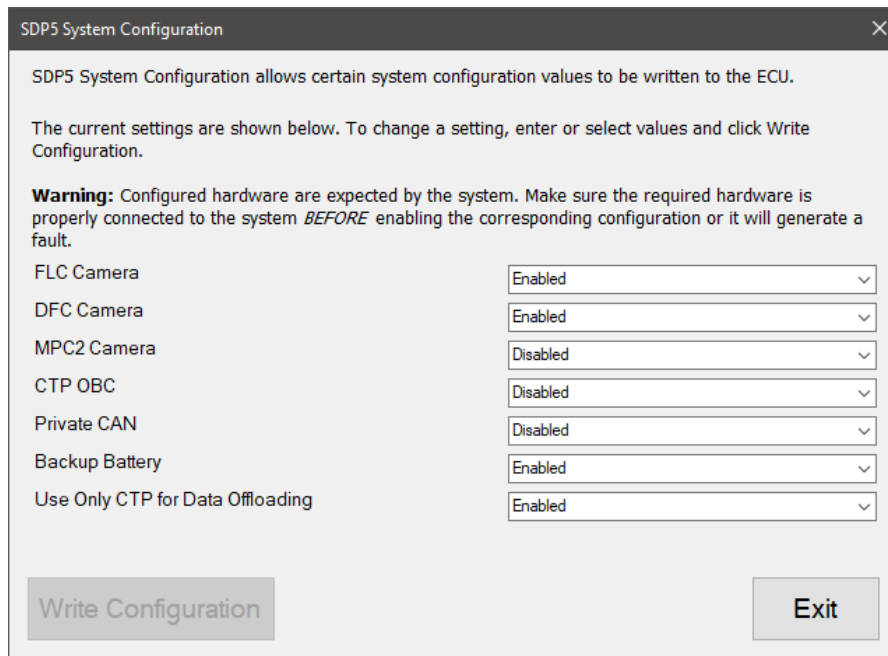
The **SDP5 System Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (5G)

This test allows the editing of system configuration parameters.

1. Select **SDP5 System Configuration** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



SDP5 System Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Speaker Volume Configuration

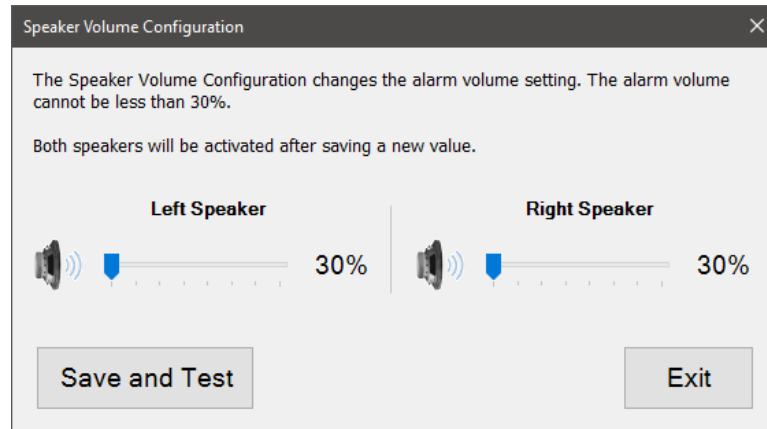
The **Speaker Volume Configuration** test is available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (3G and 5G)

This test allows calibration of the lane departure warning volume for both Left and Right speakers.

1. Select the **Speaker Volume Configuration** test and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Speaker Volume Configuration

3. The current speaker volumes will be displayed. Select the desired volume for either speaker. Click **Save and Test** to have the new values sent to the vehicle. Once programming is completed each speaker will be activated to preview the new volume.
4. When done, press the **Exit** button to return to the test selection dialog.

SPTAC Calibration

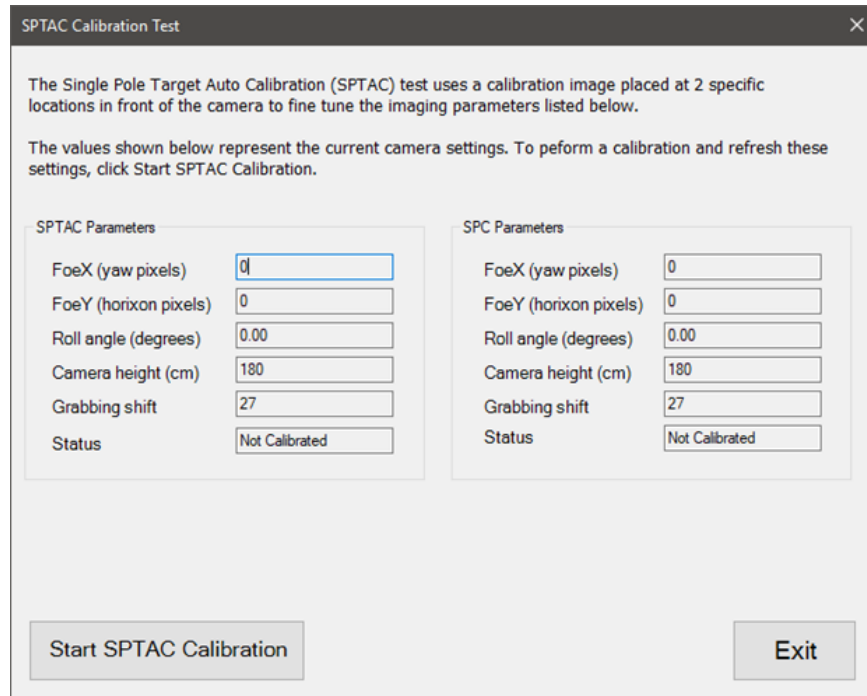
The **SPTAC Calibration Test** is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows calibration of the vehicle mounted camera by imaging a target placed at 2 specific locations.

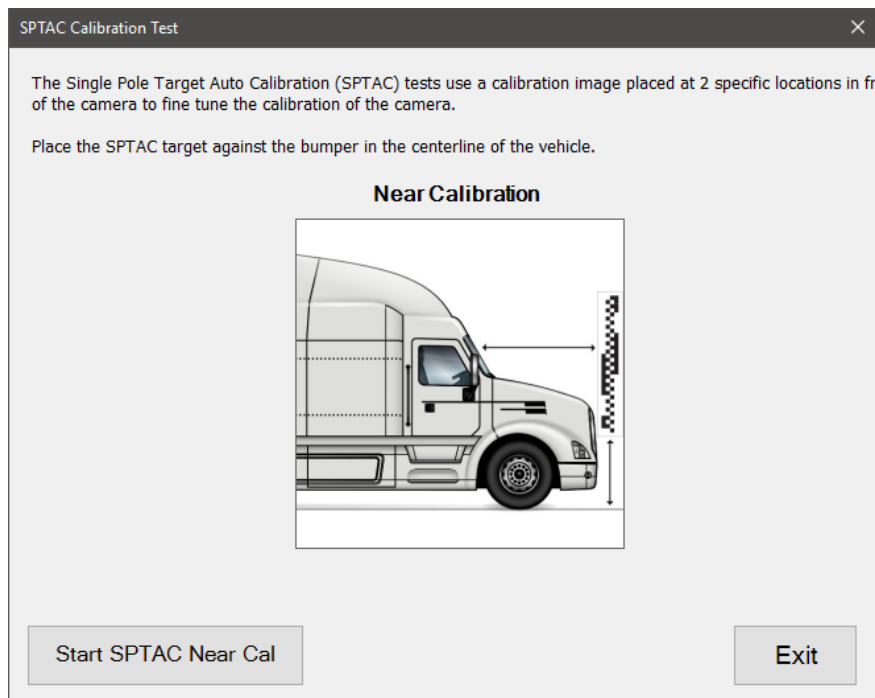
1. Select the **SPTAC Calibration Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



SPTAC Calibration Test Current Settings

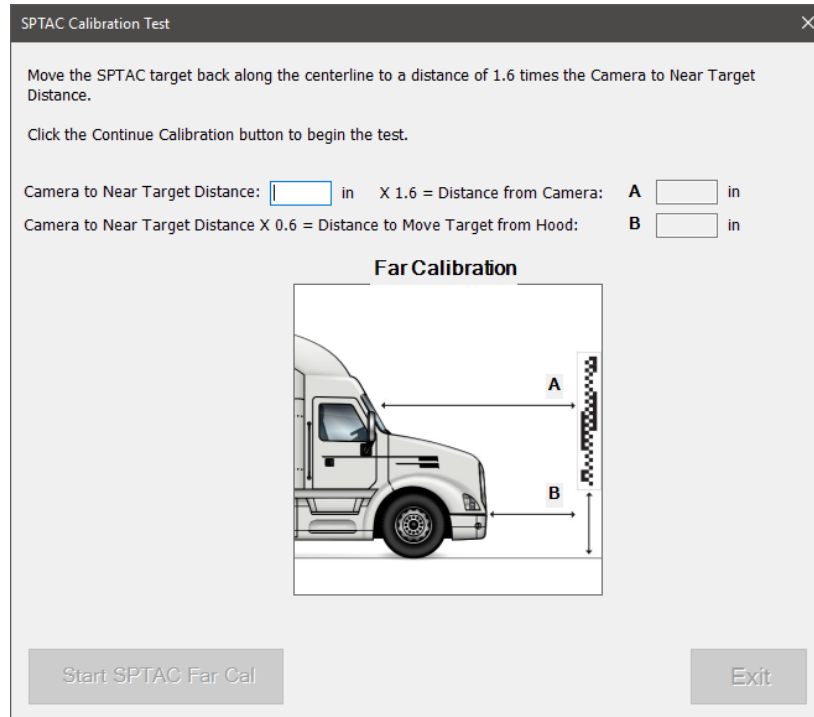
3. The current calibration information is displayed. Select **Start SPTAC Calibration** to begin the recalibration procedure.



SPTAC Near Calibration Test

4. The SPTAC target must be setup before beginning the calibration. Click **Start SPTAC Near Cal** to begin the recalibration process.

- Once near calibration has completed the **Far Calibration** instructions will be displayed. A calculator is provided to locate the far position for the SPTAC target. Press **Tab** or click outside the calculator box to enable the **Start SPTAC Far Cal** button.
- Click **Start SPTAC Far Cal** to begin the recalibration process. A successful calibration message will be displayed when the process is complete. The screen will change to display the current calibration settings.



SPTAC Far Calibration

- When done, press the **Exit** button to return to the test selection dialog.

Startup Chirp Volume Setting

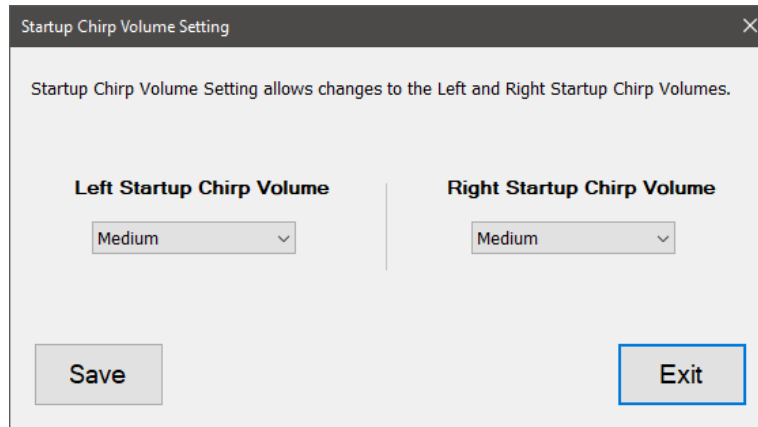
The **Startup Chirp Volume Setting** test is available on:

- ✓ SafetyDirect® Web Portal Processor 3G version 21.19 and above
- ✓ SafetyDirect® Web Portal Processor 5G

This test sets the left and right chirp volumes.

- Select **Startup Chirp Volume Setting** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Startup Chirp Volume Setting

3. Select the desired volume level for each speaker. Click **Save** to update the volume settings.
4. When done, press the **Exit** button to return to the test selection dialog.

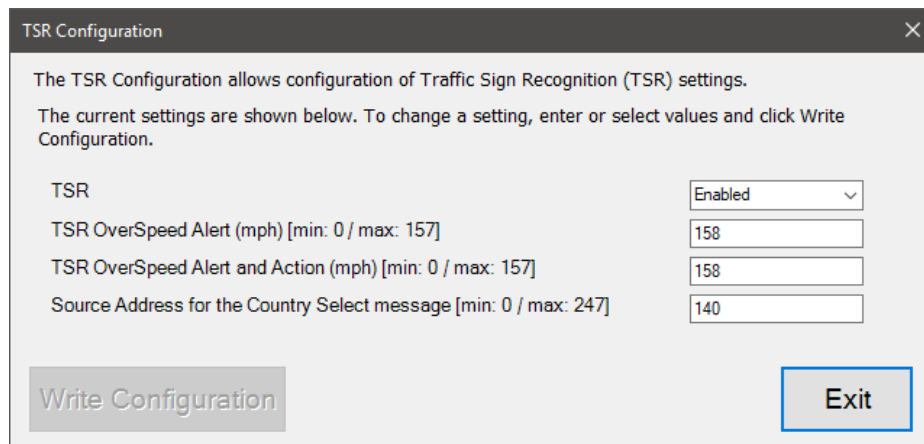
TSR Configuration

The **Traffic Sign Recognition (TSR) Configuration** test is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows editing of configuration parameters.

1. Select **TSR Configuration** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



TSR Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

Wingman FLR Configuration

The **Wingman FLR Configuration** test is available on:

- ✓ Bendix Wingman® FLR20™/FLR21™ Radar
- ✓ Bendix Vorad VS500 Radar

This test allows editing of configuration parameters.

1. Select **Wingman FLR Configuration** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.

The Wingman FLR Configuration allows the user to change ECU parameter values for various configurations.

Parameters where the **Update Value** column is highlighted yellow can be changed by selecting or entering the desired value.

Parameters where the **Update Value** column is not highlighted cannot be directly edited and are read-only.

Wingman Configuration: Wingman Service ACB/CMT/Fusion Auto Detect

Name	Update Value	Current Value	Original Value	Min	Max	Units
General Settings						
ACC Lateral Mounting Offset		-140.625	-140.625	-500	500	mm
Stationary Object Warning		On	On			
Direct TSC1 Control		Off	Off			
Highway Departure Braking		Warning and Braking Off	Warning and Braking Off			
ACC Type		Not Available	Not Available			
Multi Lane AEB		Off	Off			
ACC Type Engine Mismatch		Off	Off			
FDA Alerts / Following Distance Settings						
Following Distance Alert Table		1	1	1	9	
Momentary FDA		Off	Off			

Write Values Restore Original Exit

Wingman FLR Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

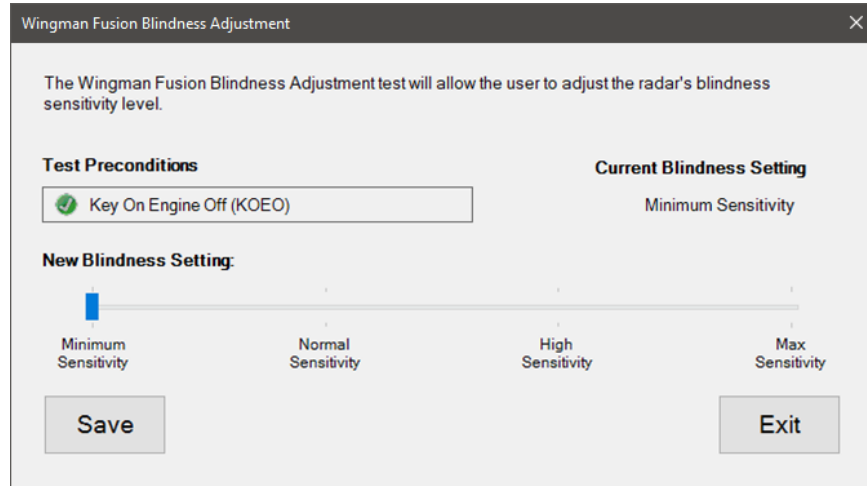
Wingman Fusion Blindness Adjustment

The **Wingman Fusion Blindness Adjustment** test is available on:

- ✓ Bendix Wingman® FLR21™ Radar

This test allows adjustment of the radar's blindness sensitivity level.

1. Select **Wingman Fusion Blindness Adjustment** and press **Enter** of the **Start** button.
2. The test dialog will be displayed.



Wingman Fusion Blindness Adjustment

3. The current blindness sensitivity level is displayed. Move the slider to the desired level and click the **Save** button to write the new value to the radar.
4. When done, press the **Exit** button to return to the test selection dialog.

Fan Tests

Fan Activation Test

Fan Activation Test is supported on:

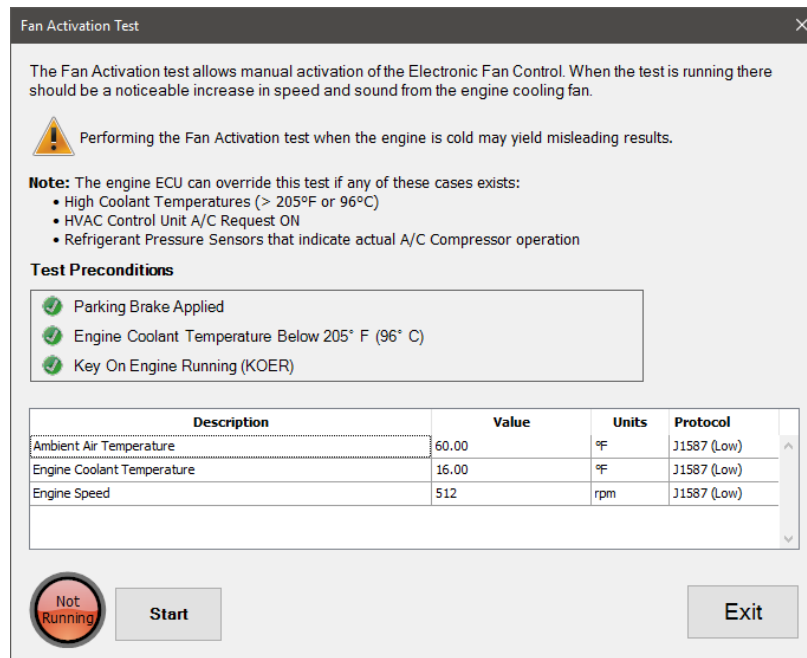
- ✓ Mack and Volvo all EPA 07 to EPA 10 engines

The Fan Activation Test is used to verify that the fan control is functioning properly by sending an activation signal to the Electronic Fan Control. When the test is running there should be a noticeable increase in speed and sound from the engine cooling fan.

⚠ Performing the Fan Activation Test when the engine is cold may yield misleading results.

1. Select the **Fan Activation Test** and press **Enter** or the **Start** button.

2. The **Fan Activation** test dialog will display.



Fan Activation Test

3. Once all preconditions have been met, then select the **Start** button to begin the test.
4. Listen for the increase in speed and sound from the engine cooling fan.

NOTE: Sometimes, when starting a cold engine, the fan will run at nearly 90% due to the viscosity of the oil in the fan hub. This can make the truck seem like the fan activation test is running when it is not. The engine can be warmed by idling at low RPM for approximately 30 minutes or at higher RPMs for 1 to 5 minutes depending on the ambient temperature.

5. Select the **Stop** button to stop the test at any time. The test will automatically stop after 30 seconds.
6. When the test has completed, click the **Exit** button to return to the test selection dialog.

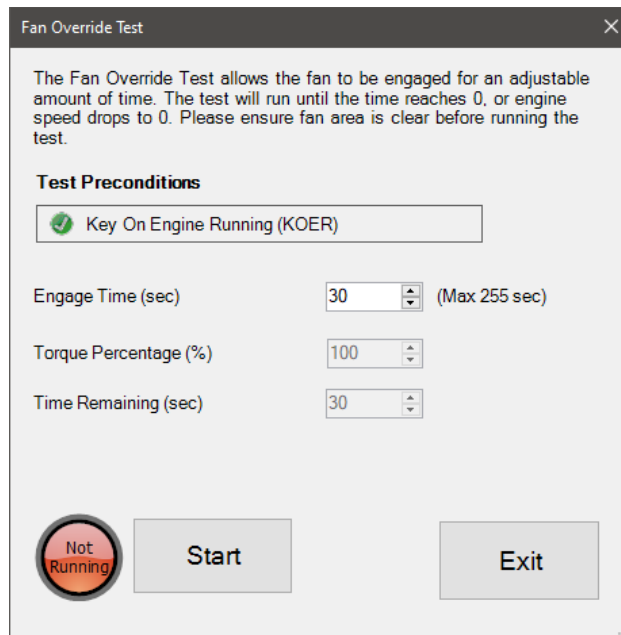
Fan Override Test

The Fan Override Test is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX
- ✓ Cummins EPA 13: all ISB, ISL, ISX
- ✓ Cummins GHG17: all B6.7, L9, X15
- ✓ Cummins GHG21: all B6.7, L9, X15

The Fan Override Test is used to verify that the fan control is functioning properly by activating the fan for an adjustable amount of time. When the test is running there should be a noticeable increase in speed and sound from the engine cooling fan.

1. Select the **Fan Activation Test** and press **Enter** or the **Start** button.
2. The **Fan Activation Test** dialog will display.



Fan Override Test

3. Set the desired **Engage Time** for the fan, then click the **Start** button to begin the test. The test will command the fan to run until the time remaining has expired or the engine is stopped.
4. When the test has completed, click the **Exit** button to return to the test selection dialog.

Fuel System Tests

Activate Fuel Dosing Valve Test

Activate Fuel Dosing Valve test is supported on:

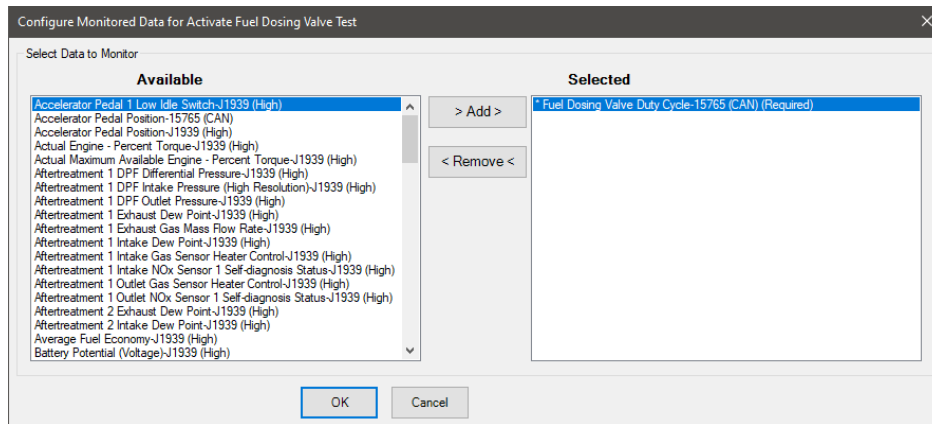
- ✓ PACCAR GHG17 to GHG21 all MX engines

The **Activate Fuel Dosing Valve** test is used to verify fuel dosing valve operation and wiring. Ensure the vehicle is parked where Fuel Dosing Valve operation can be heard.

⚠ Failure to cycle ignition key when prompted can lead to erratic vehicle behavior.

8. Select the **Active Fuel Dosing Valve** test and press **Enter** or the **Start** button.

- The **Configure Monitored Data for Activate Fuel Dosing Valve** Test dialog will be displayed.

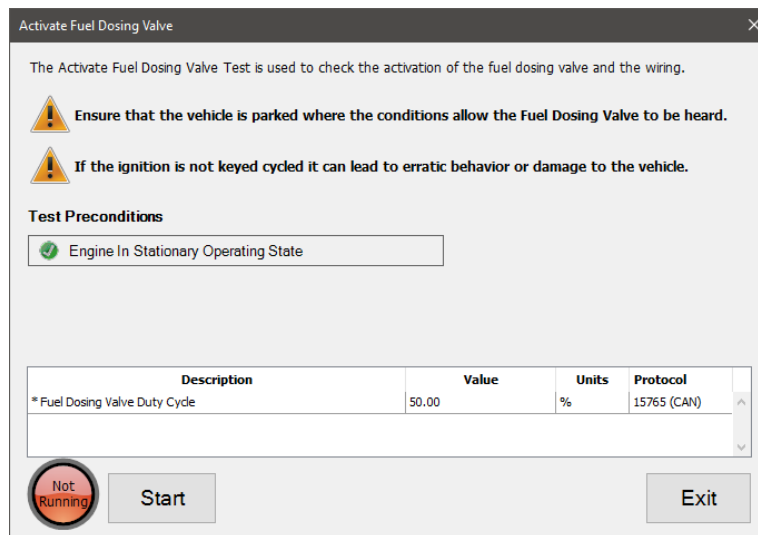


Configure Monitored Data for Activate

- Select parameters from the Available list and click **Add** to move them to the **Selected** list. To remove parameters from the Selected list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.

When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

- The **Active Fuel Dosing Valve** test dialog will display.



Activate Fuel Dosing Valve Test

- Ensure all preconditions are met, then click the **Start** button to begin the test.
- When prompted, cycle the key off until instructed to key the ignition back on. The **Active Fuel Dosing Valve routine** will begin. Listen for the valve operation during this time.
- When the routine ends, a question dialog will ask if the fuel dosing valve was audible. Click **Yes** if the valve actuation was audible.

15. When prompted, cycle the key off again until instructed to key the ignition back on. The results of the test will be displayed.
16. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Automated Cylinder Performance Test

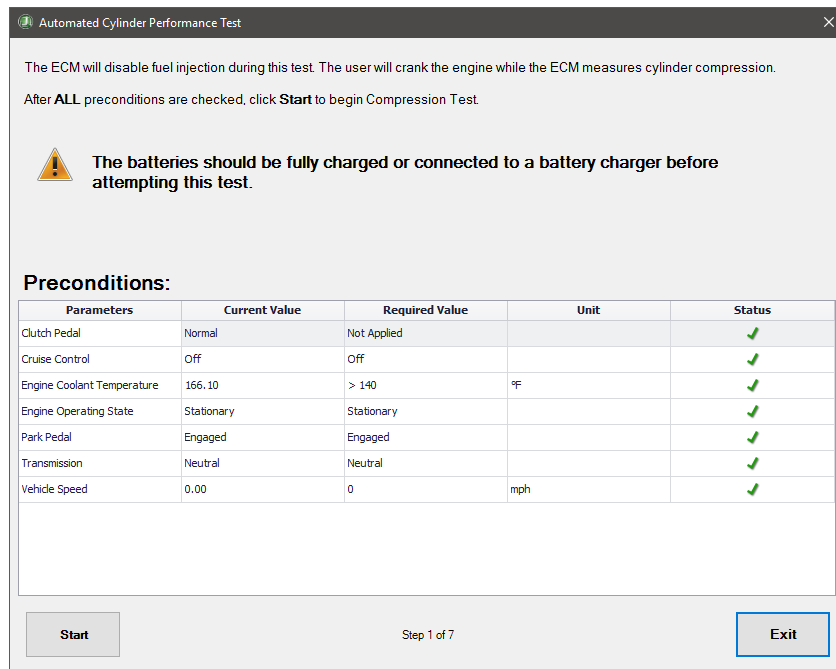
Automated Cylinder Performance Test is supported on:

- ✓ PACCAR EPA 10 and EPA 13 all MX engines

It can be used to identify an issue with a cylinder's fuel supply by measuring each cylinder's performance during a **Compression Test and a Crankshaft Acceleration test**.

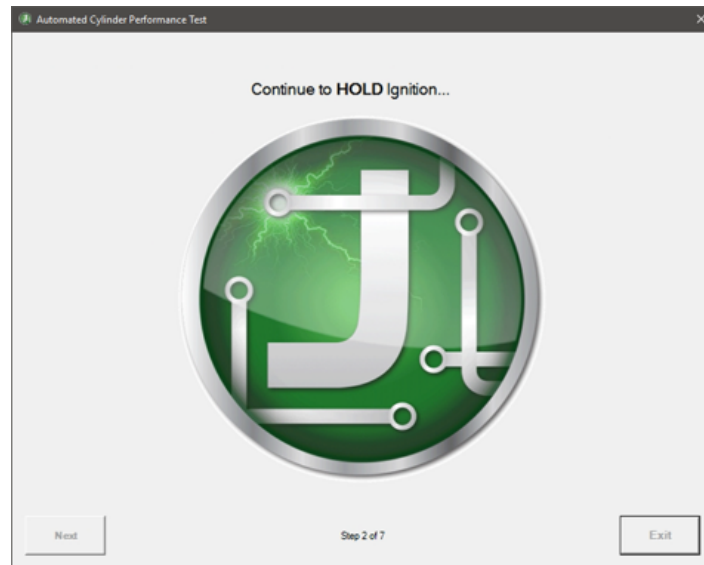
⚠ The batteries should be fully charged or connected to a battery charger before attempting this test.

1. Select the **Automated Cylinder Performance Test** and press **Enter** or the **Start** button.
2. The **Automated Cylinder Performance Test** dialog will display showing the **Compression Test** preconditions. During the Compression Test, the engine control module (ECM) will disable fuel injection and measure cylinder compression while you crank the engine.



Automated Cylinder Performance Test – Compression Test Preconditions

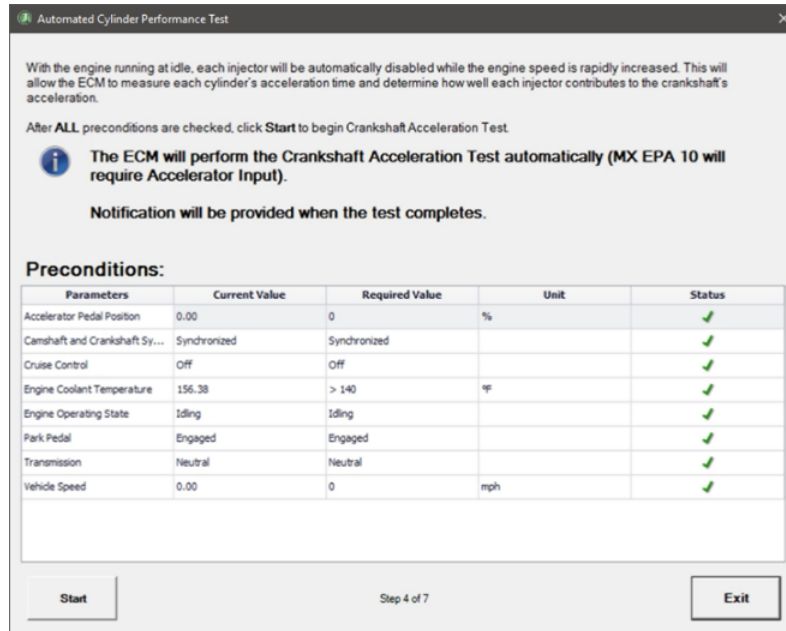
3. Once all preconditions are met, select the **Start** button to start the **Compression Test** procedure.
4. Follow instructions to engage the starter motor and hold cranking position until further instructions. After the engine cranking speed stabilizes, the ECM will measure cylinder compression during two complete crankshaft revolutions.



Automated Cylinder Performance Test – Compression Test in Progress

5. Once the compression test procedure is complete, follow displayed instructions to disengage the starter motor and leave the key in the Ignition **ON** position. Select **Next**.
6. Follow instructions to turn the key to the Ignition **OFF** position. The ignition must remain off for 15 seconds; a timer will display to indicate when 15 seconds has expired.
 - ⚠ Failure to perform the Key OFF/ON sequence may cause damage to the vehicle or other unknown effects.
7. After the timer has reached 15 seconds, follow instructions to turn the key to the Ignition **ON** position. Communication will be re-established, and the **Crankshaft Acceleration Test** preconditions screen will display.

8. In order to begin the **Crankshaft Acceleration Test**, the engine must be running at idle. During the test, the ECM will disable each injector while the engine speed is rapidly increased. This allows the ECM to measure each cylinder's acceleration time and determine how well each injector contributes to the crankshaft's acceleration.



Automated Cylinder Performance Test – Crankshaft Acceleration Test Preconditions

9. Once all preconditions are met, select the **Start** button to start the **Crankshaft Acceleration Test** procedure.
 10. On MX EPA 10 engines, follow the displayed instructions to press and hold the accelerator pedal to 100%.
 11. Wait for the ECM to perform the **Crankshaft Acceleration Test**.
 12. On MX EPA 10 engines, follow the displayed instructions to release the accelerator pedal.
 13. Follow instructions to turn the key to the Ignition **OFF** position. The ignition must remain off for 15 seconds; a timer will display to indicate when 15 seconds has expired.
- ⚠** Failure to perform the Key OFF/ON sequence may cause damage to the vehicle or other unknown effects.

- After the timer has reached 15 seconds, follow the instructions to turn the key to the Ignition **ON** position. Communication will be re-established, and the **Compression and Crankshaft Acceleration** test results will be displayed.

Cylinder	Crankshaft Acceleration	Compression
1	100.0 %	99.7 %
2	99.6 %	100.0 %
3	99.8 %	99.6 %
4	99.9 %	99.0 %
5	99.3 %	99.2 %
6	98.6 %	99.0 %
High Value	100.0 %	100.0 %
Low Value	98.6 %	99.0 %
Result	1.4 %	1.0 %

Automated Cylinder Performance Test – Results

Cylinder Compression Test

The **Cylinder Compression Test** is supported on:

- ✓ PACCAR GHG17 to GHG21 all MX engines

The **Cylinder Compression Test** evaluates and provides information on the mechanical condition of each cylinder.

- Select the **Cylinder Compression Test** and press Enter or the Start button.
- The **Cylinder Compression Test** dialog will display.

Cylinder Compression Test

3. Ensure all preconditions have been met and click the **Start** button.
4. When prompted, follow the prompts to crank and cycle the engine. The **key off/on sequence** must be followed as instructed for the cylinder compression to be evaluated. When completed, the results of the test will be displayed.
5. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Cylinder Cut-Out Test

Cylinder **Cut-Out Test** is supported on:

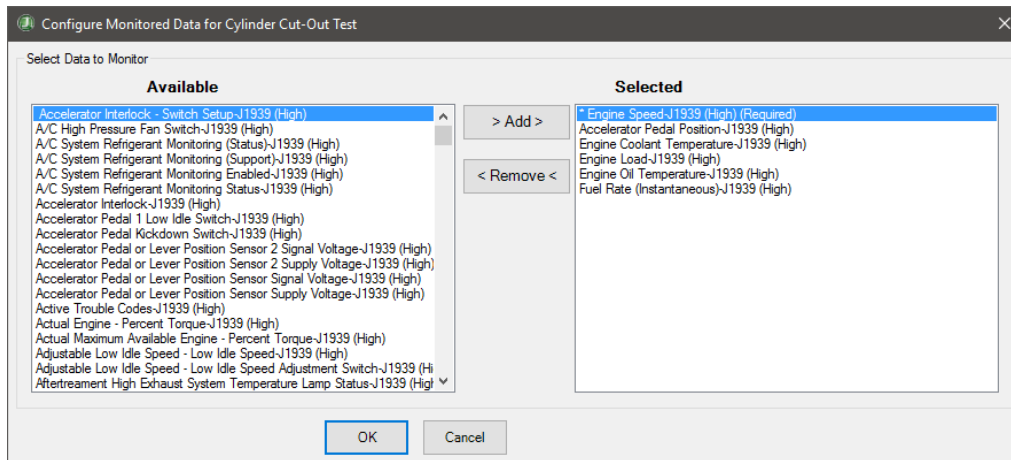
- ✓ Caterpillar 3126, C12, and C18 engines
- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines
- ✓ Caterpillar EPA 07: C7, C13, and C15 ACERT engines
- ✓ Caterpillar Off-Highway C4.4, C6.6, C7.1, C9.3, C9.3B, and C13 engines
- ✓ Cummins EPA 02: ISB(3.9L)
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSF, QSL, QSX, B6.7
- ✓ Detroit Diesel any supported CPC with MCM02T or MCM21T

NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

- ✓ International EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 10 Maxxforce 9, DT, 10, 11, and 13 engines
- ✓ International N9, N10, 2013 N13, and A26 GHG17 engines
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.
- ✓ Kubota V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment
- ✓ Mack and Volvo EPA 07 to GHG17 engines
- ✓ MBE 900 and 4000 EPA 07 engines
- ✓ PACCAR GHG17 all MX engines

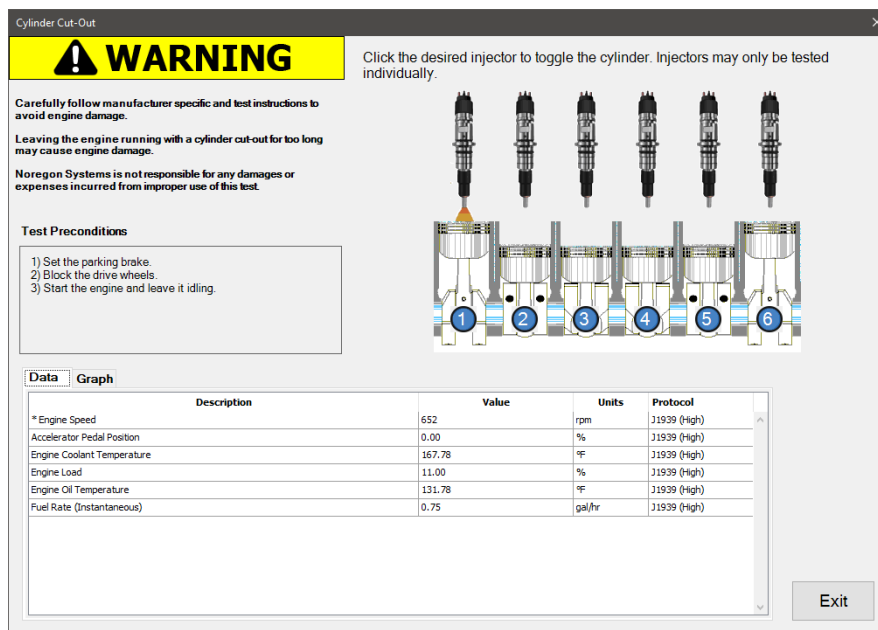
During the **Cylinder Cut-Out Test**, one injector at a time can be manually shut off to aid in identifying defective injectors. Shut off the suspect injector and listen to the engine. Run the test at the engine speed at which the misfire occurs.

1. Select **Cylinder Cut-Out** and press **Enter** or press **Start** Button.
2. The **Configure Monitored Data for Cylinder Cut-Out Test** dialog will be displayed.



Configure Monitored Data for Cylinder Cut-out Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
6. Pressing **OK** button will cause the **Cylinder Cut-Out** dialog to be displayed.



Cylinder Cut-Out Dialog

7. The grid of parameters at the bottom displays the values of the parameters chosen in the previous dialog. Select the Graph tab to view the strip chart displaying engine speed.
8. Click the desired injector control to disable the cylinder. Disabled cylinders are indicated by a red X over the injector. The strip chart should show the reaction of the engine's speed to disablement of the cylinder. Click the injector again to enable the cylinder. Clicking any other injector will enable the previously disabled cylinder before disabling the selected cylinder.
9. Press **Done** button when ready to exit this test and return to the test selection dialog.

Cylinder Misfire Monitor Test

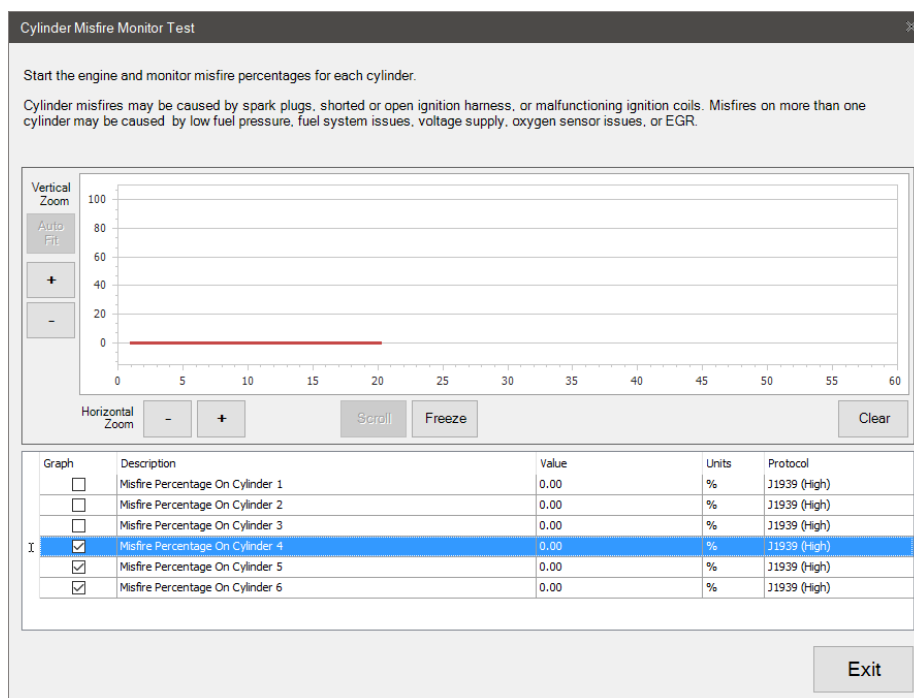
The **Cylinder Misfire Monitor Test** is supported on:

- ✓ Cummins CNG: all ISX 12G and ISX 12N

The **Cylinder Misfire Monitor Test** graphs reported misfire percentages while the engine is running.

- ⚠ Misfires on more than one cylinder may be caused by low fuel pressure, fuel system issues, low voltage supply, oxygen sensor issues, or EGR malfunction.

1. Select the **Cylinder Misfire Monitor Test** and press Enter or the **Start** button.
2. The test dialog will display, graphing the reported **Misfire Percentage** for each cylinder.



Cylinder Misfire Monitor Test

3. Review the graphed data over time to evaluate occurrences of cylinder misfire.
4. When done, press the **Exit** button to return to the test selection dialog.

Fuel Injector Calibration

Fuel Injector Calibration is supported on:

- ✓ Cummins EPA 07: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems
- ✓ Cummins EPA 10: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems

Fuel Injector Calibration is used to read and program calibration codes in the ECM when replacing or moving injectors between cylinders. The injector calibration code is marked on the injector head by the manufacturer. All of the injector calibration codes must be updated if the ECM is replaced to ensure optimum fueling efficiency.

⚠ Ensure the engine is not running before clicking **Start**.

1. Select **Fuel Injector Calibration** test and press **Enter** or press **Start** button.
2. The **Fuel Injector Calibration** dialog will be displayed. The **Current Barcode** column is populated with the injector code read for the corresponding injector/cylinder.
3. Enter any new injector barcodes into the **New Barcode** column.

Fuel Injector Calibration

Fuel Injector Calibration allows the user to read and program calibration codes in the ECM when replacing or moving injectors between cylinders. The injector calibration code is marked on the injector head by the manufacturer. ALL of the injector calibration codes must be updated, if the ECM is replaced to ensure optimum fueling efficiency.

Caution: Please make sure the engine is NOT running before programming the vehicle.

Instructions:
Enter new values in the cell(s) highlighted in yellow.

Cylinder	Current Barcode	New Barcode	Status
Cylinder 1	ZZZZZZZZ	2345R2354	
Cylinder 2	ZZZZZZZZ		
Cylinder 3	ZZZZZZZZ	FGQ3452G	
Cylinder 4	ZZZZZZZZ		
Cylinder 5	ZZZZZZZZ		
Cylinder 6	ZZZZZZZZ		

Press **Apply** button to set new injector calibration codes.

Apply **Exit**

Fuel Injector Calibration

4. Select the **Apply** button to initiate sending the new value(s) to the ECM. Follow the instructions displayed concerning cycling power to the ECM.
5. The application will validate that the updated injector codes were written. The **Status** column will update to indicate "**Success**" or "**Failure**."

Fuel Injector Performance Test

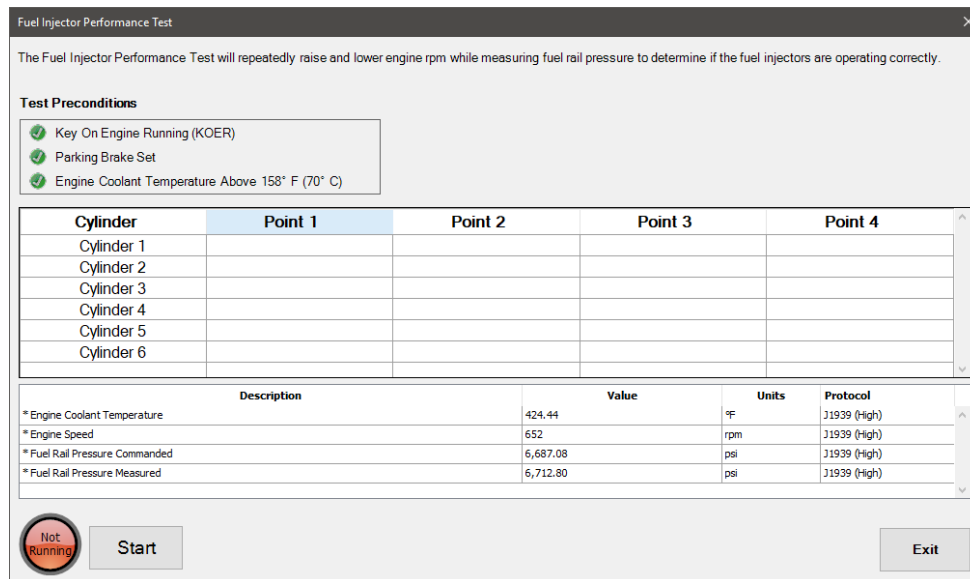
Fuel Injector Performance Test is supported on:

- ✓ Cummins EPA 10: All ISX (12 & 15L)

- ✓ Cummins EPA 13: all ISX (12 & 15L)
- ✓ Cummins GHG17: all L9, X12, and X15
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

The **Fuel Injector Performance Test** will test all cylinders with varying fuel rail pressures to gauge performance.

1. Select **Fuel Injector Performance Test** and press Enter or the *Start* button.
2. The **Fuel Injector Performance Test** dialog will be displayed.



Fuel Injector Performance Test

3. Once all preconditions have been met, select the **Start** button to begin the test. The test will take 5 to 15 minutes to complete on average. Cylinders will be updated with the results.
4. When the test has completed, click the **Exit** button to return to the test selection dialog.

Fuel Injector Reset

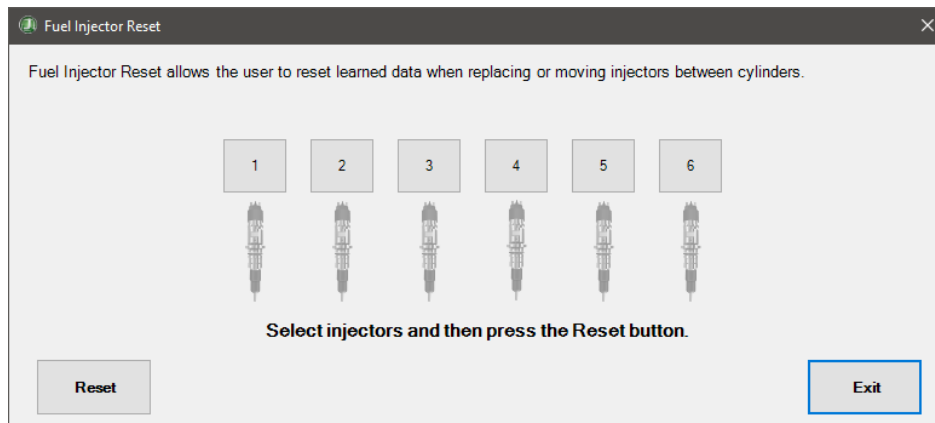
Fuel Injector Reset is supported on:

- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

The **Fuel Injector Reset** provides the ability to reset learned data when replacing or moving injectors between cylinders.

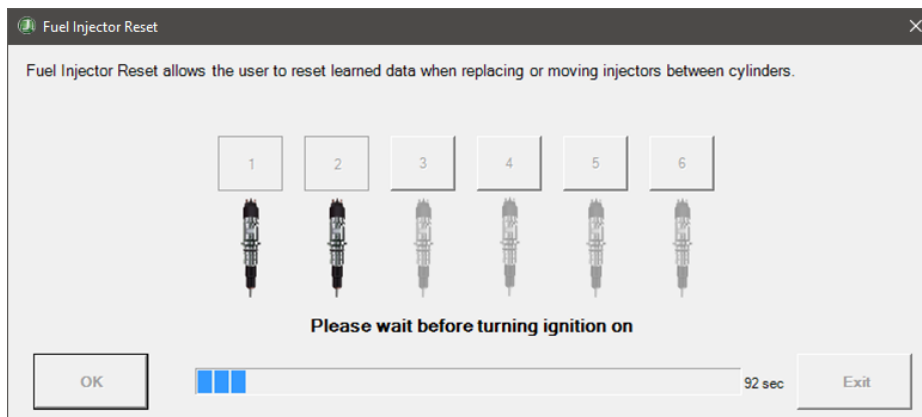
1. Select **Fuel Injector Reset** and press **Enter** or the **Start** button.

2. The **Fuel Injector Reset** dialog will be displayed.



Fuel Injector Reset Dialog

3. Select the cylinder(s) to reset. Selected cylinders will highlight.
4. Select the **Reset** button. All buttons on the dialog will be disabled while the reset operation is performed.
5. Follow the instructions and turn off the ignition and press **Ok**. The dialog displays a progress bar.



Fuel Injector Reset – Please Wait

6. Wait for the displayed timer progress to complete. When complete, the **Exit** button is enabled and the instruction to **“Please turn ignition on to re-establish communications”** displays.
7. Turn the ignition **On**. Wait for communication to be re-established.
8. Once the status updates to **“Reset successful for the selected injectors”**, press **Exit** to return to the test selection dialog or select different cylinder(s) to reset.

Fuel System Leakage Test

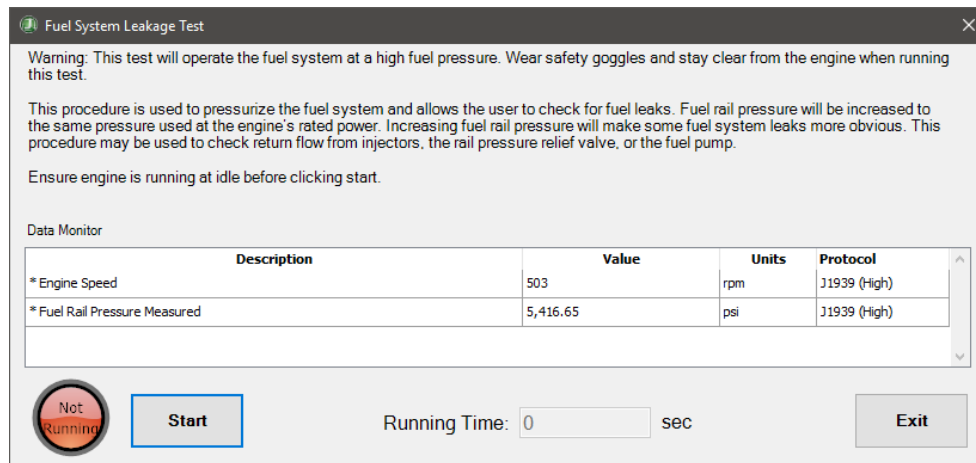
Fuel System Leakage Test is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX (12L and 15L), PX-6, and PX-8 with Common Rail Fuel Systems
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9 with Common Rail Fuel Systems

- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems
- ✓ Cummins Tier 3: all QSB, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSL, QSX, B6.7
- ✓ Komatsu equipment with Cummins CM2350A engines

The **Fuel System Leakage Test** is used to pressurize the fuel system and allow the user to check for fuel leaks. Fuel rail pressure is increased to the same pressure used at the engine's rated power. Increasing fuel rail pressure will make some fuel system leaks more obvious. This procedure may be used to check return flow from injectors, the rail pressure relief valve, or the fuel pump.

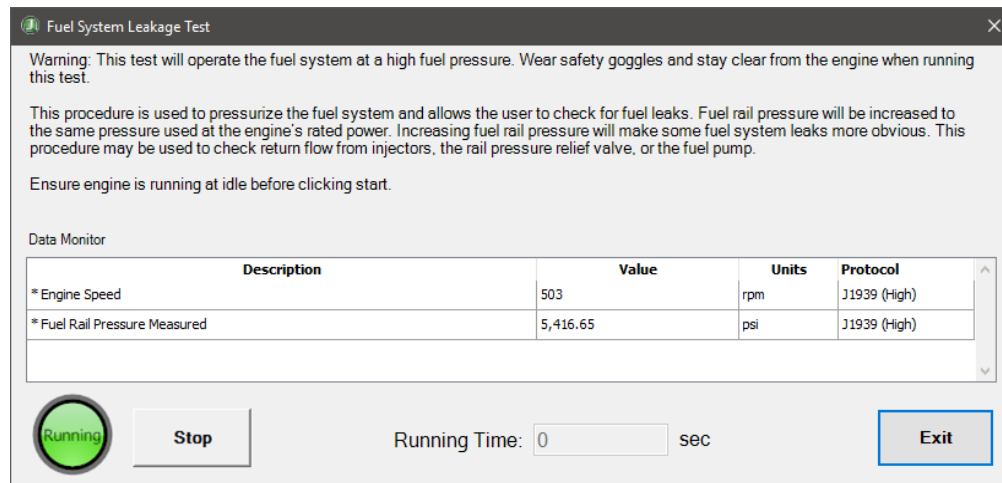
1. Select **Fuel Leakage** and press **Enter** or press **Start** button.
2. The **Fuel System Leakage Test** dialog will be displayed.



Fuel System Leakage Test

3. Click the **Start** button to initiate the procedure.
 - ⚠ This test will operate the fuel system at a high fuel pressure. Wear safety goggles and stay clear from the engine when running this test.
 - ⚠ Ensure the engine is running at idle before clicking **Start**.
4. The dialog will update the displayed status and start tracking the Running Time. The **Start** button changes to **Stop**.

- Wait for the status to change to **Running** then examine the fuel system for leaks.



Fuel System Leakage Test - Running

- When done, select the **Stop** button. The engine will return to normal operation.
- Press **Exit** to return to the test selection dialog.

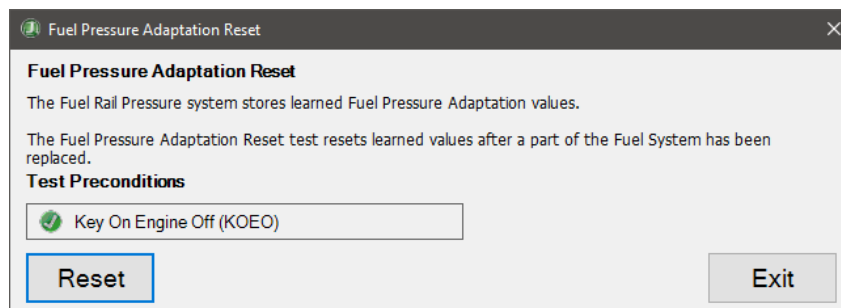
Fuel Pressure Adaptation Reset

The **Fuel Pressure Adaptation Reset** test is supported on:

- ✓ International EPA 07 Maxxforce 7 engines
- ✓ International EPA 13 Maxxforce 7 engines

The **Fuel Pressure Adaptation Reset** test reset learned values after a part of the Fuel System has been replaced.

- Select the **Fuel Pressure Adaptation Reset** and press **Enter** or press **Start** button.
- The **Fuel Pressure Adaptation Reset** dialog will be displayed.



Fuel Pressure Adaptation Reset

- Ensure the test preconditions are met.
- Select the **Reset** button.
- Follow the instructions to key off the ignition. Click the **Continue** button.

6. Wait for the instructions to turn the ignition back on. This should be in 15 seconds.
7. Turn the ignition on and click the **Continue** button.
8. When the test has been completed, click the **Exit** button to return to the test selection dialog.

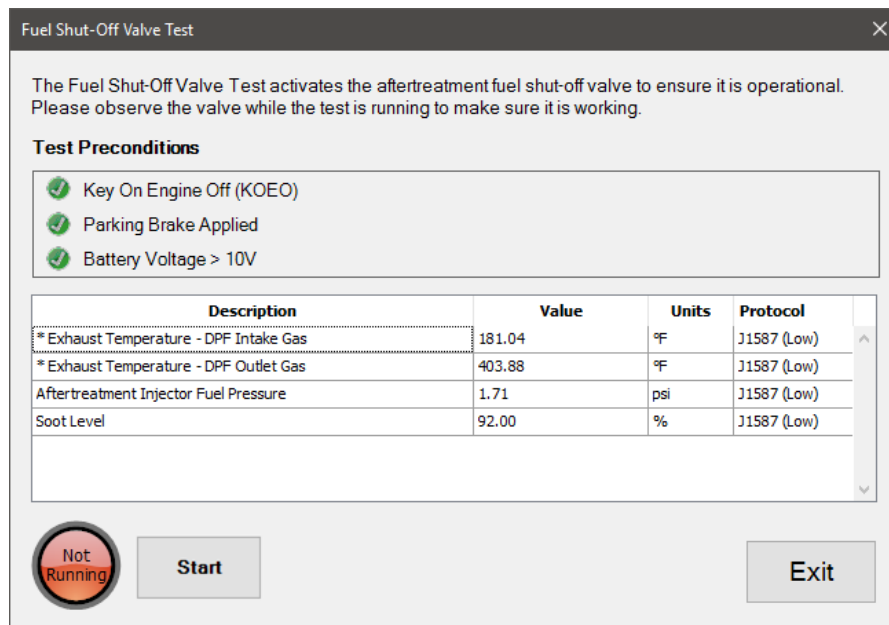
Fuel Shut-off Valve Test

The **Fuel Shut-off Valve Test** is supported on:

- ✓ Mack and Volvo all EPA to EPA 10 engines

The **Fuel Shut-off Valve Test** activates the aftertreatment fuel shut-off valve to ensure it is operational. You must observe the valve while the test is running to make sure it is working.

1. Select the **Fuel Shut-off Valve Test** and press **Enter** or click the **Start** button.
2. The **Fuel Shut-off Valve Test** dialog displays.



Fuel Shut-off Valve Test

3. Once all preconditions have been met, then select the **Start** button to begin the test.
4. Observe the fuel shut-off valve operation to ensure it is working properly.
5. Select the **Stop** button to stop the test at any time. The test will automatically stop after 15 seconds.
6. When the test has completed, click the **Exit** button to return to the test selection dialog.

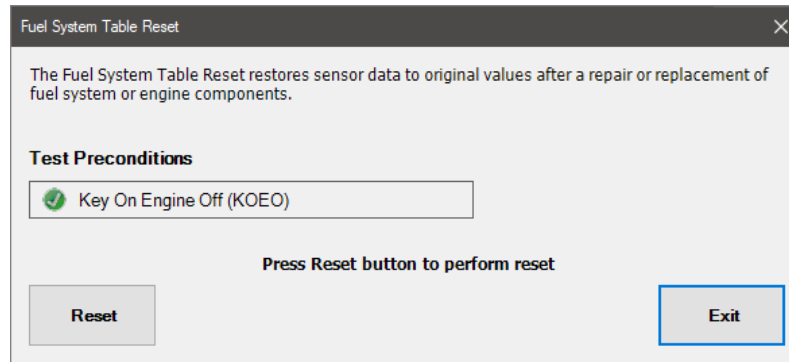
Fuel System Table Reset

The **Fuel System Table Reset** is available on:

- ✓ Cummins CNG: All ISX 12G and ISX12N engines

This test is used to reset sensor data to original values after repair or replacement of fuel system or engine components.

1. Select the **Fuel System Table Reset** and press **Enter** or click the **Start** button.
2. The test dialog displays.



Fuel System Table Reset

3. Click **Reset** to begin the operation. Follow the displayed instructions by turning off the ignition and clicking the **OK** button. A countdown will be displayed. Turn the ignition on when the countdown ends to complete the reset.
4. Click the **Exit** button to return to the test selection dialog.

Injection Actuator Pressure Test

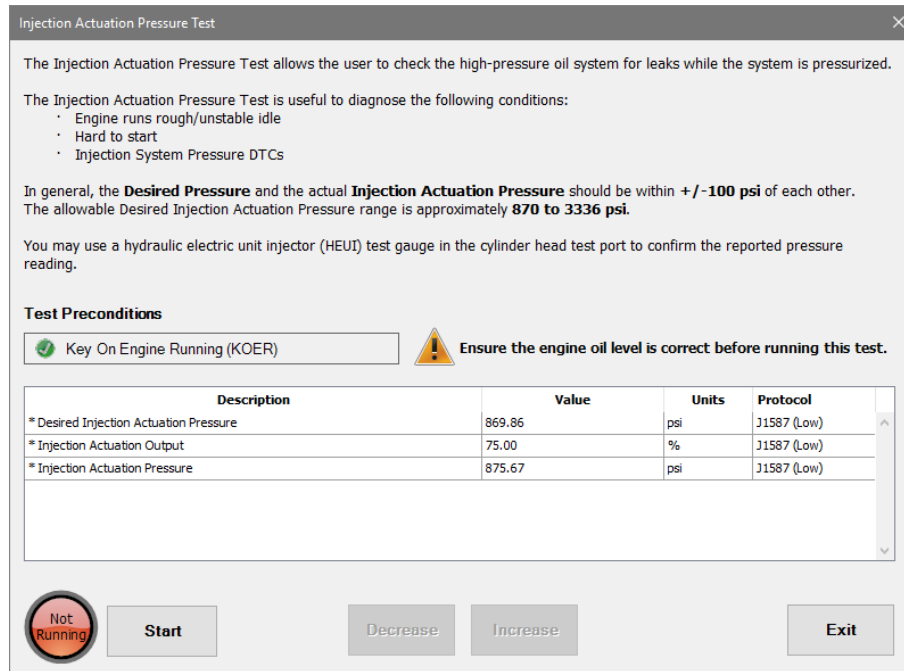
The **Injection Actuator Pressure Test** is available on:

- ✓ Caterpillar 3126 and EPA 04: C7 ACERT engines

This test is used to check for leaks in the high-pressure oil system by comparing the commanded test injection actuation pressure with the actual actuation pressure. The values should be within +/- 100 psi of each other.

1. Select the **Injection Actuation Pressure Test** and press **Enter** or click the **Start** button.

2. The Injection Actuation Pressure Test dialog displays.



Injection Actuator Pressure Test

3. Once all preconditions have been met, click the **Start** button to begin the test.
4. Click the **Increase** button to increase the actuation pressure. Click the **Decrease** button to decrease it. The minimum allowed pressure is 870 psi. The maximum allowed pressure is 3336 psi.
5. Click the **Stop** button to stop the test. The actuations pressures will return to normal.
6. Click the **Exit** button to return to the test selection dialog.

Injector Solenoid Test

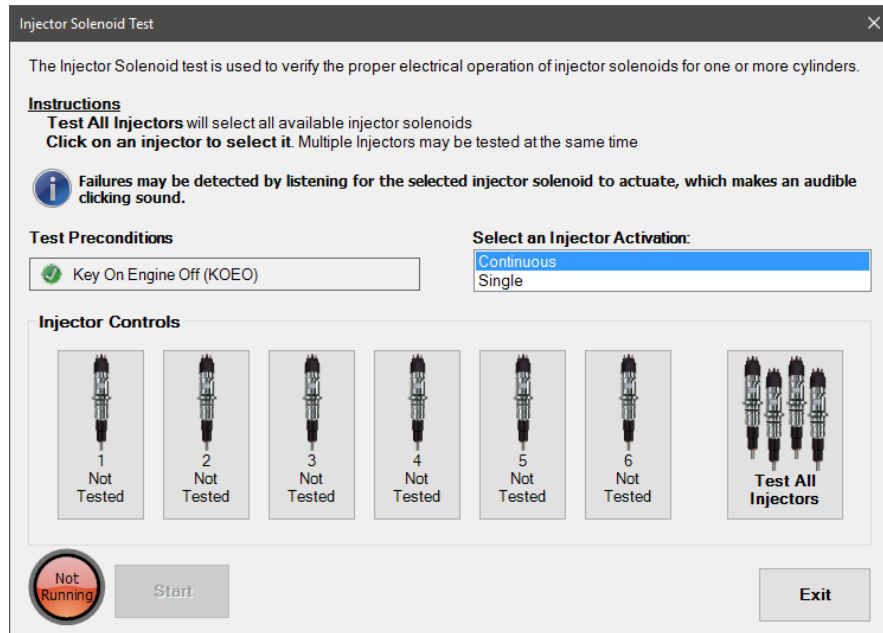
The **Injector Solenoid** test is available on:

- ✓ Caterpillar 3126, C12, and C18 engines
- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines
- ✓ Caterpillar EPA 07: C7, C13, and C15 ACERT engines

This test allows is used to verify that selected injector solenoids are operating correctly.

1. Select the **Injector Solenoid Test** and press **Enter** or click the **Start** button.

2. The **Injector Solenoid Test** dialog displays.



Injector Solenoid Test

3. Select the injector activation type of **Continuous or Single**. A *Single* activation will run once and automatically stop. A **Continuous** activation will run until you select the *Stop* button.
4. Select the injector(s) to test. Select **Test All Injectors** to test all injectors.
5. Once all preconditions have been met, then select the **Start** button to begin the test.
6. As the injector is activated, you should hear an audible clicking sound. Selected injectors will update with a status of 'OK', 'Failed Open', or 'Failed Short' as they are tested.
7. If the activation type is **Continuous**, you must select the **Stop** button to stop the test.
8. When the test has completed, click the **Exit** button to return to the test selection dialog.

Injector Trim Calibration

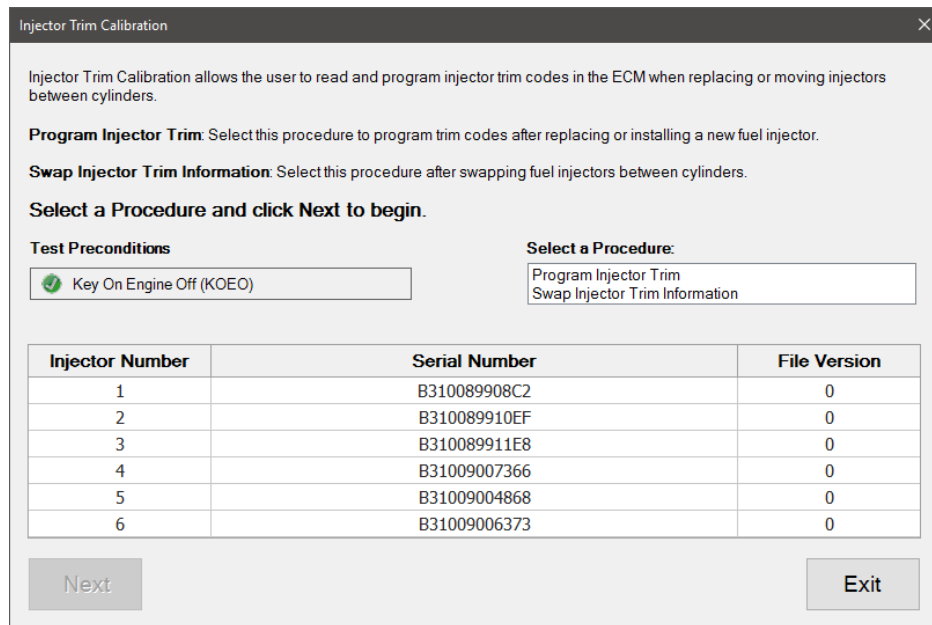
The **Injector Trim Calibration** is available on:

- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines

This test is used to read and program injector trim codes in the engine control module (ECM) when replacing or moving injectors between cylinders.

1. Select the **Injector Trim Calibration** and press **Enter** or click the **Start** button.

- The **Injector Trim Calibration** dialog displays.

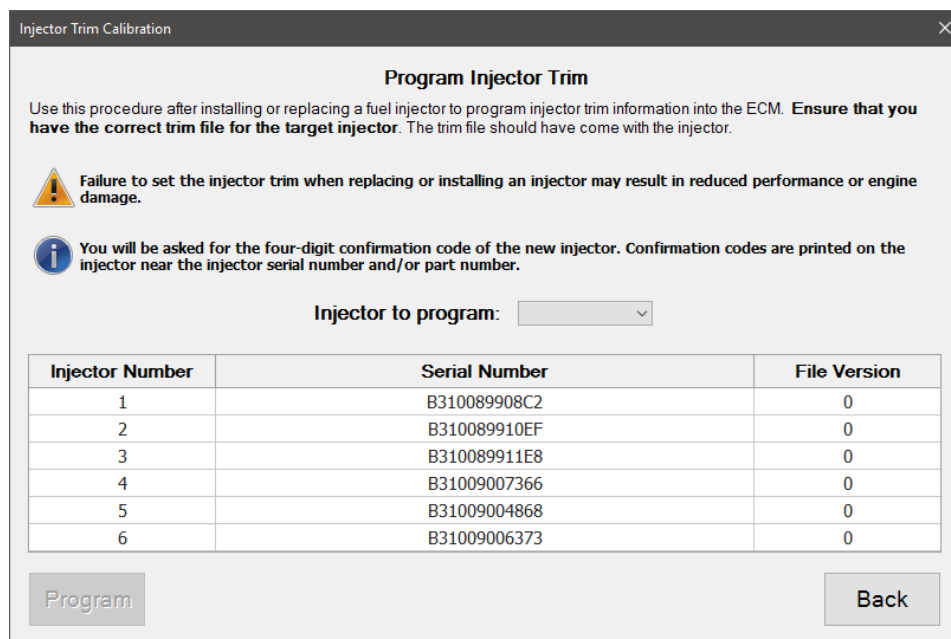


Injector Trim Calibration

- Select the appropriate procedure: **Program Injector Trim** or **Swap Injector Trim Information** and click the **Next** button.

Program Injector Trim

- From the **Injector Trim Calibration** dialog, select the **Program Injector Trim** procedure and click the **Next** button.



Injector Trim Calibration – Program Injector Trim

- Select the **Injector to Program** from the drop-down list.

3. Select the **Program** button.
4. In the file dialog, select the Trim File (*.trm) to use to program the injector.
5. A prompt will be displayed to enter the Confirmation Code which can be found on the injector near the Serial Number. Enter the Confirmation Code in the window and select **Ok**.
6. The injector trim information is programmed. Status at the bottom of the window will indicate success or failure and the injector grid will be updated.

Swap Injector Trim Information

1. From the **Injector Trim Calibration Dialog**, select the **Swap Injector Trim** procedure and click the **Next** button.

Injector Trim Calibration

Swap Injector Trim Information

This procedure ensures that the ECM is updated with correct injector trim information after **swapping** two injectors.

Swapping injectors may be useful for confirming suspect fuel injectors if other diagnostics prove inconclusive.

You may only swap **two** injectors at a time and you may not swap an injector with itself.

Trim files are not needed for this procedure.

Select which two injectors were swapped then click Swap.

Swap Injector # With Injector #

Injector Number	Serial Number	File Version
1	B310089908C2	0
2	B310089910EF	0
3	B310089911E8	0
4	B31009007366	0
5	B31009004868	0
6	B31009006373	0

Swap Back

Injector Trim Calibration – Program Injector Trim

2. Select the two injectors that were swapped. Only injectors that were previously programmed may be selected.
3. Select the **Swap** button to begin the process. Status at the bottom of the window will indicate success or failure and the injector grid will be updated.

KOEO Injector Test

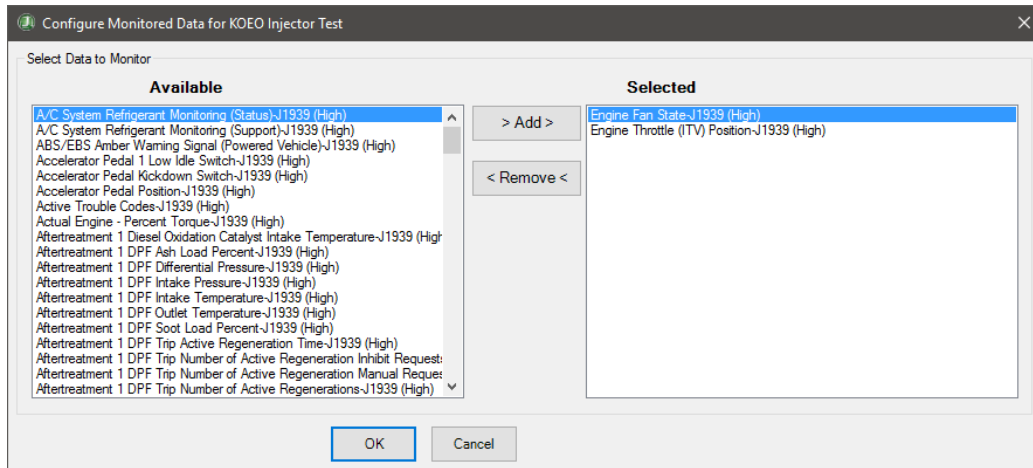
The **Key On Engine Off (KOEO) Injector Test** is supported on:

- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce DT, 9, and 10 engines
- ✓ International N9 and N10 engines

The **KOEO Injector Test** can help identify if an injector is functioning electrically by causing the injector to audibly buzz. All 6 injectors will buzz at the same time for 2 seconds, followed by each injector buzzing

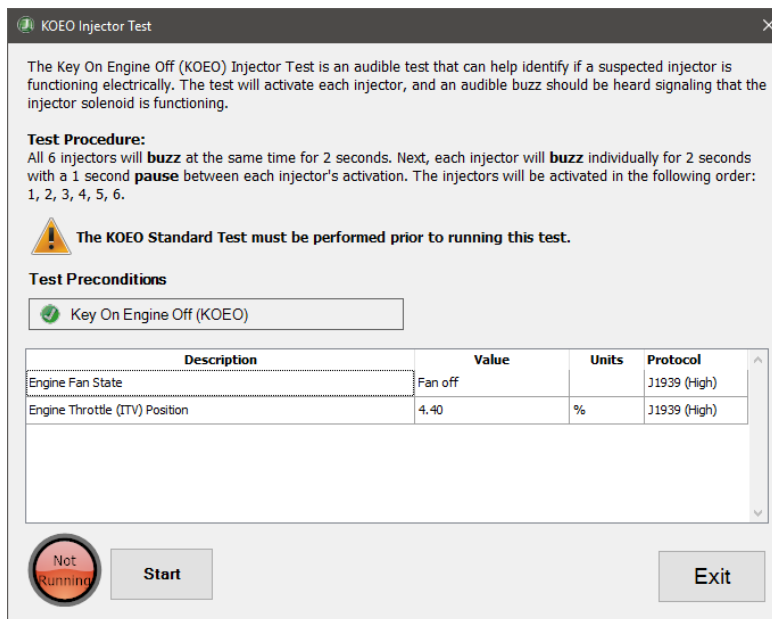
individually for 2 seconds with a 1 second pause between. The injectors will be activated in the following order: 1, 2, 3, 4, 5, 6.

1. Select **KOEO Injector Test** and press **Enter** or click the **Start** button.
2. The **Configure Monitored Data for KOEO Injector Test** dialog will be displayed.



Configure Monitored Data for KOEO Injector Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
6. Pressing **OK** button will cause the **KOEO Injector Test** dialog to be displayed.



KOEO Injector Test

7. Ensure the precondition is met.
8. Click the **Start** button to begin the test.
9. Listen for buzzing from injectors as described in Test Procedure.
10. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Induction and Exhaust Tests

Actuator Tests

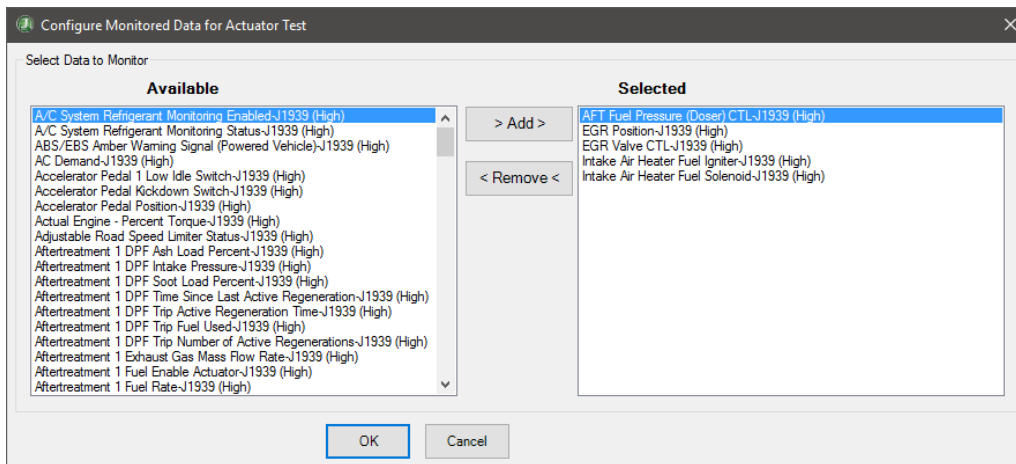
Actuator tests are supported on:

- Aftertreatment (AFT) Fuel Shutoff Valve
 - ✓ EPA 10 Maxxforce 11, and 13 engines
 - ✓ A26 GHG17 engines
- Aftertreatment (AFT) Fuel Doser
 - ✓ EPA 10 Maxxforce 11, and 13 engines
- Aftertreatment (AFT) Purge Air Actuator
 - ✓ A26 GHG17 engines
- Diesel Exhaust Fluid (DEF) Line Heaters
 - ✓ A26 GHG17 engines
- Diesel Exhaust Fluid (DEF) Tank Valve Heater
 - ✓ A26 GHG17 engines
- Engine Fuel Actuator Control 1 (Pump)
 - ✓ A26 GHG17 engines
- Engine Fuel Actuator Control 2 (Rail)
 - ✓ A26 GHG17 engines
- Engine Throttle Valve Position
 - ✓ EPA 10 Maxxforce 11, and 13 engines
 - ✓ 2013 N13 and A26 GHG17 engines
- Exhaust Gas Recirculation (EGR) Valve Position
 - ✓ EPA 10 Maxxforce 11, and 13 engines
 - ✓ 2013 N13 and A26 GHG17 engines
- Exhaust Back Pressure Valve
 - ✓ EPA 10 Maxxforce 11, and 13 engines
 - ✓ 2013 N13 engines
- Fuel Ignitor
 - ✓ A26 GHG17 engines

- Fuel Solenoid
 - ✓ A26 GHG17 engines
- Variable Geometry Turbocharger (VGT)
 - ✓ A26 GHG17 engines

The Actuator Tests will actuate the selected actuator for 5 seconds. A delay can be set, allowing technicians time to click the *Start* button and move to where they can observe the actuator's change in position.

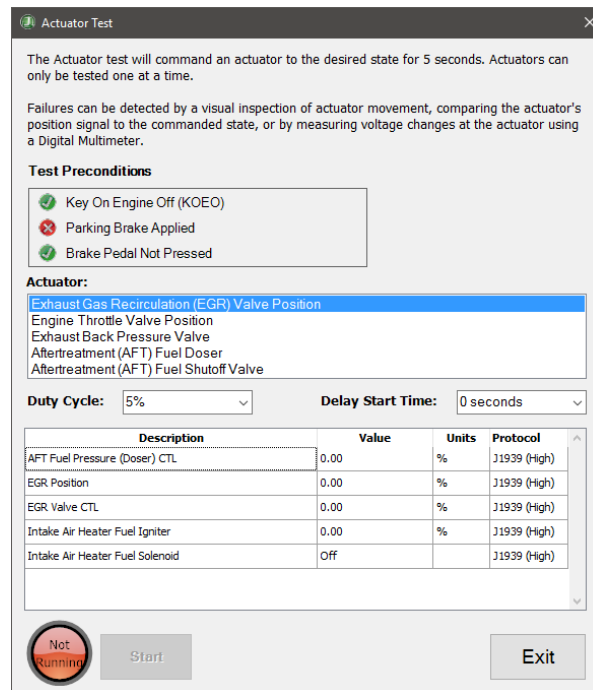
1. Select Actuator Tests and press **Enter** or click the **Start** button.
2. The **Configure Monitored Data for Actuator Test** dialog will be displayed.



Configure Monitored Data for Actuator Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

- Pressing **OK** button will cause the **Actuator Test** dialog to be displayed.



Actuator Test

- Select the desired actuator from the list.
- Select a value for **Duty Cycle** and **Delay Start Time**.
- Click the **Start** button to begin the test, which will wait for the **Delay Start Time** before moving the actuator to the desired **Duty Cycle** position.
- When test has completed, click the **Exit** button to return to the test selection dialog.

EGR Actuator Slow Learn

The **EGR Actuator Slow Learn** test is supported on:

- ✓ Detroit Diesel DD13 any supported CPC with MCM02T
- ✓ Detroit Diesel DD15 or DD16 any supported CPC with MCM21T

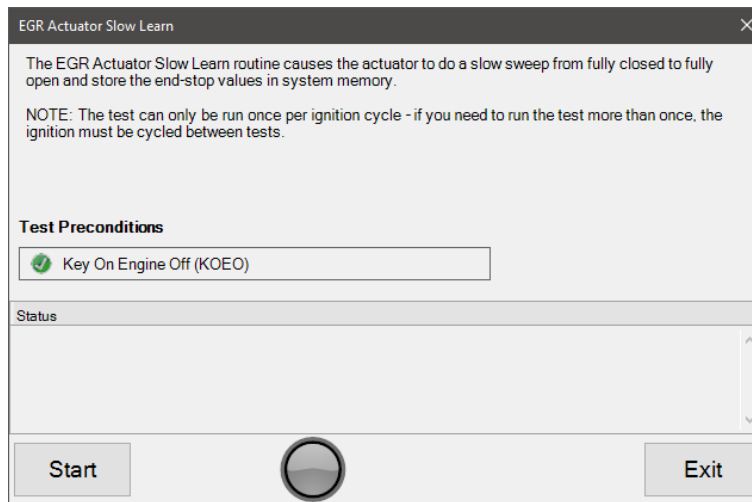
NOTE: This test is only available for [Supported ECU Software Versions](#).

The EGR Actuator Slow Learn routine causes the actuator to do a slow sweep from fully closed to fully open and store the end-stop values in system memory.

NOTE: The test can only be run once per ignition cycle – if you need to run the test more than once, the ignition must be cycled between tests.

- Select the **EGR Actuator Slow Learn** test and press Enter or click the *Start* button.

2. The **EGR Actuator Slow Learn** dialog will be displayed.



EGR Actuator Slow Learn

3. Click the **Start** button to begin the test. The test status will update with each step of the test.
4. When the test has completed, click the **Exit** button to return to the test selection dialog.

EGR Delta Pressure Sensor Recalibration

The **EGR Delta Pressure Sensor Recalibration test** is supported on:

- ✓ Detroit Diesel DD13 any supported CPC with MCM02T
- ✓ Detroit Diesel DD15 or DD16 any supported CPC with MCM21T

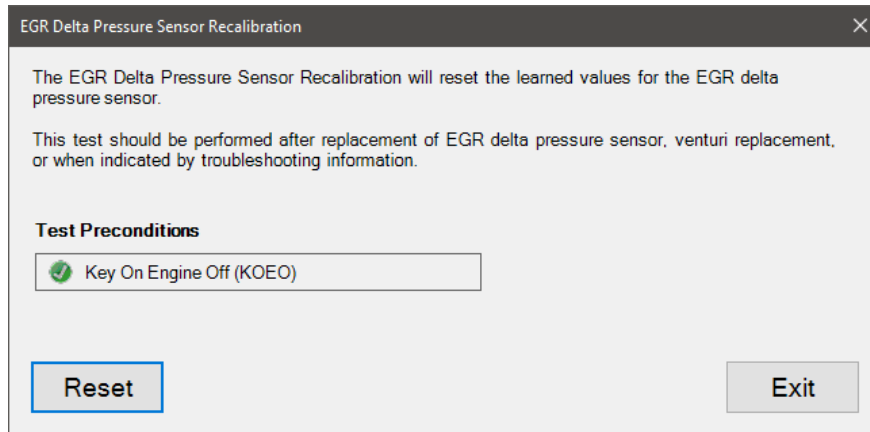
NOTE: This test is only available for [Supported ECU Software Versions](#).

The **EGR Delta Pressure Sensor Recalibration test** allows technicians to reset the learned values of the EGR delta pressure sensor.

NOTE: This test should be run after EGR delta pressure sensor replacement, venturi replacement, or when indicated by troubleshooting information.

1. Select the **EGR Delta Pressure Sensor Recalibration** test and press Enter or click the *Start* button.

- The **EGR Delta Pressure Sensor Recalibration** dialog will be displayed.



EGR Delta Pressure Sensor Recalibration

- Click the **Reset** button to reset the learned values of the EGR delta pressure sensor.
- When the test has completed, click the **Exit** button to return to the test selection dialog.

EGR Function Test

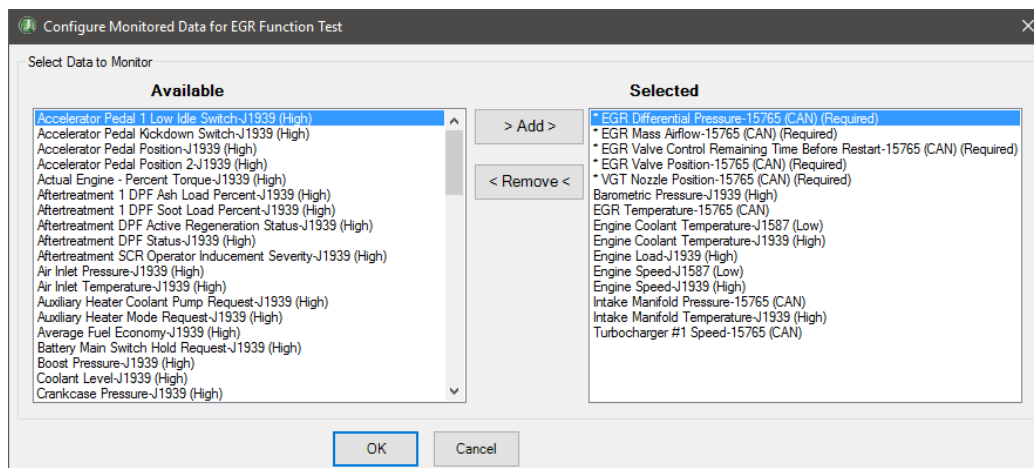
EGR Function Test is supported on:

- ✓ Mack and Volvo all EPA 07 to GHG17 engines

The **EGR Function Test** checks the functionality of the EGR valve.

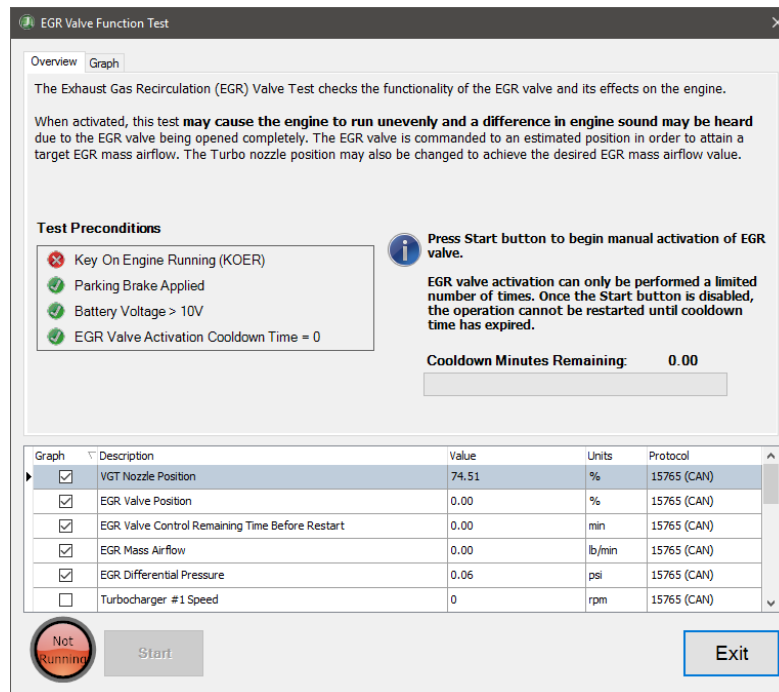
This test can only be performed a limited number of times. Once performed, a cool down period must complete before the test can be run again.

- Select **EGR Function Test** and press **Enter** or click **Start** button.
- On Mack and Volvo EPA13 to GHG17 engines, the **Configure Monitored Data for EGR Function Test** dialog will be displayed.



Configure Monitored Data for EGR Function Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
6. Pressing **OK** button will cause the **EGR Function Test** dialog to be displayed.



EGR Function Test

NOTE: On Mack and Volvo EPA 07 to EPA 10 engines, the EGR Function Test window will be slightly different as a cooldown time is not required.

7. On Mack and Volvo EPA 13 to GHG17 engines, if the engine reports that it is in a cooldown period, a timer will be shown with the estimated time until the test can be performed.
8. Ensure all preconditions are met.
9. Click the **Start** button to begin the test.
10. Values for selected data items will be graphed as the test progresses. Click the checkbox next to any data item to add or remove it from the graph. Select the Graph tab to view the selected data items.
11. When the test has completed, click the **Exit** button to return to the test selection dialog.

Intake Throttle Valve Test

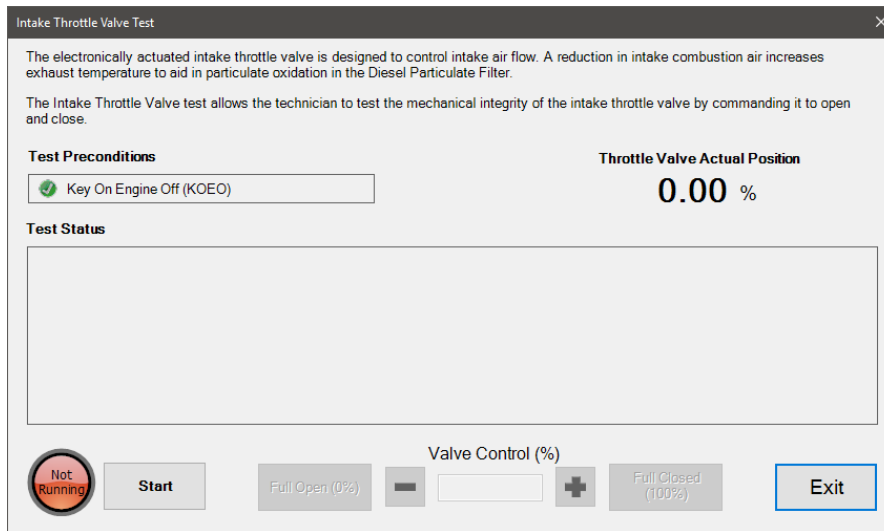
The **Intake Throttle Valve Test** is available on:

- ✓ Detroit Diesel any supported CPC with MCM02T

NOTE: This test is only available for [Supported ECU Software Versions](#).

This test is used to check the mechanical integrity of the intake throttle valve by commanding it to open and close.

1. Select the **Intake Throttle Valve Test** and press **Enter** or click the **Start** button.
2. The test dialog will be displayed.



Intake Throttle Valve Test

3. Click the **Start** button to begin the test.
4. The **Start** button will change to a **Stop** button and the lamp next to the button will indicate the test is Running.
5. Select the **-** or **+** to set the throttle valve position to 10% less/more than the current position. Click the **Full Open (0%)**, or **Full Closed (100%)** buttons to fully open or close the valve. You may also enter a number between 0 and 100 in the **Valve Control %** text box to command the valve to a certain position.
6. As the test runs, status will be updated in the status window.
7. Click the **Stop** button once you have completed the test.
8. Click the **Exit** button to return to the test selection dialog.

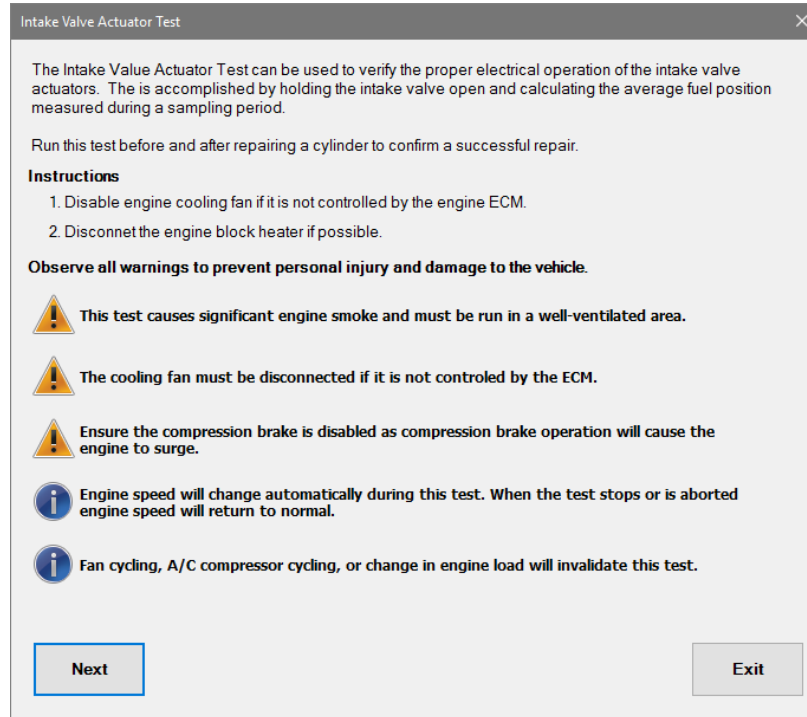
Intake Valve Actuator Test

The **Intake Valve Actuator Test** is available on:

- ✓ Caterpillar EPA 04: C13 and C15 ACERT engines
- ✓ Caterpillar EPA 07: C13 and C15 ACERT engines

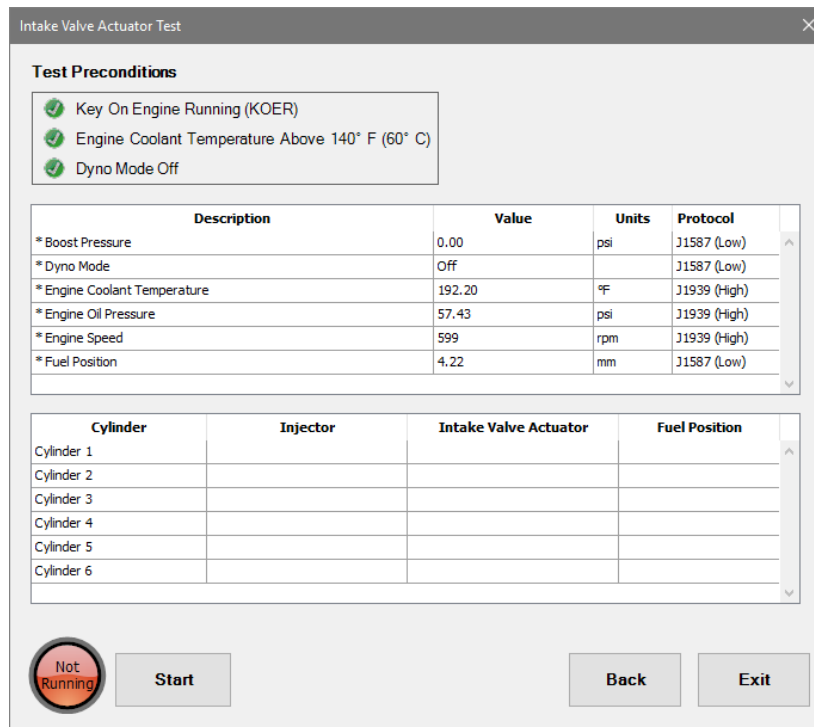
This test allows is used to verify the proper electrical operation of the intake valve actuators.

1. Select the **Intake Valve Actuator Test** and press **Enter** or click the **Start** button.
2. The **Intake Valve Actuator Test** dialog will be displayed.



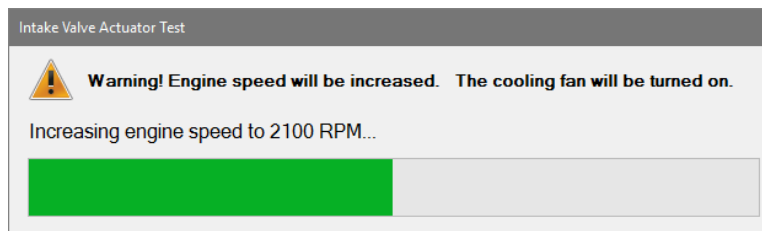
Intake Valve Actuator Test Instructions and Warnings

- Once instructions have been followed, click the **Next** button.



Intake Valve Actuator Test

- Once all preconditions have been met, click the **Start** button to begin the test.
- During the test, the cylinders will be individually tested by controlling the injector and intake valve actuators to measure fuel position. The test will be repeated for 2 cycles, which will be compared to determine the status of each cylinder.
- After the test, the engine speed will be increased for 15 seconds to purge any particulates or unspent fuel that may have built up during the test.



Intake Valve Actuator Test Engine Speed Increasing

7. Once the test has been completed the results will be displayed.

Intake Valve Actuator	Cycle 1	Cycle 2	Average	Status
Cylinder 1	4.21	4.21	4.21	OK
Cylinder 2	4.23	4.23	4.23	OK
Cylinder 3	4.19	4.19	4.19	OK
Cylinder 4	4.20	4.20	4.20	OK
Cylinder 5	4.18	4.18	4.18	OK
Cylinder 6	4.22	4.22	4.22	OK

! Do not run this test again until after the engine has been placed under load.

Please reconnect the cooling fan if you disconnected it for the test. If the engine ECM controls the fan it will be reset to its original condition.

If the engine speed is being overridden by the ECM it will be reset to its original condition.

Please remember to reconnect the block heater.

Not Running Start Exit

Intake Valve Actuator Test Results

8. After reviewing test results, click the **Exit** button to return to the test selection dialog.

Intake Valve Actuator Solenoid Test

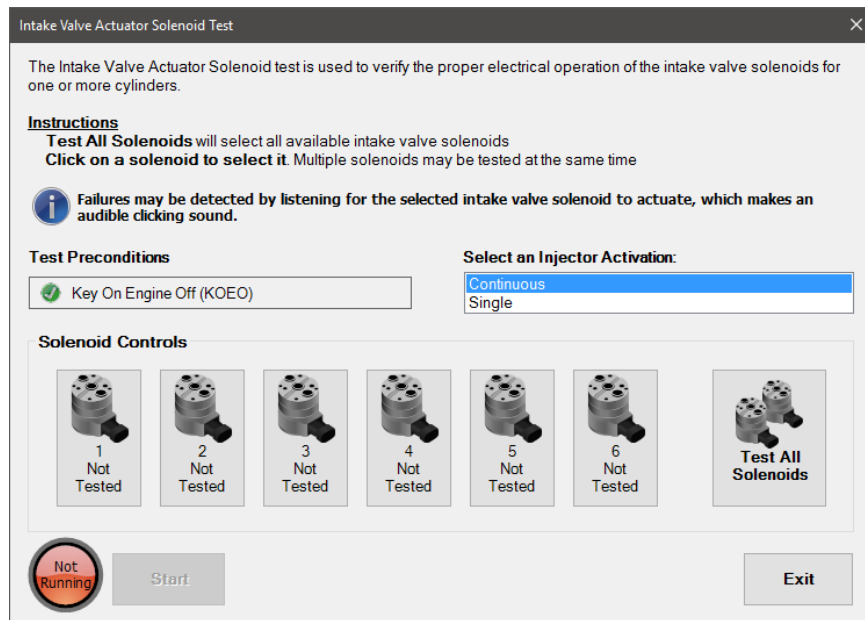
The **Intake Valve Actuator Solenoid Test** is available on:

- ✓ Caterpillar EPA 04: C13 and C15 ACERT engines
- ✓ Caterpillar EPA 07: C13 and C15 ACERT engines

This test allows is used to verify that intake valve actuator solenoids are operating correctly.

1. Select the **Intake Valve Actuator Solenoid Test** and press **Enter** or click the **Start** button.

2. The **Intake Valve Actuator Solenoid Test** dialog will be displayed.



Intake Valve Actuator Solenoid Test

3. Select the solenoid activation type of **Continuous** or **Single**. A **Single** activation will run once and automatically stop. A **Continuous** activation will run until you select the **Stop** button.
4. Select the injector(s) to test. Select **Test All Solenoids** to test all injectors.
5. Once all preconditions have been met, then select the **Start** button to begin the test.
6. As the solenoid is activated, you should hear an audible clicking sound. Selected solenoids will update with a status of "**OK**", "**Failed Open**", or "**Failed Short**" as they are tested.
7. If the activation type is **Continuous**, you must select the **Stop** button to stop the test.
8. When the test has completed, click the **Exit** button to return to the test selection dialog.

KOER Air Management Test

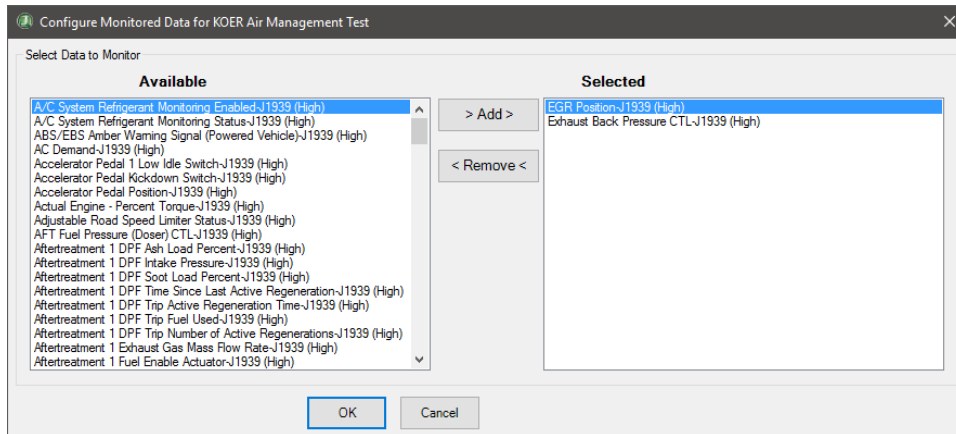
KOER Air Management Test is supported on:

- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 13 Maxxforce 7 engines
- ✓ International N9, N10, 2015 N13, and A26 GHG17 engines

The **Air Management Test** will check the performance of the EGR and/or ETV/VGT (depending on engine model) components of the Air Management system. The engine will ramp up and the valves will cycle to test their performance and effects on Intake Manifold Pressure.

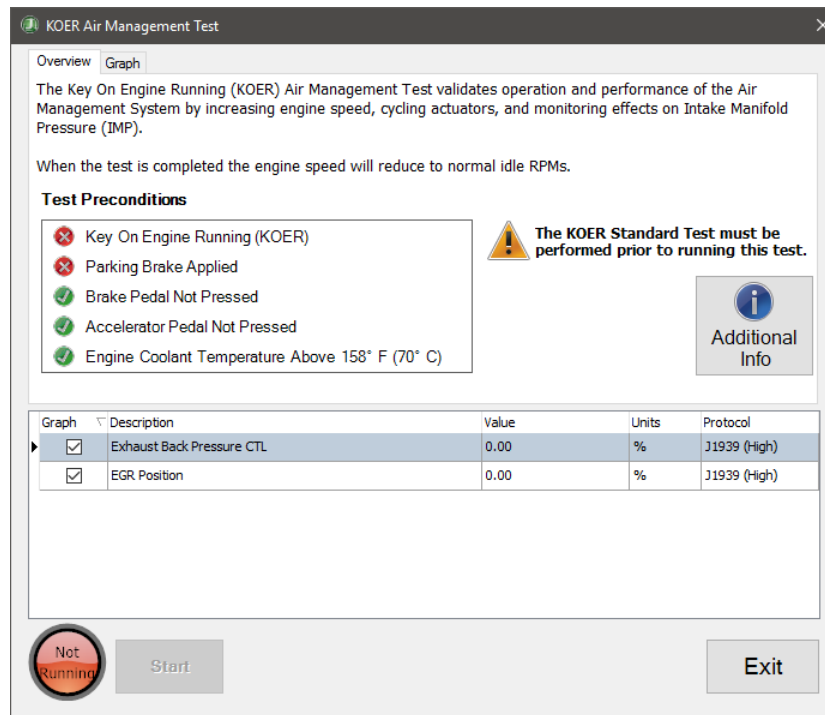
1. Select **KOER Air Management Test** and press **Enter** or click the **Start** button.

- The **Configure Monitored Data for KOER Air Management Test** dialog will be displayed.



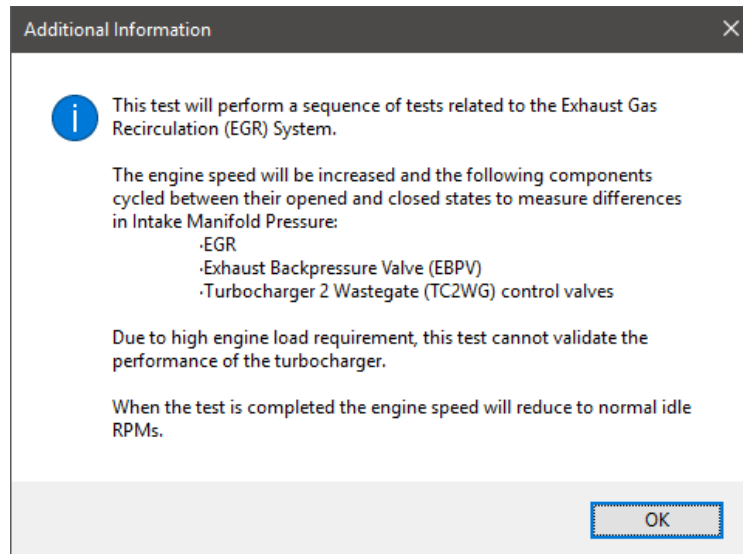
Configure Monitored Data for Cylinder Cut-out Test Dialog

- Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
- To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
- When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.
- Pressing **OK** button will cause the **KOER Air Management Test** dialog to be displayed.



Air Management Test

7. Clicking the **Additional Info** button will display additional test information. Click **OK** to close this window.



Air Management Test Additional Information

8. Ensure all preconditions are met.
9. Click the **Start** button to begin the test.
10. Values for the selected data items will be graphed as the test progresses. Click the checkbox next to any data item to add or remove it from the graph. Select the **Graph** tab to view the graph.
11. When the test has completed, click the **Exit** button to return to the test selection dialog.

Turbo Actuator Effort Test

Turbo Actuator Effort Test is available on:

- ✓ PACCAR EPA 10 to GHG17 all MX engines

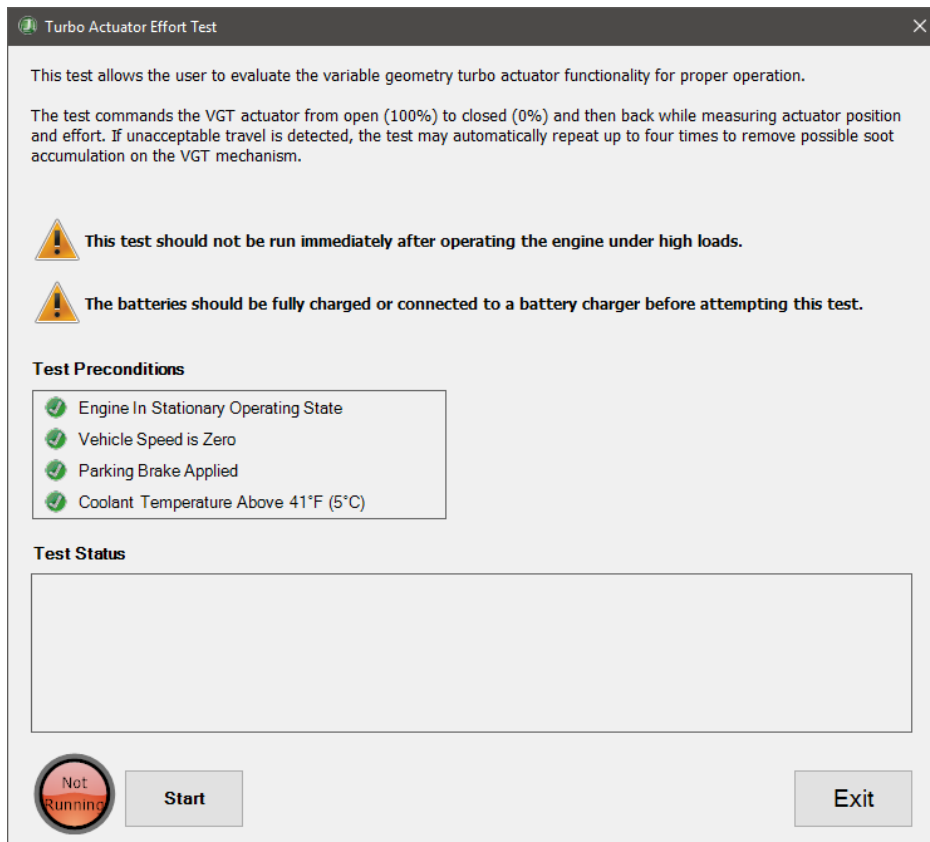
The **Turbo Actuator Effort Test** evaluates the variable geometry turbocharger (VGT) actuator and nozzle ring mechanism for proper operation. It is performed at KOEO (key on, engine off).

This test commands the VGT actuator from open (100%) to closed (0%) and then back while measuring actuator position and effort. If acceptable travel is not detected, the test may automatically repeat up to four times to remove possible soot accumulation on the VGT mechanism.

- ⚠ This test should not be run immediately after operating the engine under high loads.
- ⚠ The batteries should be fully charged or connected to a battery charger before attempting this test.

1. Select the **Turbo Actuator Effort Test** and press **Enter** or press the **Start** button.

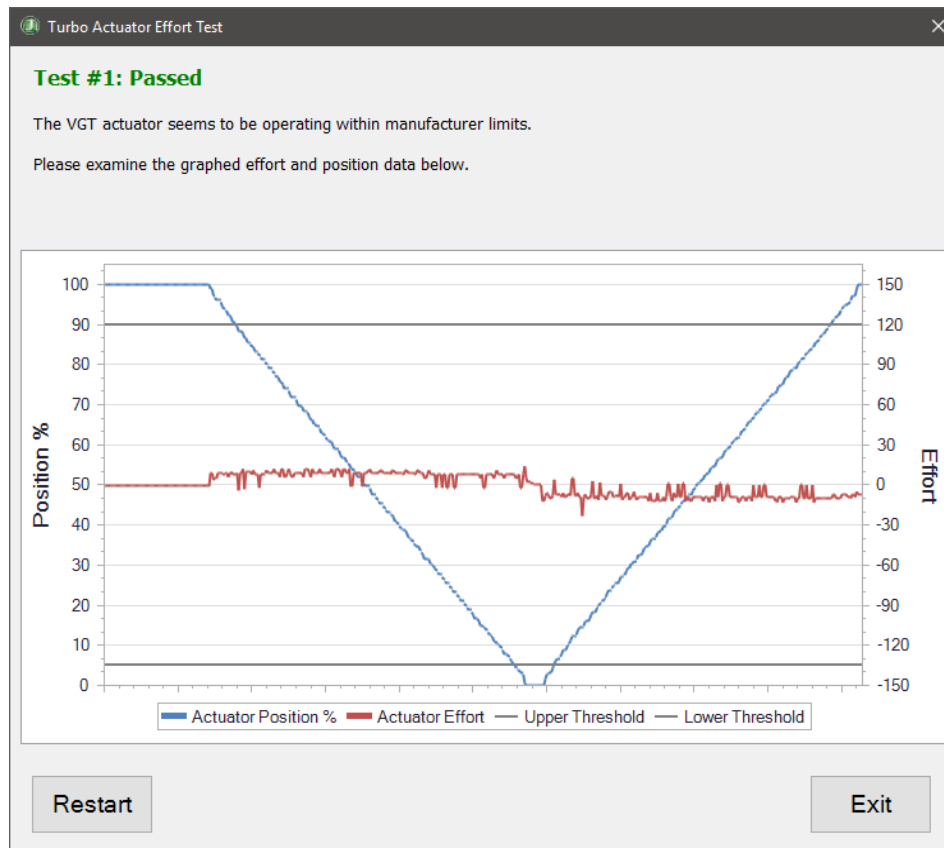
2. The **Turbo Actuator Effort Test** window opens.



Turbo Actuator Effort Test

3. Ensure all preconditions are met.
4. Click the **Start** button to begin the test. The start button will change to a **Stop** button.
- ⚠ If you stop this test for any reason before it is complete, you must key-cycle the ignition before attempting the test again.
5. The VGT actuator will cycle from open to closed and then back. If there are issues, the VGT actuator cycle may be repeated up to 4 times before the test completes. Test progress will display in the **Test Status** window.

6. The test results will be displayed.



Turbo Actuator Effort Test Passed

7. If the test fails, then the test results will indicate that the test has failed four times in a row. Further instructions will be given to remove the VGT actuator from the turbocharger to continue the test to determine if the problem is in the VGT actuator or in the turbocharger VGT mechanism.
8. Press the **Exit** button when ready to exit this test and return to the test selection dialog. Select **Restart** to perform the test again.

VGT Electronic Actuator Installation and Calibration

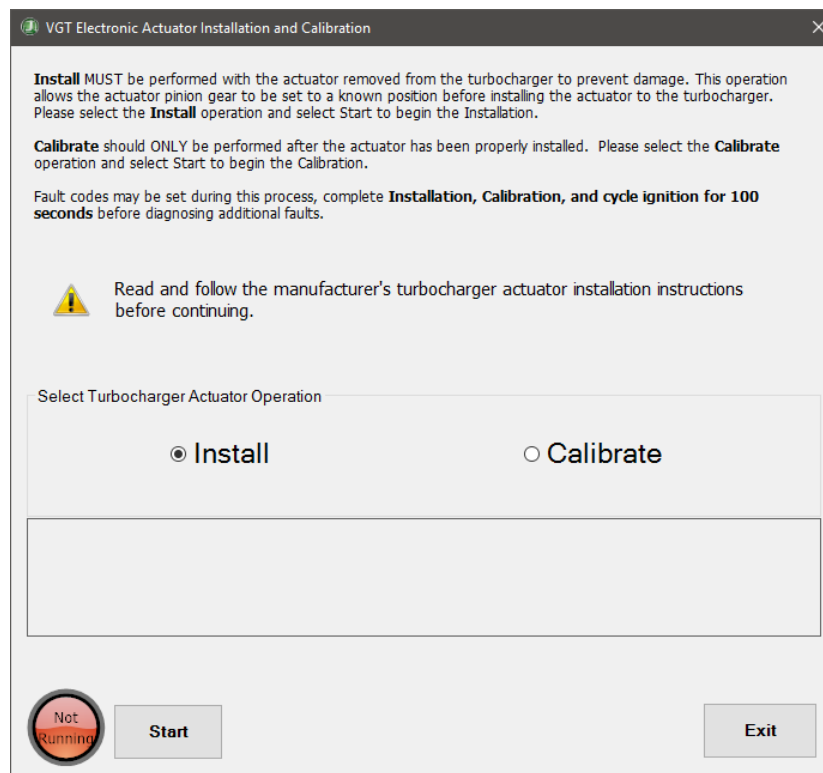
VGT **Electronic Actuator Installation and Calibration** is available on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Mack and Volvo EPA 13 to GHG17

The **VGT Electronic Actuator Installation and Calibration test** should be used to properly install and calibrate a turbocharger during replacement.

This test consists of two separate procedures. First the actuator must be installed while the actuator is physically disconnected from the turbocharger. Second the actuator must be physically reinstalled to the turbocharger to calibrate it.

- ⚠ This test cannot be used to diagnose a turbocharger actuator’s functionality. Using this operation to test the actuator functionality may cause fault codes and damage the turbocharger or actuator.
1. Select **VGT Electronic Actuator Installation and Calibration** and press **Enter** or press **Start** Button.
 - ⚠ Ensure the ignition is on and the engine is not running before clicking **Start**.
 2. The **VGT Electronic Actuator Installation and Calibration** dialog will be displayed.



VGT Electronic Actuator Calibration Dialog

3. Perform **Install** procedure.
4. Perform **Calibrate** procedure.

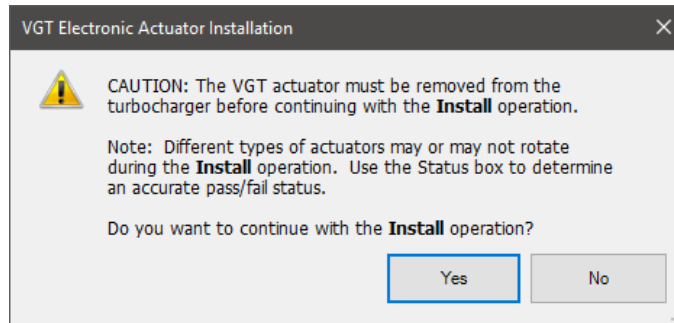
NOTE: Calibrate must be performed after the Install procedure successfully completes.

Install Procedure

- ⚠ Ensure the turbocharger actuator is removed from the turbocharger housing according to manufacturer instructions.
- ⚠ Ensure the turbocharger actuator electrical circuit is connected to the engine wiring harness.

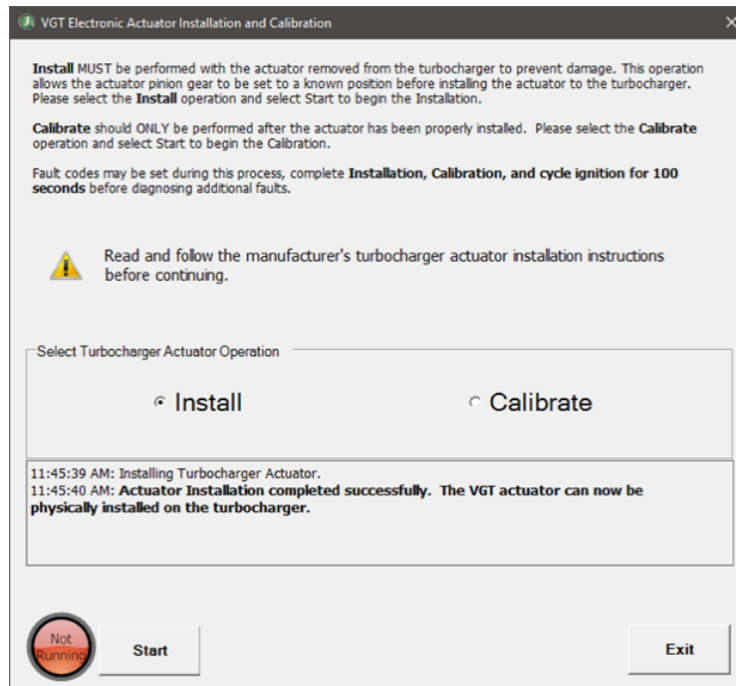
NOTE: It is normal and expected to have Fault Code 2449 active when a new turbocharger actuator is connected to the engine because it is not calibrated to the turbocharger.

1. From the **VGT Electronic Actuator Installation and Calibration** dialog, select the **Install** option and click **Start**.
2. A confirmation window will display. Ensure all prerequisites are met and select **Yes**.



VGT Electronic Actuator Installation Confirmation

3. The installation process will begin, the **Start** button will change to the **Stop** button and the status and progress of each step will be displayed in the **VGT Electronic Actuator Installation and Calibration** dialog. To manually stop the installation, press the **Stop** button.
4. After the install procedure completes, the dialog will display the outcome of the installation.

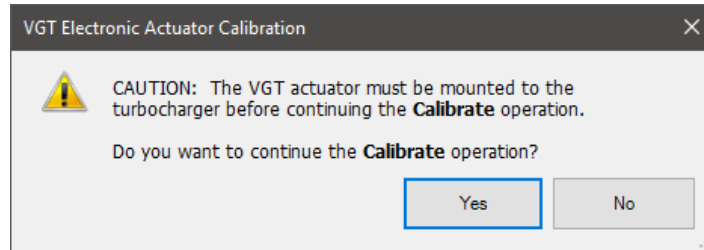


VGT Electronic Actuator Installation Success

Calibrate Procedure

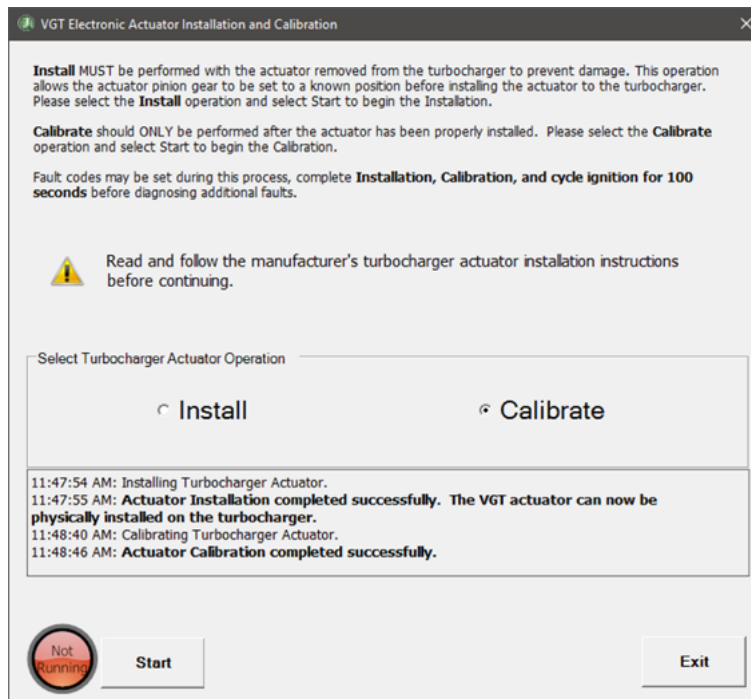
NOTE: Attempting to Calibrate the turbocharger prior to completing a successful Installation procedure will result in an error: *VGT actuator Calibration has failed: Actuator Installation must be performed before Calibration.*

1. From the **VGT Electronic Actuator Installation and Calibration** dialog, select the **Calibrate** option and click **Start**.
2. A confirmation window will display. Ensure all pre-requisites are met and select **Yes**.



VGT Electronic Actuator Calibration Confirmation

3. The calibration process will begin, the **Start** button will change to the **Stop** button and the status and progress of each step will be displayed in the **VGT Electronic Actuator Installation and Calibration dialog**. To manually stop the calibration, press the **Stop** button.
4. After the calibration procedure completes, the dialog will display the outcome of the calibration.



VGT Electronic Actuator Calibration Success

VGT Function Test

VGT Function Test is supported on:

- ✓ Mack and Volvo all EPA 07 to GHG17 engines

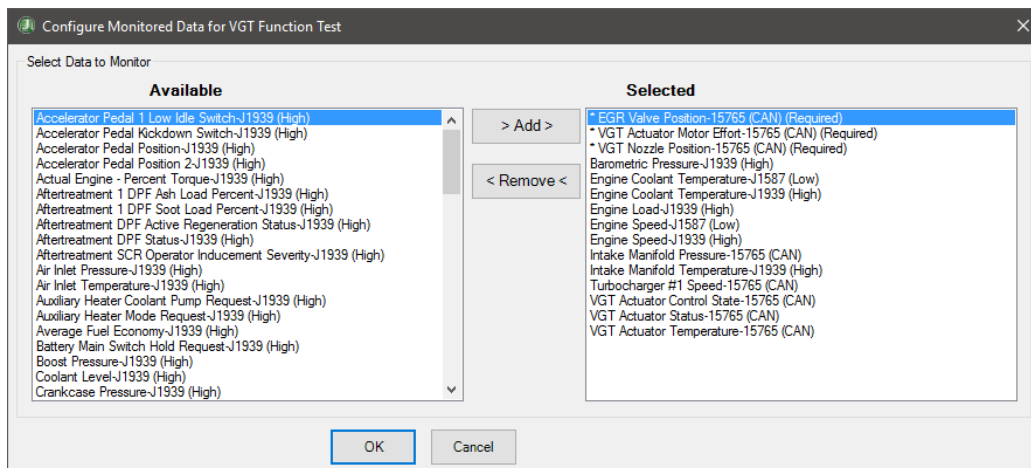
The VGT uses a movable nozzle to adjust Intake Manifold Pressure. The VGT Function Test will change the nozzle's position and monitor sensor values.

On Mack and Volvo EPA 13 to GHG17 engines, this test consists of two functional test options:

- **Full Stroke** – actuator position sweeps from 0% to 100% in a single motion.
- **Step Test** – actuator position changes by incremental 10% - 20% steps from 0% to 100%

On Mack and Volvo EPA 07 to EPA 10 engines, only the **Full Stroke** test option is available.

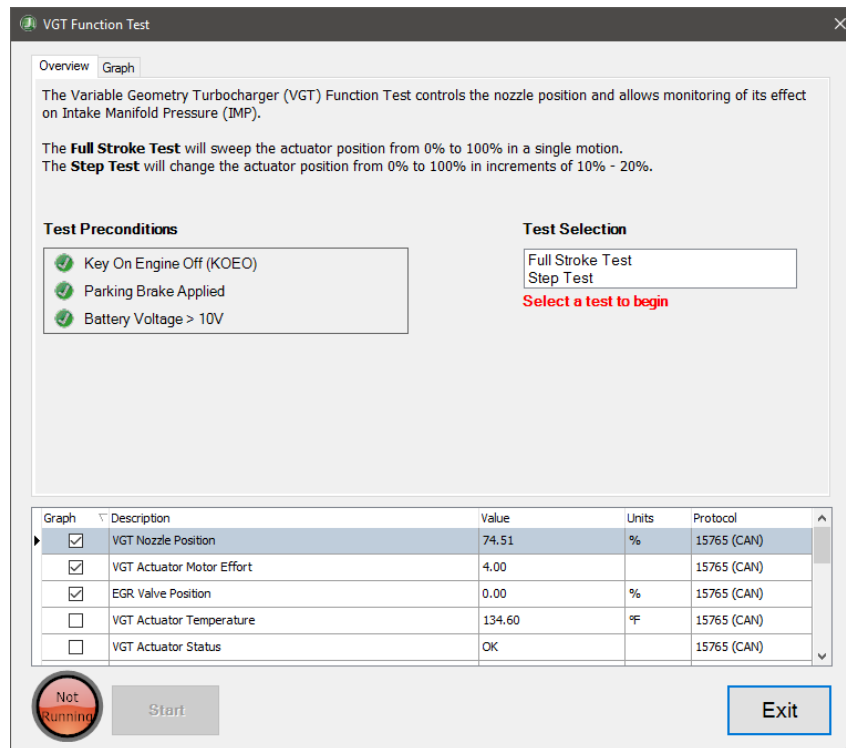
1. Select **VGT Function Test** and press **Enter** or click **Start** button.
2. On Mack and Volvo EPA 13 to GHG17 engines, the **Configure Monitored Data for VGT Function Test** dialog will be displayed.



Configure Monitored Data for VGT Function Test Dialog

3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

6. Pressing **OK** button will cause the **VGT Function Test** dialog to be displayed.



VGT Function Test

NOTE: On Mack and Volvo EPA07 to EPA10 engines, the Test Selection option is not available. Only the Full Stroke Test is supported.

7. Select either of the **Test Selection** options.
8. Ensure all preconditions are met.
9. Click **Start** to begin the test
10. Values for selected data items will be graphed as the test progresses. Click the checkbox next to any data item to add or remove it from the graph. Select the **Graph** tab to view the selected data items.
11. When the test has completed, click the **Exit** button to return to the test selection dialog.

VGT Hysteresis Tests

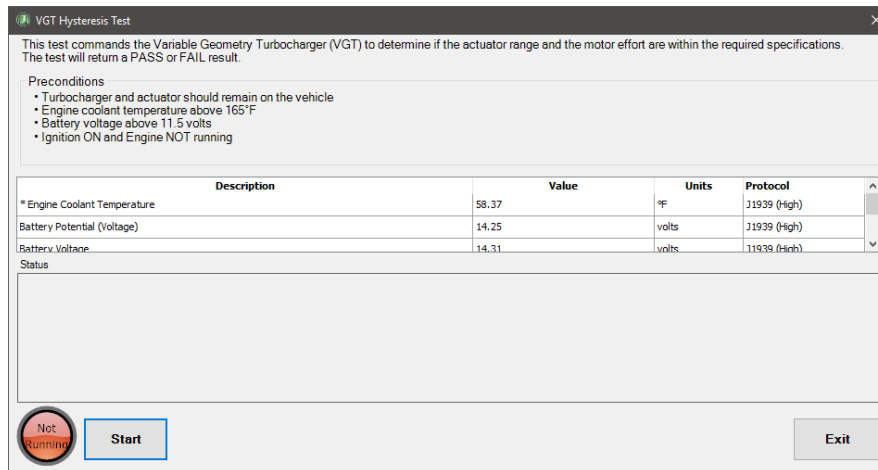
VGT Hysteresis Test is supported on:

- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX (12L and 15L), PX-6, and PX-8 with Common Rail Fuel Systems
- ✓ Cummins EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9 with Common Rail Fuel Systems
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems

- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

The **VGT Hysteresis Test** commands the Variable Geometry Turbocharger (VGT) to determine if the actuator range and the motor effort are within the required specifications.

1. Select **VGT Hysteresis Test** and press **Enter** or press **Start** Button.
2. The **VGT Hysteresis Test** dialog will be displayed.



VGT Hysteresis Test

3. Press the **Start** button to begin the test.
4. During the test, the **Start** button will change to the **Stop** button and the status and progress of each step of the test will be displayed in the Status box. To manually stop the test, press the **Stop** button.
5. After the test completes, the **Status** box will display the outcome of the test.
6. Press **Exit** button when ready to exit this test and return to the test selection dialog.

VGT Monitor Test

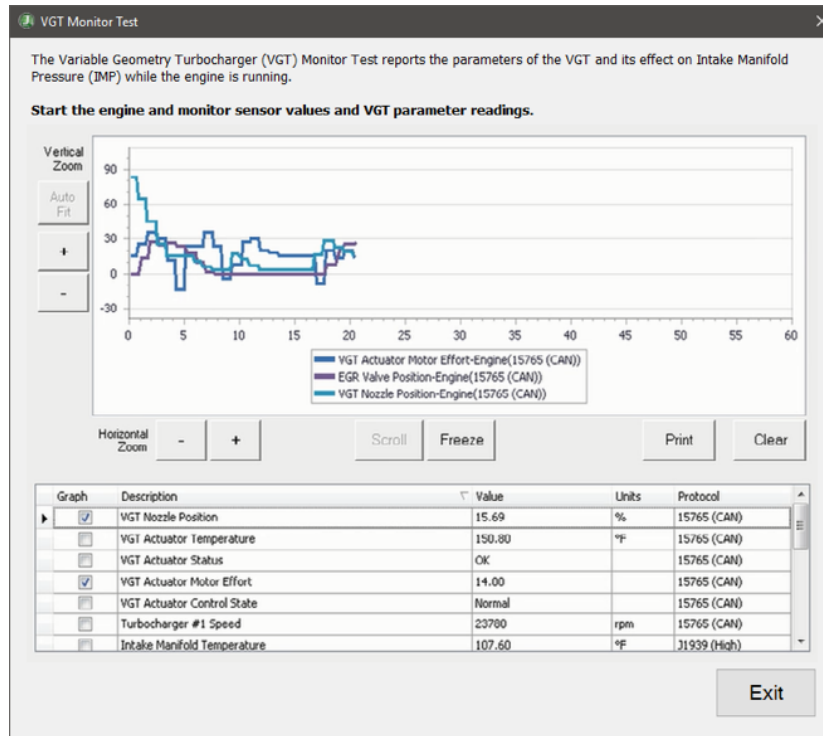
The **Variable Geometry Turbocharger (VGT) Monitor Test** is supported on:

- ✓ Mack and Volvo EPA 13 to GHG17 engines.

The VGT Monitor Test checks the VGT functionality by allowing you to monitor VGS sensor readings while the engine is running.

1. Select the **VGT Monitor Test** and press **Enter** or click the **Start** button.
2. The **Configure Monitored Data for VGS Monitor Test** dialog will be displayed.
3. Select parameters from the **Available** list and click **Add** button to move them to the **Selected** list.
4. To remove parameters from the **Selected** list, highlight the parameter in the list and press the **Remove** button. The parameter will be returned to the **Available** list.
5. When you are done selecting parameters, then press the **OK** button, otherwise press the **Cancel** button to return to the test selection dialog.

- Pressing **OK** button will cause the **VGT Monitor Test** dialog to be displayed.



VGT Monitor Test

- Values for the selected data items will be graphed. Click the checkbox next to any data item to add or remove it from the graph.
- When finished monitoring VGT data, click the **Exit** button to return to the test selection dialog.

J1939 Datalink Control Test

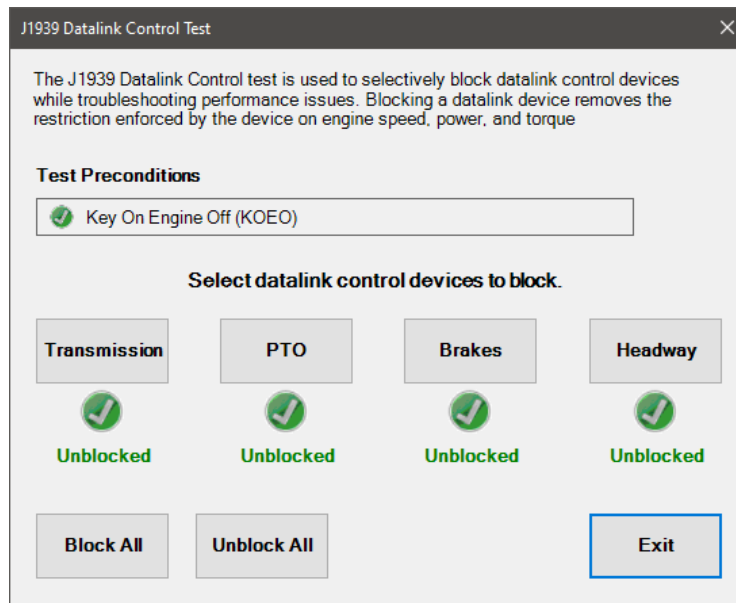
The **J1939 Datalink Control Test** is supported on:

- ✓ Cummins EPA 07: all ISC, ISL, ISX (12L and 15L), PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX
- ✓ Cummins EPA 13: all ISB, ISL, ISX
- ✓ Cummins GHG17: all B6.7, L9, X15
- ✓ Cummins GHG21: all B6.7, L9, X15

The J1939 Datalink Control Test is used to selectively block datalink control devices while troubleshooting performance issues. Blocking a datalink device removes the restriction enforced by the device on engine speed, power, and torque.

- Select the **J1939 Datalink Control Test** and press **Enter** or click the **Start** button.

2. The **J1939 Datalink Control Test** dialog will be shown.



J1939 Datalink Control Test

3. Click the desired datalink control device to toggle its status. When a device becomes blocked the green check mark will be replaced with a red 'X' and the status will show as Blocked. When blocked, a device's restrictions on the engine's performance are removed.
Clicking the **Block All** button will toggle all devices to the blocked status.
Clicking the **Unblock All** button will toggle all devices to the unblocked status.
4. When the test has completed, click the **Exit** button to return to the test selection dialog.

KOEO Standard Test

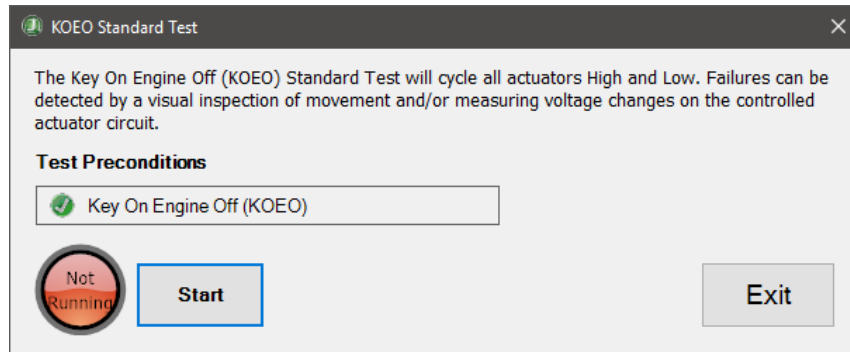
KOEO Standard Test is supported on:

- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce DT, 9, and 10 engines
- ✓ International N9, N10, and 2015 N13 engines

The **KOEO Standard Test** is a prerequisite to several KOEO tests, including the KOEO Injector Test. It attempts to detect issues by cycling all actuators High and Low.

1. Select **KOEO Standard Test** and press **Enter** or click the **Start** button.

2. The **KOEO Standard Test** dialog will be shown.



KOEO Standard Test

3. Ensure the precondition is met.
4. Click the **Start** button to run the test.
5. When the test has completed, click the **Exit** button to return to the test selection dialog.

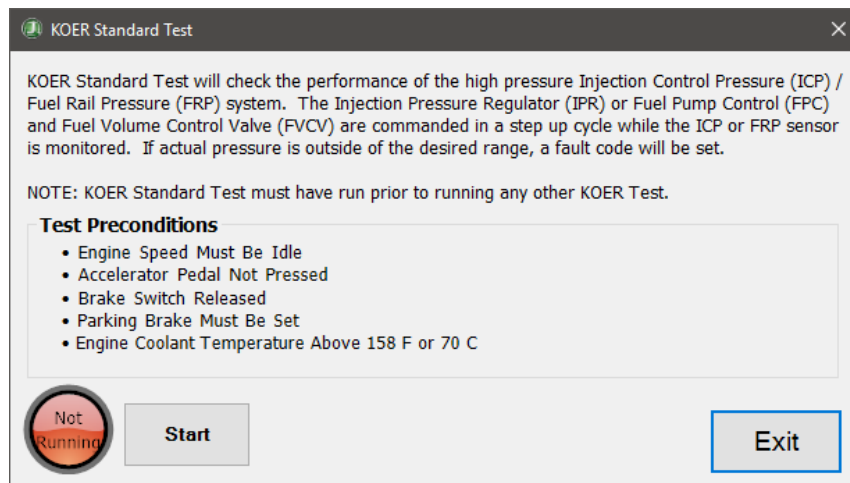
KOER Standard Test

KOER Standard Test is supported on:

- ✓ International EPA 07 to EPA 13 Maxxforce 7, 9 and 10 engines
- ✓ International N9 and N10 engines

The **KOER Standard Test** checks the performance of the high-pressure Injection Control Pressure (ICP) / Fuel Rail Pressure (FRP) system.

1. Select **KOER Standard Test** and press **Enter** or press **Start** Button.
2. The **KOER Standard Test** dialog will be displayed.



KOER Standard Test Dialog

3. Ensure all preconditions are met and then select the **Start** button to begin the test.

- The lamp to the left of the **Start** button will change from **“Not Running”** to **“Running”** and highlight as well.
- Once the test completes, the lamp will change back to **“Not Running”** and a message will display with the test results.
- Click the **Exit** button to return to the test selection dialog.

Parameter Tests

Auxiliary Engine Speed Control (PTO) Parameters

Auxiliary Engine Speed Control (PTO) Parameters is supported on:

- ✓ International EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines
- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

NOTE: Noregon can remove access to setting Auxiliary Engine Speed Control (PTO) Parameters. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This test allows users to change configuration items affecting the Auxiliary Engine Speed Control (PTO) system.

- Select the **Auxiliary Engine Speed Control (PTO) Parameters** and press **Enter** or click the **Start** button.
- The dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current setting. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

Auxiliary Engine Speed Control (PTO) Parameters ✖

To change the following parameters enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
General						
Auxiliary Engine Speed Control - Mode		In Cab Operation Only	In Cab Operation Only			None
Auxiliary Engine Speed Control - Maximum Vehicle Speed		5	5	0.00	21.75	mph
Auxiliary Engine Speed Control - In Cab Mode Preset		Stationary Variable	Stationary Variable			None
Auxiliary Engine Speed Control - In Cab Operator Interface		Enable	Enable			None
Enable/Disable						
Auxiliary Engine Speed Control - Remote Pedal Enable		Disable	Disable			None
Preset						

Ensure that you have permission to write these values, and are in compliance with all legal and contractual obligations. Licensee assumes all responsibility for legal, warranty, or safety violations.

Auxiliary Engine Speed Control (PTO) Parameters

NOTE: The specific parameters available to program vary by engine type.

3. Enter a new value in one or more rows of the grid. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
4. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
5. When done reprogramming, click the **Exit** button to return to the Test Selection.

Enable/Disable Cruise Control

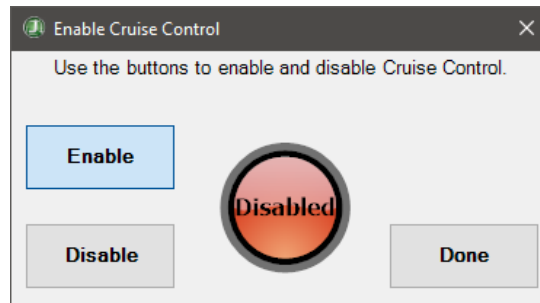
Enable and Disable of Cruise Control is supported on:

- ✓ Mack and Volvo EPA 07 to GHG17 engines

NOTE: This test is currently unavailable for connections using a Noregon DLA+ 3.0 family adapter.

This may be protected by the customer password setting. If the user has configured the vehicle with a password then, the user will need to have that password to set any of these parameters. Once the password is entered, parameters can be changed on the vehicle until the session is ended by hitting Disconnect.

1. Select **Enable Cruise Control** and press **Enter** or click the **Start** Button.
2. The **Cruise Control Enable** dialog will be displayed.



Enable Cruise Control

3. The **Enable** button will turn cruise control on and the **Disable** button will turn cruise control off. The center lamp will display the current state of the vehicle.
4. Click the **Done** button to return to the test selection dialog.

Engine Protection Parameters

Engine Protection Parameters are available on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8

- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

NOTE: Noregon can remove access to setting Engine Protection Parameters. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This test allows users to change configuration items related to engine protection.

1. Select the **Engine Protection Parameters** and press **Enter** or click the **Start** button.
2. The **Engine Protection Parameters** dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current setting. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

To change the following parameters, enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
(Engine Protection) Limited Restart		Enable	Enable	N/A	N/A	None
(Engine Protection) Shutdown		Enable	Enable	N/A	N/A	None
(Engine Protection) Shutdown Manual Override		Disable	Disable	N/A	N/A	None

Ensure that you have permission to write these values, and are in compliance with all legal and contractual obligations. Licensee assumes all responsibility for legal, warranty, or safety violations.

Program **Restore Original** **Exit**

Engine Protection Parameters

3. Enter a new value in one or more rows of the grid. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
4. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
5. When done reprogramming, click the **Exit** button to return to the Test Selection.

Idle Shutdown

Changing Idle Shutdown is supported on:

- ✓ Caterpillar 3126, C12, and C18 engines
- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines
- ✓ Caterpillar EPA 07: C7, C13, and C15 ACERT engines
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Detroit Diesel CPC02T
- ✓ Detroit Diesel CPC04T
- ✓ Detroit Diesel CPC302T
- ✓ Detroit Diesel CPC501T

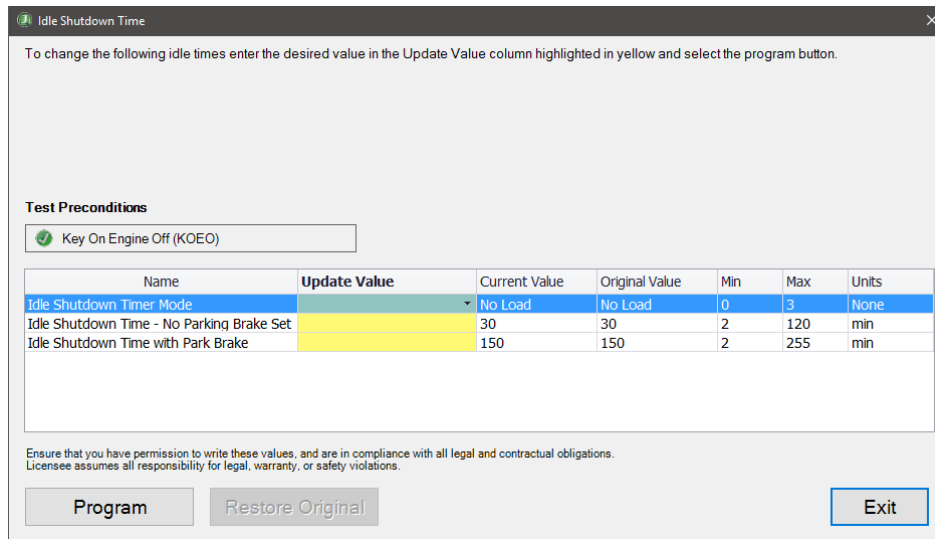
NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce DT, 9, 10, 11, 13 and 15 engines
- ✓ International EPA 13 Maxxforce 7, 9, DT, 10, 11, and 13 engines
- ✓ International N9, N10, N13, and A26 GHG17 engines
- ✓ Mack and Volvo EPA 07 to GHG17 engines

NOTE: This test is currently unavailable for Mack and Volvo connections using a Noregon DLA+ 3.0 family adapter.

1. Select **Idle Shutdown** and press **Enter** or click the **Start** Button.
2. The **Idle Shutdown** dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current settings. The **Min** and **Max** columns

show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.



Idle Shutdown Time Dialog

NOTE: Idle Shutdown Time window will look slightly different for each manufacturer, but the functionality provided is the same.

3. Enter a new value for **Idle Shutdown**. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
4. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
5. When done reprogramming, click the **Exit** button to return to the Test Selection.

PTO Parameters

Engine Protection Parameters are available on:

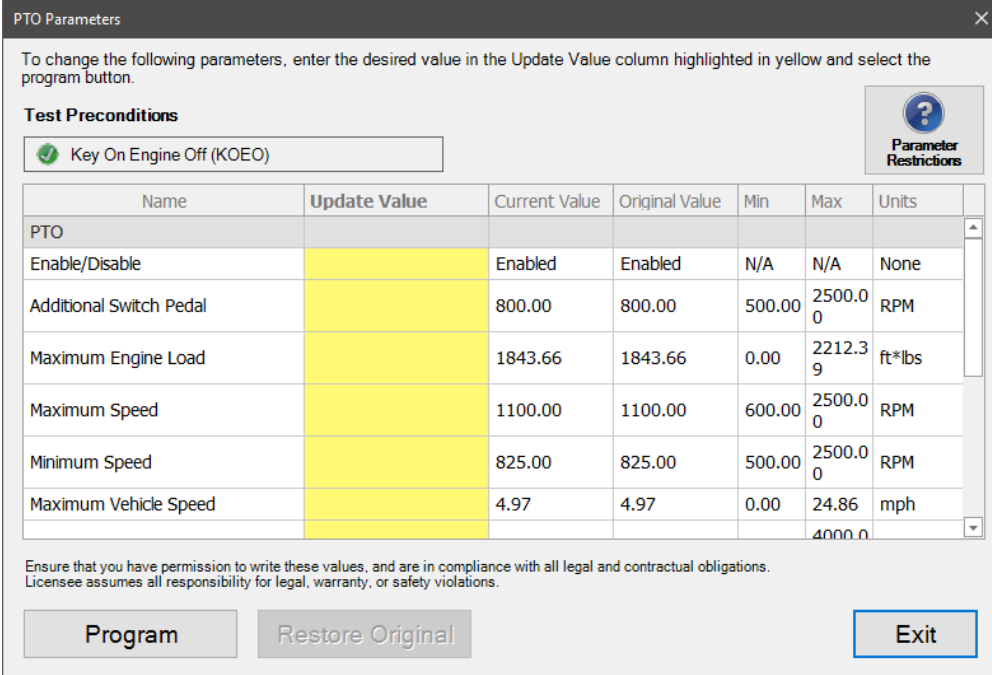
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Detroit Diesel CPC02T
- ✓ Detroit Diesel CPC04T
- ✓ Detroit Diesel CPC501T

NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

NOTE: Noregon can remove access to setting PTO Parameters. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This test allows users to change configuration items affecting the power take-off (PTO) system.

1. Select the **PTO Parameters** and press **Enter** or click the **Start** button.
2. The **PTO Parameters** dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current setting. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.



Name	Update Value	Current Value	Original Value	Min	Max	Units
PTO						
Enable/Disable		Enabled	Enabled	N/A	N/A	None
Additional Switch Pedal		800.00	800.00	500.00	2500.00	RPM
Maximum Engine Load		1843.66	1843.66	0.00	2212.39	ft*lbs
Maximum Speed		1100.00	1100.00	600.00	2500.00	RPM
Minimum Speed		825.00	825.00	500.00	2500.00	RPM
Maximum Vehicle Speed		4.97	4.97	0.00	24.86	mph

PTO Parameters

NOTE: The specific parameters available to program vary by manufacturer.

3. Select the **Parameter Restrictions** button to learn about limits applied to parameter values beyond the absolute min and max values displayed. These limits are enforced based on relationships between parameter values.
4. Enter a new value in one or more rows of the grid. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
5. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
6. When done reprogramming, click the **Exit** button to return to the Test Selection.

Road & Cruise Speed Limits

Setting **Road & Cruise Speed Limit** is supported on:

- ✓ Caterpillar 3126, C12, and C18 engines
- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines
- ✓ Caterpillar EPA 07: C7, C13, and C15 ACERT engines
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Detroit Diesel CPC02T
- ✓ Detroit Diesel CPC04T
- ✓ Detroit Diesel CPC302T
- ✓ Detroit Diesel CPC501T

NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce DT, 9, 10, 11, 13 and 15 engines
- ✓ International EPA 13 Maxxforce 7, 9, DT, 10, 11, and 13 engines
- ✓ International N9, N10, N13, and A26 GHG17 engines
- ✓ Mack and Volvo EPA 07 to GHG17 engines

NOTE: This test is currently unavailable for Mack and Volvo connections using a Noregon DLA+ 3.0 family adapter.

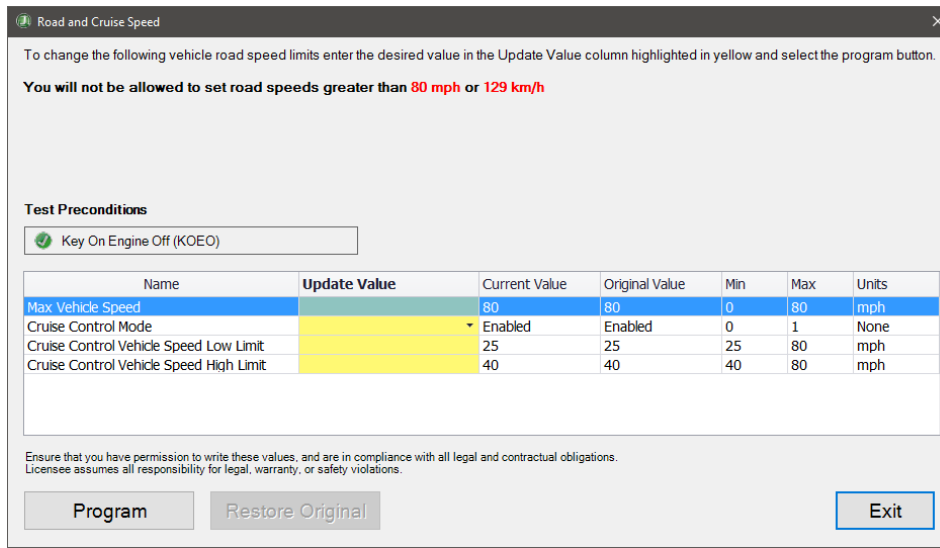
NOTE: Noregon can remove access to setting road and cruise speed limits. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This parameter may be protected by the customer password setting. If the user has configured the vehicle with a password then, the user will need to have that password to set any of these parameters. Once the password is entered, parameters can be changed on the vehicle until the session is ended by hitting Disconnect.

1. Select **Road & Cruise Speed Limit** and press **Enter** or click the **Start** Button.

NOTE: For Caterpillar, Detroit Diesel, Mack and Volvo Road Speed Limits is a separate test selection from Cruise Speed Limits.

- The **Road & Cruise Speed Limit** dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current settings. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.



Road Speed Limit Dialog

NOTE: Road Speed Limit window will look slightly different on Mack and Volvo engines, but the functionality provided is the same.

NOTE: The specific parameters available to program vary by manufacturer.

- Enter a new value in one or more rows of the grid. Click **Program** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the **Restore Original** button will become enabled.
- Click the **Exit** button to return to the **Commanded Tests** dialog.

Trip Information Parameters

Trip **Information Parameters** are available on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9

NOTE: Noregon can remove access to setting Trip Information Parameters. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This test allows users to change configuration items affecting trip information.

1. Select the **Trip Information Parameters** and press **Enter** or click the **Start** button.
2. The Trip Information Parameters dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current setting. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

Trip Information Parameters

To change the following parameters, enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
Trip Information - Vehicle Overspeed 1		0.00	0.00	0.00	80.12	MPH
Trip Information - Vehicle Overspeed 2		0.00	0.00	0.00	80.12	MPH

Ensure that you have permission to write these values, and are in compliance with all legal and contractual obligations. Licensee assumes all responsibility for legal, warranty, or safety violations.

Program Restore Original Exit

Trip Information Parameters

3. Enter a new value in one or more rows of the grid. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
4. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
5. When done reprogramming, click the **Exit** button to return to the Test Selection.

VSS Parameters

VSS Parameters are available on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9

- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Detroit Diesel CPC02T
- ✓ Detroit Diesel CPC04T
- ✓ Detroit Diesel CPC501T

NOTE: For Detroit Diesel this test is only available for [Supported ECU Software Versions](#).

- ✓ International EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines
- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

NOTE: Noregon can remove access to setting VSS Parameters. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

This test allows users to change configuration items affecting the vehicle speed sensor (VSS) system.

1. Select the **VSS Parameters** and press **Enter** or click the **Start** button.
2. The **VSS Parameters** dialog will be displayed. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current setting. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

VSS Parameters

To change the following parameters, enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

✓ Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
Vehicle Speed Sensor Anti-Tampering Sensitivity						
Tampering Sensitivity Level		High	High	N/A	N/A	None
Vehicle Speed Source						
Maximum Engine Speed Without Vehicle Source		2500.00	2500.00	1200.00	3000.00	RPM
Number of Transmission Tailshaft Gear Teeth		16.00	16.00	1.00	64.00	None
Rear Axle Ratio		3.08	3.08	2.00	16.00	None
Vehicle Speed Sensor Type		Magnetic	Magnetic	N/A	N/A	None

Ensure that you have permission to write these values, and are in compliance with all legal and contractual obligations. Licensee assumes all responsibility for legal, warranty, or safety violations.

Program Restore Original Exit

VSS Parameters

NOTE: The specific parameters available to program vary by manufacturer.

3. Enter a new value in one or more rows of the grid. Click **Program** button to have the new value sent to the vehicle. Once programming is complete the **Current Value** column value will be updated, and the **Restore Original** button will become enabled
4. After the changes have been reprogrammed to new value(s) you can decide to reset to the original value(s) by clicking the **Restore Original** button.
5. When done reprogramming, click the **Exit** button to return to the Test Selection.

Tire Pressure Monitoring System (TPMS) Tests

TPMS Ambient Sensor Configuration

The **TPMS Ambient Sensor Configuration** test is available on:

- ✓ All Bendix SmarTire™ TPMS solutions

This test allows enabling of the TPMS Ambient Sensor and setting the sensor ID.

1. Select **TPMS Ambient Sensor Configuration** and press **Enter** or the **Start** button.
2. The test dialog will be displayed

TPMS Ambient Sensor Configuration

The TPMS Ambient Sensor Configuration test allows enabling/ disabling of the TPMS specific ambient air pressure sensor and assigning the sensor ID.

The sensor ID can be found printed on the physical sensor.

Learn By Hand Tool allows the hand tool to be used to update the ambient sensor ID. The updated sensor ID will be automatically written to the TPMS controller. If the Ambient Sensor Setting is disabled it will be automatically enabled when the ID is learned.

Name	Update Value	Current Value	Original Value	Min	Max	Units
Altitude Compensation		On	On	0	1	
Ambient Sensor ID Code		268435453	268435453	0	4294...	

Write Values Restore Original Learn By Hand Tool Exit

TPMS Ambient Sensor Configuration

3. The ambient sensor enabled status and sensor ID can be edited manually. Select **Write Values** to write all updated information to the ECU.
4. The ambient sensor can also be updated by selecting **Learn By Hand Tool** to update with the SmarTire™ hand tool. The new sensor Id will be automatically written when it is read by the hand tool and the sensor will be enabled.
5. The **Restore Original** button will become enabled after any change has been written to the ECU.
6. When done, press the **Exit** button to return to the test selection dialog.

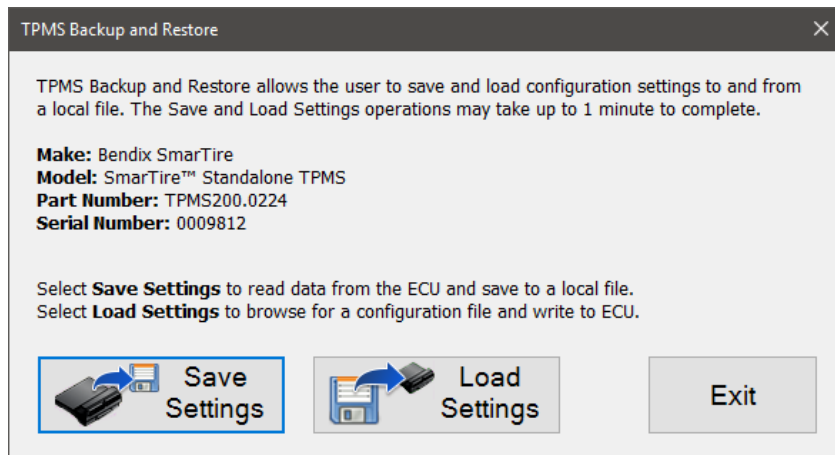
TPMS Backup and Restore

The **TPMS Backup and Restore** is available on:

- ✓ All SmarTire™ TPMS solutions

This test allows configuration settings to be saved to a local file and/or loaded onto a TPMS ECU.

1. Select the **TPMS Backup and Restore** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



TPMS Service Replacement

3. Select **Save Settings** to create a configuration file based on the currently connected ECU. A save file dialog will appear. Save the configuration file to the desired location.
4. Select **Load Settings** to update the currently connected ECU with the configuration information from a previously saved file. An open file dialog will appear. Navigate to the desired file and click **OK** to begin writing the configuration information to the ECU.

NOTE: For compatibility rules see [TPMS Backup and Restore Compatibility](#).

5. When done, press the **Exit** button to return to the test selection dialog.

TPMS Configuration

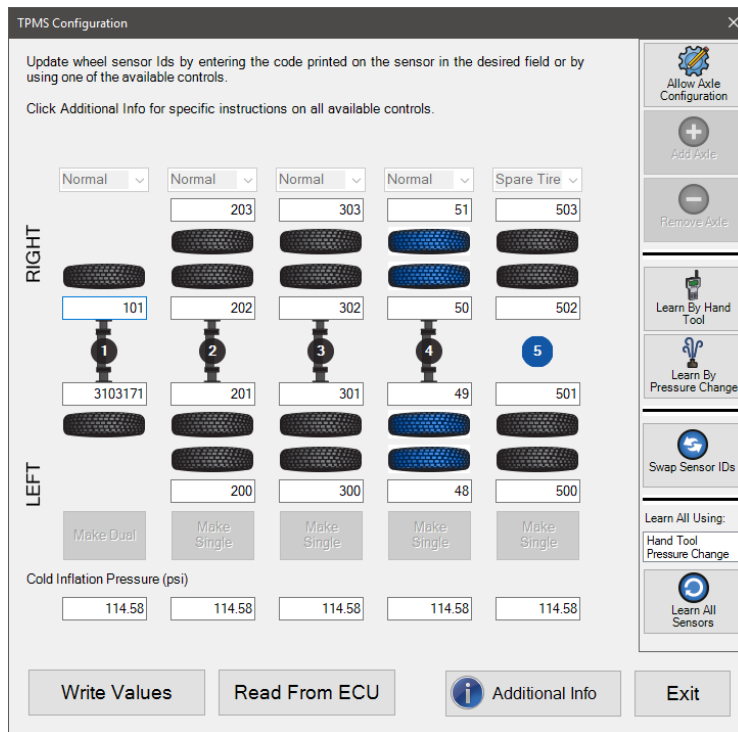
The **TPMS Configuration** test is available on:

- ✓ All Bendix SmarTire™ TPMS solutions





This test allows full configuration of TPMS sensors, including defining the number of axles and the number of tires per axle. It also provides multiple options for relearning tire sensor information.

1. Select **TPMS Configuration** and press **Enter** or the **Start** button.

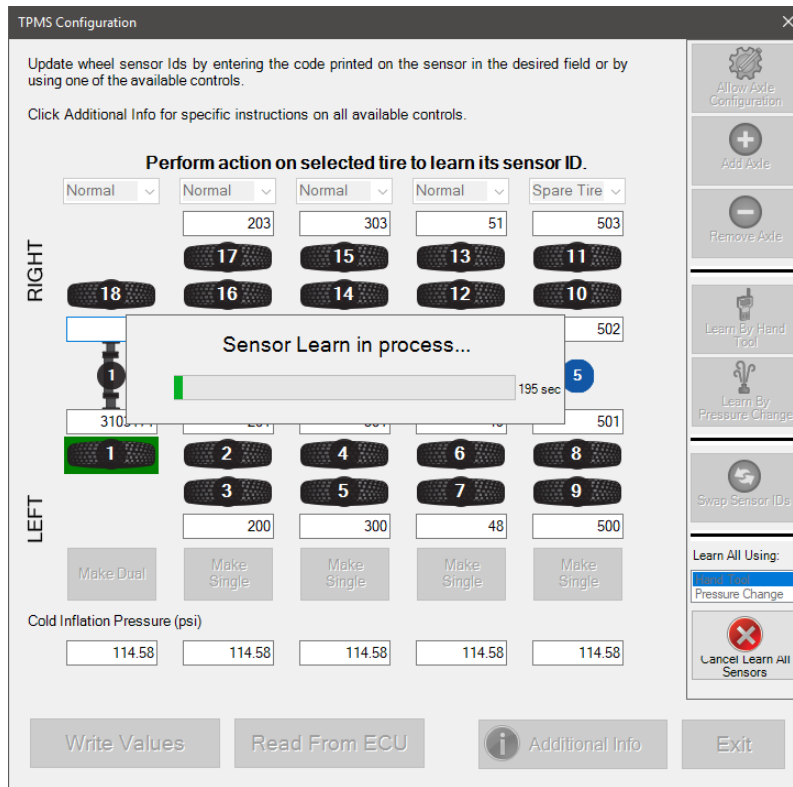
- The test dialog will be displayed.



TPMS Configuration

- Tire **Sensor Id** numbers and **Cold Inflation Pressure** values can be updated by typing in the new value. Select **Write Values** to write all updated information to the ECU.
- Tire Sensor Id can also be relearned by clicking on a tire and using one of the available command buttons.
 - Click **Learn By Hand Tool**  to update the selected tire with the SmartTire™ hand tool. The new sensor Id will be automatically written when it is read by the hand tool.
 - Click **Learn By Pressure Change**  to set the selected tire in a listening mode that will automatically update the Id when a change in tire pressure is detected.
- Click **Swap Sensor Ids**  to move the existing sensor Ids between any 2 selected tires.
- To relearn all tire sensors, select an available method and click **Learn All Sensors** . All tire sensors will be numbered, the first tire in order will be selected, and a timer displays. When the tire

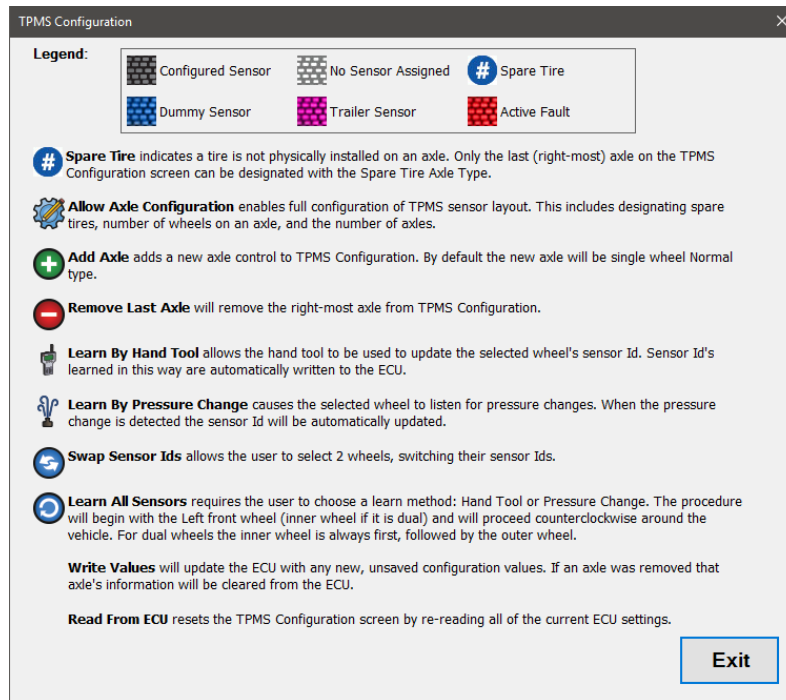
sensor Id has been updated using the selected method the next sensor in order will be selected. This will continue until all tire sensors have been updated.



TPMS Configuration Relearn All Sensors

7. To change the number of tire sensors or axles managed by the TPMS click **Allow Axle Configuration** . A warning message will be displayed; click **Yes** to allow axle configuration. The **Add Axle** and **Remove Axle** buttons will become enabled. Removing an existing axle will cause all its current configuration information to be forgotten.
8. Clicking **Add Axle** will add a new axle control. Click **Make Dual** to set the axle to 2 tires per side. Selecting **Make Single** will change the axle to 1 tire per side. The new axle's sensor information must be assigned before clicking **Write Values** to update the TPMS system.
9. Clicking **Read From ECU** will cause any unsaved changes to be lost as the current configuration to be reread from the ECU.

10. Selecting **Additional Info** will provide a legend of tire image meanings and instructions for each control available on the TPMS Configuration screen. Click **Exit** to close this screen.



TPMS Configuration Additional Info

11. When done, press the **Exit** button to return to the test selection dialog.

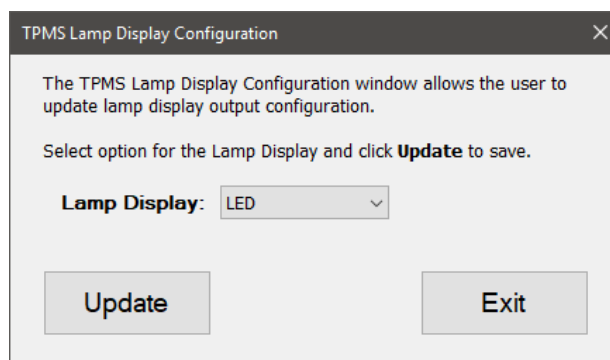
TPMS Lamp Display Configuration

The **TPMS Lamp Display Configuration** test is available on:

- ✓ SmarTire™ Standard and NextGen TPMS solutions

This test allows selection of the TPMS lamp display.

1. Select **TPMS Configuration** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



TPMS Lamp Display Configuration

3. Select the desired Lamp Display option and click **Update** to save the new selection.
4. When done, press the **Exit** button to return to the test selection dialog.

TPMS Parameters

The **TPMS Parameters** test is available on:

- ✓ All Bendix SmartTire™ TPMS solutions

This test allows editing of configuration parameters.

1. Select **TPMS Parameters** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.

The TPMS Parameters test allows certain TPMS system parameter values to be changed.

Parameters where the **Update Value** column is highlighted yellow can be changed by selecting or entering the desired value.

Parameters where the **Update Value** column is not highlighted cannot be directly edited, but change in response to editing the ABS Type parameter.

Name	Update Value	Current Value	Original Value	Min	Max	Units
Global Settings						
First Alert Level	15	15	15	5	50	
Temperature Compensate FAL	On	On	On	0	1	
Second Alert Level	20	20	20	5	50	
Temperature Compensate SAL	Off	Off	Off	0	1	
High Temperature	8	8	8	30	120	C
Altitude Compensation	On	On	On	0	1	
Ambient Sensor ID Code	1200	1200	1200	0	42949...	
Auto Learn Setting	Single Tire	Single Tire	Single Tire	0	2	
Trailer Learn	Off	Off	Off	0	1	
Exclusive Trailer	Off	Off	Off	0	1	
Exclusive Trailer ID	0	0	0	0	99999...	
Tire Condition Pressure Mode	Absolute	Absolute	Absolute	0	1	
Sensor Fault Time Programming						
Sensor Fault Time Rolling Mode	5	5	5	1	255	
Custom Stationary Sensor Fault Time	On	On	On	0	1	
Sensor Fault Time Stationary Mode	0	0	0	1	255	
Custom Ambient Sensor Fault Time	On	On	On	0	1	

Buttons: Write Values, Restore Original, Exit

SDP3 Configuration

3. Select a new value in one or more rows of the grid. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the **Restore Original** button will become enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

TPMS Scratchpad

The **TPMS Scratchpad** is available on:

- ✓ SmartTire™ NextGen TPMS solutions

This test allows users to read and/or write text stored on the TPMS controller. The OEM scratchpad displays read-only identification data for the ECU. The Fleet scratchpad allows technicians to view or update maintenance information.

1. Select the **TPMS Scratchpad** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.

TPMS Scratchpad

The TPMS Scratchpad feature allows the user to read and/or write text stored on the TPMS controller. OEM scratchpad data is read-only, and Fleet scratchpad data is read/write.

Fleet Scratchpad

Vehicle VIN (10 chars max)
9999999999

Maintenance Date (10 chars max)
2021-06-16

Technician (10 chars max)
Technician

Security PIN (4 digits)
5555

Maintenance Notes (50 chars max)
Maintenance notes.

OEM Scratchpad

OEM Name
BENDIX

OEM Plant
MEXICO

Date of Manufacture
10-10-2010

Vehicle VIN
0000000000

OEM Notes
TEST

Update Exit

TPMS Scratchpad

3. Data read from the TPMS controller is displayed. Fleet scratchpad entries may be updated; any unsaved changed will be highlighted. Click **Update** to write changes to the ECU.
4. When done, press the **Exit** button to return to the test selection dialog.

TPMS Signal Strength Test

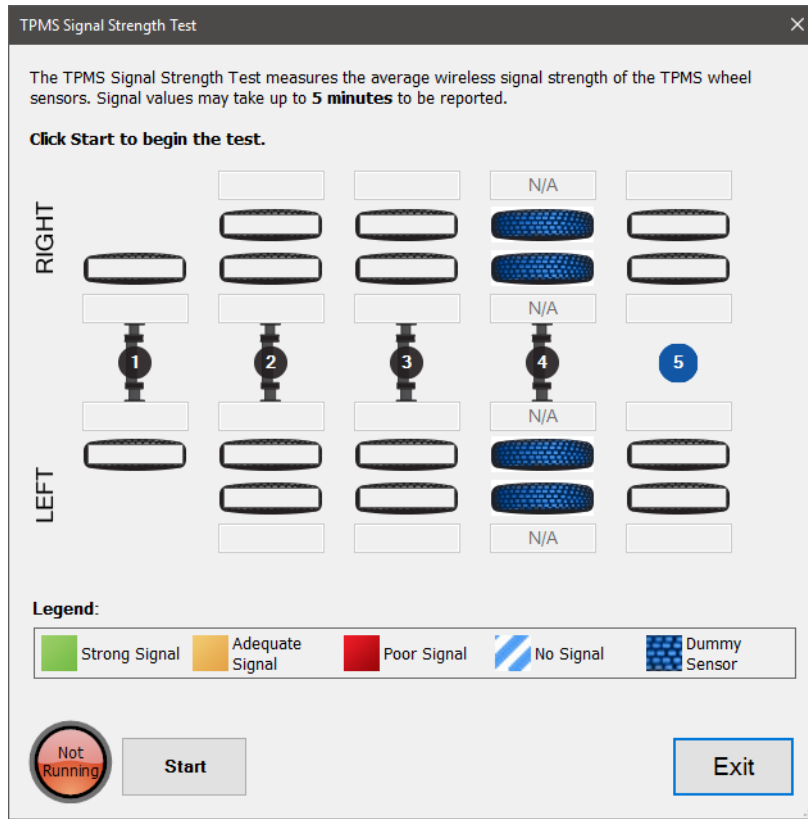
The **TPMS Signal Strength Test** is available on:

- ✓ All Bendix SmarTire™ TPMS solutions (except for Standard TPMS models 200.0213, 200.0216, and 200.0219)

This test allows testing of signal strength between the TPMS control unit and each connected tire sensor.

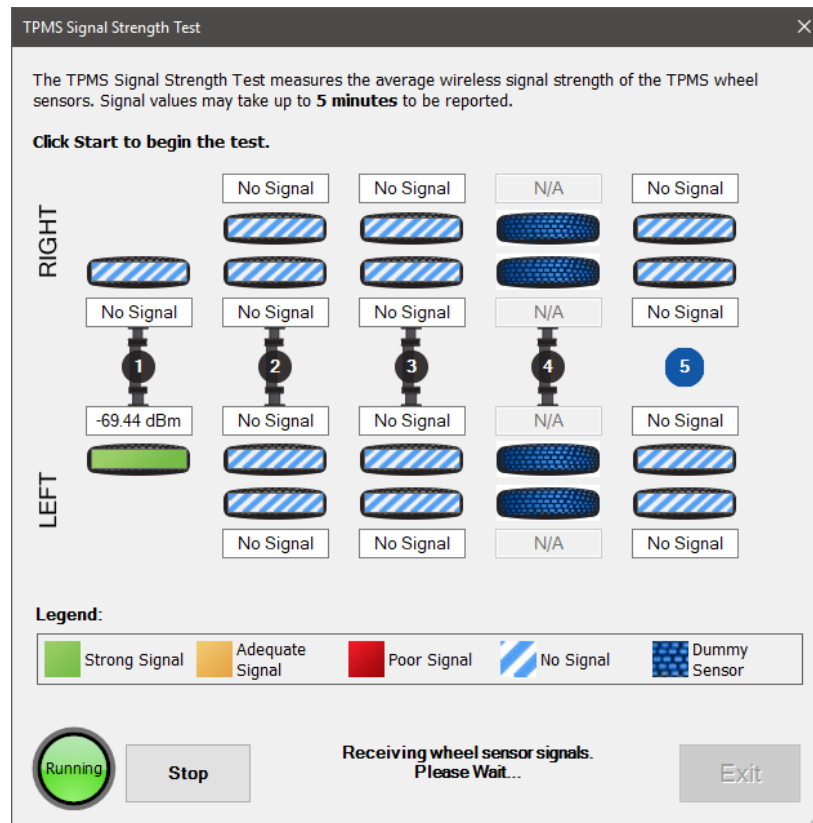
1. Select the **TPMS Signal Strength Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



TPMS Signal Strength Test

- To save the signal strength information received during the test, check **Enable Logging**. Click the **Start** button to begin the signal strength test. Signal strength values will be displayed as they are measured. The test will continue until the **Stop** button is clicked.



TPMS Signal Strength Test

- When done, press the **Exit** button to return to the test selection dialog.

TPMS Statistics

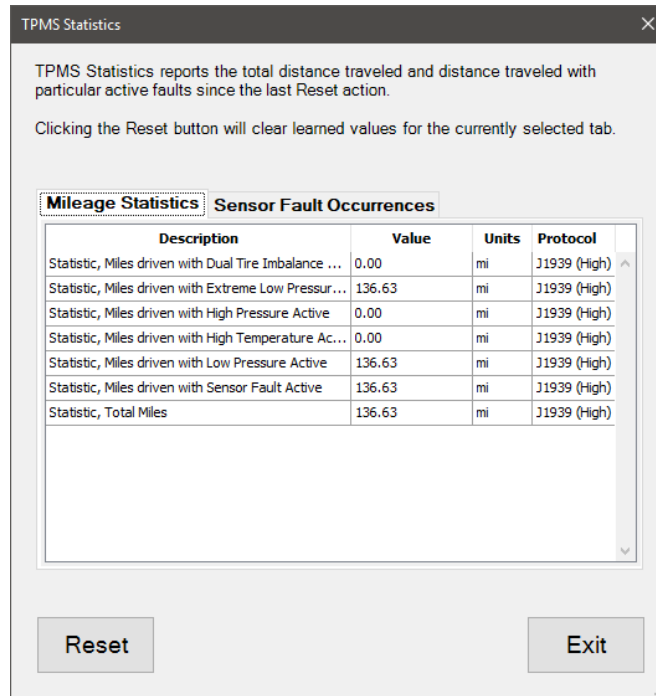
The **TPMS Statistics Test** is available on:

- ✓ Bendix SmarTire™ NextGen TPMS solutions

This test displays information about mileage accumulation statistics and sensor fault occurrences and allows them to be reset. Resetting these statistics is permanent and cannot be undone.

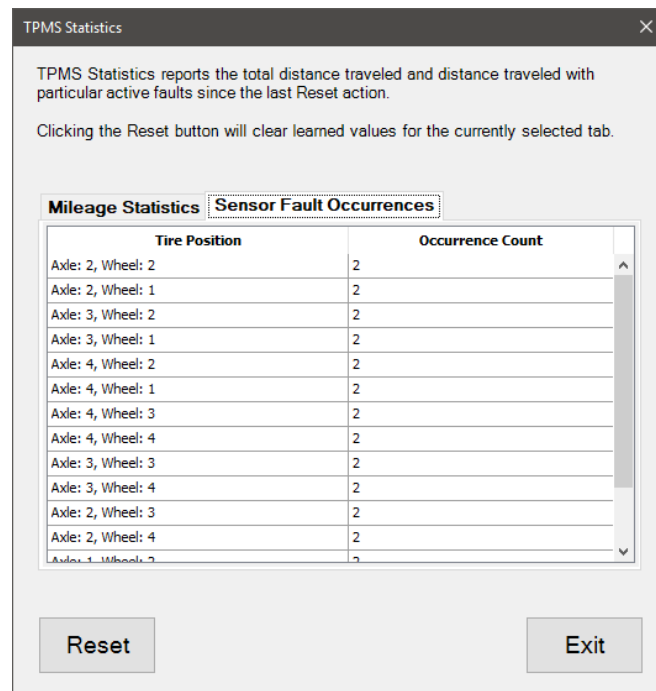
- Select **TPMS Statistics** and press **Enter** or the **Start** button.

- The test dialog will be displayed.



TPMS Mileage Statistics

- The **Mileage Statistics** tab displays accumulated distance the vehicle has traveled with different statuses enabled. **Sensor Fault Occurrences** displays the fault occurrence count for all affected axles and tire sensors.
- Clicking the **Reset** button will display a confirmation message. Click **Yes** to reset the currently selected tab.



NOTE: Resetting statistical data is a permanent operation that cannot be undone.

- When done, press the **Exit** button to return to the test selection dialog.

Trailer Brakes Tests

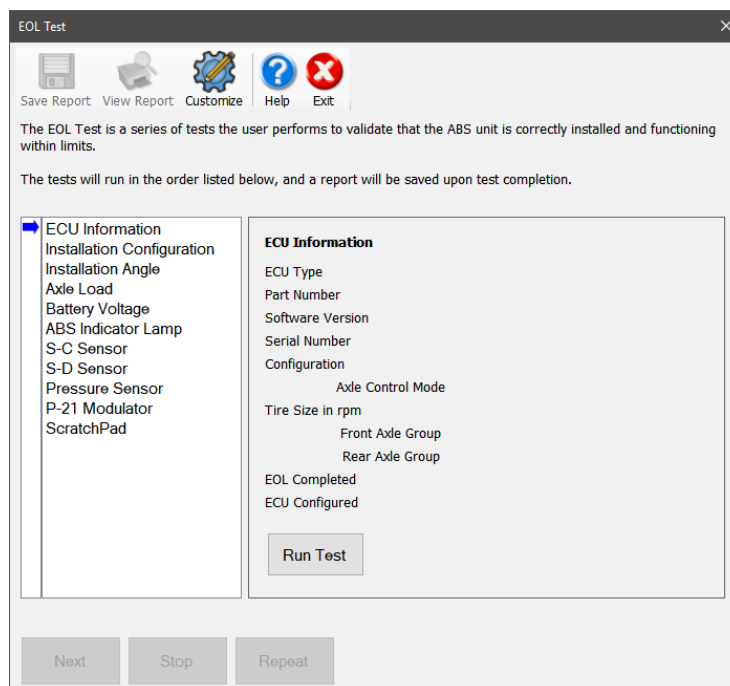
EOL Test

The EOL (End of Line) Test is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

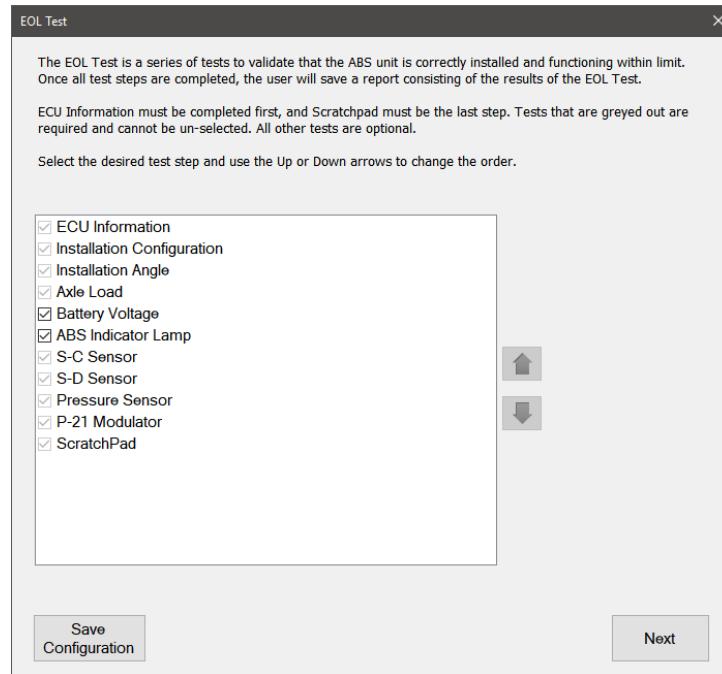
The **EOL Test** is a test that is launched from the main toolbar. This test is a series of test steps performed during End of Line (EOL) procedures. These test steps validate that the trailer ABS unit is correctly installed and is functioning within limits. You may perform the EOL Test in its entirety or run each applicable test individually through the Bi-Directional test screen. Users may customize which tests are run and the order in which they are performed, excluding ECU Information which must always be run first, and Scratchpad which must always be run last.

- Select **EOL Test** under **Bendix Diagnostics** on the main form toolbar.
- The main test screen will be displayed. Two informational pop-ups will appear that the user must confirm before beginning the test.




EOL Test Run Test Screen

3. Select **Customize** to select the tests to be run and the order to perform them in. Select **Save Configuration** to save the order of tests to a customization file that is held locally. Select **Next** to return to the main test screen.



EOL Test Customization Screen

4. Press **Run Test** to begin the selected test and follow any provided instructions. Repeat until all tests have been performed. The **Repeat** button will be enabled after each test is completed, giving the option to repeat that test. The "TABS EOL Test Not Completed (SID 254 FMI 14)" fault will be cleared from the ECU after successful test completion.
5. Clicking the **Save Report** button will open a save file dialog. Save the EOL Report to the desired location.
6. Click the **View Report** button to view the EOL Report, which contains ABS data items and test information.
7. Clicking the **Help**  button will open the User Guide.
8. When done, press **Exit** to return to the main form.

ABS Indicator Lamp Test

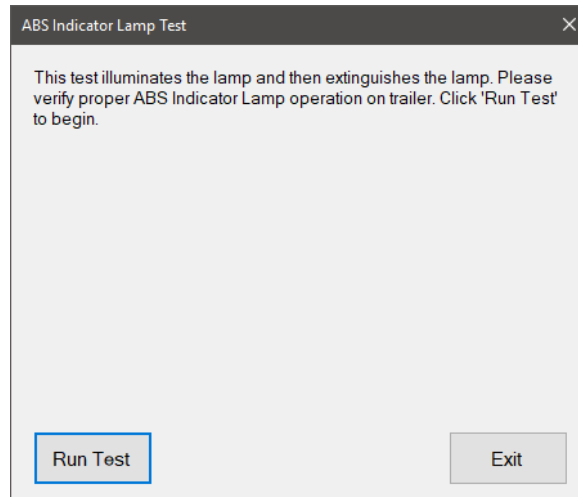
The **ABS Indicator Lamp Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **ABS Indicator Lamp Test** provides the ability to test the trailer ABS indicator dashboard lamp. This test is available as part of the **EOL Test** and from **Bi-Directional test selection**.

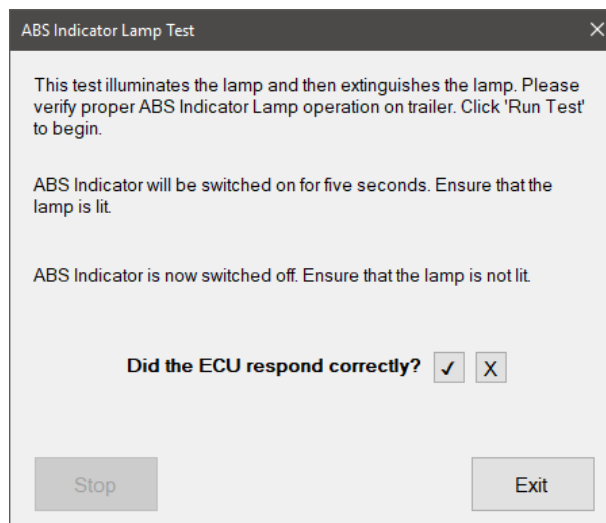
1. Select the **ABS Indicator Lamp Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



ABS Lamp Indicator Test

3. Select **Run Test** to begin. The dialog will update with a status bar and text that indicates when the ABS Lamp is on and off, correlating with the lighted status of the physical ABS Lamp.
4. Once the **ABS Lamp** turns on and off, a prompt appears asking if the ECU responded correctly.



ABS Lamp Indicator Test Confirmation

5. Select the checkmark button to indicate that the ECU responded correctly. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
6. When done, select the **Exit** button to return to the test selection dialog.

Axle Load Test

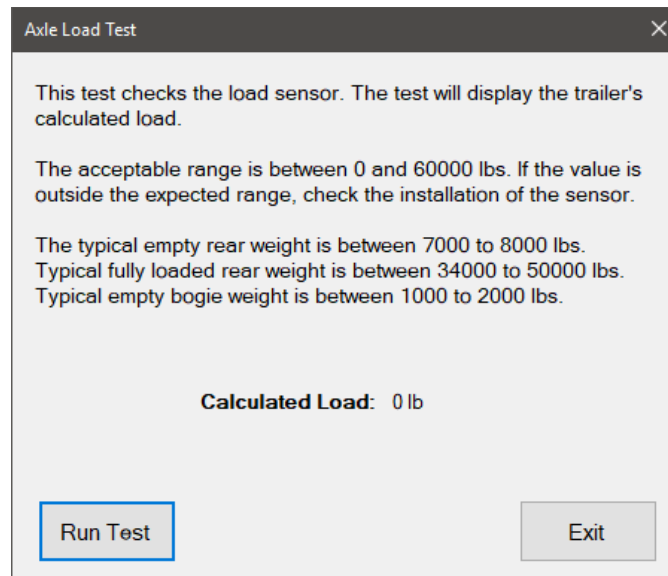
The **Axle Load Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS

- ✓ TABS-8™ Trailer ABS

The **Axle Load Test** provides the reading of the axle load sensor with an expected range of 0 to 60,000 lbs. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select the **Axle Load Test** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Axle Load Test

3. Select **Run Test** to begin. The Calculated Load will update with the current Axle Load. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Battery Voltage Test

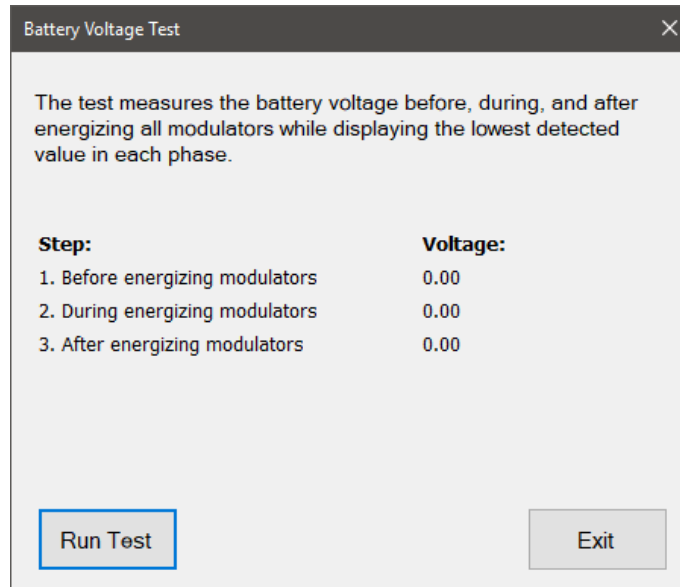
The **Battery Voltage Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Battery Voltage Test** checks the battery voltage with and without the modulators energized, and then displays the voltage reading. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

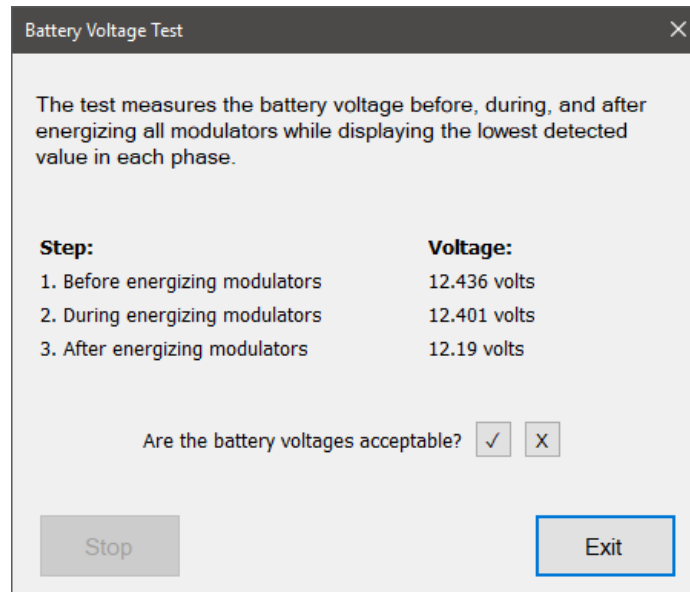
1. Select the **Battery Voltage Test** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.



Battery Voltage Test

3. Select **Run Test** to begin. A progress bar appears as the voltages update for each step over time. Select the **Stop** button to end the test at any point. Once all voltages are updated, a prompt appears asking if the battery voltages are acceptable.



Battery Voltage Test Confirmation

4. Select the checkmark button to indicate the voltages are acceptable. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

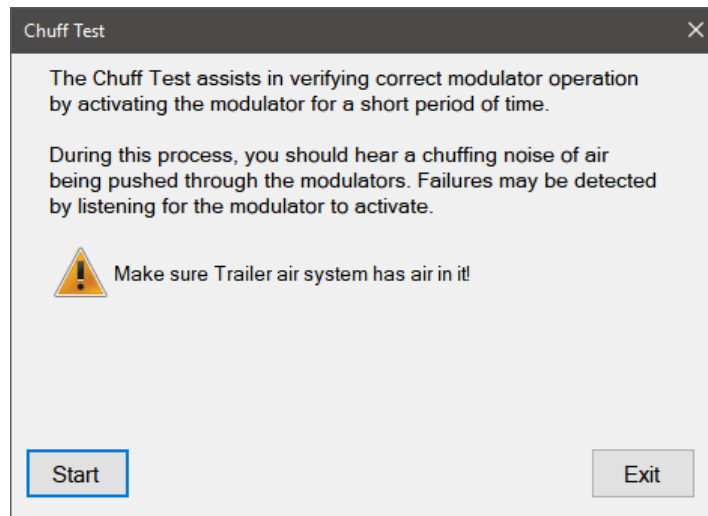
Chuff Test

The **Chuff Test** is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Chuff Test** assists in verifying correct brake modulator operation by activating the modulator for a short period of time. Ensure the vehicle is at normal operating air pressure while running the test.

1. Select the **Chuff Test** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



Chuff Test

3. Select the **Start** button to begin the test. The test will run for approximately 8 seconds. During the test you should hear a clicking or chuffing sound indicating successful actuation. When the test is complete, a prompt appears asking if the ECU responded correctly.
4. Select the checkmark button to indicate the ECU responded correctly. A successful status message will appear.
5. When done, select the **Exit** button to return to the test selection dialog.

Door Switch Status Test

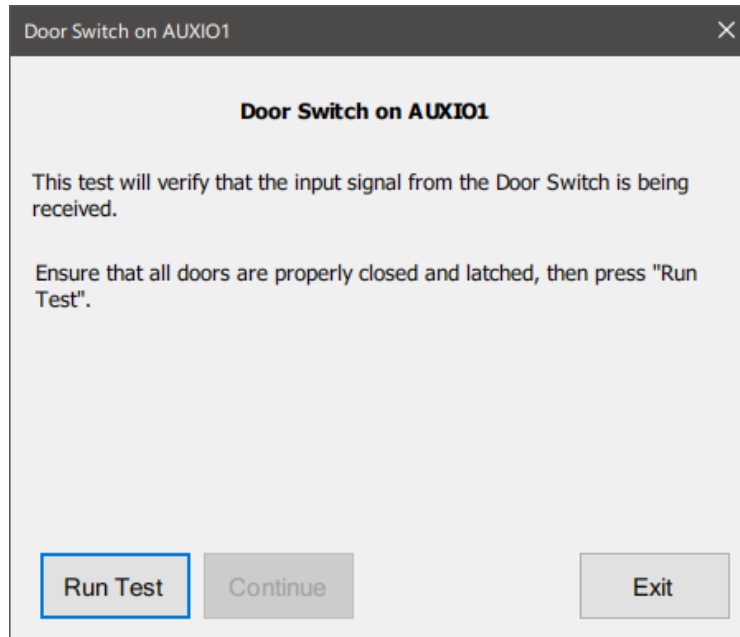
The **Door Switch Status Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Door Switch Status Test** verifies the input signal from the Door Switch is being received. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select the Door Switch Status Test and press Enter or the **Start** button.

2. The test dialog will be displayed.



Door Switch Test

3. Verify the doors are closed and latched, then select **Run Test** to begin. Follow the test instructions, opening the doors when requested and clicking **Continue**.
4. The ECU verifies the doors are open and the test passes. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

ECU Configuration

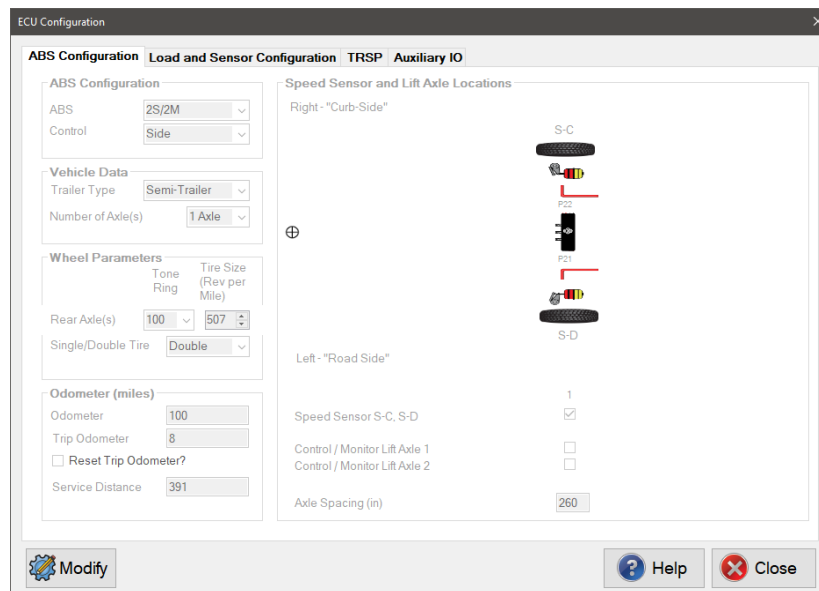
ECU Configuration is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS

ECU Configuration allows technicians to set parameters and configurations of the ECU.

1. Select **ECU Configuration** and press **Enter** or the **Start** button.

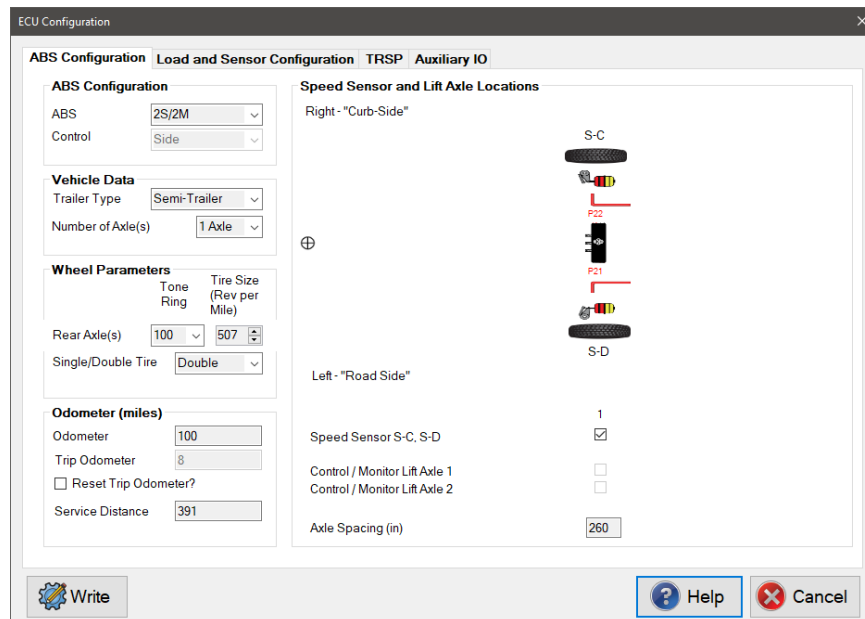
- The test dialog will be displayed, showing the current ECU settings.
- Clicking the **Help** button will open this **User Guide** document.



ECU Configuration

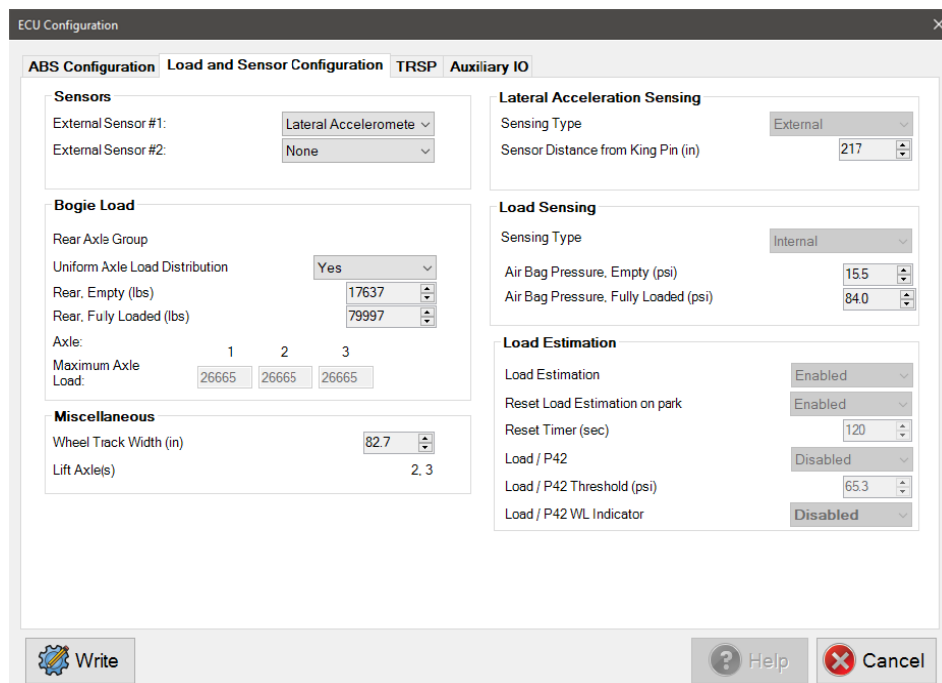
- Clicking the **Modify** button allows ECU configurations and parameters to be changed.
- The **ABS Configuration** tab allows changing the ECU type, number of axles supported, tire parameters, and odometer information.

The configuration diagram will update to reflect the current settings. Related parameters like sensor location, lift location, and axle spacing may be defined.



Modify ABS Configuration

6. The **Load and Sensor Configuration tab** allows users to change sensor settings, load of the Bogie, and width of the wheel track.
- Lateral Acceleration Sensing type is set to “External” only when External Sensor #1 is set to “Lateral Accelerometer.” This allows the “Sensor distance from King Pin” value to be defined.
 - Load Sensing type is based on either the External Sensor #1 or #2 value. If either External Sensor is set to “Load,” the sensing type will be set to “External” and the “Load Input, Empty” and “Load Input, Fully Loaded” values may be defined.
 - If either External Sensor is set to any other value, the sensing type will be set to “Internal.” This allows the “Air Bag Pressure, Empty” and “Air Bag Pressure, Fully Loaded” values to be defined.



Modify Load and Sensor Configuration

7. The **TRSP tab** allows users to view the trailer rollover stability and stability sensitivity. The ECU’s location and orientation on the trailer can be defined.
- All TRSP values and parameters must be verified as correct before being saved to the ECU. Incorrect values can compromise trailer rollover stability effectiveness.

NOTE: Changes to trailer rollover stability should only be made following the recommendation of Bendix CVS LLC engineering.

ECU Configuration

ABS Configuration Load and Sensor Configuration TRSP Auxiliary IO

TRSP

TRSP Enabled Yes

Module Offset from Center Line (in) 0.0

Module Offset from Center Line Center

ECU Orientation 180 Degrees CCW

TRSP Parameters

TRSP Sensitivity Increased level 2

Step 1 Enabled Yes

Changes to RSP sensitivity should only be made following discussion and a recommendation from Bendix CVS LLC engineering.

Verify that all the values on the TRSP page are correct before saving the values to the ECU!

Write Help Cancel

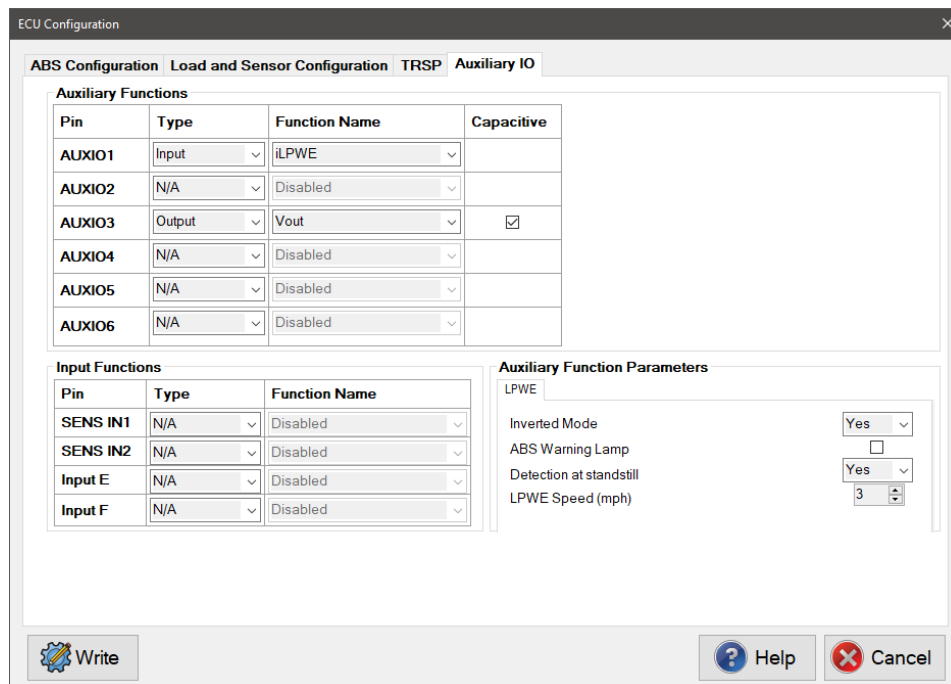
Modify Trailer Rollover Stability (TRSP)

- The **Auxiliary IO tab** allows users to define the type and function of the available Aux IO pins. Select the desired type of “**Input**” or “**Output**,” then select the desired **Function Name**. A checkbox will appear in the **Capacitive** column for all Output functions.

NOTE: AUXIO1 and AUXIO2 will have the same type (Input or Output) if either is updated.

- The Input functions section allows “**Input**” functions to be assigned to specific pins.

- A tab of related parameters will be added to the Auxiliary function parameters section for every function that supports them. These parameters must be set to ensure proper function of the ECU.



Modify Auxiliary IO

9. When all configuration and parameter changes have been made and verified, click the **Write** button to write them to the ECU. A progress bar will be displayed. You may hear a clicking or chuffing sound from the ECU as the updates are written. When configuration is complete, a success status popup is displayed.
10. When done, select the **Exit** button to return to the main form.

ECU Information Test

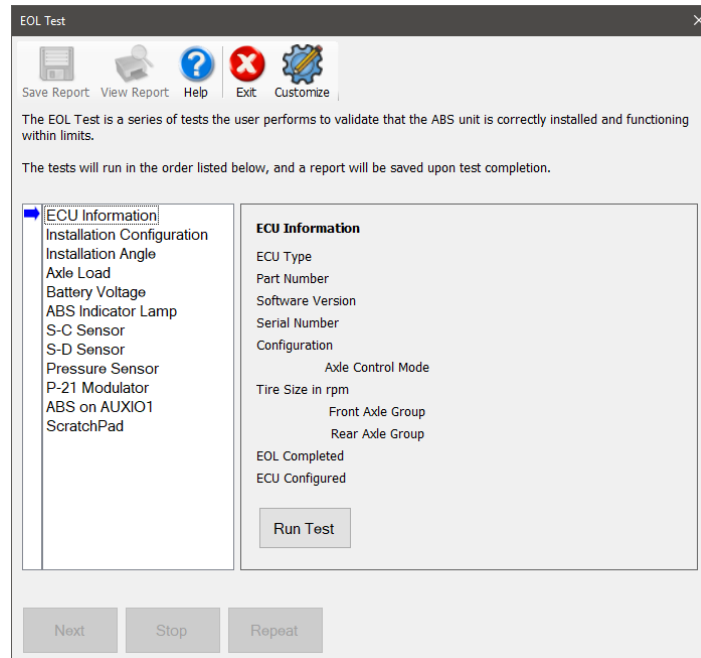
The **ECU Information Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **ECU Information Test** provides information regarding the TABS ECU such as ECU type, part number, software version, serial number, configuration, tire size, EOL Completion status, and if the ECU is configured. This test is only available inside of the **EOL Test dialog** and does not appear in the **Bi-Directional test selection**.

1. Select **EOL Test** on the main form toolbar.
2. Select the tests to be ran and the order to perform them in, then select **Next**.

3. The **ECU Information** screen will appear.



ECU Information Test Inside EOL Test Screen

4. Select **Run Test**. ECU Information will be gathered and displayed on screen. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
5. When done, select the *Exit* button to return to the main form.

General Output Functions Test

The **General Output Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **General Output Test** allows for confirmation that the output functions assigned to an Input/Output (I/O) pin is functioning properly. There are multiple I/O functions that are held under this General Output Test.

TABS-6™ Advanced Single-Channel Trailer ABS, AUXIO1, AUXIO2, AUXIO4, and AUXIO6 pins allow output functions to be tested.

TABS-6™ Multi-Channel Trailer ABS, AUXIO 1, AUXIO 2, AUXIO 3, AUXIO 4, AUXIO 5, AUXIO 6 pins allow output functions to be tested. SE and SF do not allow output functions.

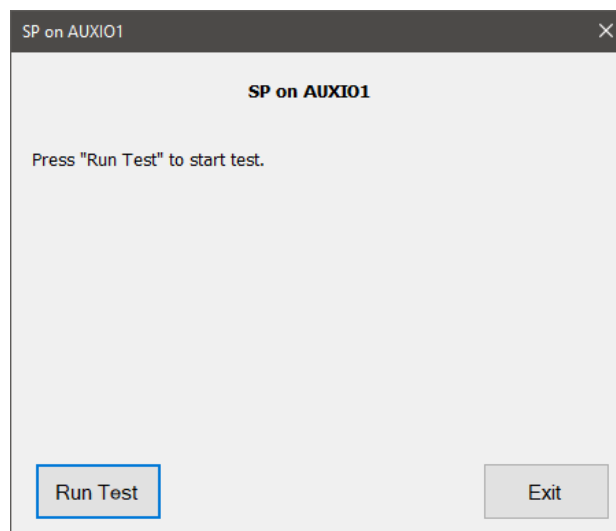
For TABS-8™ Trailer ABS, AUXIO1 is the only I/O pin that allows output functions to be tested. SE and SF do not allow output functions.

Supported I/O functions:

- ✓ SP – Speed Pulse
- ✓ ISS – Integrated Speed Switch
- ✓ SAL – Steering Axle Lock
- ✓ ABS – Anti-Lock Braking System
- ✓ RSP – Roll Stability Program
- ✓ RSP Step 1 – Roll Stability Program Step 1 (TABS6 MC only)
- ✓ ADL – Auxiliary Design language (TABS6 SC and TABS8 only)
- ✓ Vout – Voltage Out (TABS6 SC and TABS8 only)
- ✓ DL – Dome Lamp
- ✓ oTIS – Output Tire Inflation System (TABS6 SC and TABS8 only)
- ✓ oLPWE – Output Low Pressure Warning Emergency (TABS6 SC and TABS8 only)
- ✓ oLPWS – Output Low Pressure Warning Service (TABS6 SC and TABS8 only)
- ✓ oRD – Output Rear Dump (TABS6 SC and TABS8 only)

This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select the **General Output Test**.
2. The test dialog will be displayed. The pin under test will be displayed in the title.



General Output Test – SP on AUXIO1 For Example

3. Select the **Run Test** button. The test will turn the output on. Verify that it's on and select the checkmark button.
4. The test will turn the output off. Verify that it's off and select the checkmark button.
5. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
6. When done, select the **Exit** button to return to the test selection dialog.

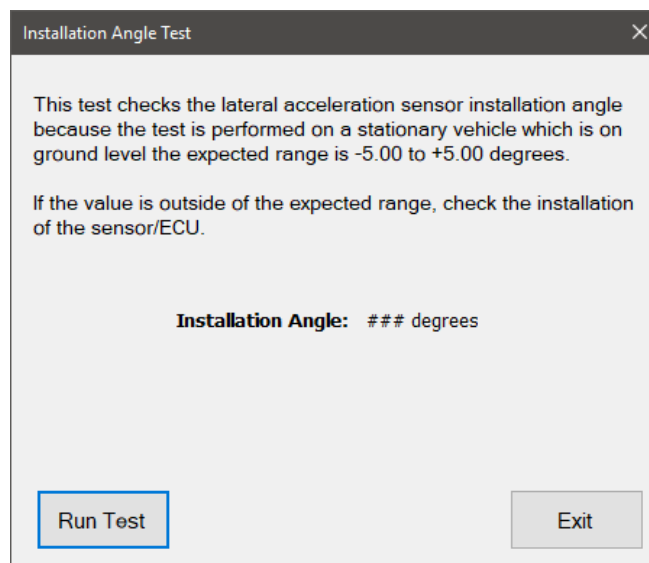
Installation Angle Test

The **Installation Angle Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Installation Angle Test** reads the installation angle from the Lateral Acceleration Sensor. The vehicle must be stationary on level ground before performing this test. The expected installation angle range is +/- 5 degrees. This test is only available inside of the EOL Test dialog and cannot be selected in the Bi-Directional menu.

1. Select **Installation Angle Test** and press Enter or the *Start* button.
2. The **Installation Angle** screen will appear.



Installation Angle Test

3. Select **Run Test**. The installation angle will be read and displayed on screen. A successful status message will appear, and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

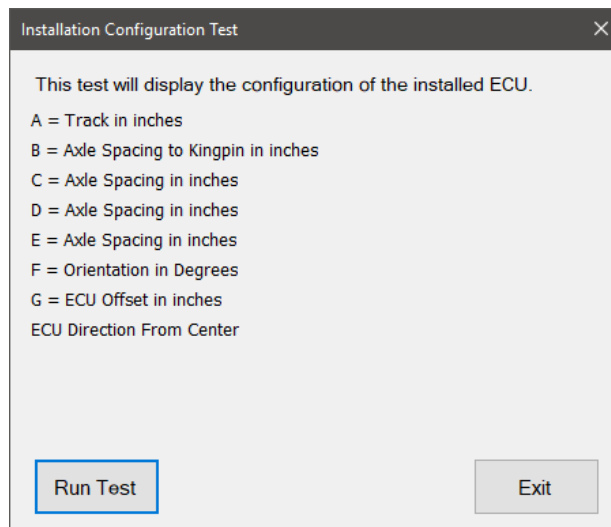
Installation Configuration Test

The **Installation Configuration Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Installation Configuration Test** verifies that the TABS unit is properly installed on the trailer. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **Installation Configuration Test** and press **Enter** or the **Start** button.
2. The **Installation Configuration** screen will appear.



Installation Configuration Test

3. Select **Run Test**. The installation configuration information will be gathered and displayed on screen, with a diagram of the ECU. A confirmation label asking if the ECU responded properly appears. Select the checkmark button to indicate the ECU responded correctly. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Lift Axle Control Test

The **Lift Axle Control Test** is available on:

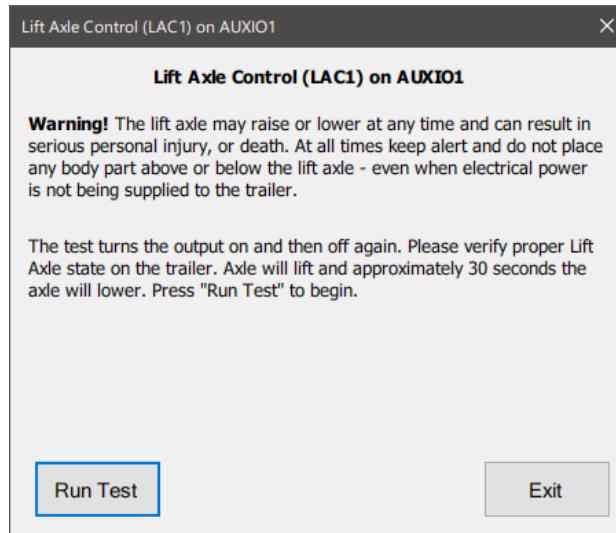
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

NOTE: Supports LAC1 and LAC2

The **Lift Axle Control Test** ensures the lift axle can be lifted and lowered on command. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **Lift Axle Control Test**.

2. The **Lift Axle Control** screen will appear.



Lift Axle Control Test

3. Select **Run Test**. The lift axle will raise itself, then lower itself 30 seconds later. A confirmation prompt appears on screen asking the user if the ECU responded properly. Select the checkmark button to confirm it responded properly.
4. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Lift Axle Sensing Test

The **Lift Axle Sensing Test** is available on:

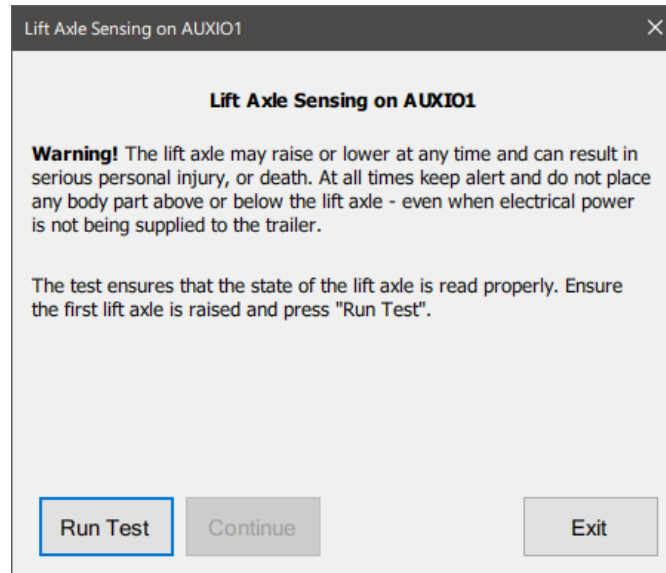
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

NOTE: Supports LAS1 and LAS2

The **Lift Axle Sensing Test** ensures that the ECU is properly reading the current state of the lift axle. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **Lift Axle Sensing Test** and press **Enter** or the **Start** button.

2. The **Lift Axle Sensing screen** will appear.



Lift Axle Sensing Test

3. Lift the axle and select **Run Test**. Next, lower the axle and select **Run Test**. The ECU confirms it read both messages properly. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Lift Lower Test

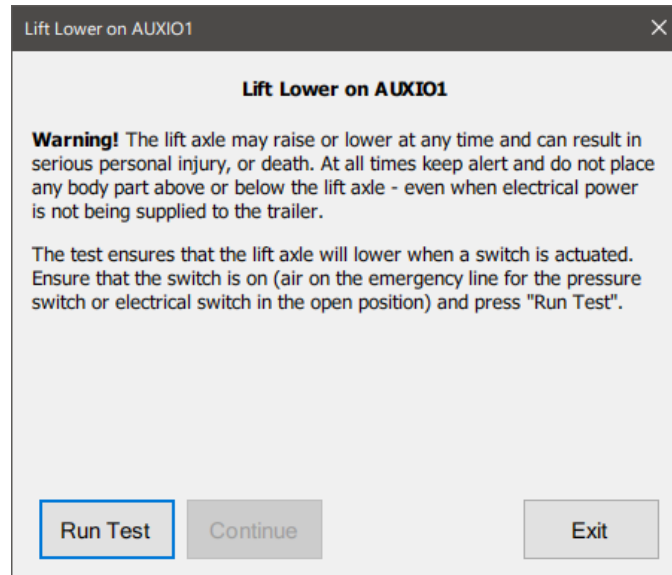
The **Lift Lower Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Lift Lower Test** verifies that all wiring and switches are properly installed to the trailer supply line by checking the air supply into the supply line. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **Lift Lower Test**.

2. The **Lift Lower screen** will appear.



Lift Lower Test

3. Ensure there is air supplied to the supply line and select **Run Test**. Follow the instructions on screen. Ensure there is no air supplied to the supply line and select **Continue**.
4. The ECU confirms the air supply was properly supplied. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Low Pressure Warning Emergency Test

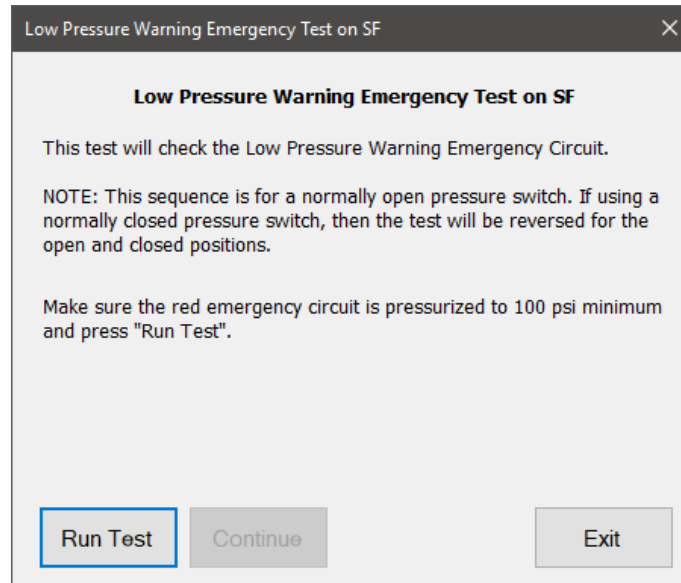
The **Low Pressure Warning Emergency Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Low Pressure Warning Emergency Test** checks the Low Pressure Warning Emergency Circuit. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Low Pressure Warning Emergency Test** and press **Enter** or the **Start** button.

2. The **Low Pressure Warning Emergency screen** will appear.



Low Pressure Warning Emergency Test

3. Ensure the red emergency circuit is pressurized to 100 psi and select **Run Test**.
4. Follow the instructions on screen by releasing the air to return to 0 psi and selecting **Continue**. The ECU confirms the emergency circuit was properly pressurized and depressurized. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog

Low Pressure Warning Service Test

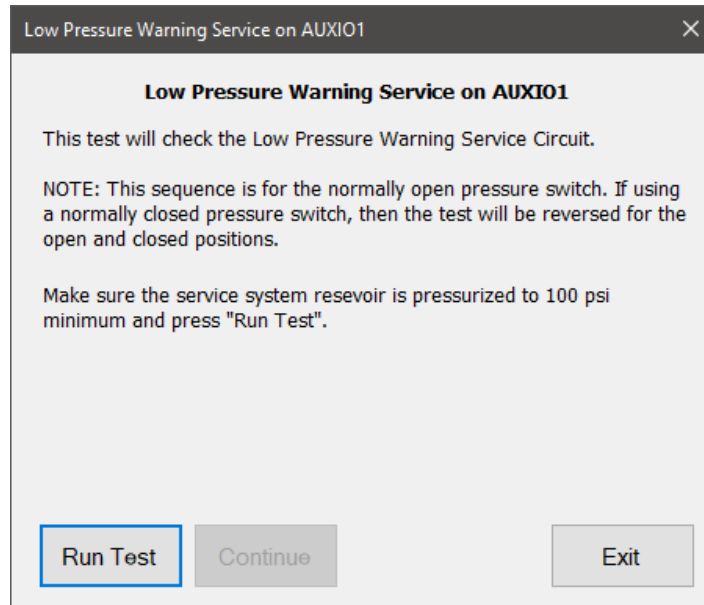
The **Low Pressure Warning Service Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Low Pressure Warning Service Test** checks the Low Pressure Warning Service Circuit. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Low Pressure Warning Service Test** and press Enter or the *Start* button.

2. The **Low Pressure Warning Service** screen will appear.



Low Pressure Warning Service Test

3. Ensure the red emergency circuit is pressurized to 100 psi and select **Run Test**.
4. Follow on screen instructions: pressurize the circuit to 50 psi or lower and select **Continue**.
5. The ECU confirms the emergency circuit was properly pressurized. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
6. When done, select the **Exit** button to return to the test selection dialog.

P-21 Delivery Test

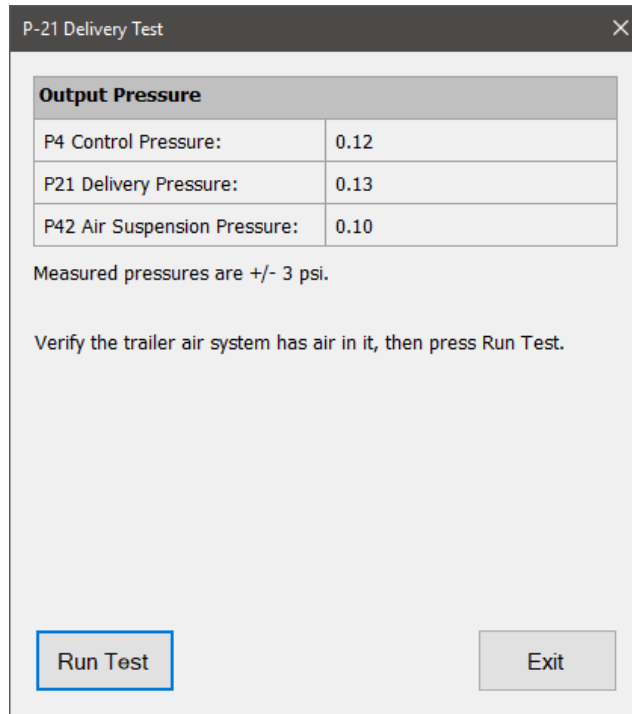
The **P-21 Delivery Test** is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **P-21 Delivery Test** checks the P21, P4, and P42 delivery pressures when brakes are applied and released.

1. Select **P-21 Delivery Test** and press **Enter** or the **Start** button.

2. The **P-21 Delivery screen** will appear.



P-21 Delivery Test

3. Ensure the trailer air system has air in it and select **Run Test**.
4. Follow the on-screen instructions, applying the brake when required to verify the P21 and P4 pressures. After each pressure is checked, select the **Next** button to continue the test. When all pressures have been checked, the test passes, and a successful status message will appear.
5. When done, select the **Exit** button to return to the test selection dialog.

P-21 Modulator Test

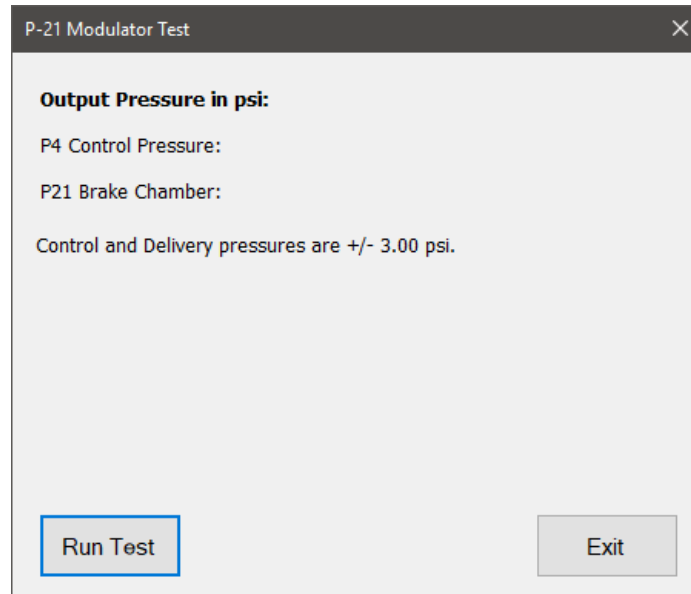
The **P-21 Modulator Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel (MC) Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **P-21 Modulator Test** checks the P21 and P4 pressures when brakes are applied and released. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **P-21 Modulator Test** and press **Enter** or the **Start** button.

2. The **P-21 Modulator screen** will appear.



P-21 Modulator Test

3. Ensure the trailer air system has air in it and select **Run Test**.
4. Follow the on screen instructions, applying the brake when required to verify the P21 and P4 pressures. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

P-22 Delivery Test

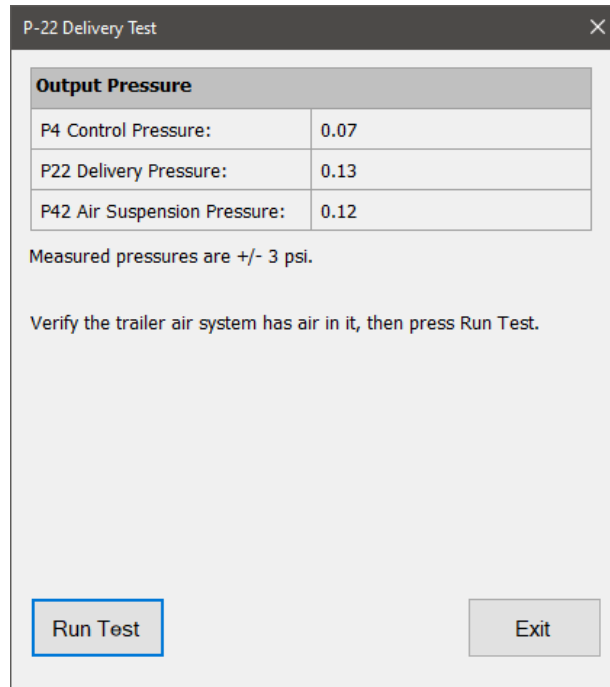
The **P-22 Delivery Test** is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS

The **P-22 Delivery Test** checks the P22, P4, and P42 delivery pressures when brakes are applied and released.

1. Select **P-22 Delivery Test** and press **Enter** or the **Start** button.

2. The **P-22 Delivery screen** will appear.



P-21 Delivery Test

3. Ensure the trailer air system has air in it and select **Run Test**.
4. Follow the on-screen instructions, applying the brake when required to verify the P22 and P4 pressures. After each pressure is checked, select the *Next* button to continue the test. When all pressures have been checked, the test passes, and a successful status message will appear.
5. When done, select the **Exit** button to return to the test selection dialog.

P-22 Modulator Test

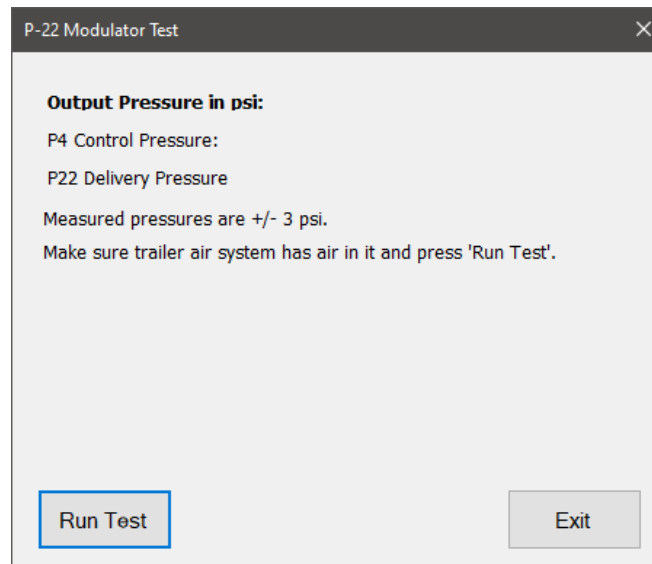
The **P-22 Modulator Test** is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS

The **P-22 Modulator Test** checks the P22 and P4 pressures when brakes are applied and released. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select **P-22 Modulator Test** and press **Enter** or the **Start** button.

2. The **P-22 Modulator screen** will appear.



P-22 Modulator Test

3. Ensure the trailer air system has air in it and select **Run Test**.
4. Follow the on screen instructions, applying the brake when required to verify the P22 and P4 pressures. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Pad Wear Test

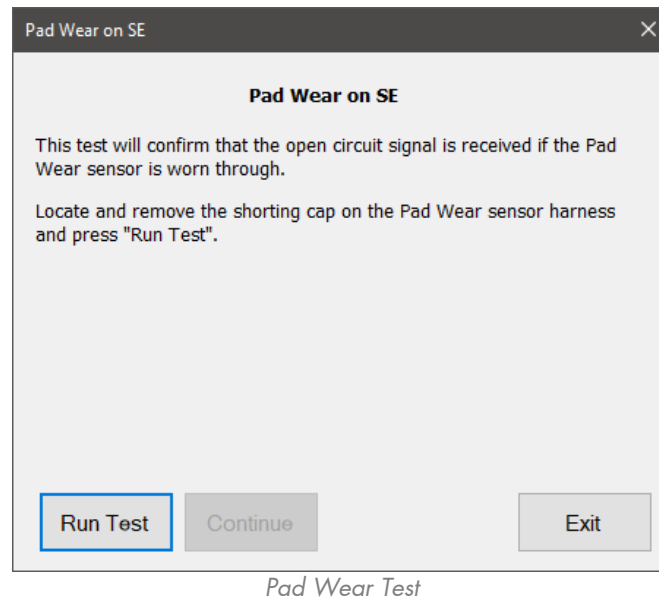
The **Pad Wear Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Pad Wear Test** confirms an open circuit signal is received if the Pad Wear sensor is worn through. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Pad Wear Test** and press **Enter** or the **Start** button.

2. The **Pad Wear screen** will appear.



3. Ensure the shorting cap on the Pad Wear sensor is removed and select *Run Test*. When prompted, re-install the shorting cap and select **Continue**.
4. The ECU confirms the signal was received properly. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Pressure Sensor Test

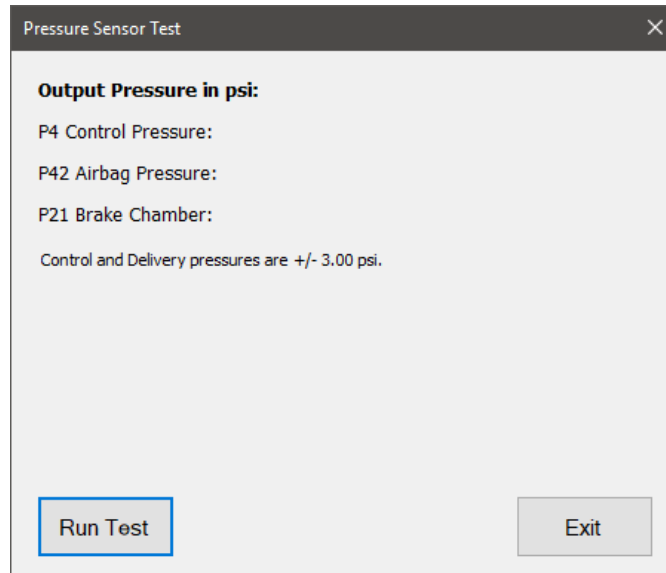
The **Pressure Sensor Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Pressure Sensor Test** checks the P21, P42, and P4 pressures when brakes are applied and unapplied. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Pressure Sensor Test** and press **Enter** or the **Start** button.

2. The **Pressure Sensor screen** will appear.



Pressure Sensor Test

3. Ensure the trailer air system has air in it and select **Run Test**.
4. Follow test instructions to apply the service brakes, confirm the P4 pressure rises to at least 10 psi, and select **Continue**. Next, release the service brakes and select **Continue**.
5. The ECU confirms the P21, P42, and P4 pressures return to approximately 0 psi. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
6. When done, select the **Exit** button to return to the test selection dialog.

S-C Sensor/S-D Sensor Tests

The **S-C and S-D Tests** are available on:

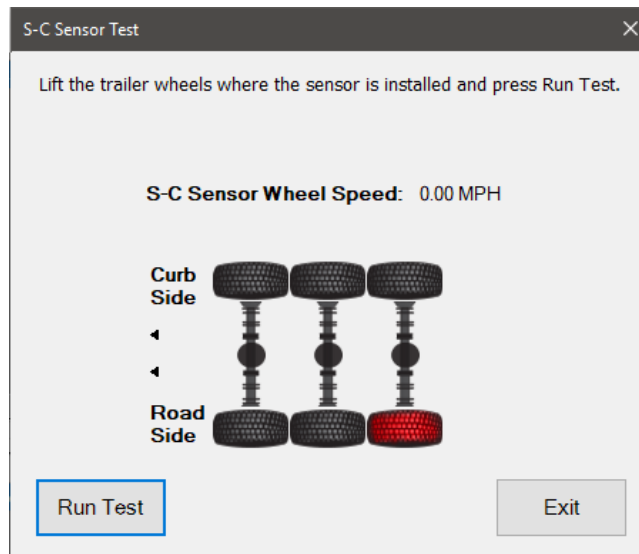
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **S-C and S-D Tests** verifies that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

1. Select **S-C or S-D Sensor Test** and press **Enter** or the **Start** button.

2. The **Sensor Test screen** will appear.



S-C/S-D Sensor Test

3. Select **Run Test**. Spin the wheel indicated by the red highlighted wheel on the on-screen graphic. The ECU will apply the brakes to stop the wheel. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

S-E Sensor/S-F Sensor Tests

The **S-E and S-F Tests** are available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS

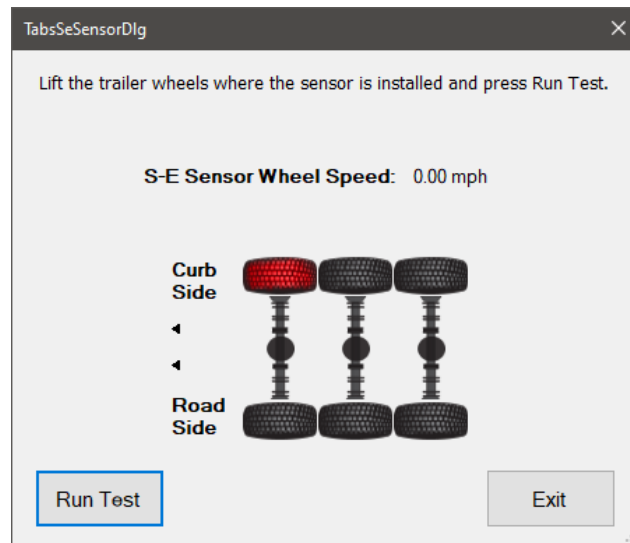
NOTE: Supports 4 sensor configuration only

The **S-E and S-F Tests** verifies that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

1. Select **S-E or S-F Sensor Test** and press **Enter** or the **Start** button.

2. The **Sensor Test screen** will appear.



S-C/S-D Sensor Test

3. Select **Run Test**. Spin the wheel indicated by the red highlighted wheel on the on-screen graphic. The ECU will apply the brakes to stop the wheel. A successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Scratchpad Test

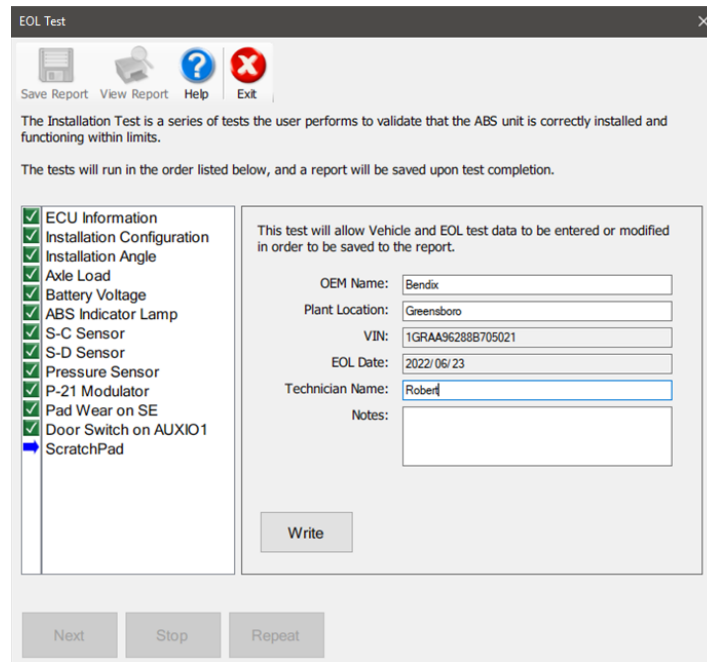
The **Scratchpad Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Scratchpad Test** allows the user to enter information that will be saved to the ECU. This test is only available inside of the **EOL Test dialog** and cannot be selected in the **Bi-Directional menu**.

1. Select **EOL Test** on the main form toolbar.
2. Select the tests to be ran and the order to perform them in, then press **Next**.

3. Pass all tests to reach the Scratchpad, which is always the final test.



Scratchpad Test Inside EOL Test Screen

4. Data read from the ECU is displayed. Information may be updated or added. Select **Write** to write changes to the ECU.
5. The Scratchpad information is written to the ECU. There will be a green label on the bottom of the screen that states "Scratchpad Passed". The **Repeat** button will enable, as well as the **Save Report** and **View Report** buttons on the top of the **EOL Test** form.

Tire Inflation System Test

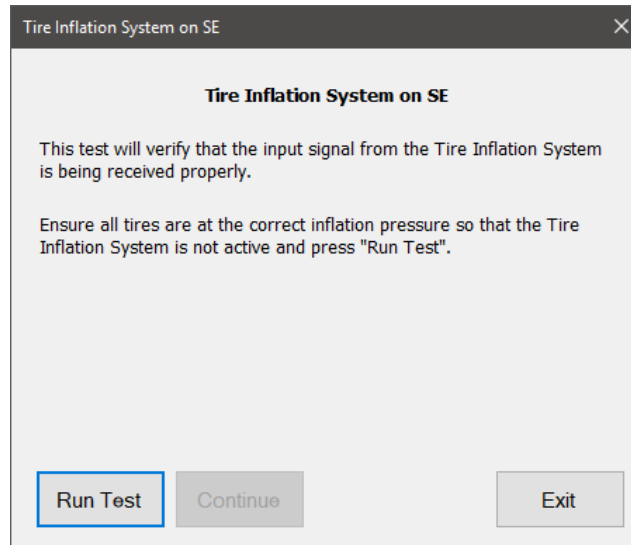
The **Tire Inflation System Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Tire Inflation System Test** verifies that the input signal from the Tire Inflation System is being received. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Tire Inflation System Test** and press **Enter** or the **Start** button.

2. The **Tire Inflation System screen** will appear.



Tire Inflation System Test

3. Ensure all tires are at the correct inflation pressure and select **Run Test**. Follow instructions to release the air from the **Tire Inflation System** circuit and select **Continue**.
4. The ECU confirms the Tire Inflation System circuit is functioning properly. The test passes and a successful status message will appear and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Wear Sensing Test

The **Wear Sensing Test** is available on:

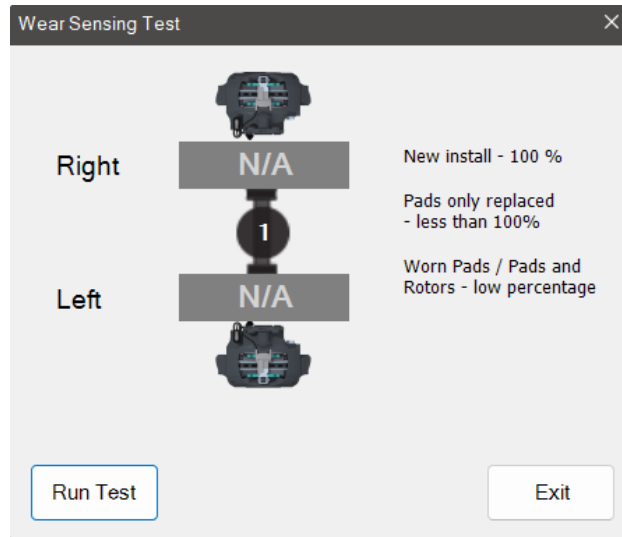
- ✓ TABS-6™ Multi-Channel Trailer ABS with minimum software version of TCWG.730.88

NOTE: This test is only available for single axle trailers with QWS on SENS IN 1 and 2.

The **Wear Sensing Test** checks the remaining pad wear life and reports the value as a percentage. This test is available both inside of the **EOL Test dialog** and in the **Bi-Directional menu**.

1. Select **Wear Sensing Test** and press **Enter** or the **Start** button.

2. The **Wear Sensing Test** screen will appear.



Wear Sensing Test

3. Select **Run Test** to read the remaining pad wear life values, which are displayed as percentages. A confirmation message will be displayed, asking if the values are correct. Clicking the checkmark will show a successful status message, and the **Repeat** button becomes enabled. Select the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Transmission Tests

Clutch Apply Leak Test

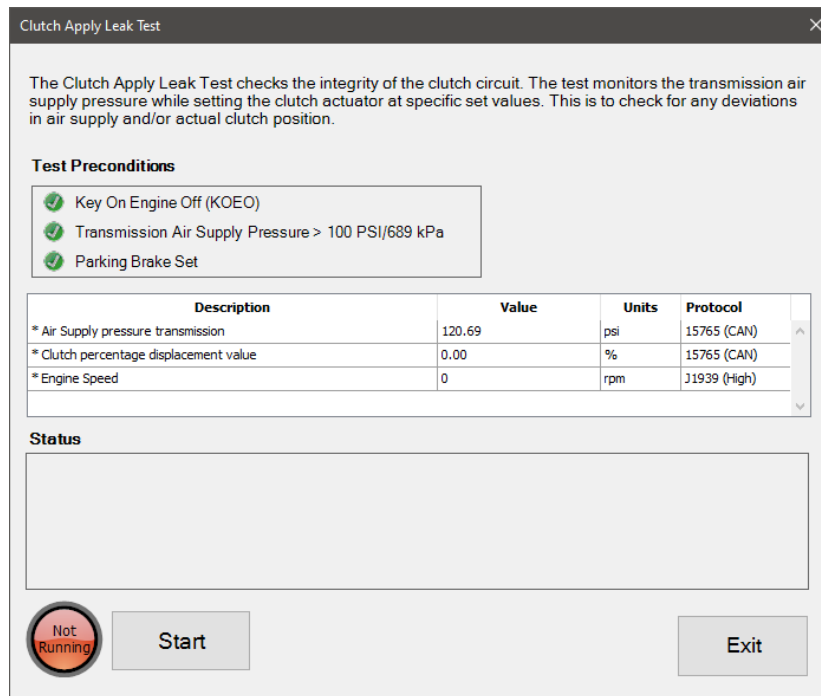
The **Clutch Apply Leak Test** is supported on:

- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The **Clutch Apply Leak Test** verifies the integrity of the clutch circuit. It checks for any deviations in air supply and/or clutch position by monitoring transmission air supply pressure while setting the clutch actuator to specific set values.

1. Select the **Clutch Apply Leak Test** and press **Enter** or the **Start** button.

2. The **Clutch Apply Leak Test** dialog will display.



Clutch Apply Leak Test

3. Click the **Start** button to begin the test. The Status log will update as the test progresses. When completed, the test results will be displayed.
4. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Tilt Sensor Calibration

The **Tilt Sensor Calibration** test is supported on:

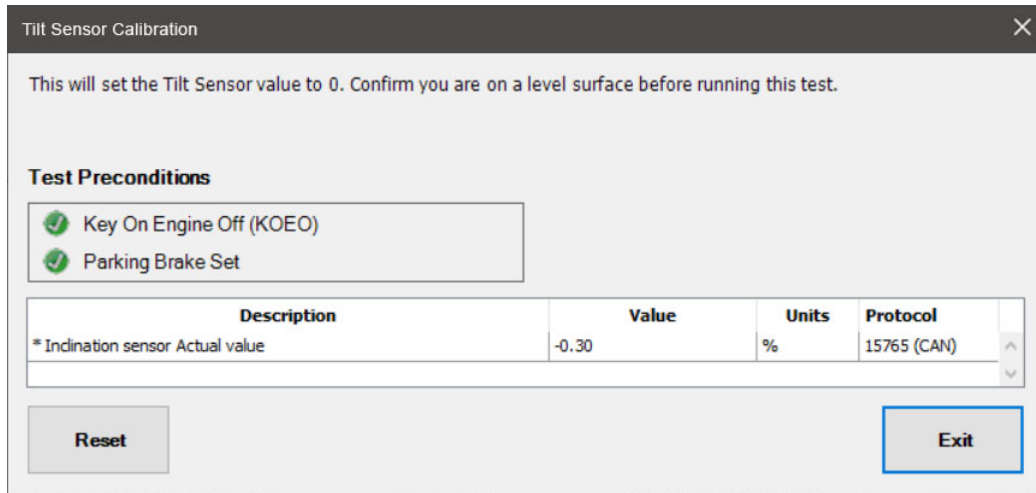
- ✓ Detroit Diesel DT12 TCM05T transmissions

The Tilt Sensor Calibration test will recalibrate the tilt sensor value to zero.

- ⚠ Confirm the vehicle is on a level surface before running this test.

1. Select the **Tilt Sensor Calibration** test and press **Enter** or the **Start** button.

2. The **Tilt Sensor Calibration** test dialog will display.



Tilt Sensor Calibration

3. Click the **Calibrate** button to reset the tilt sensor value to zero.

NOTE: Ensure the vehicle is on a level surface before running this test.

4. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Transmission Learn Procedure

The **Transmission Learn Procedure** is supported on:

- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The Transmission Learn Procedure configures all initial set points for the transmission, clutch, and shift actuators.

1. Select **Transmission Learn Procedure** and press **Enter** or the **Start** button.

2. The test dialog will be displayed.

The Transmission Learn Procedure configures all the initial set points for the transmission, clutch, and shift actuators. These are programmed into the TCM after are learned.

i It is normal for the vehicle to shake or jerk during the test.

! This procedure requires a key cycle at the end of operation. Failure to complete the key cycle will cause the learned values to not be programmed and therefore cause limited functionality of the transmission/clutch.

Test Preconditions

- ✓ Key On Engine Off (KOEO)
- ✓ Transmission Air Supply Pressure > 100 PSI/689 kPa

Learn Procedure Type

Transmission & Clutch

Description	Value	Units	Protocol
* Clutch Calibration Status	Learned values available		15765 (CAN)
* Engine Speed	0	rpm	J1939 (High)
* Engine start request during learning procedure	No		15765 (CAN)
* Transmission Air Supply Pressure	124.17	psi	15765 (CAN)
* Transmission Learn Status	Learned values available		15765 (CAN)

Status

Not Running

Start

Exit

3. Select the desired **Learn Procedure Type**, then click the **Start** button to begin the procedure. The initial set points will be configured. When prompted, cycle the ignition to complete learned value programming.
4. When done, press the **Exit** button to return to the test selection dialog.

Trip and Life of Vehicle Tests

Learned Data Reset

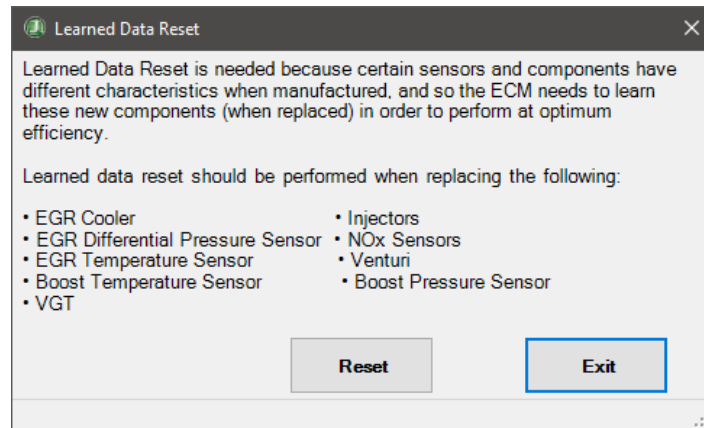
Learned Data Reset is supported on:

- ✓ Mack and Volvo EPA 07 to GHG17 engines.

The Learned Data Reset is needed because certain sensors and components have different characteristics when manufactured, and so the ECM needs to learn these new components (when replaced) in order to perform at optimum efficiency.

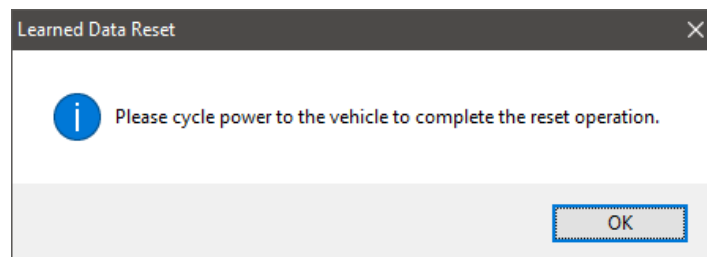
1. Select **Learned Data Reset** and press **Enter** or press **Start** Button.

- The **Learned Data Reset** dialog will be displayed. To reset, click the **Reset** button. To leave this dialog, click the **Exit** button.



Learned Data Reset Dialog

- The user will be asked to confirm the reset of the learned data, by pressing the **Yes** button, otherwise press the **No** button to return to Learned Data Reset Dialog.
- To complete the Learned Data Reset the user will need to Cycle the engine's power by turning the ignition off for 2 seconds and then back on. Click **OK** button when this done and return to the test selection dialog.



Cycle Power Dialog

Trip Reset

Trip Reset is supported on:

- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Mack EPA 07 and newer with DataMax enabled
- ✓ Volvo 2012 and newer with DataMax enabled

NOTE: This test is currently unavailable for Mack and Volvo connections using a Noregon DLA+ 3.0 family adapter.

The Trip Reset feature resets all stored trip data. The data values cannot be restored after the reset. Cumulative trip data will not be affected.

NOTE: This feature is also available from the Report menu for Cummins engines.

NOTE: On Mack and Volvo engines, this feature is only available from the Report menu and is not available from the test selection dialog.

A series of instruction dialogs will be displayed upon the selection of Trip Reset. The exact instructions will vary based on the engine manufacturer. Read and follow the displayed instructions to perform the Trip Reset operation.

NOTE: On Mack and Volvo engines you will be given the option to save a backup copy of trip values prior to performing the reset operation. This feature is not available for Cummins engines.

NOTE: Cummins engines may require you to enter the ECM master password to perform the Trip Reset operation.

Warm Hold Function Test

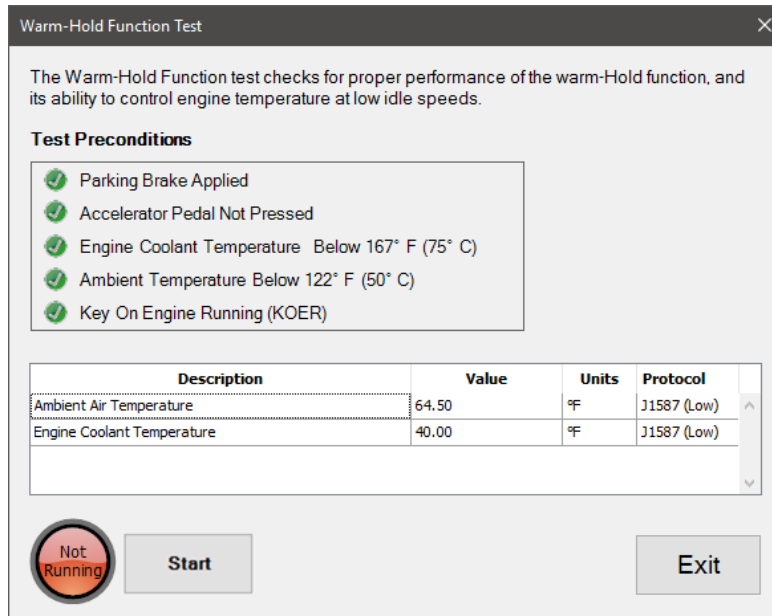
The **Warm Hold Function Test** is supported on:

- ✓ Mack and Volvo EPA 07 to EPA 10 engines

The Warm Hold Function Test checks for proper performance of the warm-hold function and its ability to control engine temperature at low idle speeds.

1. Select **Warm Hold Function Test** and press **Enter** or press **Start** Button.

2. The **Warm Hold Function Test** dialog displays.



Warm Hold Function Test

3. Select the **Start** button to begin the test.
4. Monitor the reported temperature values as the test progresses.
5. Select the **Stop** button to stop the test at any time.
6. When done, press the **Exit** button to return to the test selection dialog.

Wiggle Test / Performance Issue Monitor

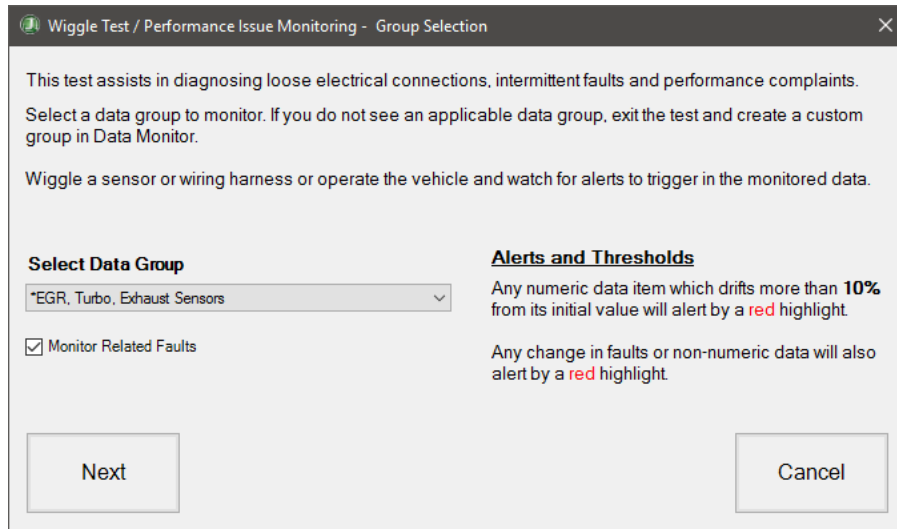
The **Wiggle Test / Performance Issue Monitor** is supported on:

- ✓ All heavy-duty engines
- ✓ Agility fuel systems
- ✓ Bendix EC-60 and EC-80 braking systems
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX, QSC
- ✓ Cummins Tier 4: all QSB, QSF, QSC, QSL, QSX, B6.7, B4.5, F3.8
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

This test assists in diagnosing loose electrical connections, intermittent faults and performance complaints. The test monitors for changes in fault status or selected data (beyond a threshold) while wiggling connectors or wiring or while running the vehicle.

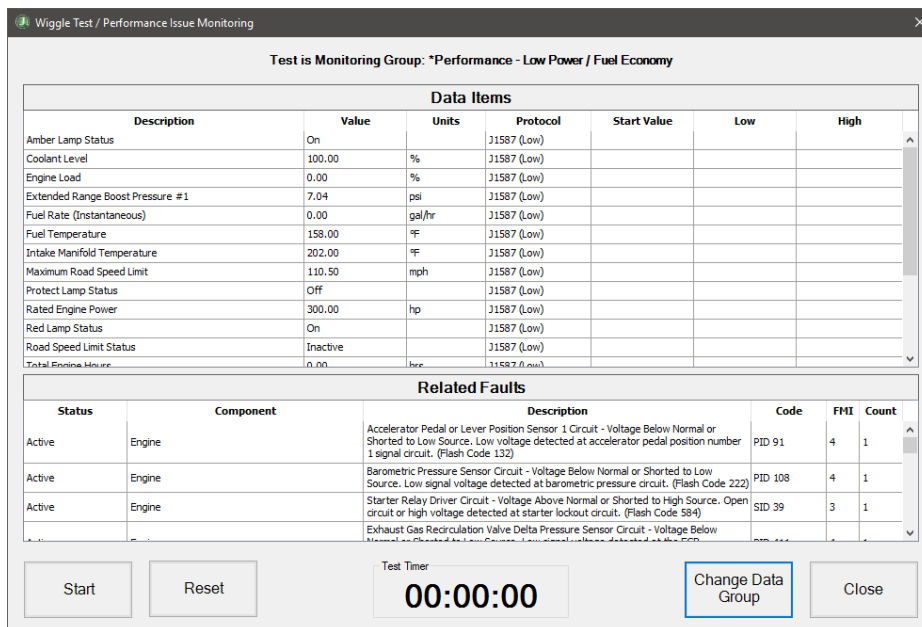
1. Select **Wiggle Test / Performance Issue Monitor** and press **Enter** or press **Start** Button.
2. The **Group Selection** dialog will be displayed. Select a data group to monitor.

NOTE: If you do not see an applicable data group, exit the test and create a custom group in the Data Monitor “Data Groups” tab.



Wiggle Test / Performance Issue Monitoring – Group Selection

3. Select **Next** to begin the test on the selected Data Group.
4. The **Wiggle Test / Performance Issue Monitoring** test displays with the selected Data Group name displayed at the top of the window. The window will display all Data items that are available on the current vehicle from the selected Data Group. If the **Monitor Related Faults** checkbox was checked on the **Group Selection** window, then in the bottom of the window will be all currently reported related faults.



Wiggle Test / Performance Issue Monitoring

5. Select the **Start** button to begin monitoring the data and faults for changes.

6. Wiggle a sensor or wiring harness or operate the vehicle and watch for alerts to trigger in the monitored data.
 - Any numeric data item which drifts more than **10%** from its initial value will alert by a **red** highlight.
 - Any change in faults or non-numeric data will also alert by a **red** highlight.
7. Select **Reset** to reset all alerts and initial values for monitoring.
8. Select **Change Data Group** to perform the test using a different set of data.
9. Select **Close** when done.

MEDIUM DUTY DATA VIEWS

Vehicle Health

At the top of the **Vehicle Readiness** window, the overall vehicle health status will be indicated.



Medium Duty Vehicle Health Status



A **Red Stop Sign** icon will be displayed if **active faults** are present.



A **Green Check Mark** icon will be displayed if there are **no active faults** present.

Fault Code Information

For medium duty vehicles, the **Fault Code Information** window displays all pending, confirmed, permanent or inactive faults detected on the vehicle data bus. Each fault lists the Status, Component, Lookup Code and Description. When selected, faults classified as active, confirmed, permanent are highlighted in red and pending or inactive faults in yellow.

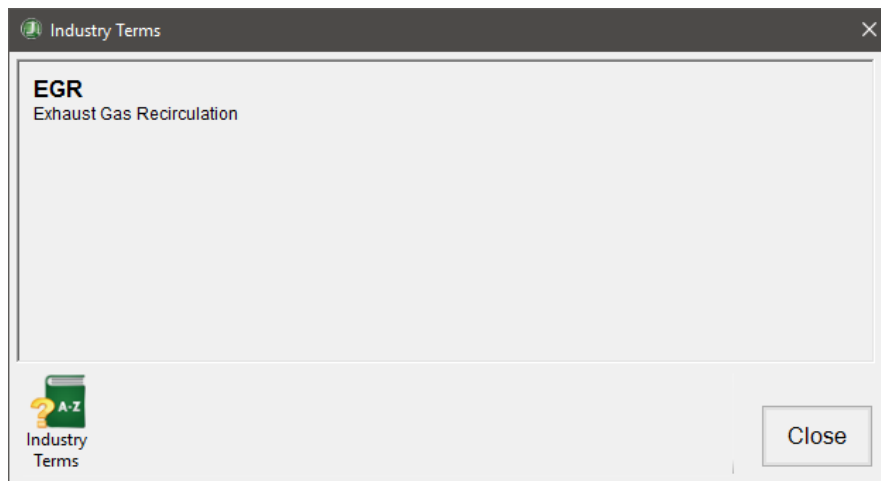
Fault information is requested from the vehicle data bus every 10 seconds.

Status	Component	Lookup Code	Description
Inactive	Engine Control Module	P0134	O2S Circuit Insufficient Activity Bank 1 Sensor 1
Inactive	Engine Control Module	P0154	O2S Circuit Insufficient Activity Bank 2 Sensor 1

Clear Faults Freeze Frame Parameters


Medium Duty Fault Code Information

lick in on a fault Description with a hyperlink to view the definition of the industry terms used in that fault description.



Medium Duty Fault Code Information

Clearing Faults and Emission Related Information

Select the **Clear Faults**  button to clear all faults from the vehicle and all emission related diagnostic information including:

- All Stored Pending faults
- All Freeze Frame data
- Emission Test Results
- Data Items related to the Malfunction Indicator Lamp


Once all the Clear Faults request is made, the application will read affected information from the vehicle data bus.

Frame Parameters


If there is **Freeze Frame** data available for the selected fault, the **Freeze Frame Parameters**  icon becomes available. Click on the icon to view the Freeze Frame data for the currently selected fault.

Data Monitor

The **Data Monitor** window displays various data items and parameters, converted to meaningful values with associated units. The data items shown will vary from vehicle to vehicle based on types of sensors available.

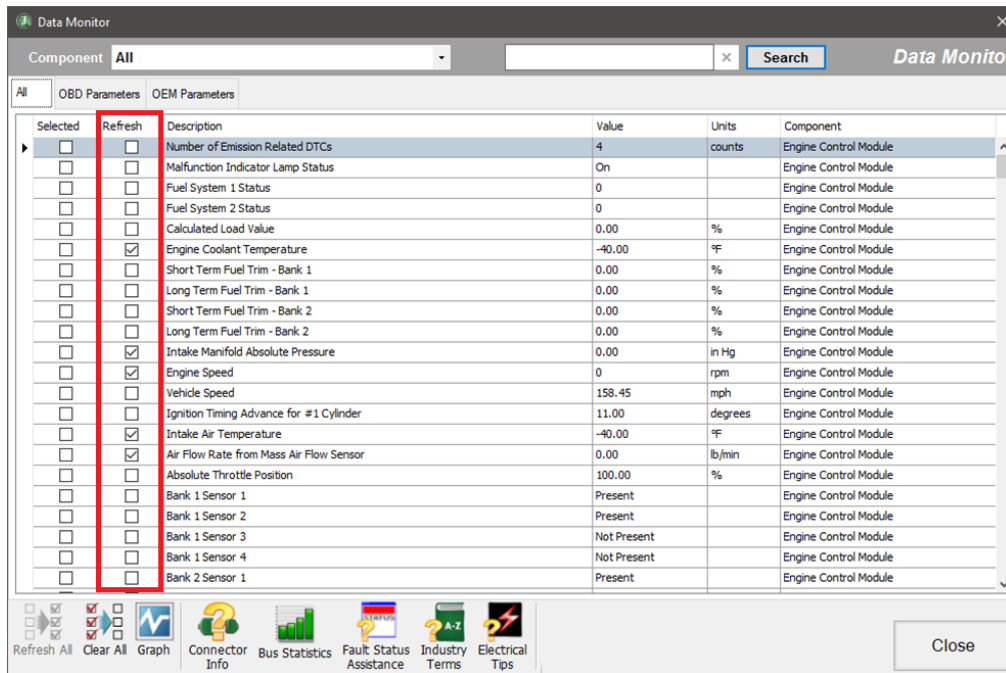
1. Click the **Data Monitor**  button on the main toolbar.
2. The Data Monitor window is displayed and the initial view defaults to the All tab. The All tab displays all available data items from all components on the data bus.

NOTE: Data items are not continually updated. The data values displayed are generally the sensor readings read during the initial connection.

- If you wish to view live data values, you must select the **Refresh** checkbox for the data item(s) of interest. This causes the application to request the data items two times a second. The actual request rate will vary depending on the number of rows currently refreshing.
-  Medium duty vehicle data is not automatically refreshed. Displayed data is stale and will only be refreshed if the Refresh checkbox is selected for that data item in Data Monitor. All data displayed in the default Key Data Points window is automatically selected for refresh.

NOTE: On General Motors vehicles, there is a limit to the number of data values that can be refreshed. When the limit has been exceeded, it will be necessary to unselect some items in order to begin refreshing new data values.

NOTE: The *Refresh* checkbox is not available during playback of a previously recorded log file.



Data Monitor

- The Data Monitor groups messages into two categories: **OBD Parameters** and **OEM Parameters**. The **OBD Parameters tab** includes all supported emission related OBD sensor data. The **OEM Parameters tab** includes all vehicle proprietary sensor data.

NOTE: If connecting to the vehicle as "Generic OBD II" then only the OBD Parameter data will be available.

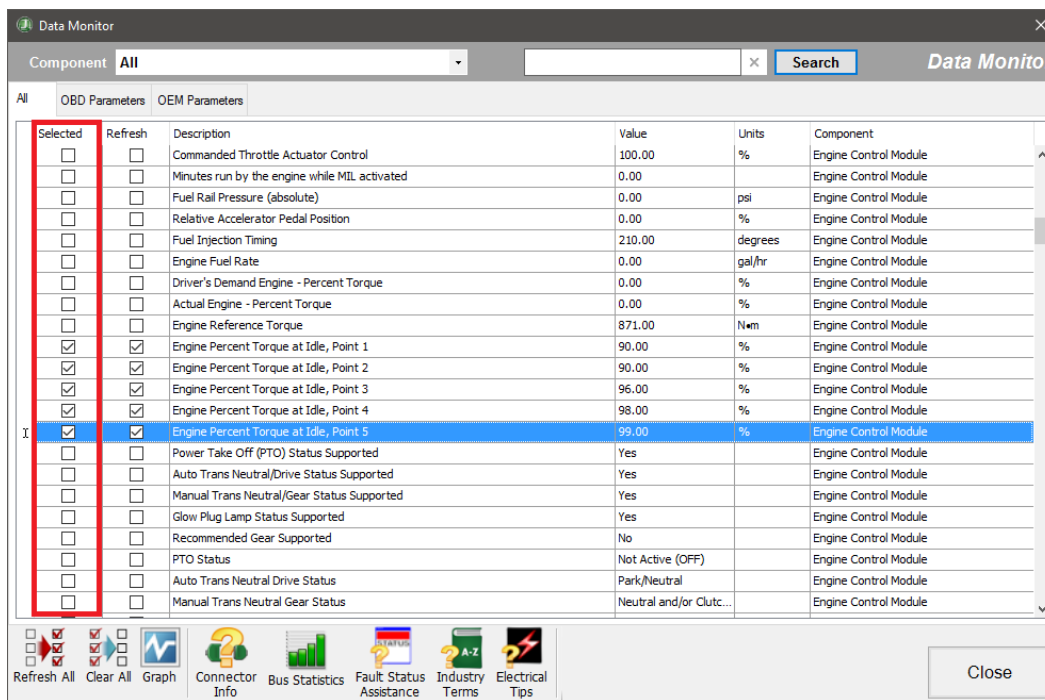
- Filter the **Data Monitor list** by any component by selecting the component from the dropdown list at the top of the window.

- Data Monitor items can be quickly found by typing in search criteria and clicking the *Search* button. Results will be displayed for all items that have the search criteria in at least one column.

Medium Duty Data Graph

The **Graph** window displays various data items and parameters in a constantly updating graph format, allowing you to view trending information. The graph is configured and launched from the Data Monitor.

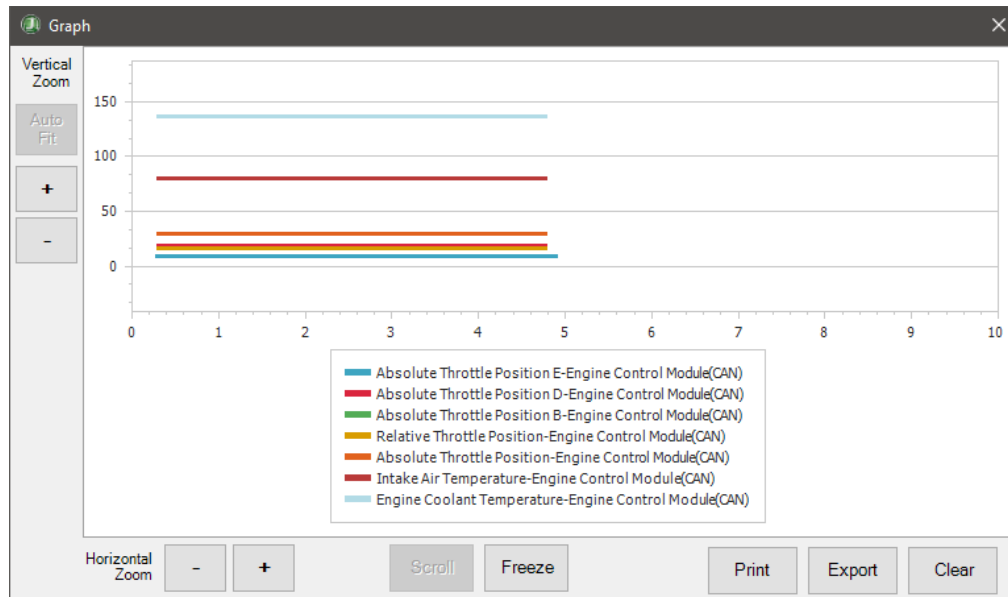
- Select data rows of interest in the **Data Monitor** by clicking the **Selected** checkbox.
- When you click the **Selected** checkbox, the **Refresh** checkbox is automatically also selected so that the data to be graphed will be refreshed. All rows with the **Refresh** checkbox selected will be requested at most two times per second. The actual refresh rate will vary depending on the number of rows currently refreshing.



Data Monitor – Select Items to Graph

- Click on the **Graph**  button.


4. The **Graph** window is displayed. The data items you selected will be plotted on the graph over time.




Graph

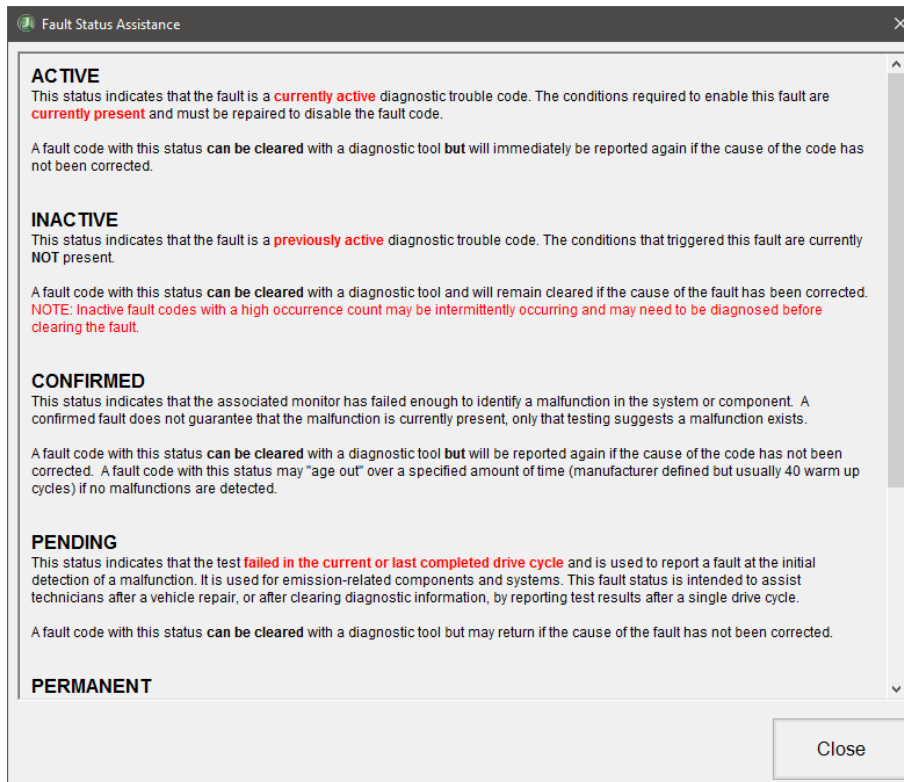
5. To customize the display:
 - a. Hover the cursor over the graph to see the value plotted.
 - b. You can zoom each axis of the graph independently by clicking either the **+** or **-** button.
 - c. Clicking the **Auto Fit** button will resize the graph to show all plotted data items.
 - d. The **Scroll** button automatically moves the graph view to the most current information.
 - e. The **Freeze** button allows you to keep the graph view from moving, letting you easily study the data while the graph continues to run.
 - f. **Print** allows you to print the current graph view. A color printer is strongly recommended.
 - g. **Export** displays a save file dialog. Up to the last 5 minutes of currently graphed data can be saved to the desired location as an XML file.
 - h. The **Clear** button removes all data from the graph and begins capturing new data.

Connector info

The **Connector Info**  button will open the [Connector Info](#) window, displaying information about active communications for a live vehicle connection and providing connector pinouts for diagnosing communication issues.

Fault Status Assistance

The **Fault Status Assistance**  button will open a window containing extended status descriptions for faults to aid technicians understanding of fault status meaning.



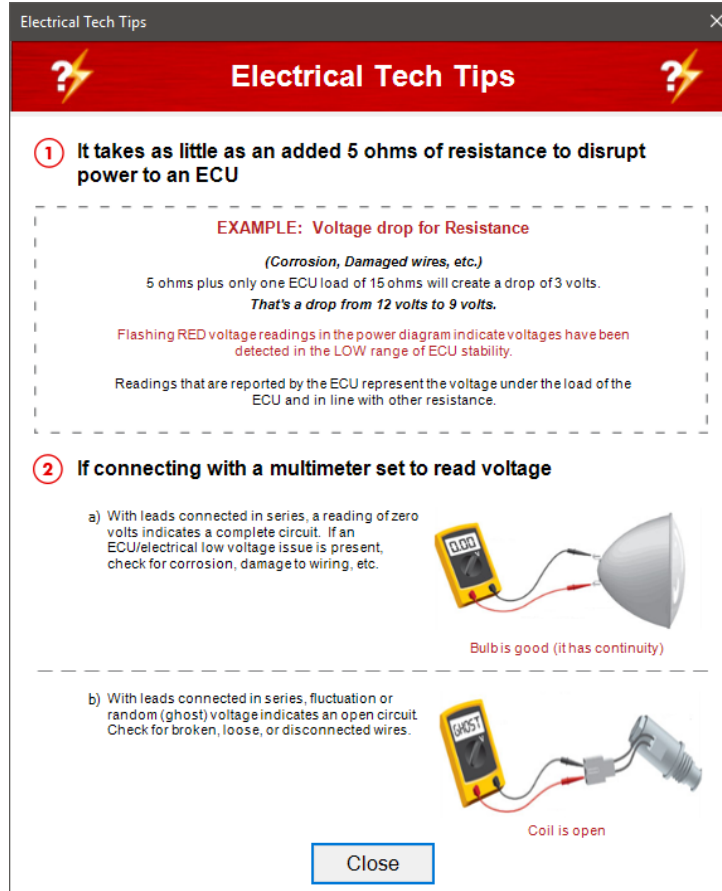
Fault Status Assistance – Medium Duty Connection

Industry Terms

The **Industry Terms**  button opens a PDF file containing common industry term definitions.

Electrical Tips

The **Electrical Tips**  button displays information to help diagnose potential electrical problems.



Electrical Tech Tips

1 It takes as little as an added 5 ohms of resistance to disrupt power to an ECU

EXAMPLE: Voltage drop for Resistance
(Corrosion, Damaged wires, etc.)
5 ohms plus only one ECU load of 15 ohms will create a drop of 3 volts.
That's a drop from 12 volts to 9 volts.
Flashing RED voltage readings in the power diagram indicate voltages have been detected in the LOW range of ECU stability.
Readings that are reported by the ECU represent the voltage under the load of the ECU and in line with other resistance.

2 If connecting with a multimeter set to read voltage

a) With leads connected in series, a reading of zero volts indicates a complete circuit. If an ECU/electrical low voltage issue is present, check for corrosion, damage to wiring, etc.

Bulb is good (it has continuity)

b) With leads connected in series, fluctuation or random (ghost) voltage indicates an open circuit. Check for broken, loose, or disconnected wires.

Coil is open

Close


Electrical Tech Tips

Aftertreatment Diagnostics

Aftertreatment Diagnostics are only available on EPA 07 or newer Ford, GM, Hino, and Isuzu medium-duty. It displays data items related to the Aftertreatment system including the Diesel Particulate Filter (DPF) Lamps, Status, Inhibits and Diagnostic DPF, EGR, SCR and DEF Tank Sensor Readings in an easy to understand graphical format.

The Aftertreatment Diagnostics button is not available until after all initial vehicle data is completely read.

1. Select **Aftertreatment Diagnostics**  button on the main toolbar.

2. If connected to a vehicle, the Aftertreatment Instructions are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. Once closed, the instructions can be reopened by the **Instructions**  button.

Basic Aftertreatment Diagnostics

ATTENTION | Always diagnose any Active engine faults before attempting to diagnose Aftertreatment issues.

Review vehicle repair history for Turbo, EGR, oil cooler, air compressor, and /or injector repairs.

Perform a visual inspection of the following:

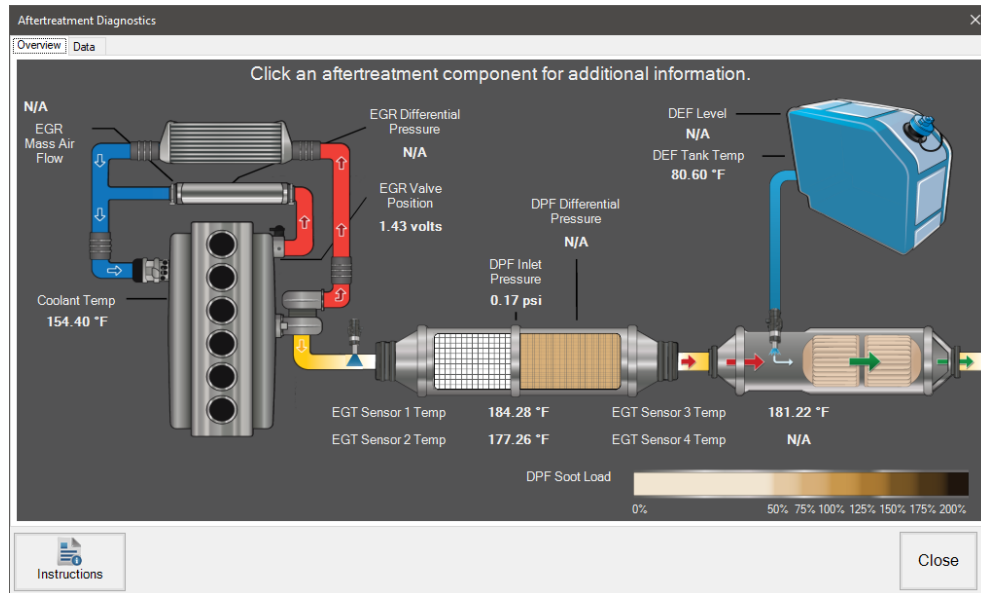
- ➔ Fluids – Any signs of loss?
- ➔ Air management system
 - ➔ Restricted air filter
 - ➔ Leaks, loose or broken clamps
 - ➔ Charge Air Cooler damage, damaged pipes
 - ➔ Signs of fluid contamination in exhaust
 - ➔ Turbo failures
 - ➔ Cooling package restrictions, verify proper fan operation
 - ➔ Electrical connections and harness that control air flow through engine such as intake throttle valves, EGR valves, and turbo actuators
 - ➔ Check sensors for soot or fluid contamination
- ➔ Exhaust system and related Aftertreatment system
 - ➔ Excessive soot from tailpipe
 - ➔ Damaged piping
 - ➔ Signs of exhaust leaks, broken mount or hangers
 - ➔ Sensor damage or poor connections, harness damage
 - ➔ Verify that the DPF flow -> is correctly oriented
 - ➔ DEF quality (32.5% urea / 67.5% deionized water)
- ➔ Fuel system
 - ➔ Leaks, restrictions, fuel contamination
 - ➔ Connector issues
 - ➔ Improper fuel line routing, or crimped lines

!!! Diagnose and clear any engine related faults first !!!

Close

Aftertreatment Diagnostic Instructions

- The **Aftertreatment Diagnostics** overview window is displayed, and an **Overview** tab displays a schematic of the aftertreatment system. Key data points labeled include the DPF, EGR, SCR, and DEF Tank Sensor readings.



Aftertreatment Diagnostics Overview

NOTE: On EPA 2007 engines, the schematic does not include the SCR and DEF Tank.

- Click the **Engine**, **DPF**, **SCR**, or **DEF Tank** to view additional information for the selected component.
- On live vehicle connections, if available, there may be additional buttons to allow you to start DPF Regen or access other bi-directional test functionality.

- Select the **Data** tab to see all aftertreatment data displayed in an easily searched and sorted grid format.


The screenshot shows the 'Aftertreatment Diagnostics' window with the 'Data' tab selected. At the top, there is a search bar with a 'Search' button. Below it is a table with three columns: 'Description', 'Value', and 'Units'. The table lists various engine and aftertreatment parameters. At the bottom of the window, there is a 'Running' indicator, a 'Stop DPF Regen' button, an 'Instructions' button, an 'Active Regen Time' display showing '00:04:56', a 'Bi Directional Tests' button, and a 'Close' button.

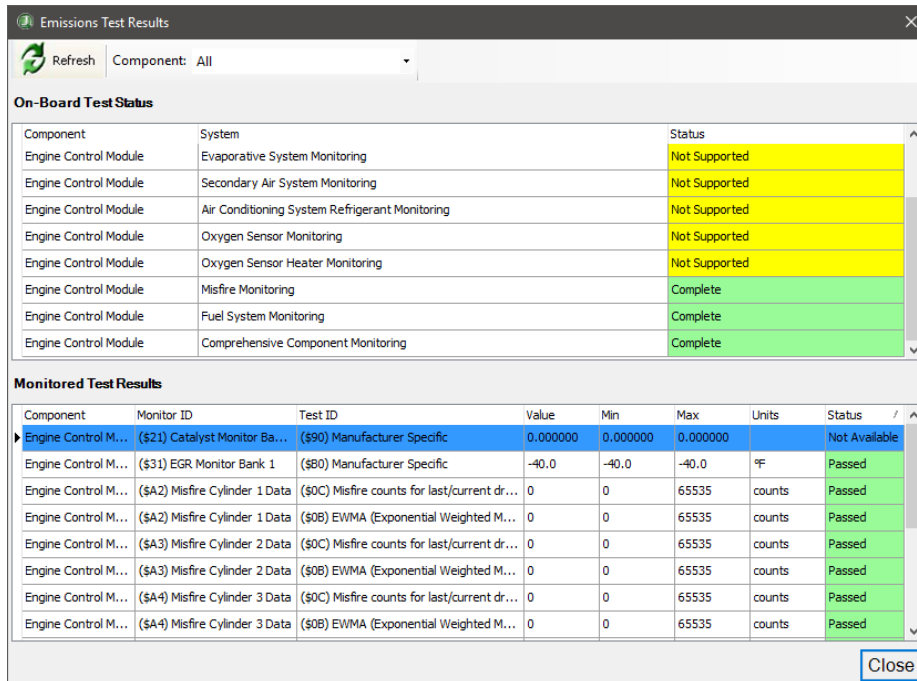
Description	Value	Units
Engine Speed	601	rpm
Air Flow Rate from Mass Air Flow Sensor	9.63	lb/min
Exhaust Gas Temperature Bank 1, Sensor 2	1,081.94	°F
PF Bank 1 Inlet Pressure	1.02	psi
DEF Tank Level	28.63	%
Mass Air Flow in Frequency	3.45	kHz
Exhaust Gas Recirculation Valve Position	1.25	volts
Exhaust Gas Temperature 11	698.00	°F
Exhaust Gas Temperature 13	1,058.00	°F
Reductant Tank Temperature	48.20	°F
%(DPF) System Percentage of the Maximum Soot Loading - Inf...	56.00	%
Mass of Soot Trapped in the Exhaust Diesel Particulate Filter Cl...	4.19	
Engine coolant temperature	174.20	°F
Manifold absolute pressure sensor	14.65	psi
Engine Oil Temperature	170.60	°F
Engine Fuel Rate	110.00	mL/min
Nitrogen Oxides Sensor Concentration - parts per million	105.00	
Nitrogen Oxide Sensor Concentration Bank 1 Sensor 2	443.00	
Diesel Exhaust Fluid Concentration	31.75	%
Nitrogen Oxide Sensor Corrected Concentration Bank 1 Sensor 1	104.00	
Nitrogen Oxide Sensor Corrected Concentration Bank 1 Sensor 2	450.00	

Aftertreatment Diagnostics Data

- Data can be quickly found by typing in search criteria and clicking the Search button. Results will be displayed for all items that have the search criteria in at least 1 column.

Emissions Test Results

Click the **Emissions**  button on the main toolbar. The **Emissions** window displays the onboard diagnostic monitoring test results (Mode 6 results). Examples are catalyst monitoring and the evaporative system monitoring.



Emissions Test Results

The **On-Board Test Status** will show the status (incomplete, not supported or complete) for each monitoring system.

The **Monitored Test Results** will display the test results details. An overall test status of “Passed”, “Failed” or “Not Available” will be displayed.



Tests in the **“Passed”** state will be color coded **green**.



Tests in the **“Failed”** state will be color coded **red**.



Tests in the **“Not Available”** state will be color coded **yellow**.

Test results are automatically read during the initial connection and after clearing faults. However, you may refresh the results at any time by selecting the **Refresh**  button in this window.

- ⚠ Clearing faults will clear the emission test results. The vehicle may have to go through several drive cycles for all tests to be available after clearing fault codes. If a test has not been run it may not be listed in the Test Results.

MEDIUM DUTY BI-DIRECTIONAL

Bi-Directional allows you to run tests and perform calibrations on the vehicle. This is only available if the current connected vehicle has supported bi-directional features and those features are enabled with the current JPRO license.

The following engine/powertrain tests and calibrations are available to be run:

Bi-Directional Test or Calibration	Supported On
A/C Relay	GM
CMP Actuator Solenoid	GM
Compression Test	Sprinter
Crankshaft Position Variation Learn	GM
Cylinder Cut Out	GM Hino Kubota Isuzu Sprinter
DPF Catalyst Reset	GM
DPF Pressure Sensor Reset	GM
DPF Service Regen	Ford GM Hino Isuzu Kubota Sprinter
DPF Soot Load Customization	Hino
Engine Controls Ignition Relay	GM
Engine Speed Control	GM
EVAP Purge Solenoid	GM
EVAP Purge/Seal Solenoid	GM
EVAP Vent Solenoid	GM
Fuel Closed Loop Status	GM
Fuel Injector Balance	GM

MEDIUM DUTY BI-DIRECTIONAL (CONT.)


Bi-Directional Test or Calibration	Supported On
Fuel Pump Relay	GM
Fuel Trim Enable	GM
GEN L-Terminal	GM
HO2S Heater Learn	GM
HO2S Heater Tests	GM
Idle Shutdown Customization	Hino
Idle Spark	GM
Initialize Rail Pressure	Sprinter
Injector Quantity Adjustment	Sprinter
KAM (Keep Alive Memory) Reset	Ford
KOEO Injector Buzz Test	Ford
KOEO On Demand Self-Test	Ford
KOER Glow Plug Monitor Self-Test	Ford
KOER On Demand Self-Test	Ford
KOER Switch Test	Ford
Misfire Graphic	GM
Misfire Monitor Test	Ford
Misfire Profile Correction Learn Test	Ford
NOx Sensor Reset	GM
Power Balance Test	Ford
Reductant Heater Tests:	GM
Reductant System Leak Test	GM
Reductant Tank Reset	GM
Relative Compression Test	Ford
Reset Oil Life	GM
RVS Disable History Reset	GM
SCR Related Memory Reset	Hino
Set EGR Position	Ford
Set EGR Throttle	Ford
Spark Retard	GM
Starter Relay	GM
Throttle Position	GM

MEDIUM DUTY BI-DIRECTIONAL (CONT.)


Bi-Directional Test or Calibration	Supported On
Throttle Position Sweep	GM
Transmission Adaptive Learn Tests <ul style="list-style-type: none">✓ Clear Transmission Adaptive Tables✓ Stop Using Transmission Adaptive Tables✓ Halt Transmission Adaptive Learning✓ Resume Transmission Adaptive Learning	Ford

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

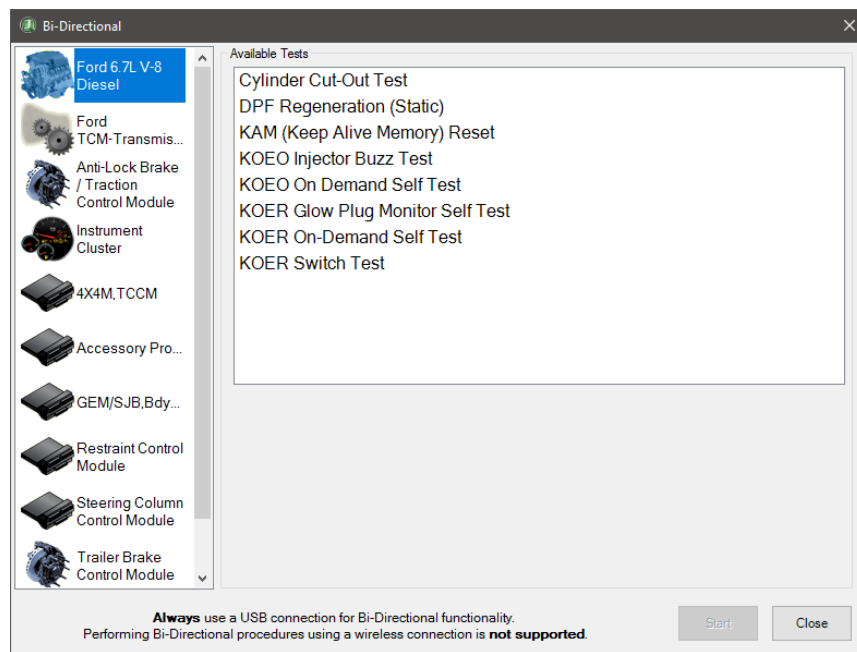
Bi-Directional Test Selection

Selecting the **Bi-Directional**  button displays the test selection dialog. The ECUs with tests available will be shown in the left-hand column. The list of tests available will vary based on the vehicle connected and the ECU selected from the left-hand column.

To start a test, select the test of interest and press Enter or the **Start** button. Select **Close** to exit the **Bi-Directional** test selection dialog.

 Before running a test, be sure to read and follow all preconditions of the test described in the test selection dialog in addition to all manufacturer's instructions. When the test window displays, follow the displayed instructions and preconditions to execute the text.

NOTE: The Bi-Directional button is available only on a live vehicle connection after a complete vehicle snapshot has been collected. This may take a minute or more.



Bi-Directional Test Selection

NOTE: Bi-directional tests are not available in playback or when connected to the vehicle as "Generic OBD II".

See JPRO Medium-Duty Support for [Ford](#), [Isuzu](#), [GM](#), and [Sprinter](#) in the Product Overview section for list of tests supported for non-engine components.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

Aftertreatment System Tests

DPF Catalyst Reset

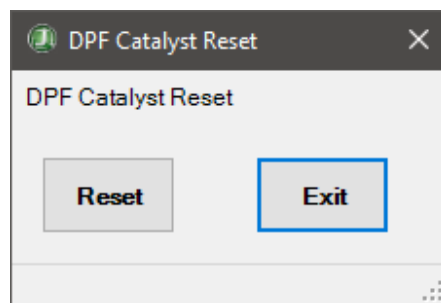
DPF Catalyst Reset is supported on:

- ✓ GM 2010 – 2021 vehicles with a Duramax 6.6L diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2021 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

DPF Catalyst Reset provides the ability to reset the learned DPF soot level after an aftertreatment component has been cleaned or replaced.

- ⚠ Running this procedure when one of the above components has not been cleaned or replaced can result in the system becoming prematurely clogged with ash and soot and can result in problems when performing a DPF Regeneration.

1. Select **DPF Catalyst Reset** and press **Enter** or click **Start** button.



DPF Catalyst Reset

2. Click the **Reset** button to reset the DPF catalyst.
3. A completion message will display when the reset operation has completed.
4. Click the **Exit** button to return to the test selection dialog.

DPF Pressure Sensor Reset

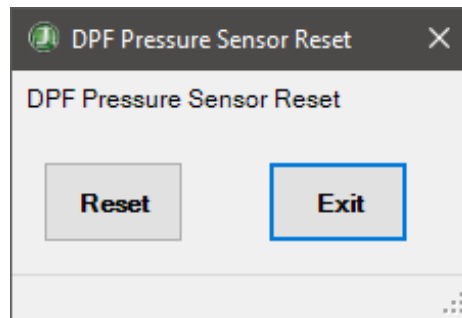
DPF Pressure Sensor Reset is supported on:

- ✓ GM 2010 – 2021 vehicles with a Duramax 6.6L diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2021 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

DPF Pressure Sensor Reset provides the ability to re-zero the baseline reading of the DPF Differential Pressure Sensor after the sensor has been replaced or an aftertreatment component has been cleaned or replaced.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Select **DPF Pressure Sensor Reset** and press **Enter** or click **Start** button.



DPF Pressure Sensor Reset

2. Click the **Reset** button to perform the reset.
3. A **Reset Complete** message will display when the reset operation completes.
4. Click the **Exit** button to return to the test selection dialog.

DPF Service Regen

DPF Service Regen is supported on:

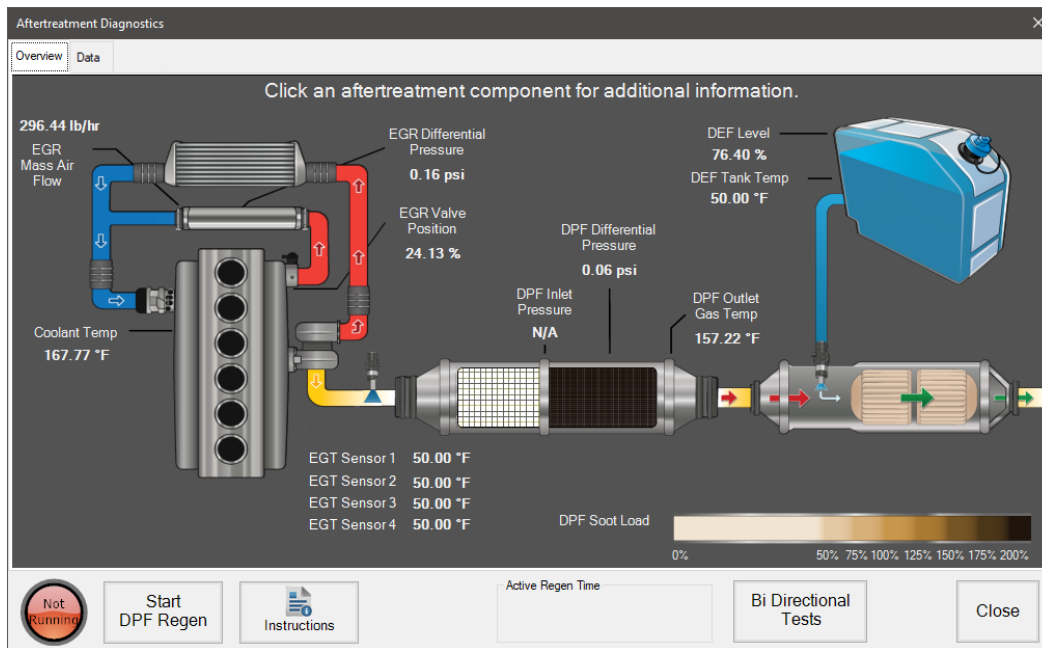
- ✓ Ford 2008 – 2010 6.4L diesel engines
- ✓ Ford 2011 – 2018 6.7L diesel engines
- ✓ GM 2010 – 2021 vehicles with a Duramax 6.6L diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2021 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine
- ✓ All Hino engines 2011-2019 vehicles
- ✓ Isuzu 2008 – 2017 5.2L (4HK1) or 3.0L (4JJ1) engines in North America

NOTE: Ford calls this test DPF Regeneration (static), Isuzu calls this test DPF Parked Regeneration (Normal), and Hino calls this test DPF Manual Forced Regeneration.

During engine operation, the Diesel Particulate Filter becomes loaded with soot. Regeneration of the DPF takes place during engine operation to remove the soot. If the soot level becomes greater than what can be removed by the normally occurring automatic regeneration processes, then a manual static service regeneration may be needed.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Select **DPF Service Regen** and press **Enter** or click **Start** button.



Static DPF Regen for Ford

NOTE: DPF Service Regen window will look slightly different on GM, Isuzu, and Hino engines, but the functionality provided is the same.

2. Click the **Start DPF Regen** button to begin the DPF Regeneration. The lamp to the left of the **Start** button will change from "Not Running" to "Running" and highlight as well. The button will change to **Stop**.
3. To end the regen early, the user should press the **Stop** button.
4. To leave this dialog without starting a regen or after stopping a regen, select the **Exit** button.

DPF Service Regen (Sprinter)

DPF Regen is supported on:

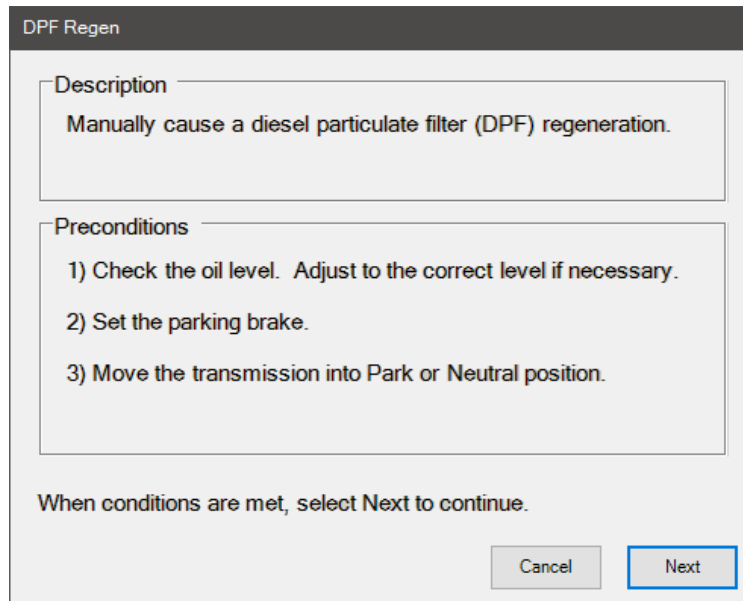
- ✓ Sprinter EPA 07 diesel engines

Allows a user to initiate a stationary parked manual DPF regeneration.

1. Select Manual DPF Regen and press Enter or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The DPF Regen dialog opens, displaying preconditions that must be met before beginning the test. Click **Next** to continue.



The screenshot shows a dialog box titled "DPF Regen". It has two main sections: "Description" and "Preconditions".

Description: Manually cause a diesel particulate filter (DPF) regeneration.

Preconditions:

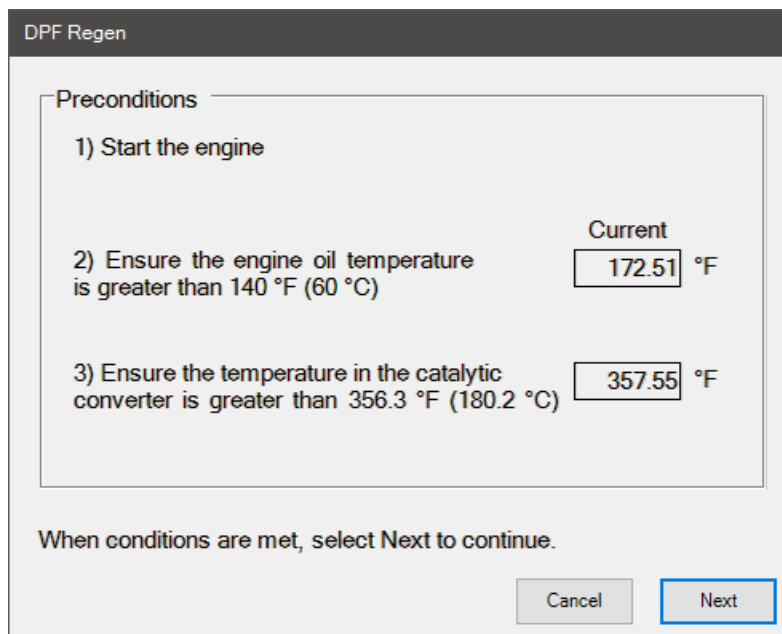
- 1) Check the oil level. Adjust to the correct level if necessary.
- 2) Set the parking brake.
- 3) Move the transmission into Park or Neutral position.

When conditions are met, select Next to continue.

Buttons: Cancel, Next

Sprinter DPF Regen Preconditions

- Start the engine and review the displayed data items to ensure the engine is in a state that will allow DPF regeneration to take place. Click **Next** to begin the regeneration procedure.



The screenshot shows the "DPF Regen" dialog box with the "Preconditions" section expanded to show current values.

Preconditions:

- 1) Start the engine
- 2) Ensure the engine oil temperature is greater than 140 °F (60 °C). **Current** 172.51 °F
- 3) Ensure the temperature in the catalytic converter is greater than 356.3 °F (180.2 °C). **Current** 357.55 °F

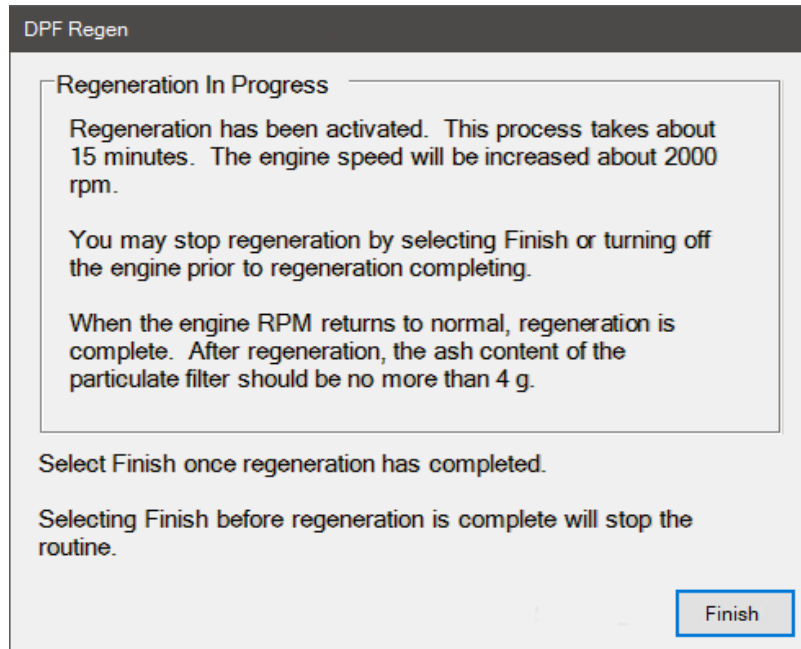
When conditions are met, select Next to continue.

Buttons: Cancel, Next

Sprinter DPF Regen

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The vehicle engine speed will increase as the regeneration procedure begins. When the engine speed returns to normal idle speed the regeneration will have completed and the test can be safely exited.



Sprinter DPF Regen Running

- Click **Finish** to exit the test.

DPF Soot Load Customization

The **DPF Soot Amount Piling Up Customization** is supported on:

- ✓ All Hino engines in 2011-2019 vehicles

Diesel Particulate Filter (DPF) Soot Load Customization allows you to change the soot load value. This is useful after cleaning or replacing the DPF filter to set the value so that a manual regeneration can take place.

This test can also reset the DPF Regeneration lockout that occurs when DPF soot load is exceeded.

- Select the **DPF Soot Load Customization** and press **Enter** or click the **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The test dialog will display. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current settings. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

DPF Soot Load Customization

Diesel Particulate Filter (DPF) Soot Load Customization allows you to change the soot load value. This is useful after cleaning or replacing the DPF filter to set the value so that a manual regeneration can take place.

Parameters where the **Update Value** column is highlighted yellow can be changed by selecting or entering the desired value.

Test Preconditions

Key On Engine Off (KOEO) More Information

Name	Update Value	Current Value	Original Value	Min	Max	Units
DPF Soot Load		1.89	1.89	0	10	g/L

Write Values Restore Original Exit

DPF Soot Load Customization

- Click the **More Information** button to learn more about the **DPF Soot Load** value.
- Enter a new value for the **DPF Soot Load**.
- Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
- Click the **Exit** button to return to the test selection dialog.

NOx Sensor 1 or 2 Reset

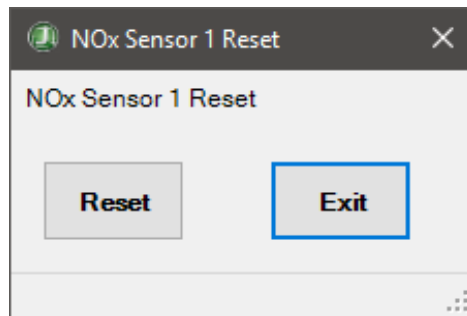
NOx Sensor Reset is supported on:

- ✓ GM 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

NOx Sensor Reset provides the ability to reset learned NOx Sensor ECM/ACM values. This function should be performed when NOx sensors and/or components have been repaired or replaced.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Select **NOx Sensor # Reset (1 or 2)** and press **Enter** or click **Start** button.



NOx Sensor Reset

2. Click the **Reset** button to reset the selected NOx Sensor.
3. A Reset Complete message will display when the reset operation completes.
4. Click the **Exit** button to return to the test selection dialog.

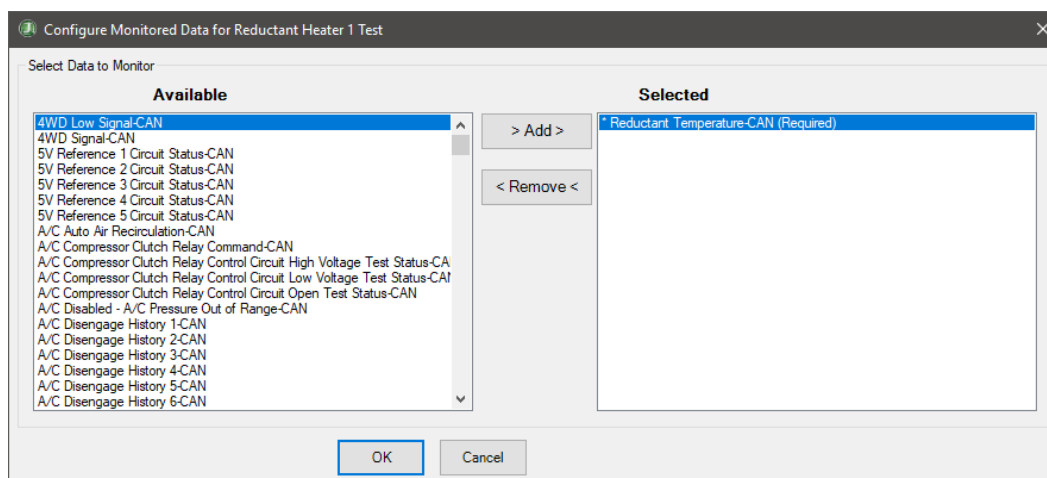
Reductant Heater 1, 2 or 3 Tests

Reductant Heater Tests are supported on:

- ✓ GM 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

The **Reductant Heater Test** allow individual reductant fluid line heaters to be turned on/off to identify heater component faults, circuit faults, or ECM/ACM control issues.

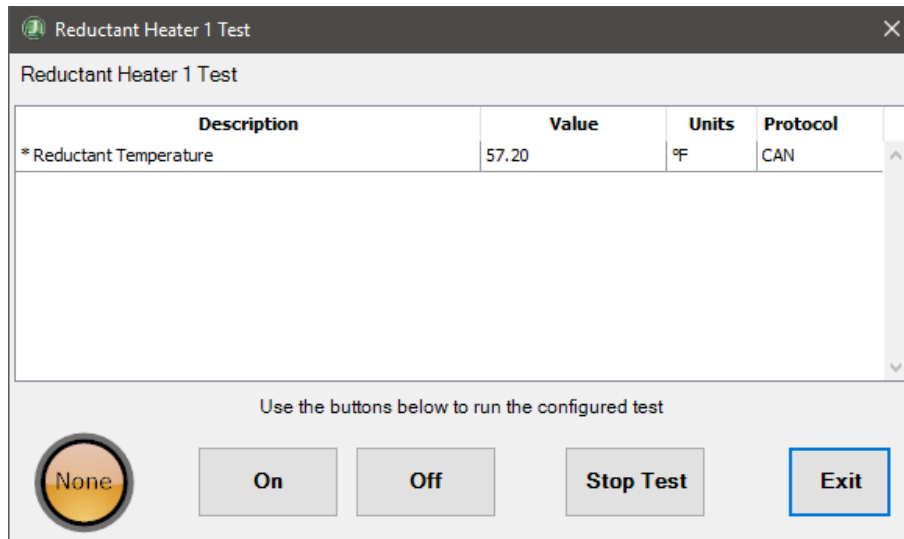
1. Select **Reductant Heater # Test (1, 2, or 3)** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Reductant Heater Test Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **Reductant Heater Test** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Reductant Heater Test

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Reductant System Leak Test

Reductant System Leak Test is supported on:

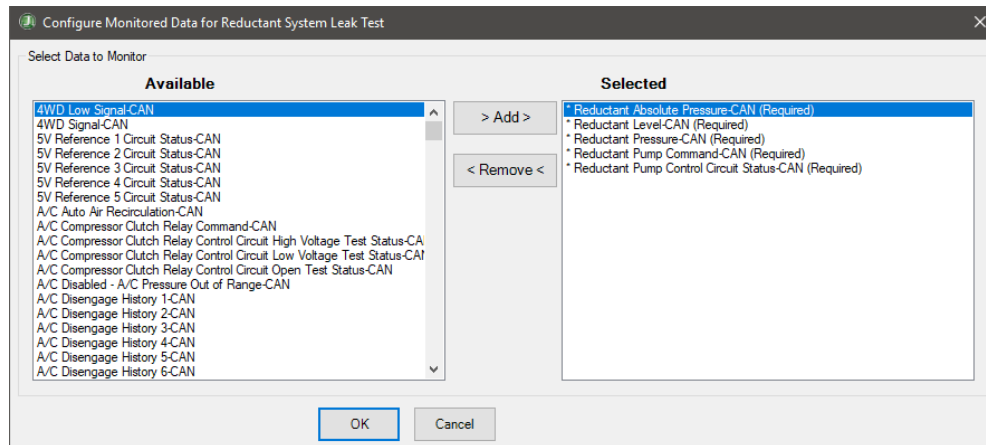
- ✓ GM 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

The **Reductant System Leak Test** activates the Reductant System Pump. This pressurizes the Diesel Exhaust Fluid (DEF) pressure circuit and connected components to manually measure changes in pressure values and assist in identifying leaks.

1. Select **Reductant System Leak Test** and press Enter or click **Start** button.

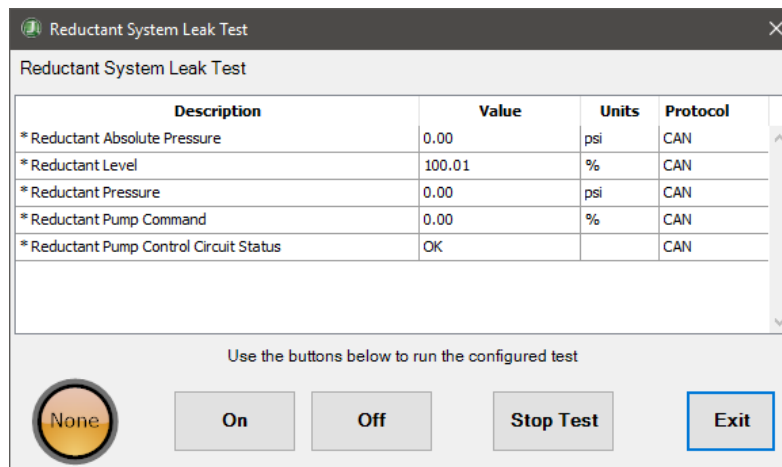
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Reductant System Leak Test Configure Monitored Data

3. The **Reductant System Leak Test** dialog opens. Click the **On** or **Off** buttons to perform the test. The displayed data items may update while the test runs.



Reductant System Leak Test

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

Reductant Tank Reset

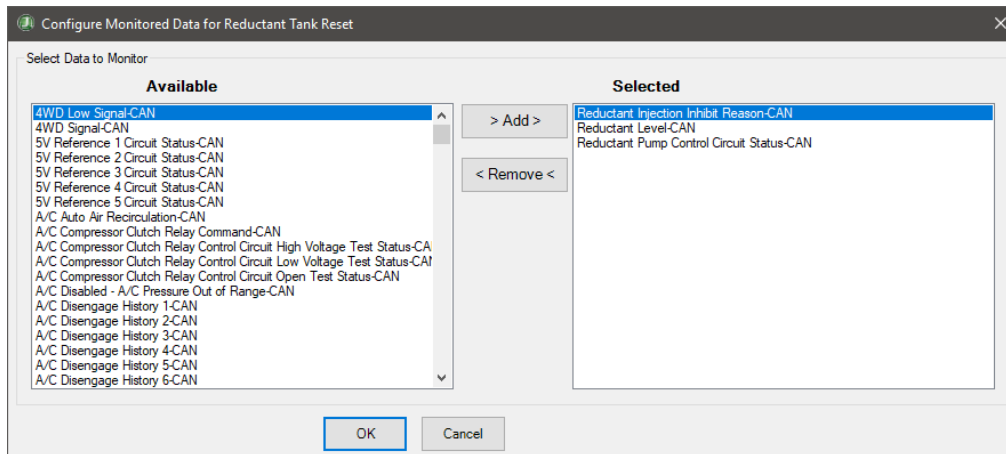
Reductant Tank Reset is supported on:

- ✓ GM 2010 to 2018 vehicles with a Duramax 6.6L Diesel engine
- ✓ GM 2016 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ GM 2017 – 2018 GMC Savana or Canyon and Chevy Express or Colorado with a 2.8L diesel engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

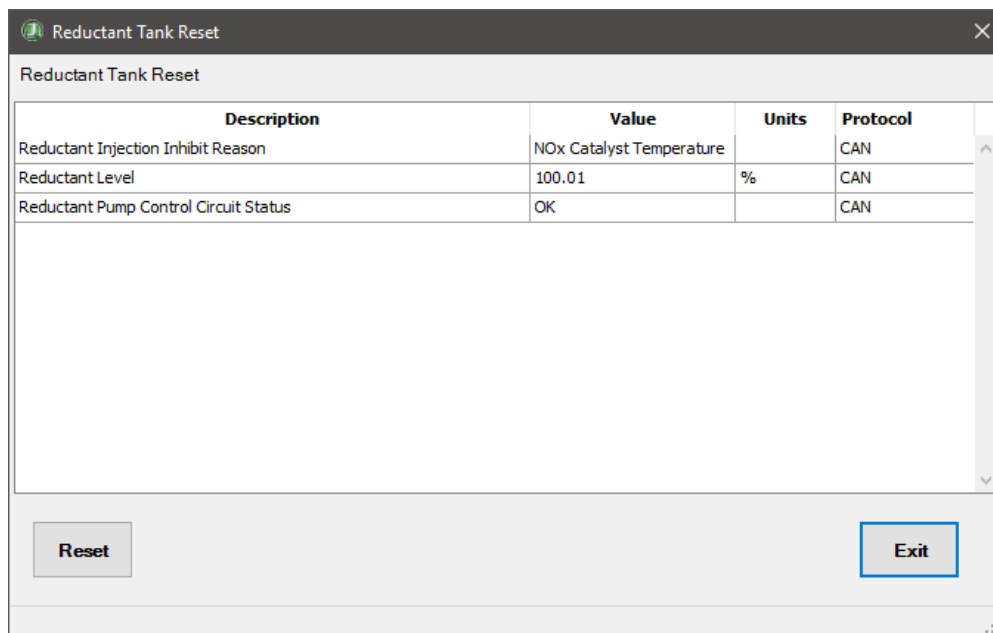
The **Reductant Tank Reset** test resets the learned Reductant Tank sensor values. This should be performed after Reductant Tank Level/Quality Sensor service or replacement.

1. Select **Reductant Tank Reset** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the *Selected* list. Click **OK** to continue.



Reductant Tank Reset Configure Monitored Data

3. The **Reductant Tank Reset** dialog opens. Click the **Reset** button to perform the reset operation.



Reductant Tank Reset

4. The displayed data items may change during the reset process.
5. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

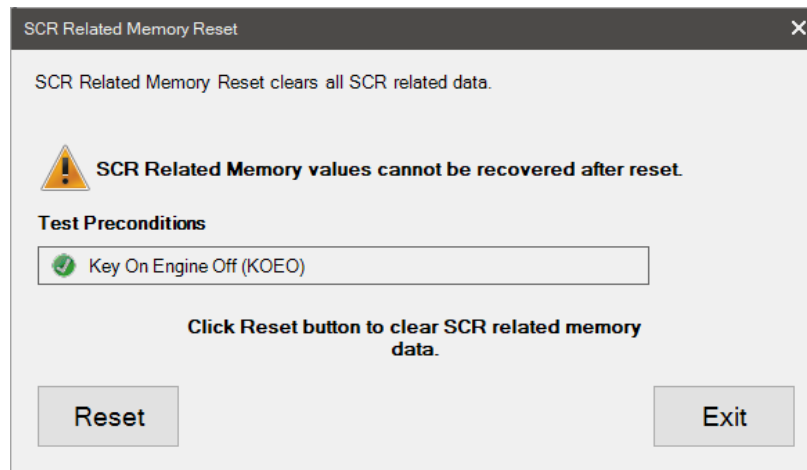
SCR Related Memory Reset

SCR Related Memory Reset is supported on:

- ✓ All Hino engines 2011-2019 vehicles

The **SCR Relate Memory Reset test** allows values related to SCR malfunctions to be reset. This test is generally run after performing maintenance to the SCR/DEF system.

1. Select **SCR Related Memory Reset** and press **Enter** or click **Start** button.
2. The test dialog opens. Click the **Reset** button to perform the reset operation.



SCR Related Memory Reset

3. A completion message will display when the reset operation has completed.
4. Click the **Exit** button to return to the test selection dialog.

Component Relearn/Reset Tests

Crankshaft Position Variation Learn

Crankshaft Position Variation Learn is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

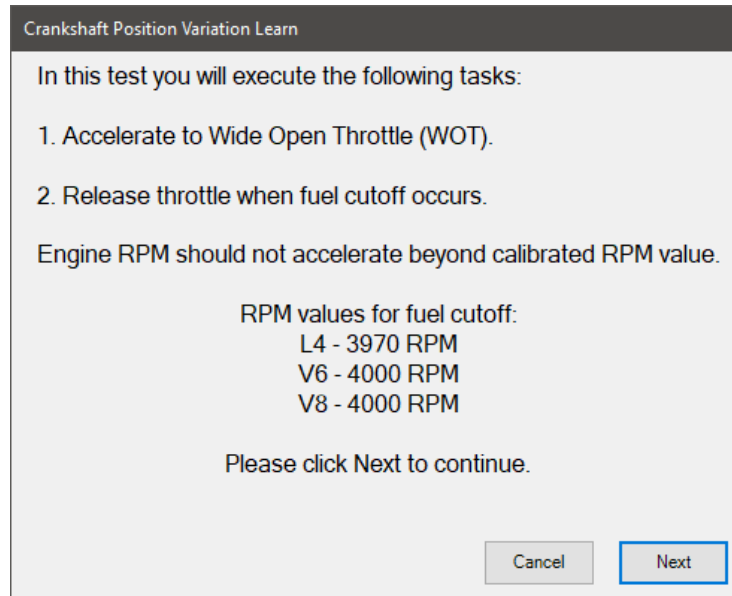
If a Crankshaft Position feedback component is replaced, the signal that the ECM will receive can change. To prevent false DTC's and improve sensing accuracy the **Crankshaft Position Variation Learn** must be performed. This test establishes a new ECM baseline offset for crankshaft position.

The **Crankshaft Position Variation Learn** procedure should be performed if:

- ECM reprogrammed or replaced

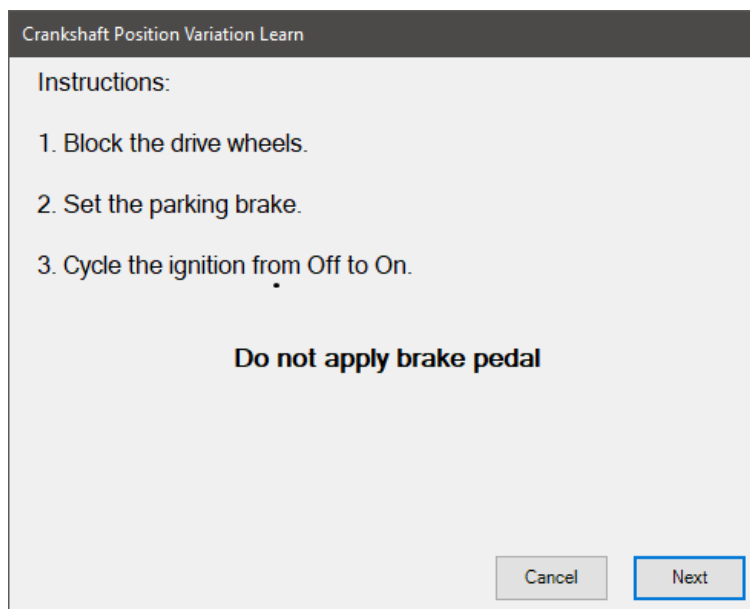
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- Crankshaft position sensor replaced
1. Select **Crankshaft Position Variation Learn** and press **Enter** or click **Start** button.
 2. The test dialog opens, displaying important test information. Click **Next** to proceed.



Crankshaft Position Variation Learn Test Information

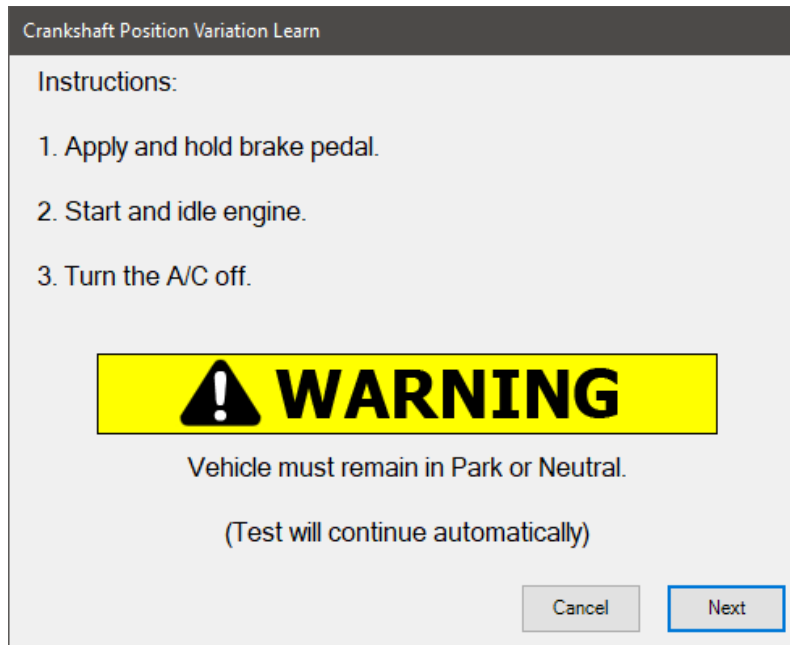
3. Follow the test instructions to prepare the vehicle for the test. Click **Next** when the vehicle is ready for the test to begin.



Crankshaft Position Variation Learn Test Instructions

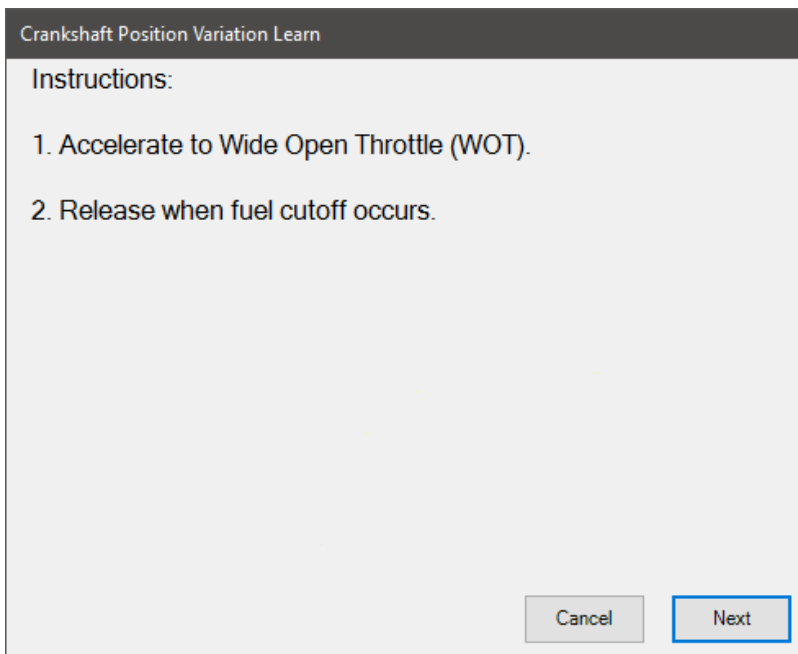
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

4. Follow the displayed instructions to begin the test. If the test does not proceed automatically after the instructions have been followed, click **Next** to proceed.



Crankshaft Position Variation Learn KOER Steps

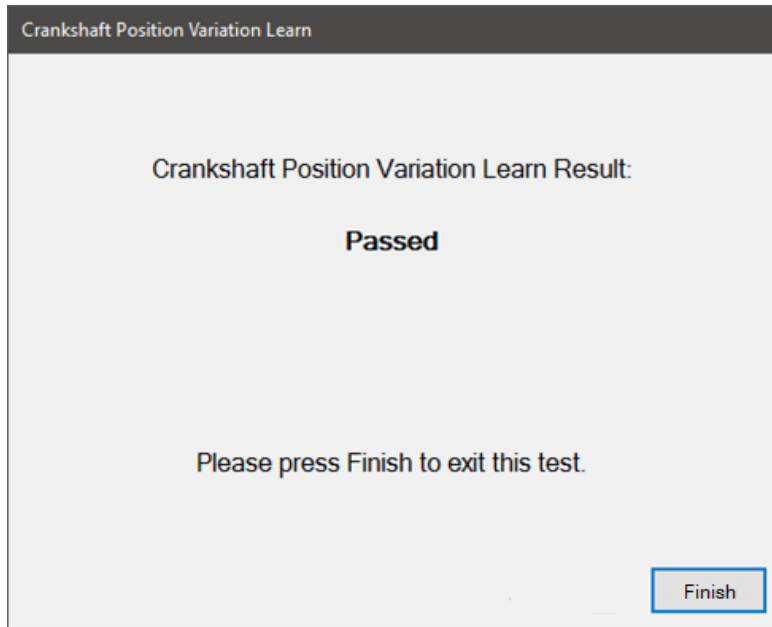
5. Follow the test instructions. The commanded test will attempt to reset the learned Crankshaft Position Variation. Click **Next** button after fuel cutoff.



Crankshaft Position Variation Learn Acceleration Steps

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

6. Results of the test are displayed. Click **Finish** to return to the test selection dialog.



Crankshaft Position Variation Learn Results

KAM (Keep Alive Memory) Reset

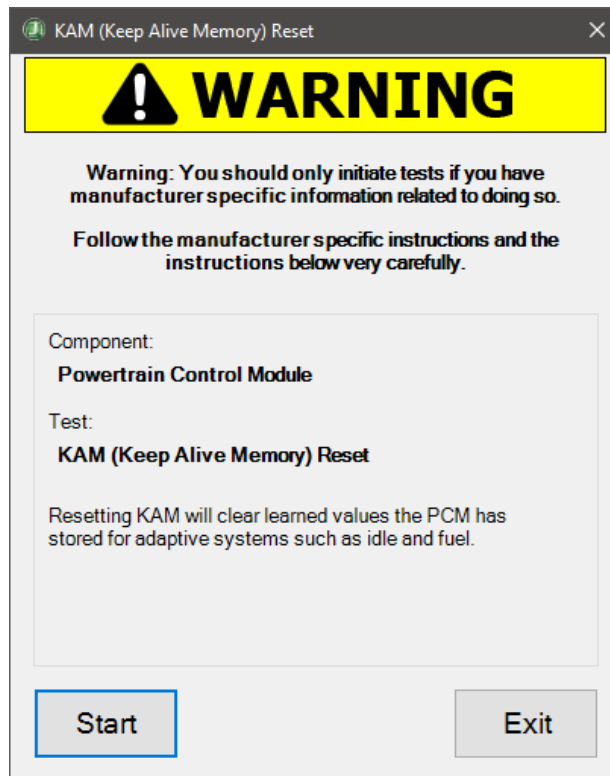
KAM (Keep Alive Memory) Reset is supported on:

- ✓ Ford 2004 – 2018 E-Series (Econoline)
- ✓ Ford 2004 – 2018 F-Series
- ✓ Ford 2010 – 2018 Transit Connect
- ✓ Ford 2016 – 2018 Transit

The **KAM Reset** test will clear all learned values in the PCM to their factory starting point. This is important to reset when replacing certain engine components that affect long term learned engine operation strategies.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Select **KAM (Keep Alive Memory) Reset** and press **Enter** or click **Start** button.



Keep Alive Memory Reset

2. Click the **Start** button on the test window to begin the reset.
3. When completed, the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

Mass Air Flow Sensor Initialization

Mass Air Flow Sensor Initialization is supported on:

- ✓ Sprinter 2007 – 2014 model 2500/3500 vehicles

Mass Air Flow Sensor Initialization is used to initiate adaptive learning when a Mass Air Flow Sensor has been cleaned or replaced.

NOTE: Mass Air Flow Sensor Initialization does not have a dialog. Selecting the test from the test selection dialog will automatically run the procedure.

1. Select **Mass Air Flow Sensor Initialization** and press **Enter** or click **Start** button.
2. The command will automatically be sent to initialize the mass air flow sensor. When completed the results of the test will be displayed in a message box. Click **OK** to dismiss the message box.
3. After the message box appears the test is completed.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

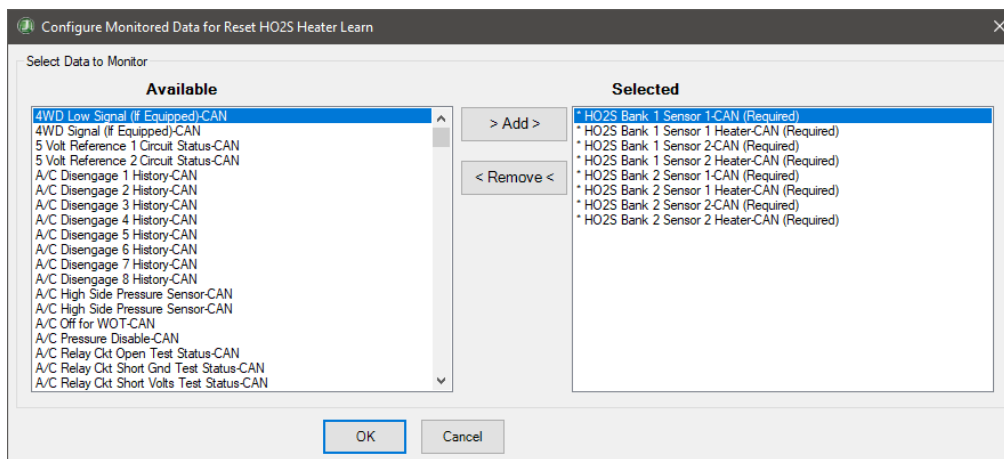
HO2S Heater Learn

HO2S Heater Learn is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

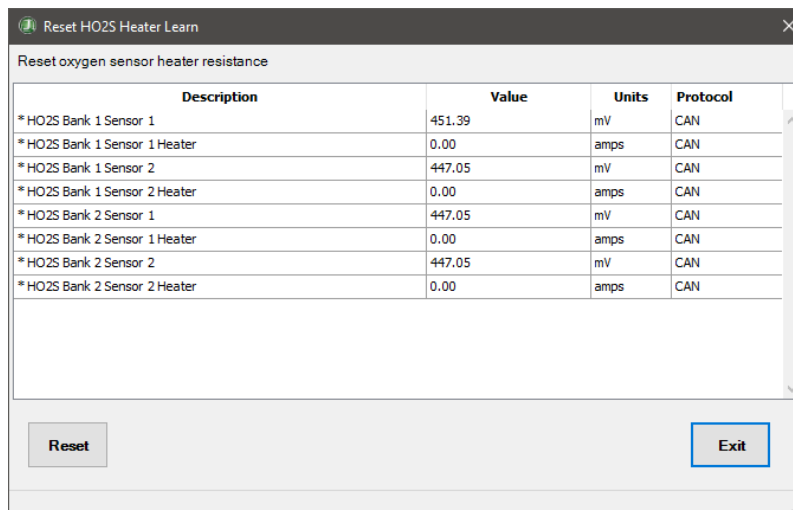
HO2S Heater Learn forces a reset of all learned HO2S heater values.

1. Select **HO2S Heater Learn** and press Enter or click *Start* button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Reset HO2S Heater Learn Configure Monitored Data

3. The **Reset HO2S Heater Learn** dialog opens. Click the **Reset** button to reset the learned **HO2S Heater** values.



Reset HO2S Heater Learn

4. The displayed data items may change during the reset process.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

5. Click the **Exit** button to return to the test selection dialog.

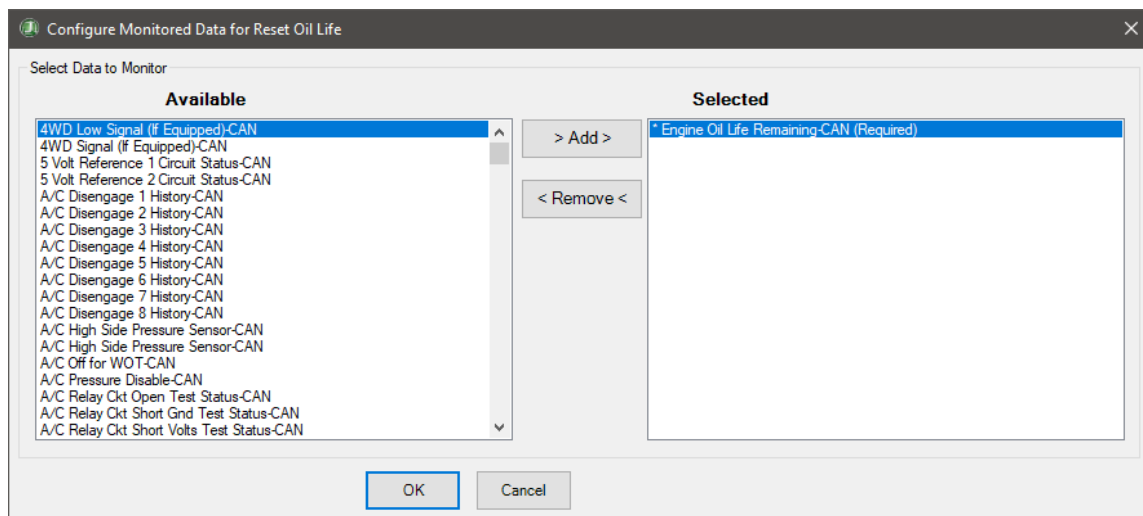
Reset Oil Life

Reset Oil Life is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022-2024 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine

The **Reset Oil Life** function is used to reset the 'Remaining Engine Oil Life' value back to 100% following an oil change.

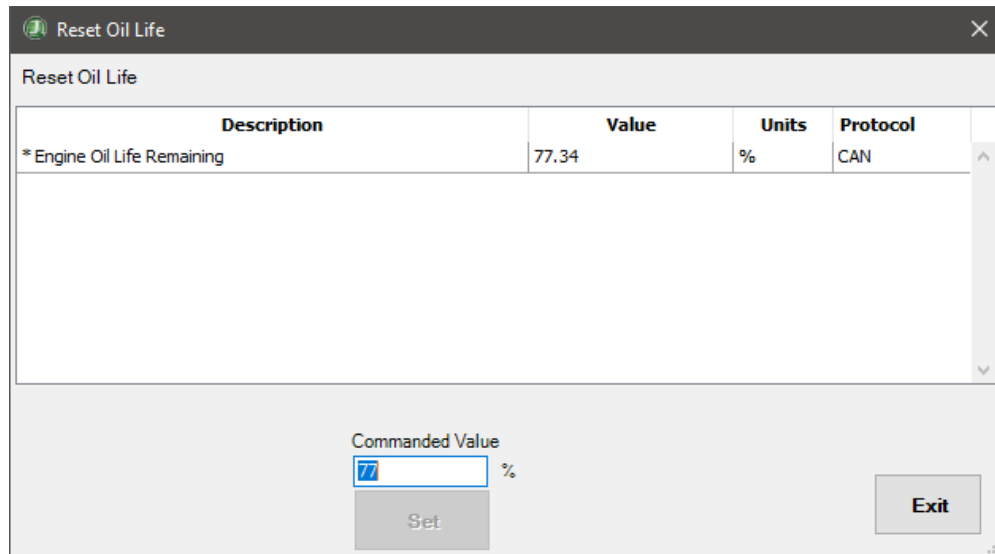
1. Select **Reset Oil Life** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Reset Oil Life Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **Reset Oil Life** dialog opens displaying the remaining engine oil life. Enter the desired oil life value for the Commanded Value and click Set.



Reset Oil Life

4. The displayed data will update with the new engine oil life value.
5. Click **Exit** button to return to the test selection dialog.

Reset RVS Disable History

Reset RVS Disable History is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

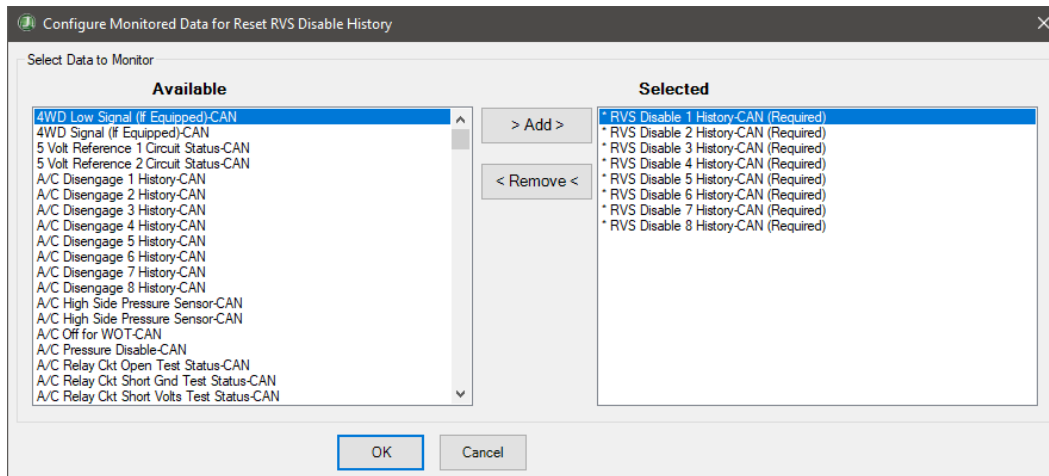
Reset Remote Vehicle Start (RVS) Disable History function will reset all stored RVS Disable event values.

RVS Disable events can be logged based on certain unexpected or out-of-range vehicle conditions that inhibit the ability to Remote Start the vehicle. Too many disable events can permanently disable the Remote Start function until they are reset. Refer to the vehicle owner's manual or OEM service information for more info about RVS and/or conditions that could affect Remote Start being disabled.

1. Select **Reset RVS Disable History** and press **Enter** or click **Start** button.

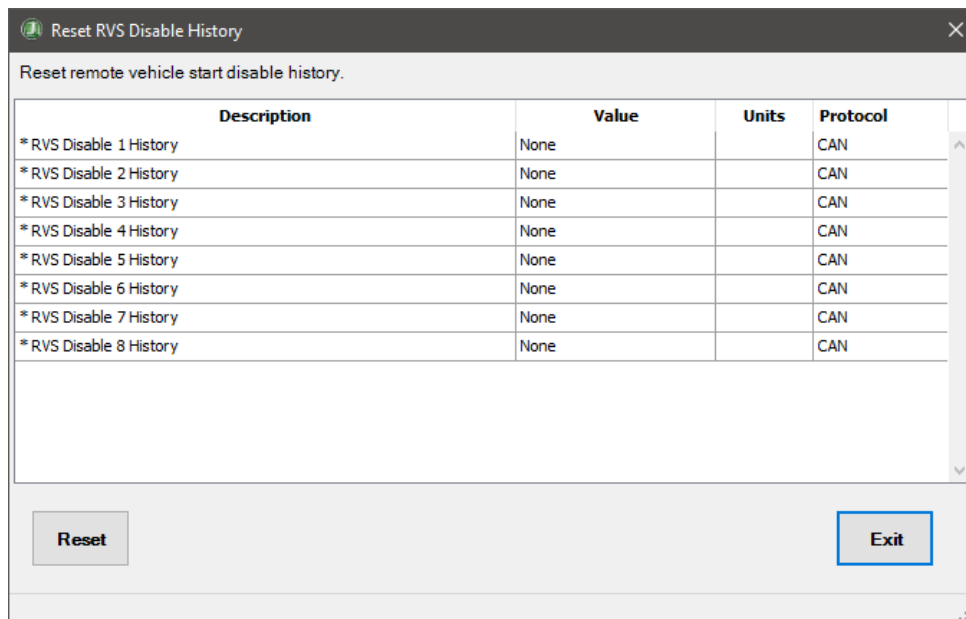
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the *Selected* list. Click **OK** to continue.



Reset RVS Disable History Configure Monitored Data

3. The Reset RVS Disable History dialog opens. Click the *Reset* button to reset the selected component or data vales.



Reset RVS Disable History

4. The displayed data items may change during the reset process.
5. Click the **Exit** button to return to the test selection dialog.

Set EGR Position

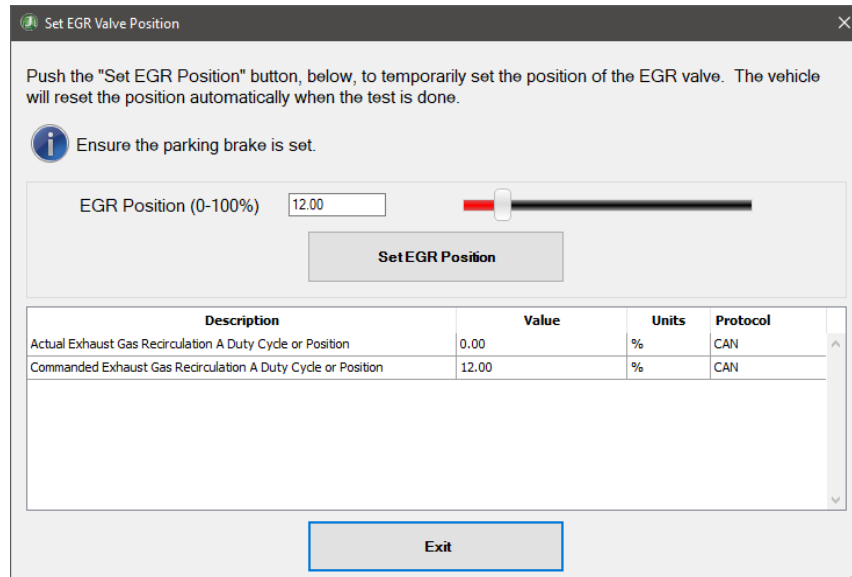
Set EGR Position is supported on:

- ✓ Ford 2011 – 2021 6.7L diesel engines

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

The Set EGR Position test can be used to check the functionality of the EGR Valve and supporting components/sensors by changing the valve position and monitoring the change of related data items on the vehicle.

1. Click **Set EGR Position** and press Enter or click *Start* button.
2. The **Set EGR Valve Position** dialog is displayed. Users can change the **EGR Position** value by entering it directly or dragging the slider to change. Click the **Set EGR Position** button to change the value.



Set EGR Valve Position

3. When the test is completed the data item value will reflect the updated **EGR Position** value.
4. Click the **Exit** button to return to the test selection dialog.

Set EGR Throttle

Set EGR Throttle is supported on:

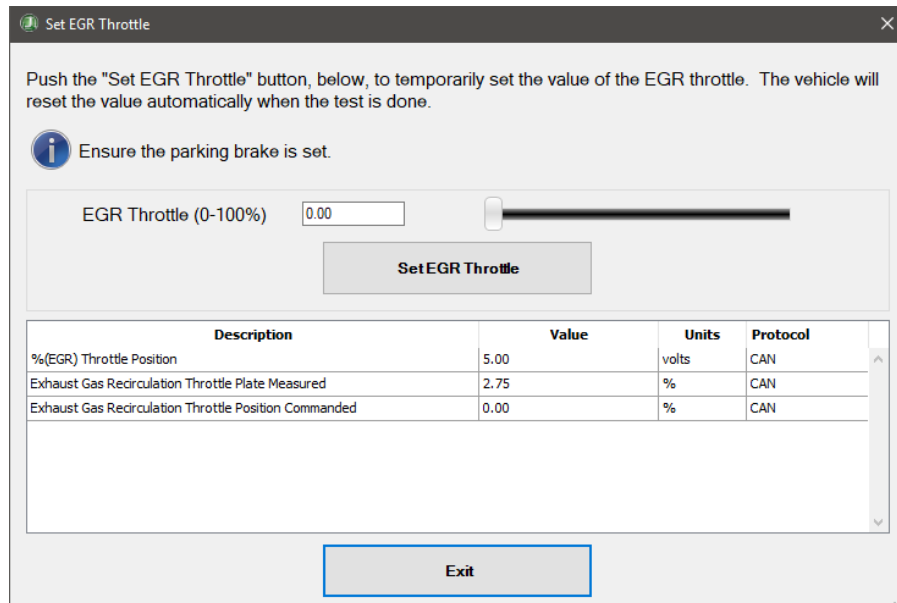
- ✓ Ford 2011 – 2021 6.7L diesel engines

Set EGR Throttle can be used to diagnose issues related to the functionality of the EGR Throttle Valve and supporting components/sensors by changing the valve position and monitoring the change of related data items on the vehicle.

1. Click **Set EGR Throttle** and press **Enter** or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. The **Set EGR Throttle** dialog is displayed. Users can change the EGR Throttle value by entering it directly or dragging the slider to change. Click the **Set EGR Throttle** button to change the value.



Description	Value	Units	Protocol
%(EGR) Throttle Position	5.00	volts	CAN
Exhaust Gas Recirculation Throttle Plate Measured	2.75	%	CAN
Exhaust Gas Recirculation Throttle Position Commanded	0.00	%	CAN

Set EGR Throttle

3. When the test is completed the data item value will reflect the updated **EGR Throttle** value.
4. Click the **Exit** button to return to the test selection dialog.

Throttle Position

Throttle Position is supported on:

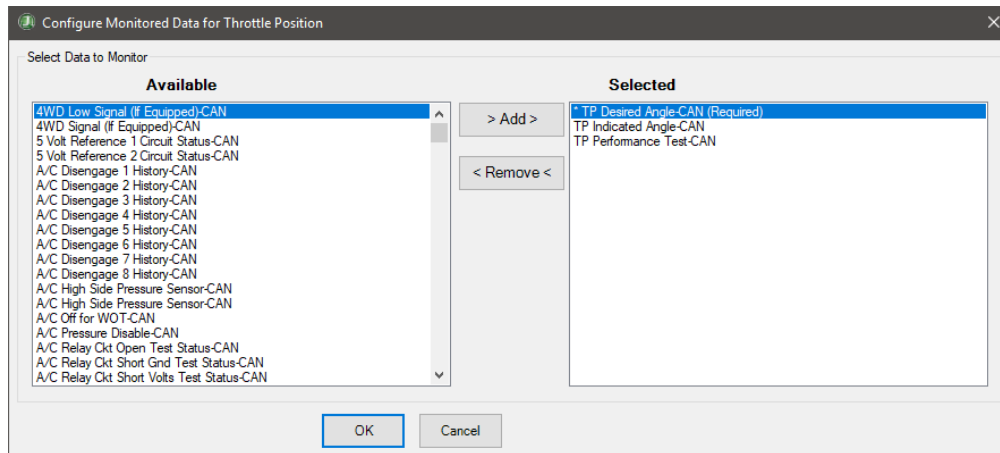
- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The Throttle Position test can be used to manually take control of the Throttle Blade position. This function is useful for verifying Actual (Indicated) versus Commanded (Desired) Throttle Position values to diagnose issues with the Electronic Throttle Body component. Engine RPM can also be controlled using this function, up to a pre-determined threshold.

1. Click **Throttle Position** and press **Enter** or click **Start** button.

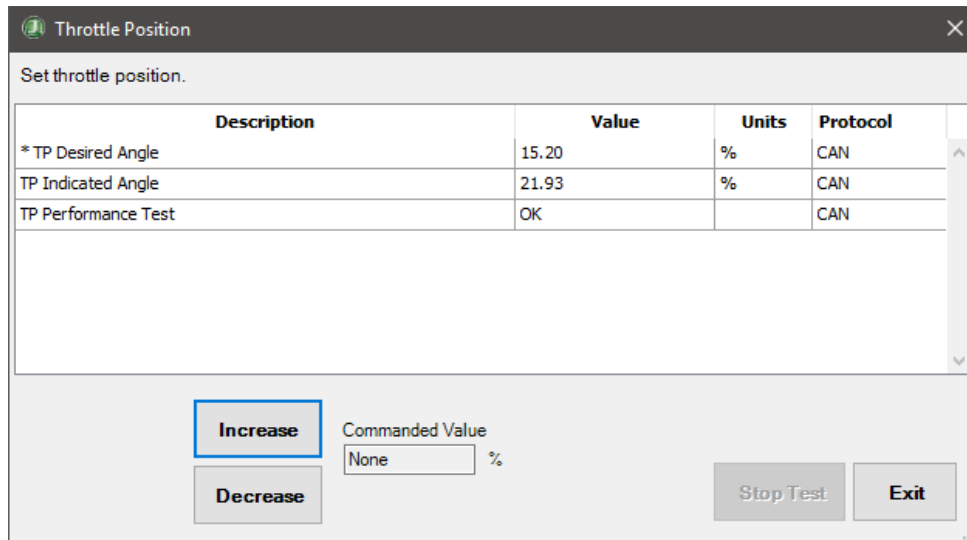
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Throttle Position Configure Monitored Data

3. The **Throttle Position** dialog opens. Click the **Increase** or **Decrease** command button to change the throttle position to the desired value.



Throttle Position

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

Transmission Adaptive Learn Tests

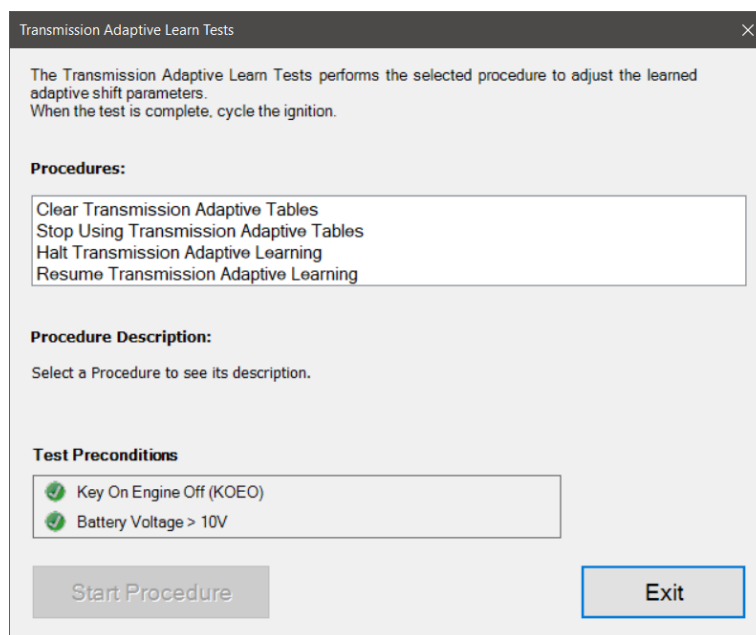
The Transmission Adaptive Learn Tests are supported on:

- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 6.8L gasoline engines
- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 6.8L CNG engines
- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 7.3L gasoline engines

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

The **Transmission Learn Tests** allow technicians to select and perform the following procedures to control the transmission adaptive values learned by the engine:

- Clear Transmission Adaptive Tables
 - Stop Using Transmission Adaptive Tables
 - Halt Transmission Adaptive Learning
 - Resume Transmission Adaptive Learning
1. Select **Transmission Adaptive Learn Tests** and press **Enter** or the **Start** button.
 2. The test dialog will be displayed.



Transmission Adaptive Learn Tests

3. Select the desired procedure and click **Start Procedure**. The engine's learned adaptive shift values will be updated according to the selected procedure.

NOTE: Performing any Transmission Adaptive Learn procedure is a permanent operation that cannot be undone.

4. When done, press the **Exit** button to return to the test selection dialog.

Diagnostic Monitoring and Tests

Compression Test

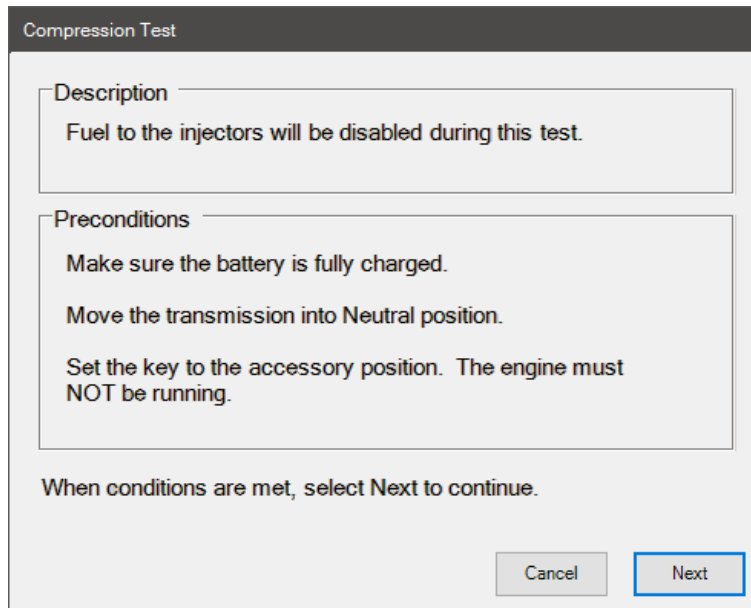
Compression Test is supported on:

- ✓ Sprinter EPA 07 diesel engines

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

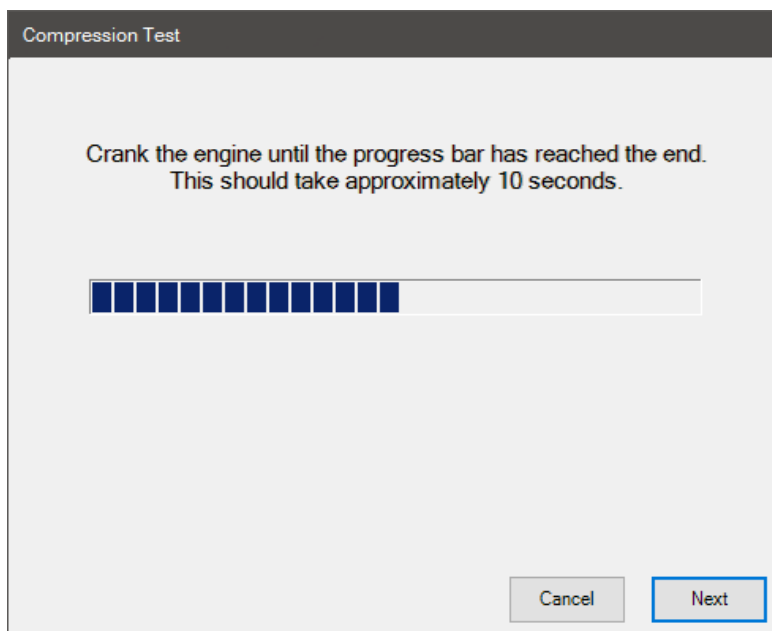
The **Compression Test** is useful for diagnosing cylinder compression issues. The fuel injectors are disabled during the length of the test while cylinder compression is monitored.

1. Click **Compression Test** and press **Enter** or click **Start** button.
2. The **Compression Test** dialog is displayed, showing preconditions that must be met before beginning the test. Click **Next** to proceed.



Compression Test - Preconditions

3. Following the on-screen instructions, crank the engine until the progress bar has filled.



Compression Test - Crank Engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- When completed the results of the **Compression Test** will be displayed.

Compression Test

Compression Test Results

If the cylinder engine speed varies by more than 8 rpm, a mechanical compression pressure test and cylinder leaktightness test must be carried out at all the cylinders in order to pinpoint the fault.

Description	Value	Units
▶ Average Engine Speed	135	rpm
Current Injection Mass	2,480.00	mm3
Engine Coolant Temperature	21.96	°C
Engine Speed for Cylinder 1	138	rpm
Engine Speed for Cylinder 2	136	rpm
Engine Speed for Cylinder 3	138	rpm
Engine Speed for Cylinder 4	137	rpm
Engine Speed for Cylinder 5	137	rpm
Engine Speed for Cylinder 6	134	rpm

Cancel Next

Compression Test Results

- Click the **Finish** button to return to the test selection dialog.

KOEO On-Demand Self Test

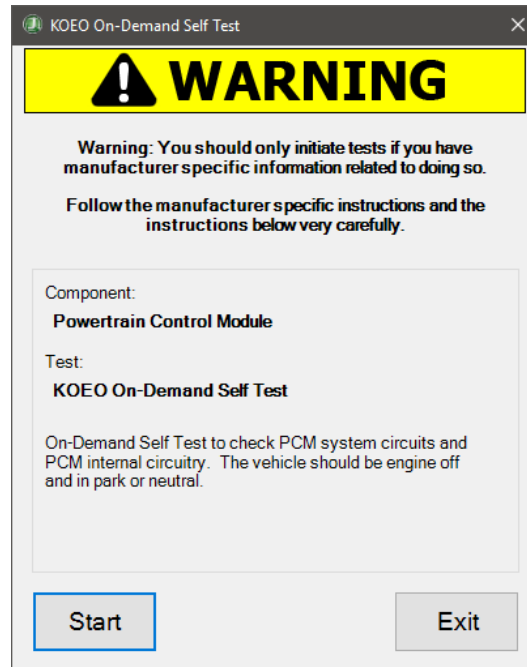
KOEO On-Demand Self Test is supported on:

- ✓ Ford 2004 – 2018 E-Series (Econoline)
- ✓ Ford 2004 – 2018 F-Series
- ✓ Ford 2010 – 2018 Transit Connect
- ✓ Ford 2016 – 2018 Transit

The **KOEO On-Demand Self Test** is useful for detecting electrical circuit problems.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Click **KOEO On-Demand Self Test** and press **Enter** or click **Start** button.



KOEO On-Demand Self Test

2. Click the **Start** button to begin the test.
3. When completed the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

KOER On-Demand Self Test

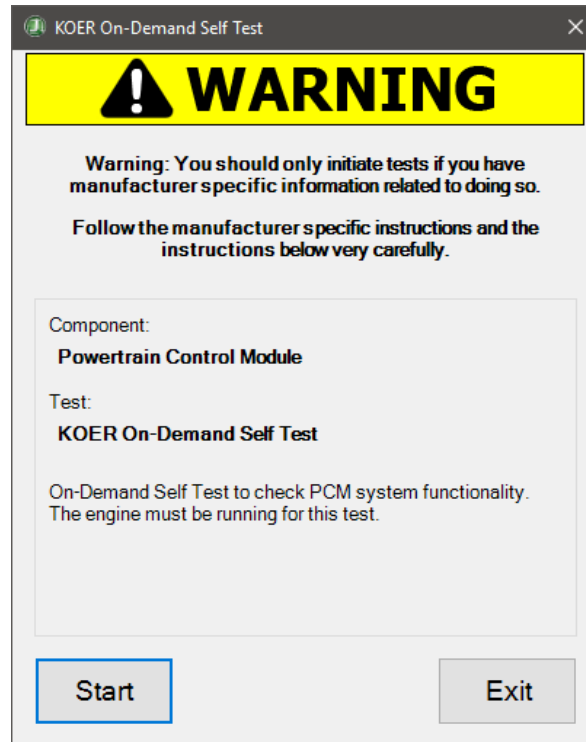
KOER On-Demand Self Test is supported on:

- ✓ Ford 2004 – 2018 E-Series (Econoline)
- ✓ Ford 2004 – 2018 F-Series
- ✓ Ford 2010 – 2018 Transit Connect
- ✓ Ford 2016 – 2018 Transit

The **KOER On-Demand Self Test** is a diagnostic test that adjusts engine running conditions to assist in detecting faults related to specific engine operating conditions.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Click **KOER On-Demand Self Test** and press **Enter** or click **Start** button.



KOER On-Demand Self Test

2. Click the **Start** button to begin the test.
3. When completed the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

KOER Switch Test

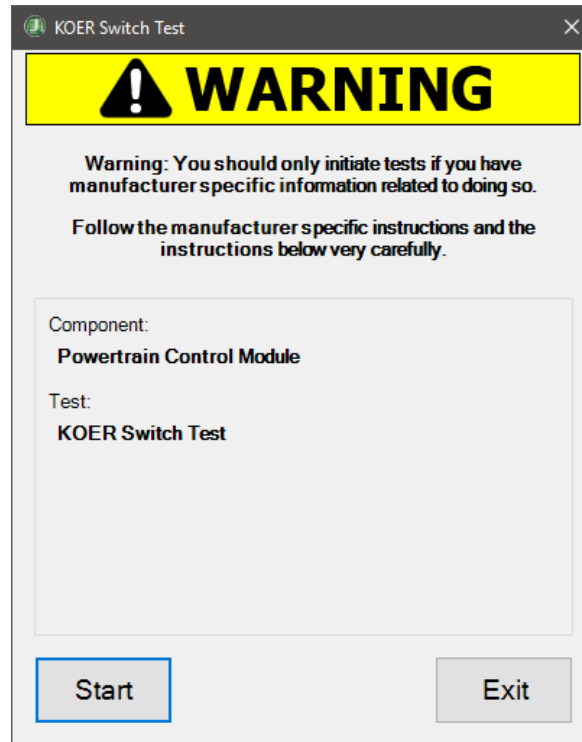
Key-On Engine Running (KOER) Switch Test is supported on:

- ✓ Ford 2004 – 2021 diesel engines

The **KOER Switch Test** is used to test the functionality of switches and pedals.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Click **KOER Switch Test** and press **Enter** or click **Start** button.



KOER Switch Test

2. Click the **Start** button to begin the test.
3. When completed the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

Misfire Graphic

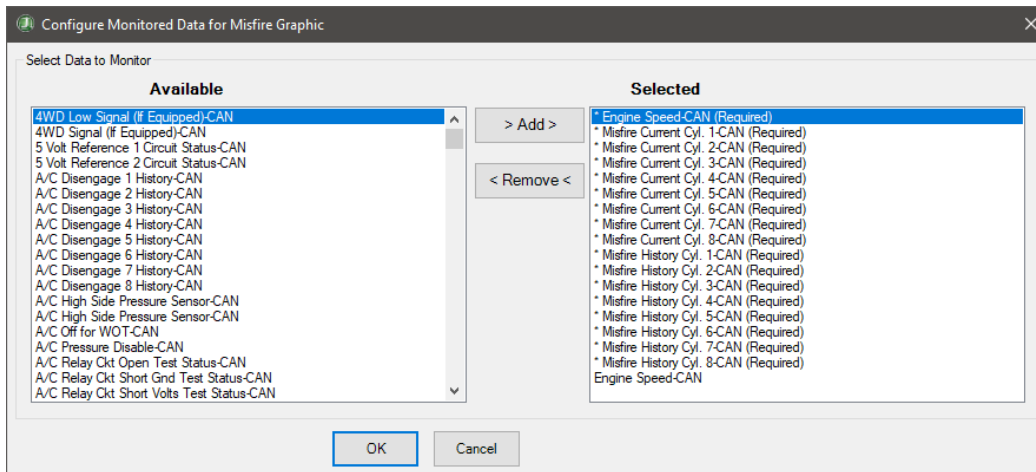
Misfire Graphic is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022-2024 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine

The **Misfire Graphic** provides an at-a-glance graphical representation of detected engine cylinder misfire events to aid diagnostic troubleshooting.

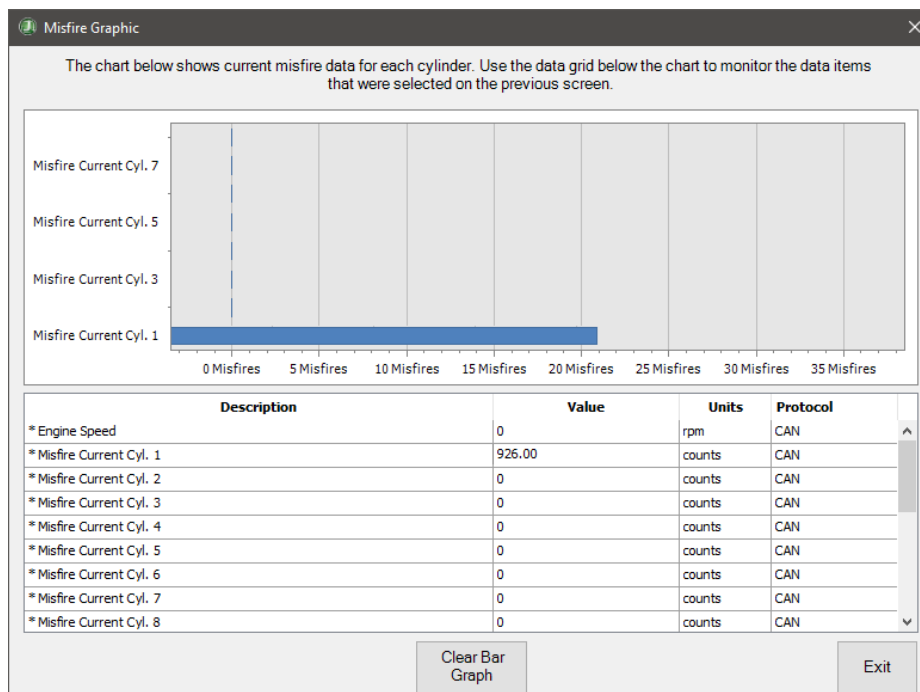
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Click **Misfire Graphic** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Misfire Graphic Configure Monitored Data

3. The **Misfire Graphic** dialog opens, displaying known misfire data for the connected vehicle. Clicking the **Clear Bar Graph** button will clear the current data from the graph so new data can be displayed.



Misfire Graphic

4. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

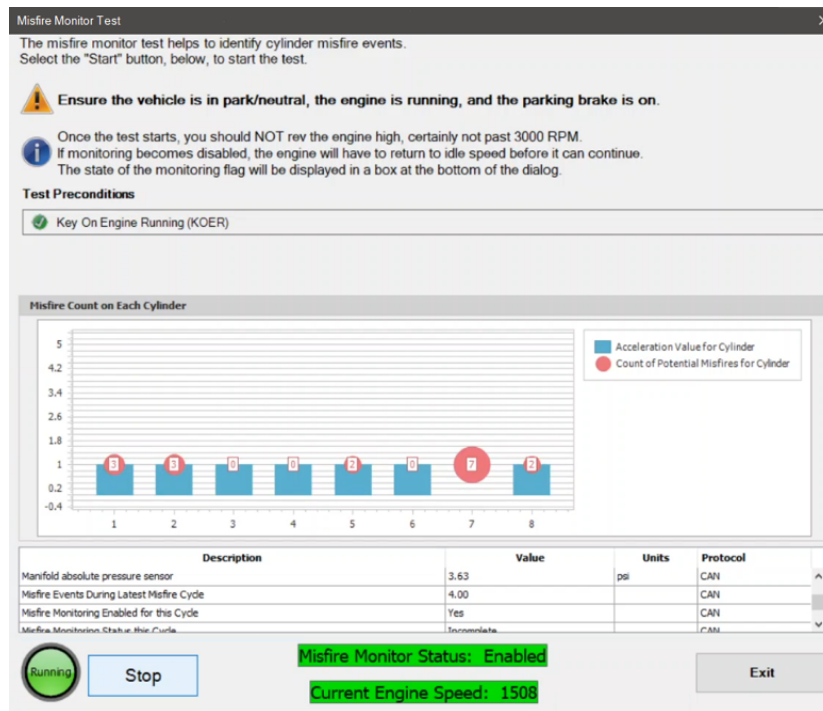
Misfire Monitor Test

Misfire Monitor Test is supported on:

- ✓ Ford 2008 – 2021 All supported gasoline engines

The **Misfire Monitor Test** provides an at-a-glance graphical representation of detected engine cylinder misfire events to aid diagnostic troubleshooting.

1. Click **Misfire Monitor Test** and press **Enter** or click **Start** button.
2. The **Misfire Monitor Test** dialog opens. Click **Start** to begin monitoring. The number of detected misfire events is displayed for each cylinder. Click **Stop** to end the test.



Misfire Monitor Test

3. Click the **Exit** button to return to the test selection dialog.

Misfire Profile Correction Learn Test

Misfire Profile Correction Learn Test is supported on:

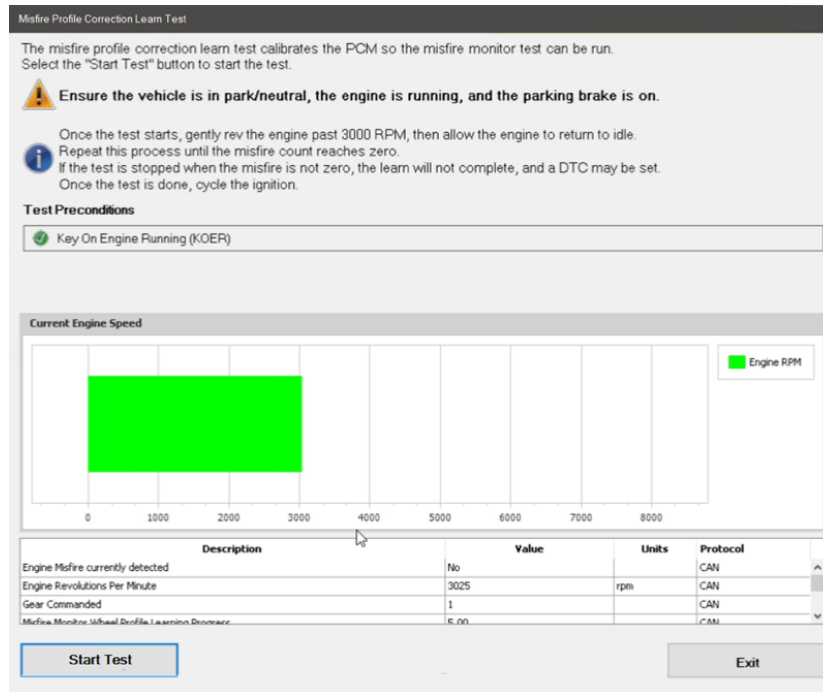
- ✓ Ford 6.8L V-10 Gasoline Engines

The **Misfire Profile Correction Learn Test** calibrates the PCM so the misfire monitor test can be run.

1. Click **Misfire Profile Correction Learn Test** and press Enter or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The test dialog will be displayed.



Misfire Profile Correction Learn Test

- Click **Start** to begin the test. Gently increase engine speed over 3000 RPM, then allow the engine to return to idle. Repeat this process until the misfire count reaches 0. When the test has successfully completed, cycle the ignition.

NOTE: PCM Learn will not complete if test is stopped before the misfire count reaches 0, and a DTC may be set.

- Click the **Exit** button to return to the test selection dialog.

Engine Component Tests

A/C Relay

A/C Relay is supported on:

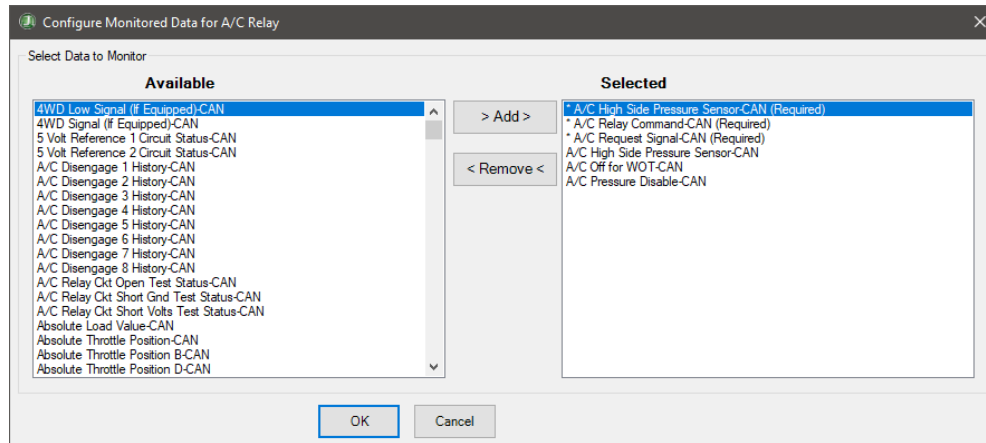
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **A/C Relay test** can be used to diagnose issues with the air conditioning system. The test window allows for manual control of the A/C Relay and observation of parameter data values.

- Click **A/C Relay** and press **Enter** or click **Start** button.

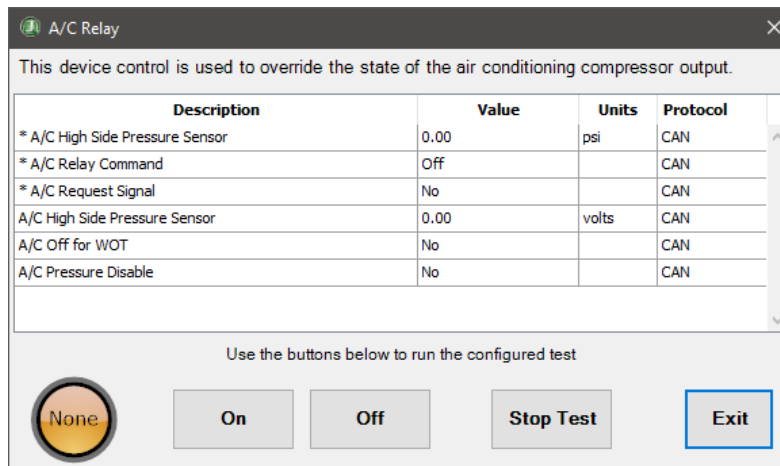
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data for AC Relay** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



A/C Relay Configure Monitored Data

3. The **A/C Relay** dialog opens. Select the appropriate commanded state button (*On* or *Off*). The lamp on the bottom left of the screen will show the current state of the vehicle.



A/C Relay

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

CMP Actuator Solenoid

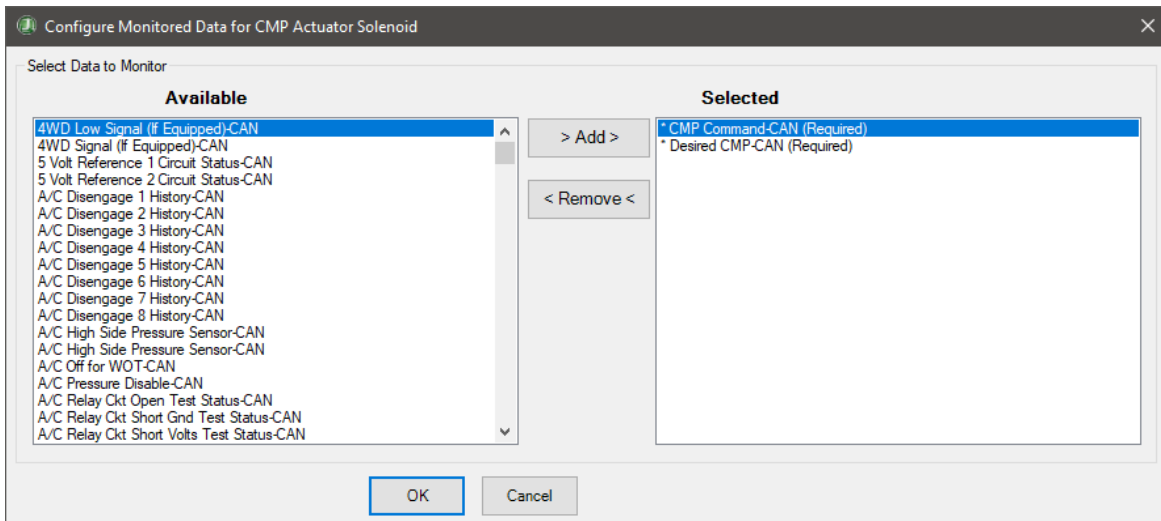
CMP Actuator Solenoid is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

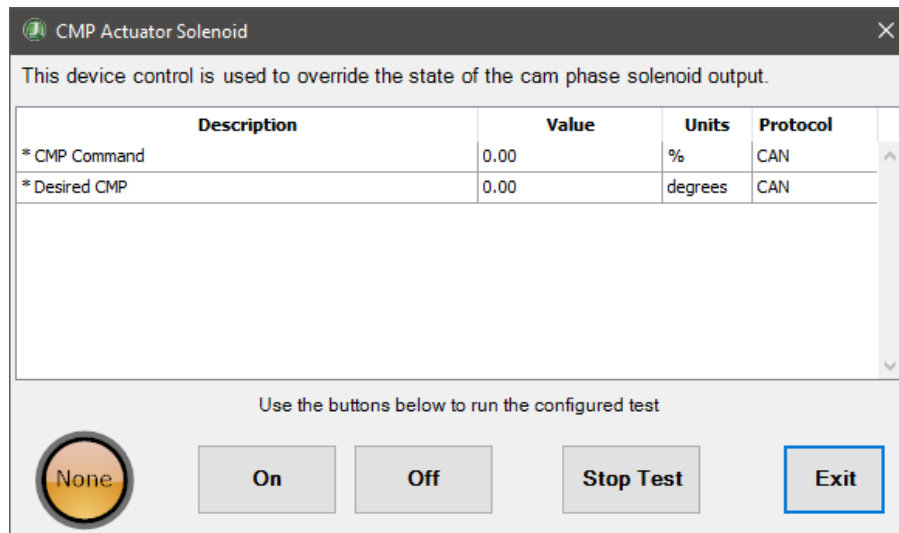
The **Camshaft Position (CMP) Actuator Solenoid** test allows for manual control of the CMP Actuator control solenoid and CMP actuator. This allows for observation and diagnosis of CMP Actuator electronic and mechanical components.

1. Click **CMP Actuator Solenoid** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the Selected list. Click **OK** to continue.



CMP Actuator Solenoid Configure Monitored Data

3. The **CMP Actuator Solenoid** dialog opens. Select the appropriate commanded state button (*On* or *Off*). The lamp on the bottom left of the screen will show the current state of the vehicle.



CMP Actuator Solenoid

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

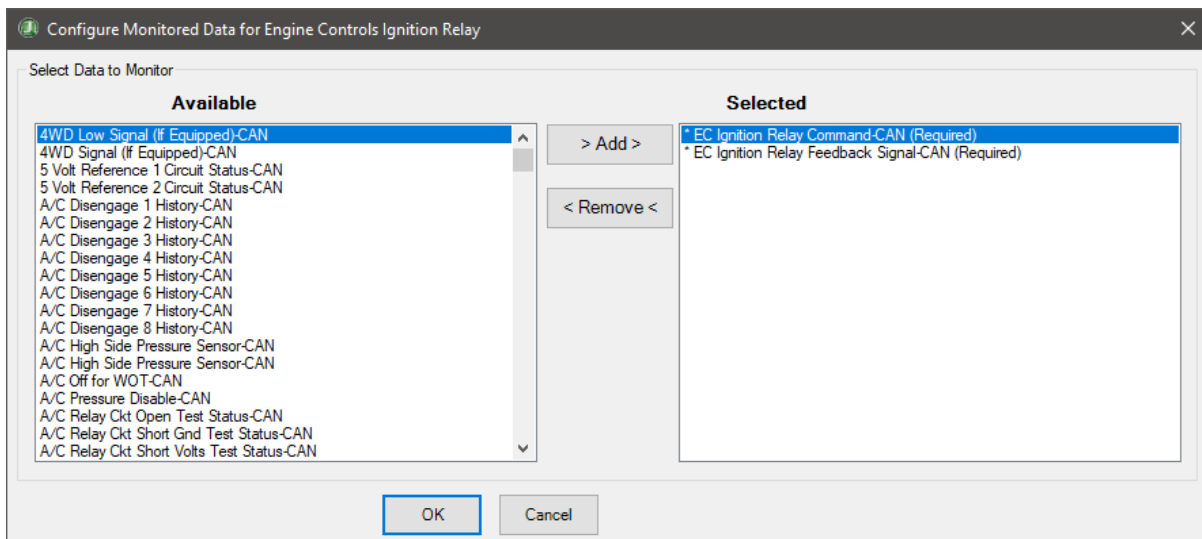
Engine Controls Ignition Relay

Engine Controls Ignition Relay is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022-2024 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine

The **Engine Controls Ignition Relay** can help determine issues with the ignition relay or with the devices and circuits that control proper ignition relay function.

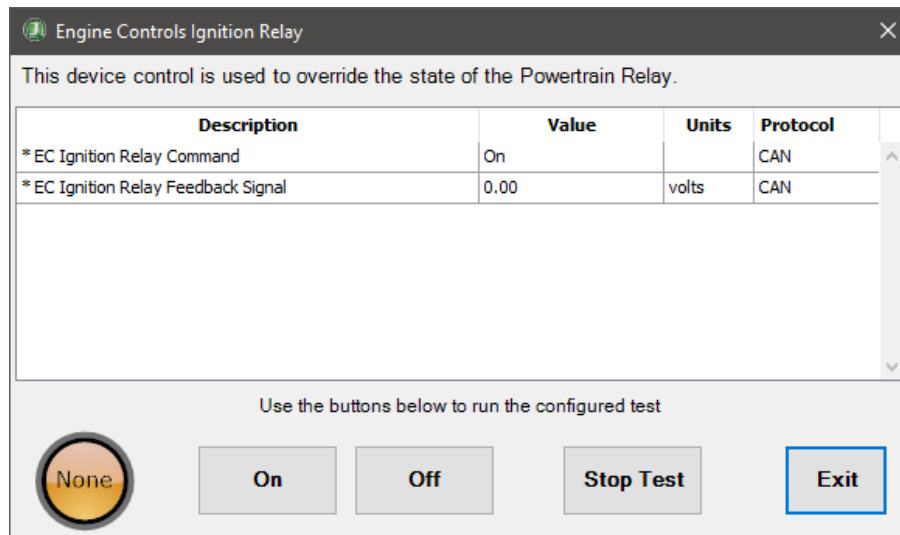
1. Click **Engine Controls Ignition Relay** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click Add to add the selected data item to the Selected list. Click OK to continue.



Engine Controls Ignition Relay Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **Engine Controls Ignition Relay** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Engine Controls Ignition Relay

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Engine Speed Control

Engine Speed Control Information is supported on:

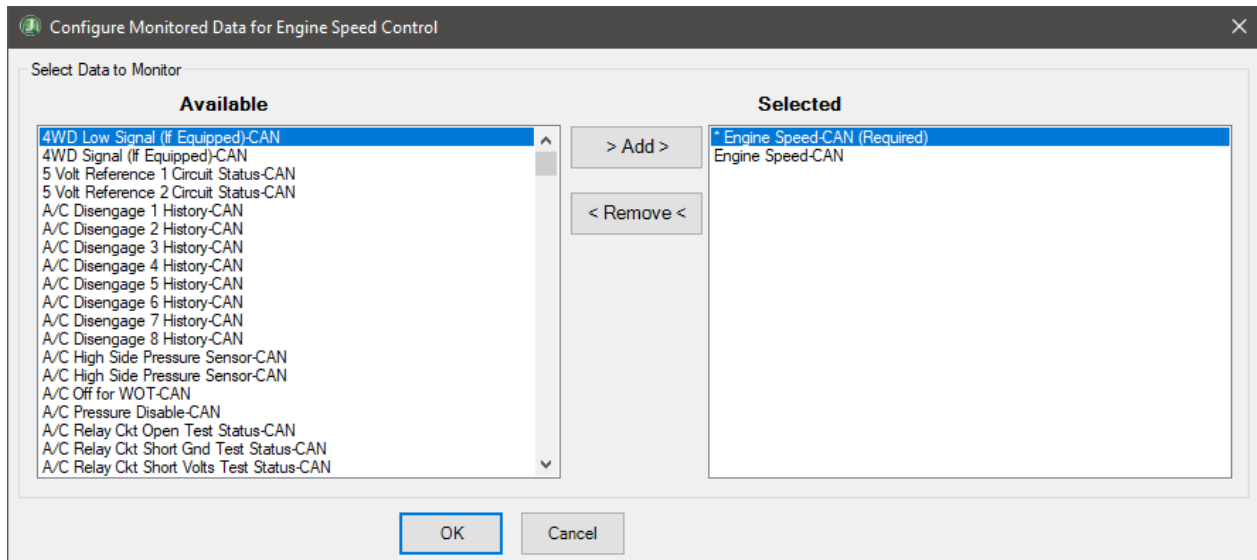
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **Engine Speed Control** function allows a user to manually control the electronic throttle body to increase or decrease the angle of throttle opening. This results in control of engine RPM to a predetermined maximum threshold.

1. Click **Engine Speed Control** Information and press Enter or click *Start* button.

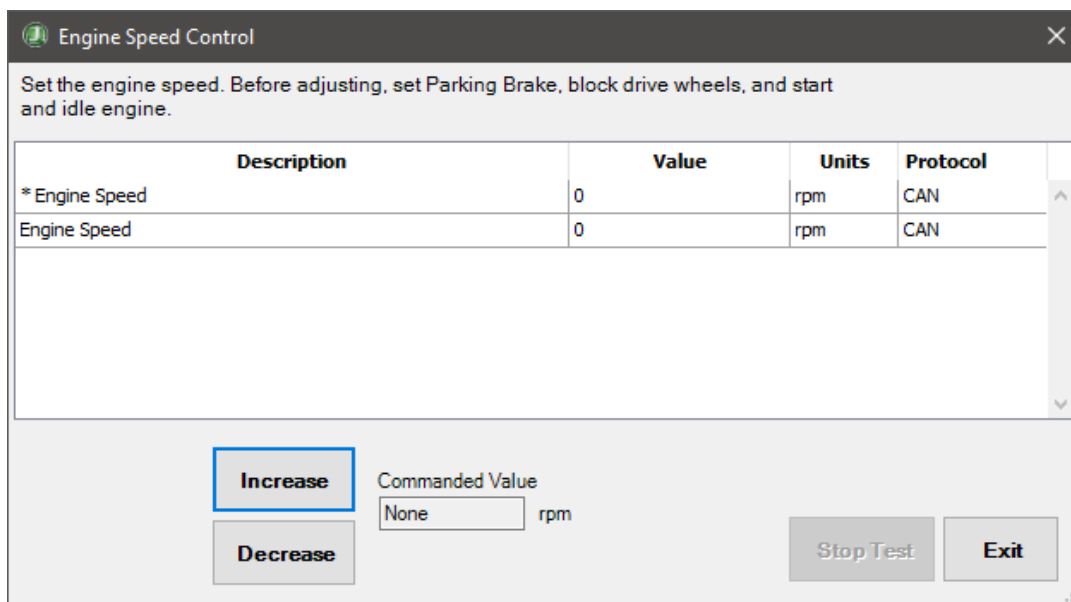
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Engine Speed Control Configure Monitored Data

3. The **Engine Speed Control** dialog opens. Click the **Increase** or **Decrease** command button to change the throttle position to the desired value.



Engine Speed Control

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

GEN L-Terminal

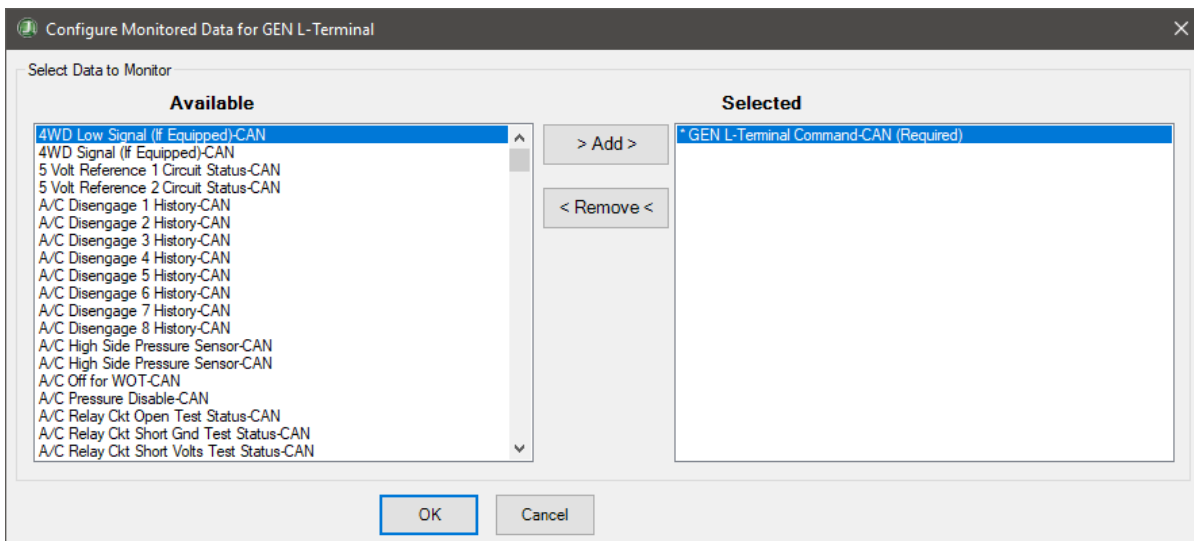
GEN L-Terminal is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **GEN L-Terminal test** is useful for testing the integrity of the Alternator/Generator L-Terminal circuit.

The circuit is a discrete circuit (meaning no splices or junctions) between the L-Terminal at the Alternator/Generator and the Engine Control Module. This circuit directly controls Alternator/Generator coil magnetic field activity, which directly controls Alternator/Generator output current and battery charging. Therefore, this function can be useful in assisting in diagnostics related to alternator/generator output issues.

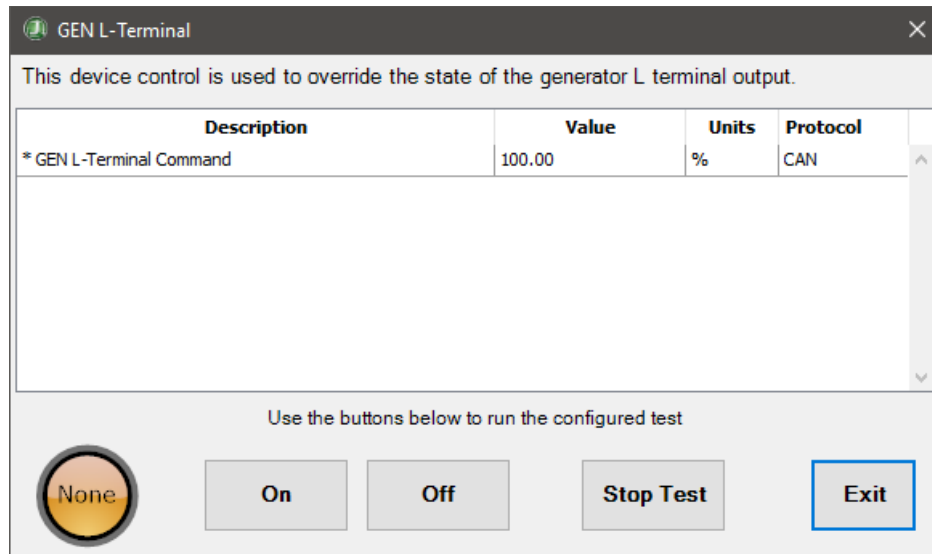
1. Click **GEN L-Terminal** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



GEN L-Terminal Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **GEN L-Terminal** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



GEN L-Terminal

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

HO2S Heater Tests

HO2S Heater Tests is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

This covers all available Bank and Sensor combinations:

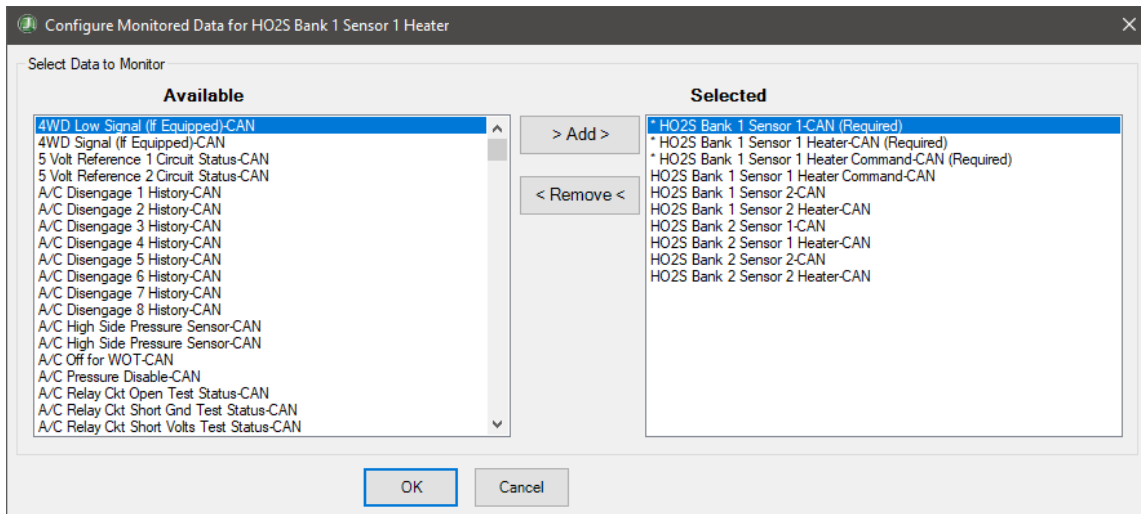
- ✓ Bank 1 Sensor 1
- ✓ Bank 1 Sensor 2
- ✓ Bank 2 Sensor 1
- ✓ Bank 2 Sensor 2

The **HO2S Heater test** allows a user to manually control ECM ability to duty cycle the heating element in the Heated Oxygen (O₂) Sensors. This test is useful to determine proper HO2S heater function, as well as identify heating element faults, heating element circuit faults or internal ECM HO2S heater control component faults.

1. Click desired **HO2S Heater Bank and Sensor** test and press **Enter** or click **Start** button.

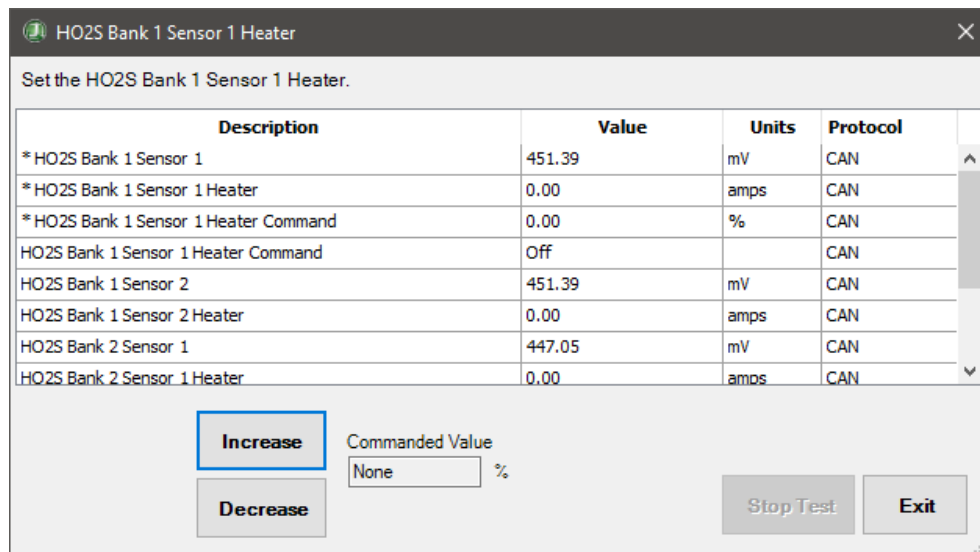
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



HO2S Bank 1 Sensor 1 Heater Configure Monitored Data

3. The **HO2S Heater Test** dialog for the selected bank and sensor opens. Click the *Increase* or *Decrease* command button to change to the desired value.



HO2S Bank 1 Sensor 1 Heater

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

Idle Spark

Idle Spark is supported on:

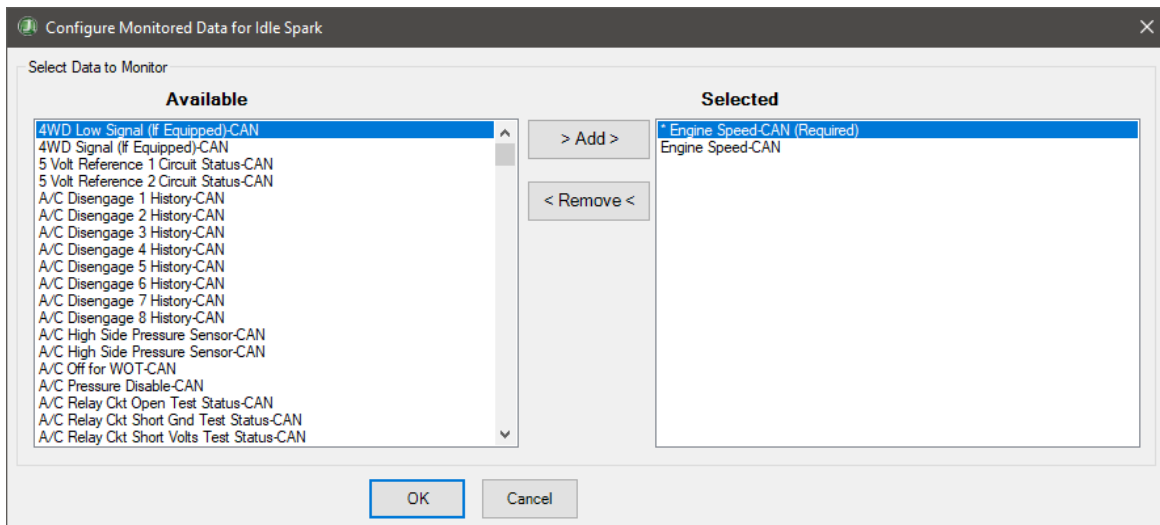
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

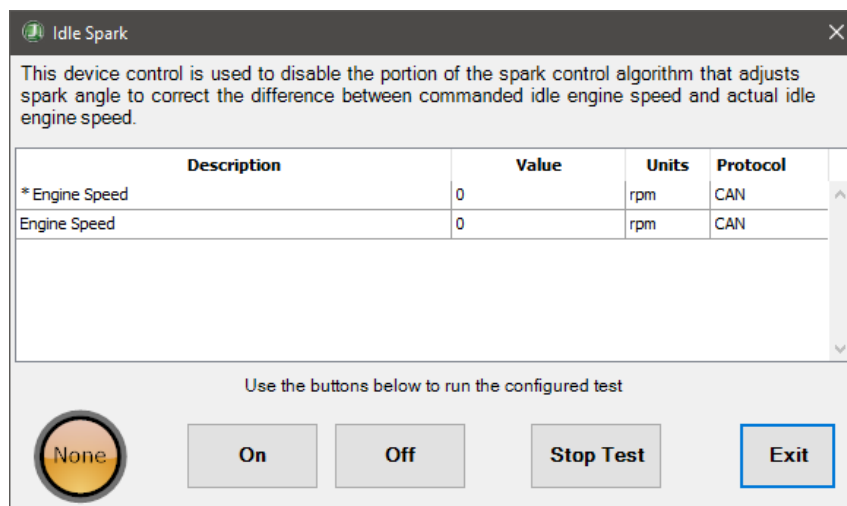
This test is used to disable the portion of the spark control algorithm that adjusts spark angle to correct the difference between commanded idle engine speed and actual idle engine speed.

1. Click **Idle Spark** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Idle Spark Configure Monitored Data

3. The **Idle Spark** dialog opens. Select the appropriate commanded state button (*On* or *Off*). The lamp on the bottom left of the screen will show the current state of the vehicle.



Idle Spark

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click **Stop Test** to end the test.
6. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

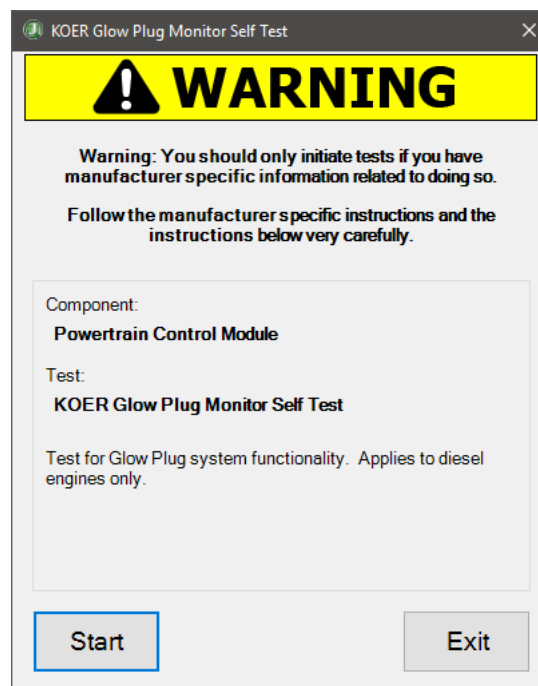
KOER Glow Plug Monitor Self Test

KOER Glow Plug Monitor Self Test is supported on:

- ✓ Ford 2004 – 2018 E-Series (Econoline) with a diesel engine
- ✓ Ford 2004 – 2018 F-Series with a diesel engine
- ✓ Ford 2010 – 2018 Transit Connect with a diesel engine
- ✓ Ford 2016 – 2018 Transit with a diesel engine

The **KOER Glow Plug Monitor Self Test** is useful for diagnosing issues with the glow plug system.

1. Click **KOER Glow Plug Monitor Self Test** and press **Enter** or click **Start** button.



KOER Glow Plug Monitor Self Test

2. Click the **Start** button to begin the test.
3. When completed the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

Malfunction Indicator Lamp

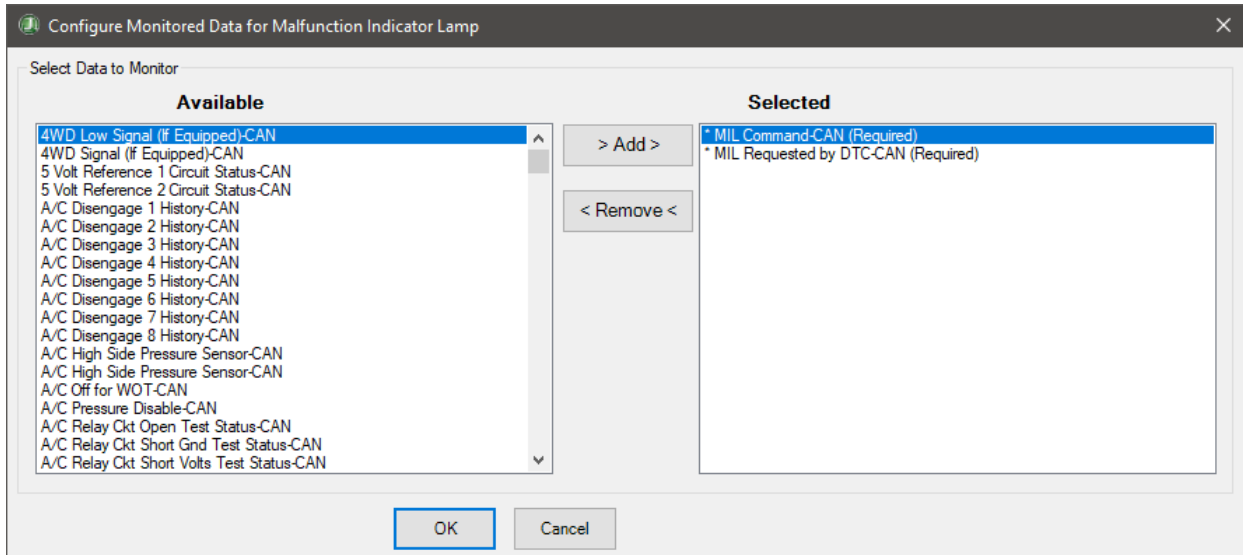
Malfunction Indicator Lamp is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

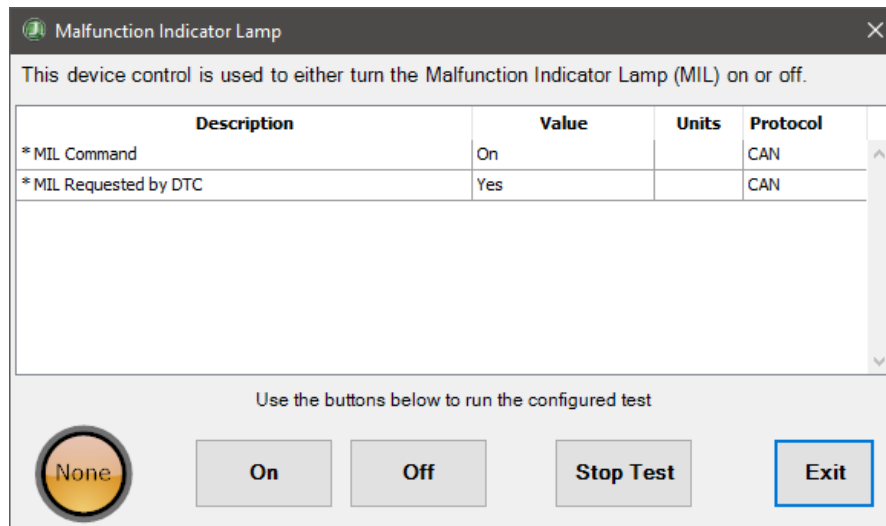
The **Malfunction Indicator Lamp test** allows a user to manually control the ECM's ability to turn the MIL Lamp on and off. Useful in diagnosing MIL lamp issues such as circuit or bulb faults.

1. Click **Malfunction Indicator Lamp** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Malfunction Indicator Lamp Configure Monitored Data

3. The **Malfunction Indicator Lamp** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Malfunction Indicator Lamp

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

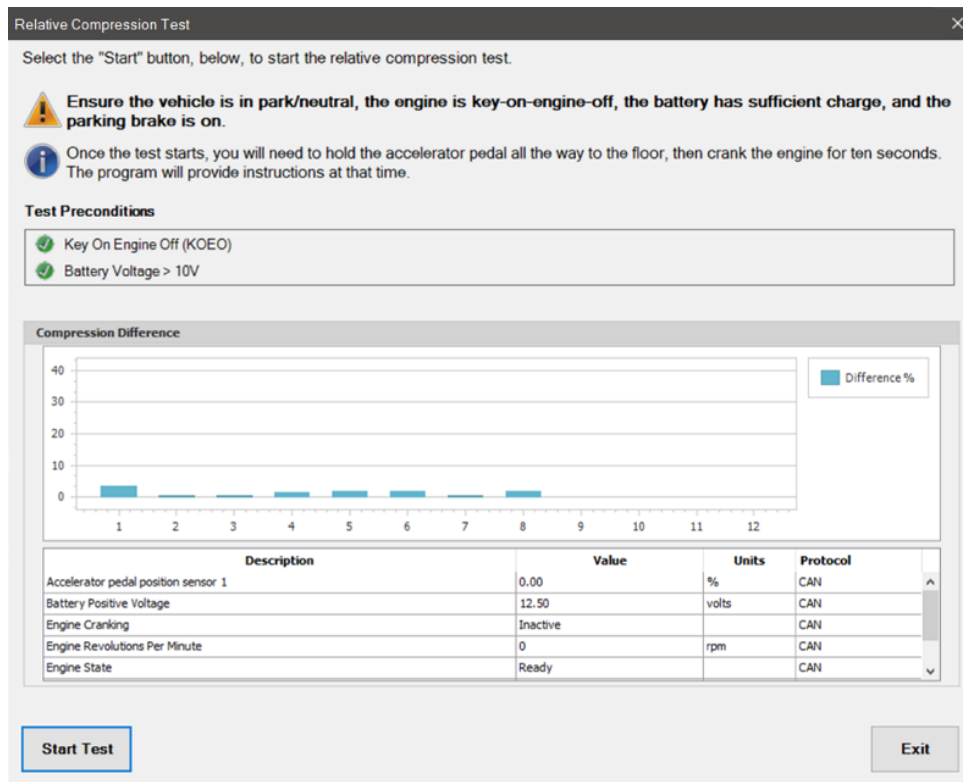
Relative Compression Test

Relative Compression Test is supported on:

- ✓ Ford all supported engines 2008 - 2021 (except for 2009 6.4L Diesel)

The Relative Compression Test is used to ensure that all cylinders are in good working order.

1. Click **Relative Compression Test** and press **Enter** or click **Start** button.
2. The **Relative Compression Test** dialog opens. Click **Start Test** to begin. Follow the instructions and hold down the accelerator pedal. A countdown will appear with further instructions.



Relative Compression Test

3. Crank the engine as instructed until the countdown ends. Stop cranking and release the accelerator pedal when instructed. The test results will be displayed.
4. Click the **Exit** button to return to the test selection dialog.

Spark Retard Angle

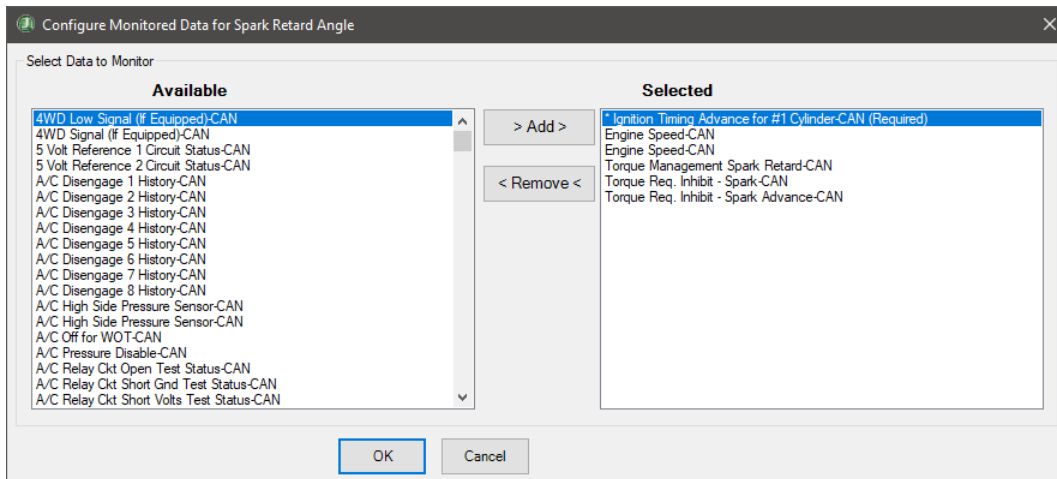
Spark Retard Angle is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

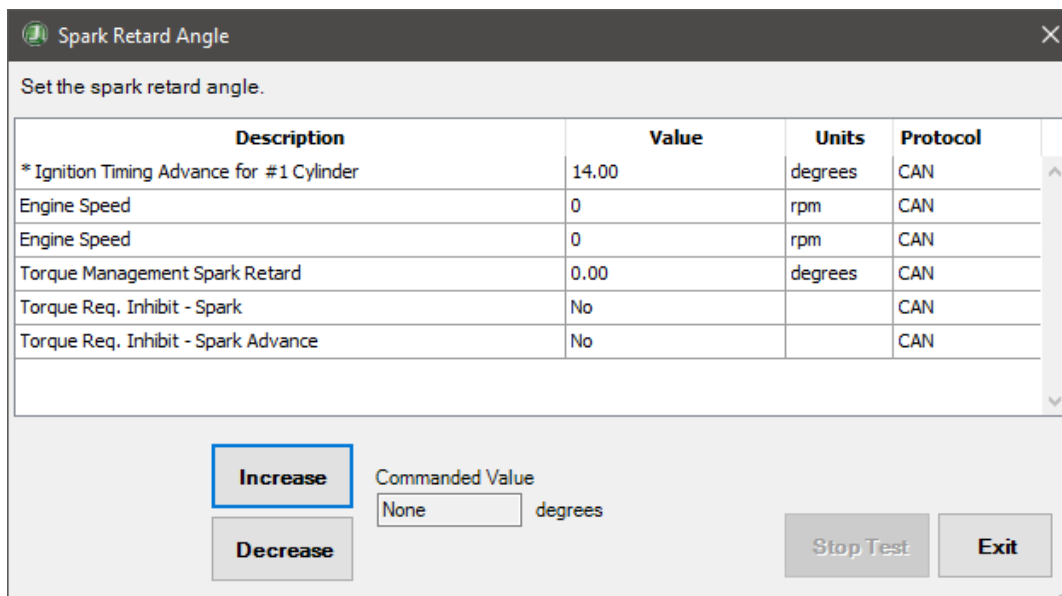
The **Spark Retard Angle test** allows ECM control of the spark retard value against base ignition timing for diagnosing engine performance issues.

1. Click **Spark Retard** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Spark Retard Angle Configure Monitored Data

3. The **Spark Retard Angle** dialog opens. Click the **Increase** or **Decrease** command button to change to the desired value.



Spark Retard Angle

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

Starter Relay

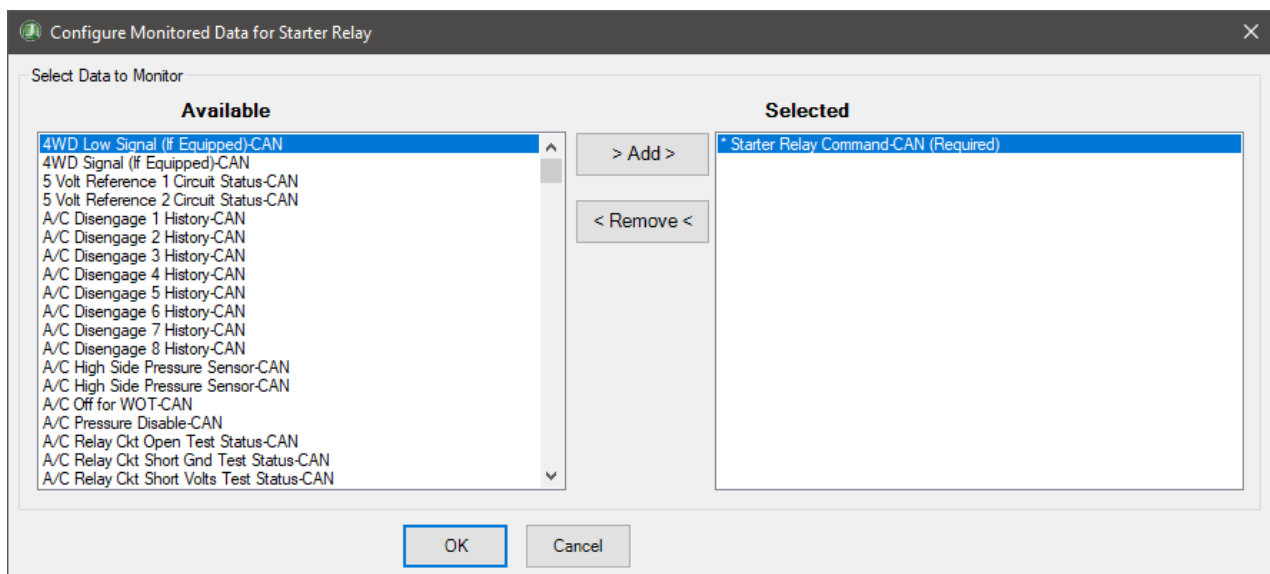
Starter Relay is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

⚠ This test can cause the starter motor to spin while fuel injection and ignition is disabled.

The **Starter Relay control test** is used to verify correct ECM Starter Relay control function. This test will allow for scan tool control of the starter relay, allowing a user to test starter relay function, starter relay circuit integrity, ECM output control or starter motor issues.

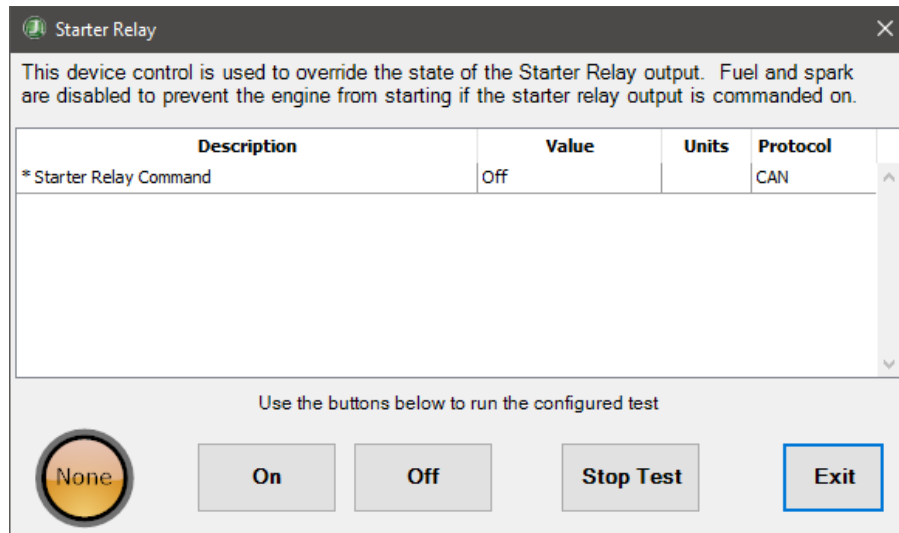
1. Click **Starter Relay** and press **Enter** or click **Start** button.
2. A Configure Monitored Data dialog appears, allowing users to add data items to monitor during the test. Click Add to add the selected data item to the Selected list. Click OK to continue.



Starter Relay Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **Starter Relay** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Starter Relay

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Throttle Position Sweep

Throttle Position Sweep is supported on:

- ✓ GM 2010 – 2018 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

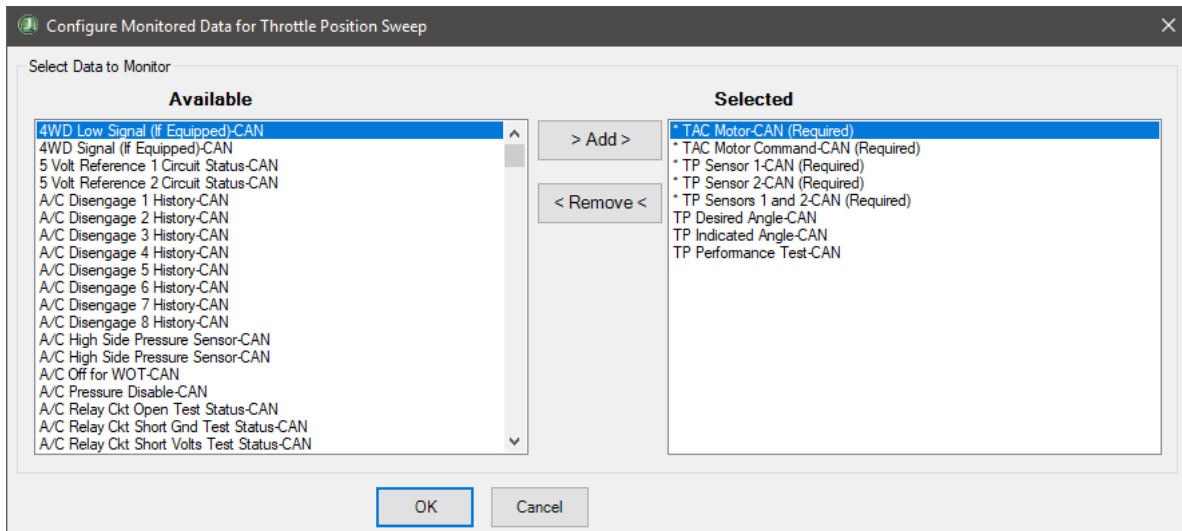
⚠ This test can be performed while the Throttle Blade is exposed. This test controls movement of the Throttle Blade, so ensure fingers, tools, or other items are clear of the area during this test.

The **Throttle Position Sweep** test moves the Throttle Blade from Fully Closed to Fully Open and back again, under full electric motor power. This test can be used in diagnostics to verify that the Throttle Position Sensor agrees with the physical motion of the Throttle Blade.

1. Click **Throttle Position Sweep** and press **Enter** or click **Start** button.

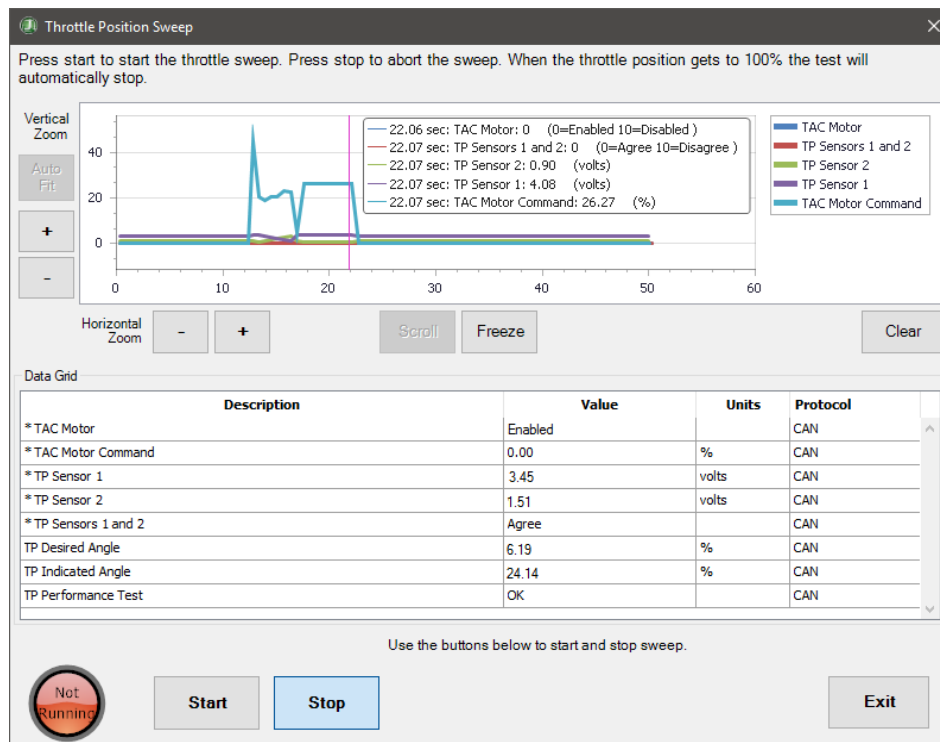
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Throttle Position Sweep Configure Monitored Data

3. The **Throttle Position Sweep** dialog opens. Click the **Start** button to begin the throttle position sweep test. The **Stop** button can be clicked at any time to stop the test progress early.



Throttle Position Sweep

4. Once the maximum throttle sweep position has been reached the test will automatically stop.
5. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

Fuel System Tests

Cylinder Cut Out

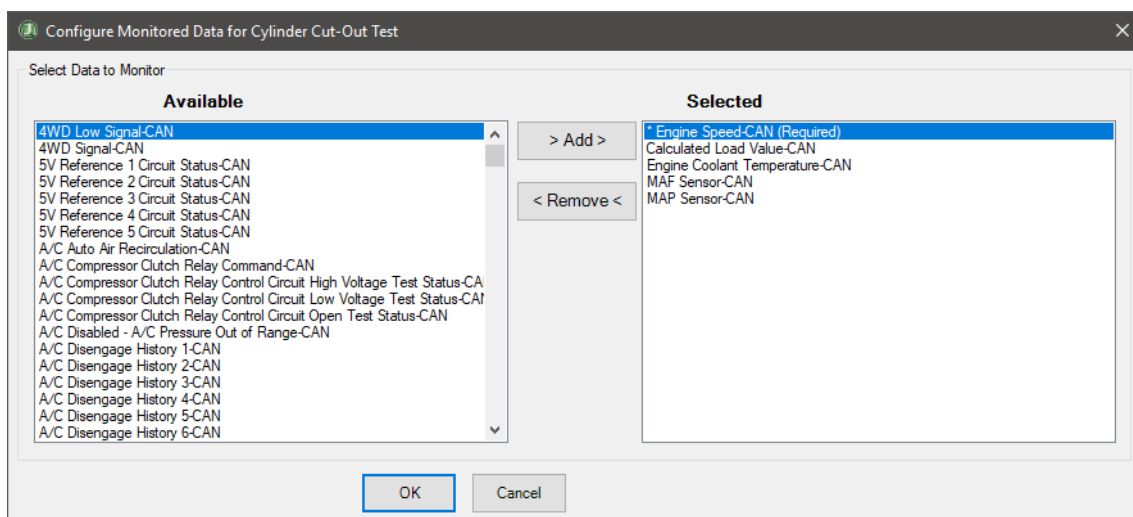
Cylinder Cut Out is supported on:

- ✓ GM 2002 – 2021 all diesel and gasoline engines (except GM vehicles with CAT engines)
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 1500, 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022-2024 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2024 Freightliner MT45 trucks with 6.6L Gas engine
- ✓ Isuzu 2008 – 2017 5.2L (4HK1) or 3.0L (4JJ1) engines in North America
- ✓ All Hino engines in 2011-2019 vehicles
- ✓ Sprinter EPA 07 diesel engines

Cylinder Cut Out directly disables fuel injection to the cylinder, and the resulting engine response can assist the diagnostic process.

NOTE: For Ford vehicles refer to the [Power Balance Test](#)

1. Click **Cylinder Cut Out** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.

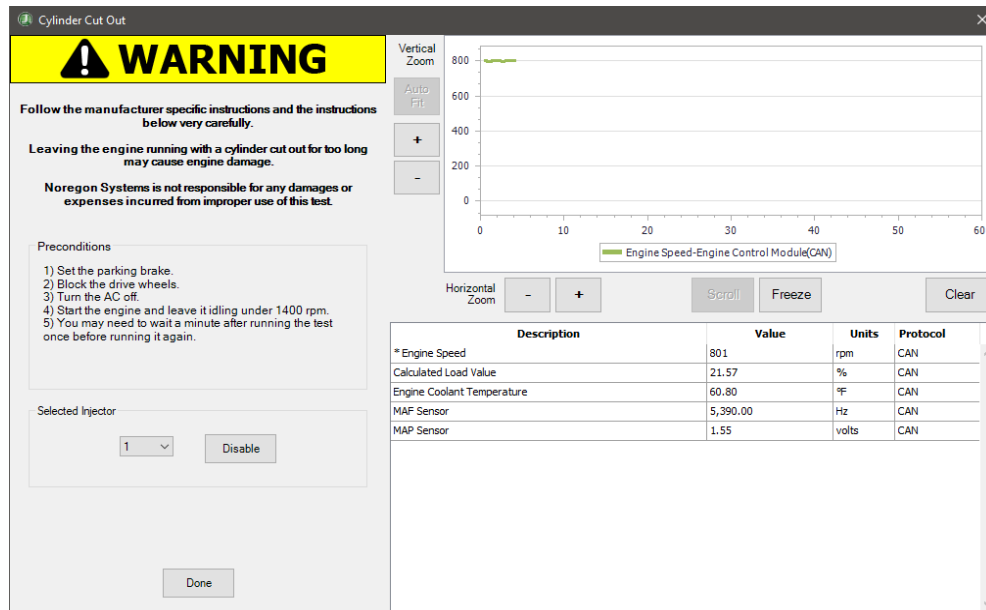


Cylinder Cut Out Configure Monitored Data (GM)

NOTE: The Configure Monitored Data dialog does not appear for Isuzu vehicles.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The **Cylinder Cut Out** dialog opens. Select an injector number from Selected Injector and click the **Disable** button to disable the selected injector.



Cylinder Cut Out (GM)

- The strip chart at the top will display the engine speed and the grid of parameters below the strip chart will show the values of the parameters that were selected in the previous dialog.
- To disable and enable cylinders, first select the cylinder to disable in the **Selected Injector** dropdown and then press the **Disable** button. The **Disable** button will now change to **Enable**. The strip chart should show the reaction of the engine's speed to disablement of the cylinder. To enable the cylinder, press the **Enable** button and the **Enable** Button will now change to **Disable**.
- Press **Done** button when ready to exit this test and return to the test selection dialog.

EVAP Purge/Seal Solenoid

EVAP Purge/Seal Solenoid is supported on:

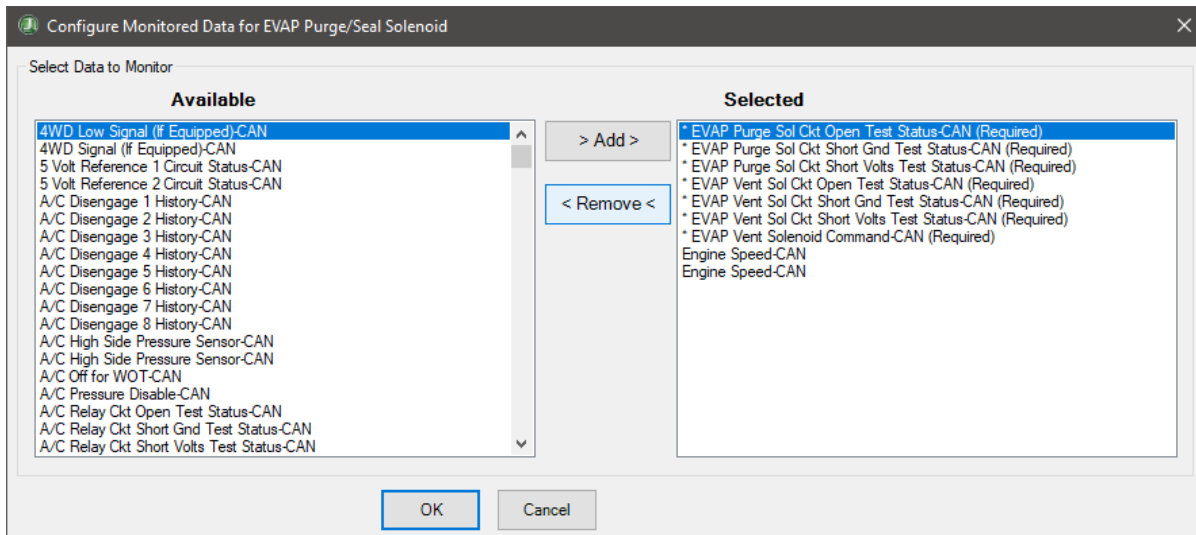
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **EVAP Purge/Seal Solenoid test** commands the Engine Control Module to vary a duty cycle output to the EVAP Purge Solenoid, as well as manually engage the Seal function (no duty cycle) to test the solenoid valve for potential leaks.

- Click **EVAP Purge/Seal Solenoid** and press **Enter** or click **Start** button.

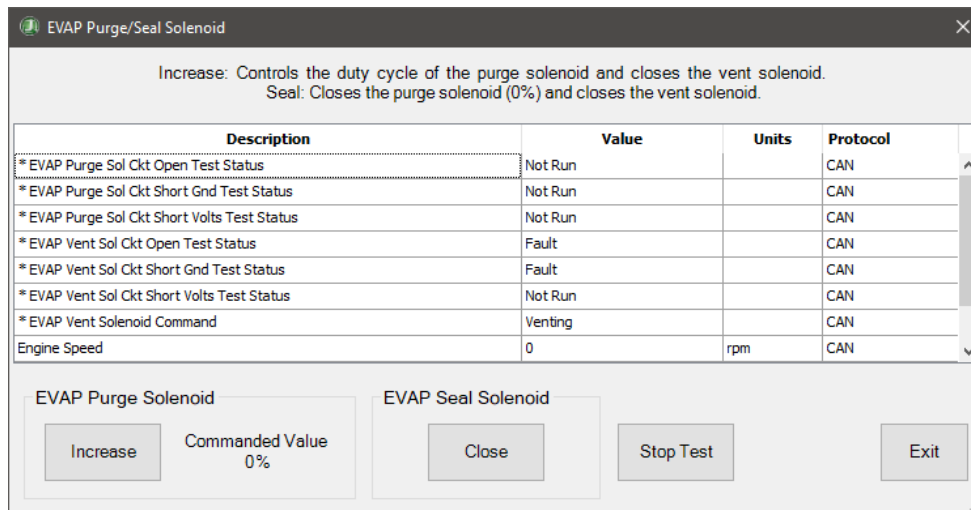
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



EVAP Purge/Seal Solenoid Configure Monitored Data

3. The **EVAP Purge/Seal Solenoid** dialog opens. Select either the *Increase* or *Close* button to command the EVAP Solenoid.



EVAP Purge/Seal Solenoid

4. Clicking **Stop Test** will immediately end the current commands and return the vehicle to its original state.
5. Click the **Exit** button to return to the test selection dialog.

EVAP Purge Solenoid

EVAP Purge Solenoid is supported on:

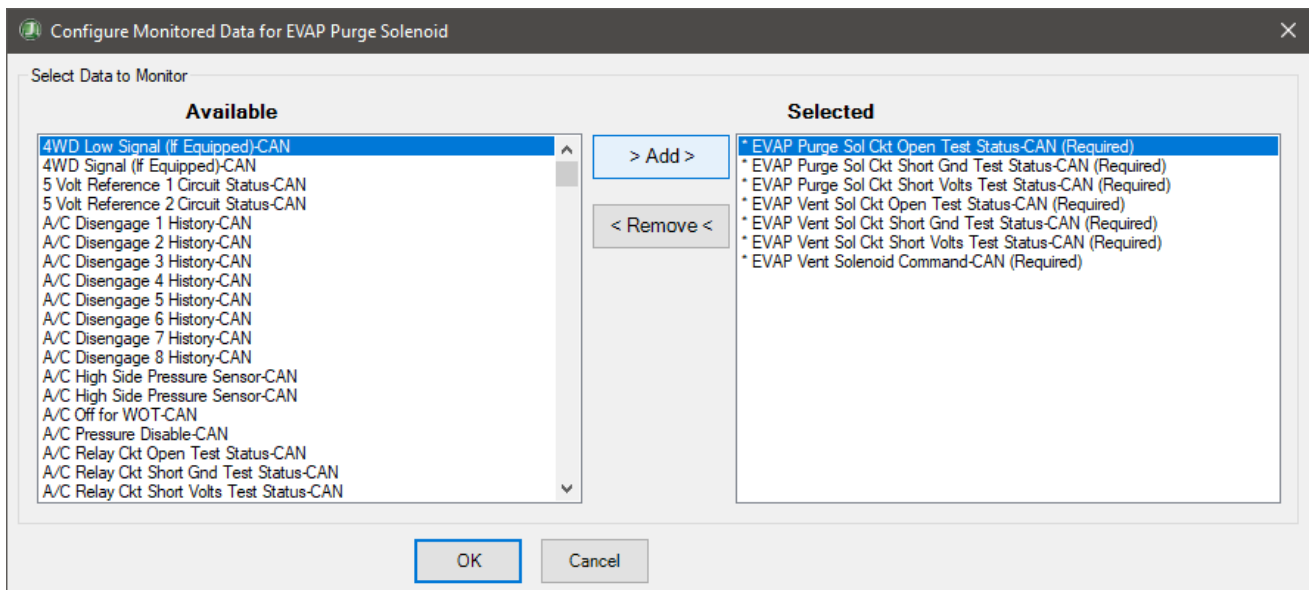
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

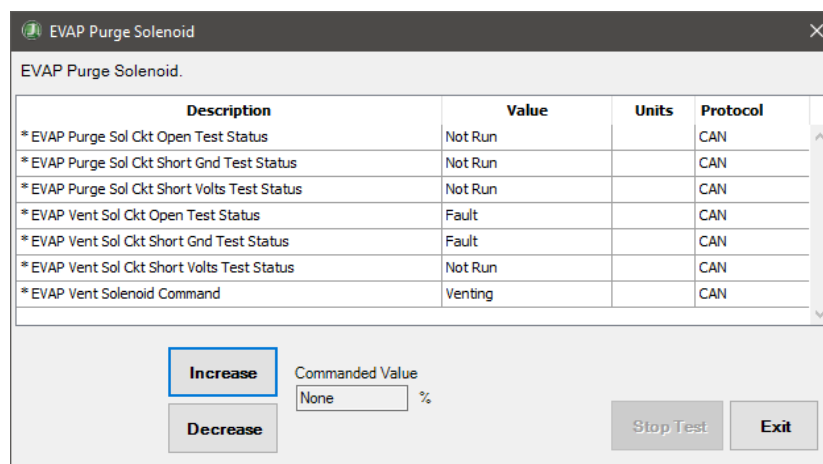
This test checks the functionality of the **EVAP Purge Solenoid** and can assist with diagnostics related to EVAP Purge Solenoid circuit faults and/or EVAP Purge Solenoid ECM output control.

1. Click **EVAP Purge Solenoid** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



EVAP Purge Solenoid Configure Monitored Data

3. The **EVAP Purge Solenoid** dialog opens. Click the **Increase** or **Decrease** command button to change to the desired value.



EVAP Purge Solenoid

4. Click **Stop Test** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

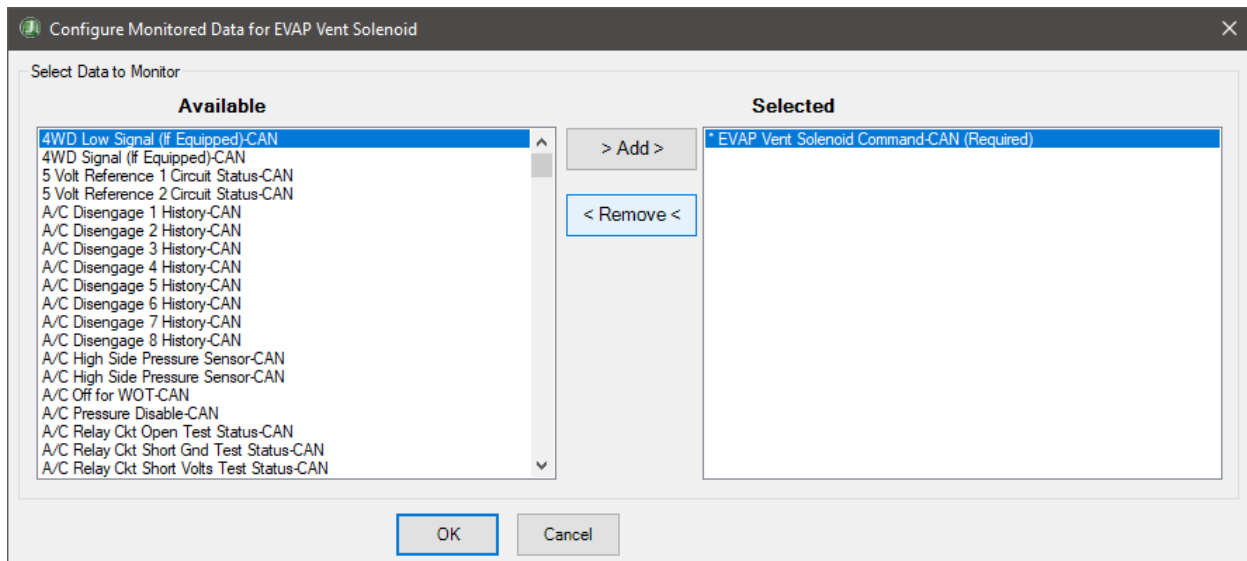
EVAP Vent Solenoid

EVAP Vent Solenoid is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

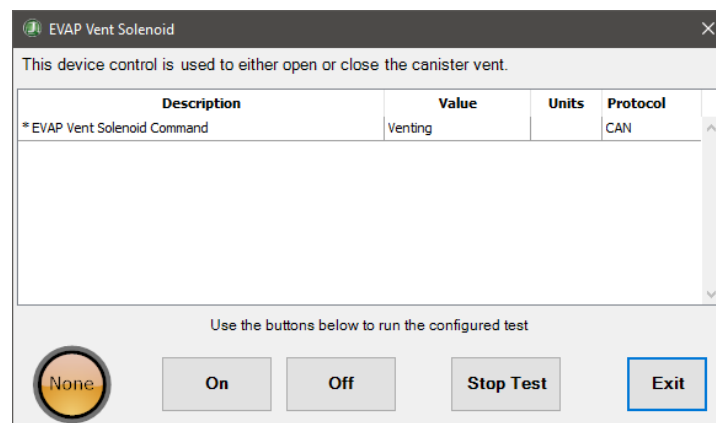
The **EVAP Vent Solenoid test** checks the functionality of the EVAP Vent Solenoid and can assist with diagnostics related to EVAP Vent Solenoid circuit faults and/or EVAP Vent Solenoid ECM output control.

1. Click **EVAP Vent Solenoid** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



EVAP Vent Solenoid Configure Monitored Data

3. The **EVAP Vent Solenoid** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



EVAP Vent Solenoid

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Fuel Closed Loop Status

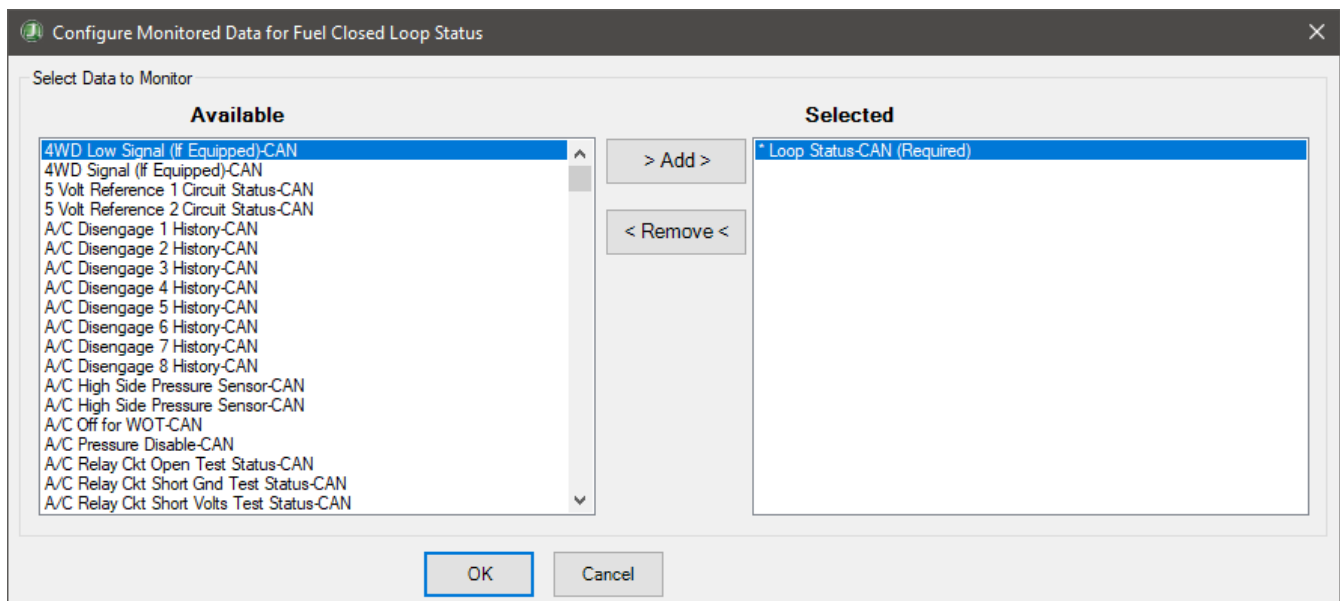
Fuel Closed Loop Status is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **Fuel Closed Loop Status test** allows a user to manually force the Engine Control Module to use Open or Closed Loop fuel control strategies.

Open Loop fuel control is where the Engine Control Module runs fuel injection based on minimal engine sensor values against a pre-programmed fuel correction value table. Closed Loop fuel control is where the Engine Control Module uses the primary oxygen sensor(s) and others to provide real-time engine operation feedback that can modify the base Open Loop correction table values for best overall fuel injection performance.

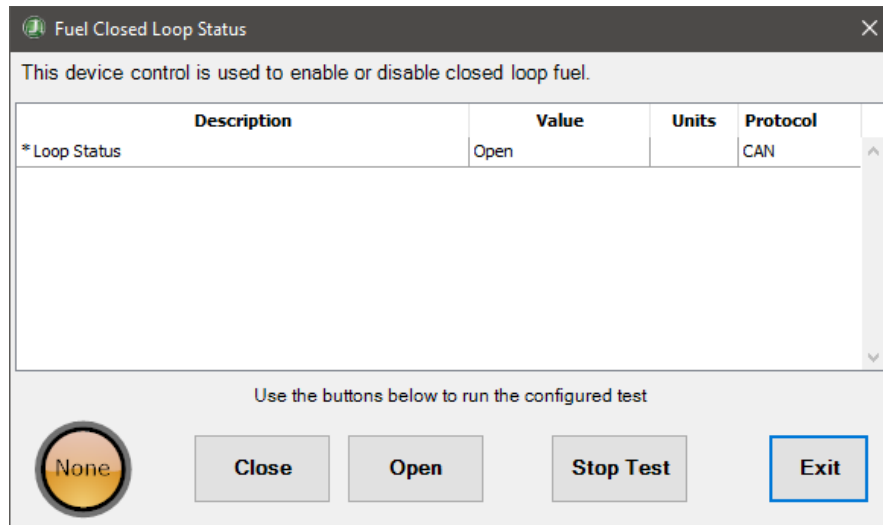
1. Click **Fuel Closed Loop Status** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Fuel Closed Loop Status Configure Monitored Data

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

3. The **Fuel Closed Loop Status** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Fuel Closed Loop Status

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Fuel Injector Balance

Fuel Injector Balance is supported on:

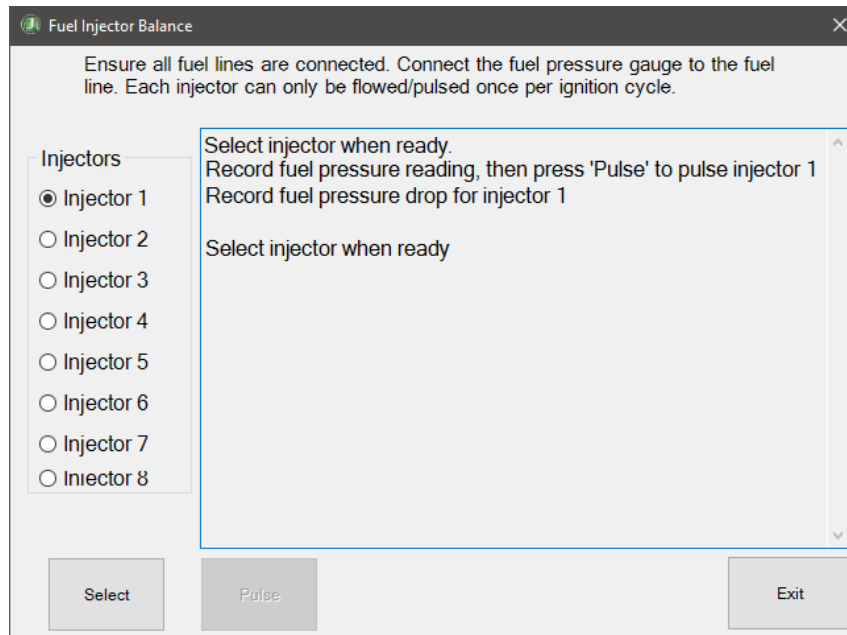
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **Fuel Injector Balance test** can be used to determine injector health and performance issues before disassembling the fuel rail system. This test works on the premise that each fuel injector should allow an equal amount of fuel to flow when pulsed, which should impact fuel rail pressure by the same amount. If an injector is pulsed, and it results in a fuel pressure drop on your fuel pressure gauge that is significantly higher/lower than the others, you can use this information to identify problem injectors before taking anything apart.

1. Click **Fuel Injector Balance** and press **Enter** or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. The **Fuel Injector Balance** dialog opens. Click the radio button next to the desired injector and click the **Select** button.



Fuel Injector Balance

3. The test window will instruct the user to record fuel pressure readings and when to click **Pulse** to pulse the selected injector. The test can be repeated multiple times for all desired injectors.
4. Click the **Exit** button to return to the test selection dialog.

Fuel Pump Relay

Fuel Pump Relay is supported on:

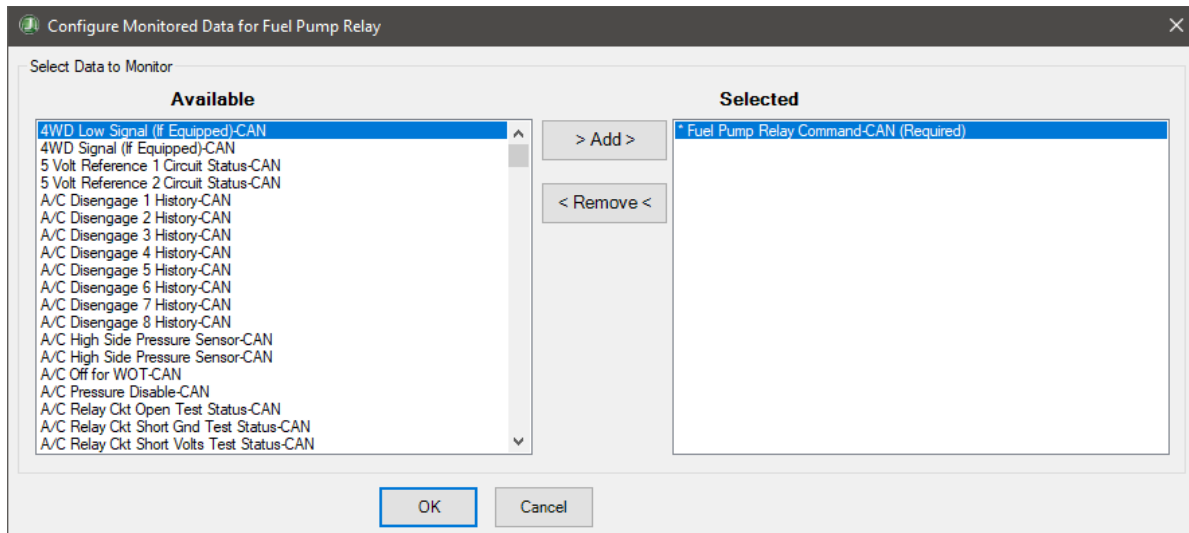
- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

The **Fuel Pump Relay test** is useful for testing the health and functionality of the fuel pump and can assist with diagnostics related to fuel pump performance issues, circuit faults and/or fuel pump ECM output control.

1. Click **Fuel Pump Relay** and press **Enter** or click **Start** button.

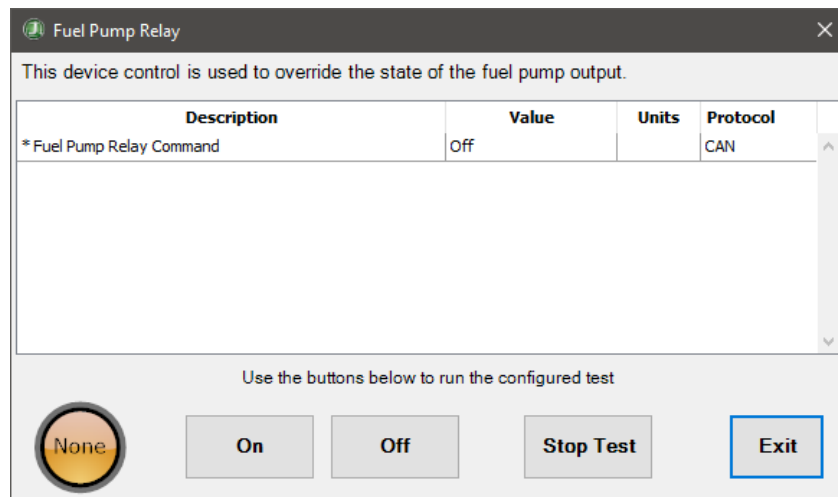
MEDIUM DUTY BI-DIRECTIONAL (CONT.)

2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Fuel Pump Relay Configure Monitored Data

3. The **Fuel Pump Relay** dialog opens. Select the appropriate commanded state button (*On* or *Off*). The lamp on the bottom left of the screen will show the current state of the vehicle.



Fuel Pump Relay

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

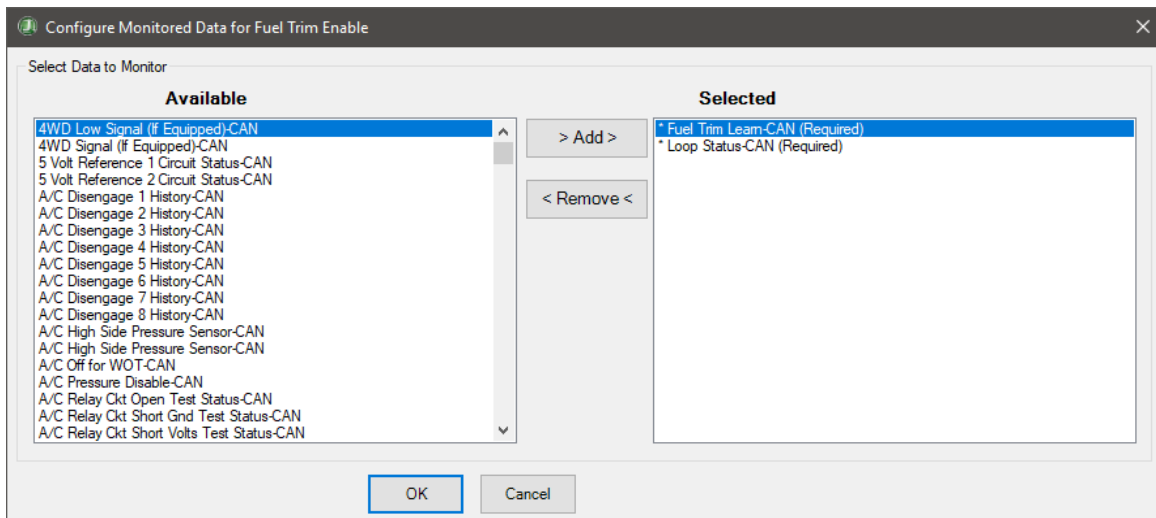
Fuel Trim Enable

Fuel Trim Enable is supported on:

- ✓ GM 2010 – 2021 GMC and Chevy Full Sized Trucks 1500, 2500, and 3500 with 6.0L Gas engine
- ✓ GM 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ GM 2011 GMC Canyon and Chevy Colorado with 6.0L Gas engine

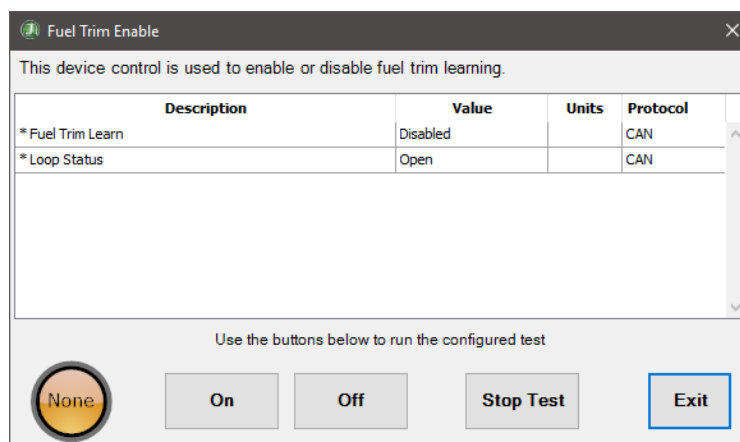
The **Fuel Trim Enable test** is useful for evaluating fuel trim correction performance and/or identifying suspect components that can affect fuel trim correction. It allows a user to manually turn on/off the ECM ability to modify fuel trim values.

1. Click **Fuel Trim Enable** and press **Enter** or click **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Fuel Trim Enable Configure Monitored Data

3. The **Fuel Trim Enable** dialog opens. Select the appropriate commanded state button (**On** or **Off**). The lamp on the bottom left of the screen will show the current state of the vehicle.



Fuel Trim Enable

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

4. Displayed data items may change when the commanded state buttons are clicked.
5. Click the **Stop Test** button to stop the active commanded state button.
6. Click the **Exit** button to return to the test selection dialog.

Initialize Rail Pressure

Initialize Rail Pressure is supported on:

- ✓ Sprinter EPA 07 diesel engines

Initialize Rail Pressure Test is used to initiate adaptive learning of a new fuel rail pressure regulator and pressure sensor whenever the fuel rail, fuel pressure regulator or fuel rail pressure sensor are replaced.

NOTE: Initialize Rail Pressure does not have a dialog. Selecting the test from the test selection dialog will automatically run the procedure.

1. Select **Initialize Rail Pressure** and press **Enter** or click **Start** button.
2. The command will automatically be sent. When completed the results of the test will be displayed in a message box. Click **OK** to dismiss the message box.
3. After the message box appears the test is completed.

Injector Quantity Adjustment

Injector Quantity Adjustment is supported on:

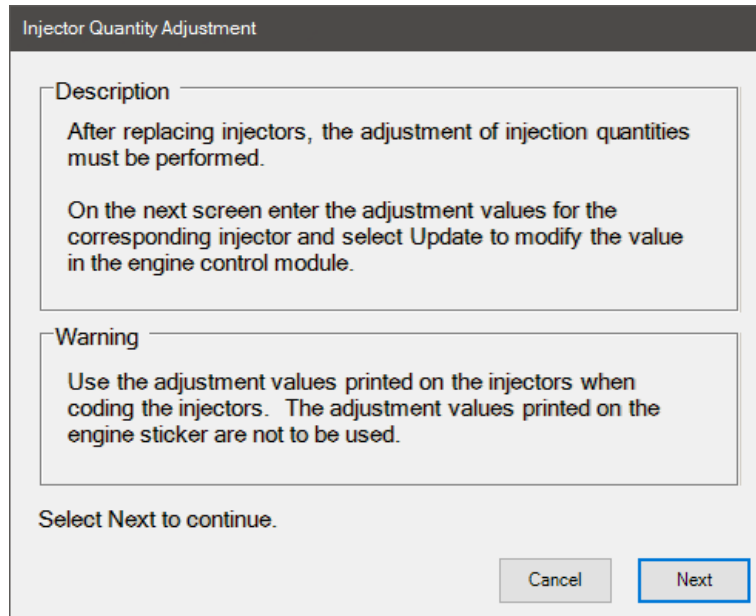
- ✓ Sprinter EPA 07 diesel engines

The **Injector Quantity Adjustment control** is used to program injector quantity values for each injector to ensure emissions compliance. This test should be performed whenever an injector is replaced.

1. Click **Injector Quantity Adjustment** and press **Enter** or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

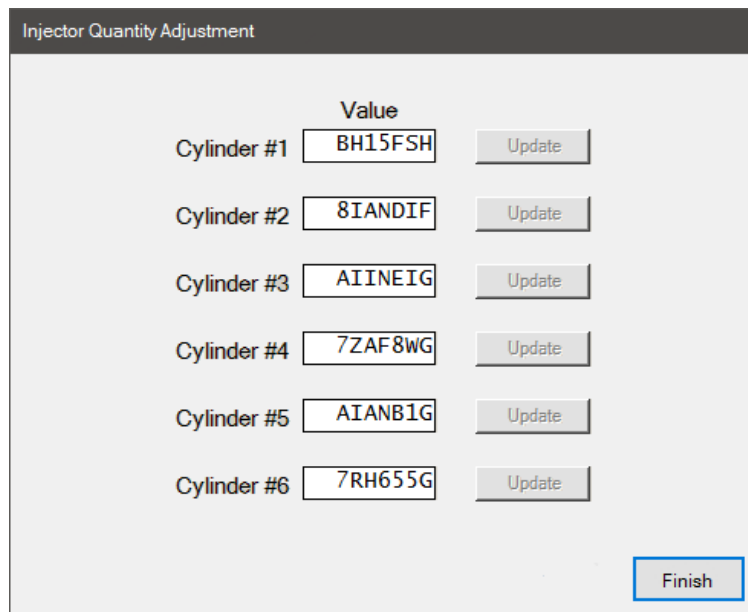
- The Injector Quantity Adjustment dialog opens. Click **Next** to continue.



The dialog box titled "Injector Quantity Adjustment" contains a "Description" section with the text: "After replacing injectors, the adjustment of injection quantities must be performed. On the next screen enter the adjustment values for the corresponding injector and select Update to modify the value in the engine control module." Below this is a "Warning" section with the text: "Use the adjustment values printed on the injectors when coding the injectors. The adjustment values printed on the engine sticker are not to be used." At the bottom, it says "Select Next to continue." and has "Cancel" and "Next" buttons.

Injector Quantity Adjustment

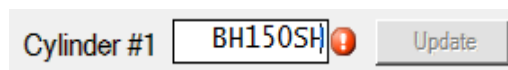
- The adjustment coding screen is displayed. Enter the adjustment values printed on the injectors next to the appropriate cylinder. Click **Update** button next to the edited value to update the ECM.



The screen titled "Injector Quantity Adjustment" displays a table with six rows for cylinders #1 through #6. Each row has a "Value" input field and an "Update" button. The values are: Cylinder #1: BH15FSH, Cylinder #2: 8IANDIF, Cylinder #3: AIINEIG, Cylinder #4: 7ZAF8WG, Cylinder #5: AIANB1G, and Cylinder #6: 7RH655G. A "Finish" button is located at the bottom right.

Injector Quantity Adjustment Update Control

- If the entered value contains invalid characters an error indicator will be displayed next to the incorrect value.



A close-up of the "Cylinder #1" row from the previous screen. The input field contains "BH15OSH" and has a red error indicator icon (a circle with an exclamation mark) to its right. The "Update" button is to the right of the input field.

Injector Quantity Adjustment Error Indicator

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

5. After all Cylinders have been updated click the **Finish** button to return to the test selection dialog.

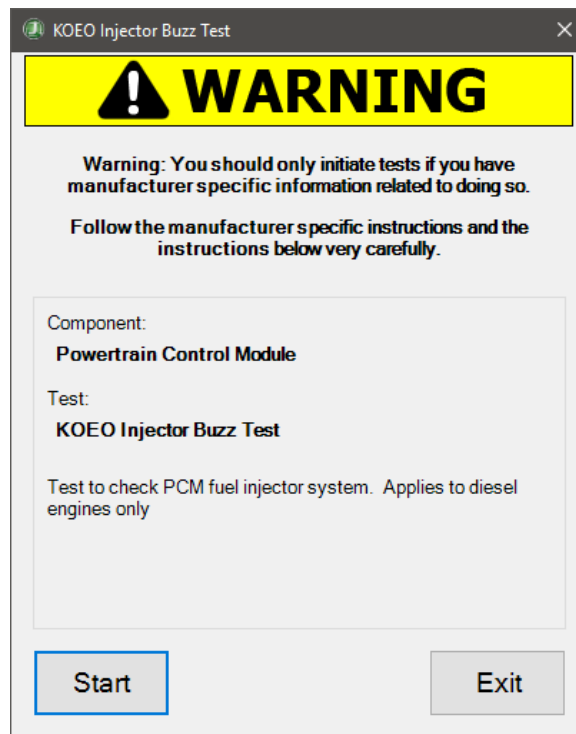
KOEO Injector Buzz Test

KOEO Injector Buzz Test is supported on:

- ✓ Ford 2004 – 2018 E-Series (Econoline)
- ✓ Ford 2004 – 2018 F-Series
- ✓ Ford 2010 – 2018 Transit Connect
- ✓ Ford 2016 – 2018 Transit

The **KOEO Injector Test** can help identify if an injector is functioning electrically by causing the injector to audibly buzz.

1. Click **KOEO Injector Buzz Test** and press **Enter** or click **Start** button.



KOEO Injector Buzz Test

2. Click the **Start** button to begin the test.
3. When completed the test result will be displayed.
4. Click **Exit** button to return to the test selection dialog.

Power Balance Test

Power Balance Test is supported on:

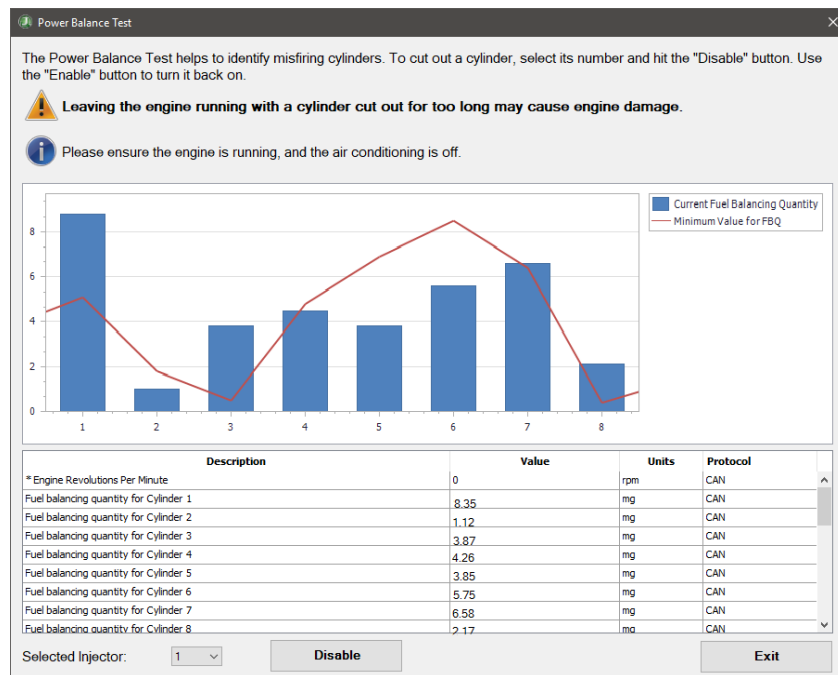
- ✓ Ford 2008 – 2010 6.4L diesel engines

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- ✓ Ford 2011 – 2018 6.7L diesel engines
- ✓ 6.8L V-10 Gasoline Engines

The **Power Balance Test** functions and view screen is used to diagnose issues related to cylinder power balance, cylinder power contribution or overall engine performance issues. This test can be useful in diagnosing fuel injector and fuel system issues, as well as isolating engine mechanical issues.

1. Click **Power Balance Test** and press **Enter** or click **Start** button.
2. The **Power Balance Test** dialog opens. The graph continuously shows the current fuel quantities per cylinder.



Power Balance Test

3. To disable and enable cylinders, first select the cylinder to disable in the Selected Injector dropdown and then press the **Disable** button. The **Disable** button will now change to **Enable**. The graph should show the reaction of the engine's fuel balancing to the disablement of the cylinder. To enable the cylinder, press the **Enable** button and the **Enable** Button will now change to **Disable**.
4. Press **Exit** button when ready to exit this test and return to the test selection dialog.

Parameter Tests

Cruise Speed Customization

Cruise Speed Customization is supported on:

- ✓ All Hino engines 2011-2019 vehicles

The **Cruise Speed Customization** test.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

1. Click **Cruise Speed Customization** and press Enter or click *Start* button.
2. The test dialog will display. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current settings. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

Name	Update Value	Current Value	Original Value	Min	Max	Units
Maximum set cruise speed		75.19	75.19	21.75	77.67	mph

Cruise Speed Customization

3. Click the **More Information** button to learn more about the **Cruise Speed Customization**.
4. Enter a new value for the Cruise Speed Customization.
5. Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
6. Click the **Exit** button to return to the test selection dialog.

Idle Shutdown Customization

Idle Shutdown Customization is supported on:

- ✓ All Hino engines 2011-2019 vehicles

The **Idle Shutdown Customization** test.

1. Click **Cruise Speed Customization** and press **Enter** or click **Start** button.

MEDIUM DUTY BI-DIRECTIONAL (CONT.)

- The test dialog will display. The **Update Value** column is where the user enters new values. The **Current Value** column shows the current settings. The **Min** and **Max** columns show the maximum setting values. The **Units** column shows the unit of measure for the displayed values.

Idle Shutdown Customization

To change the **Idle Shutdown Setting Time** parameter, enter the desired value in the Update Value column highlighted in yellow and select the program button.

Test Preconditions

Key On Engine Off (KOEO)

Name	Update Value	Current Value	Original Value	Min	Max	Units
Idle shutdown setting time		5.00	5.00	0	250	min

Write Values Restore Original Exit

Idle Shutdown Customization

- Click the **More Information** button to learn more about the **Idle Shutdown Customization**.
- Enter a new value for the **Idle Shutdown Customization**.
- Click **Write Values** button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated, and the **Restore Original** button will become enabled.
- Click the **Exit** button to return to the test selection dialog.

OTHER MAIN TOOLBAR OPTIONS (CONT.)

OTHER MAIN TOOLBAR OPTIONS

Exit

Select the **F4** key or the **Exit** button to end your session and quit the application.

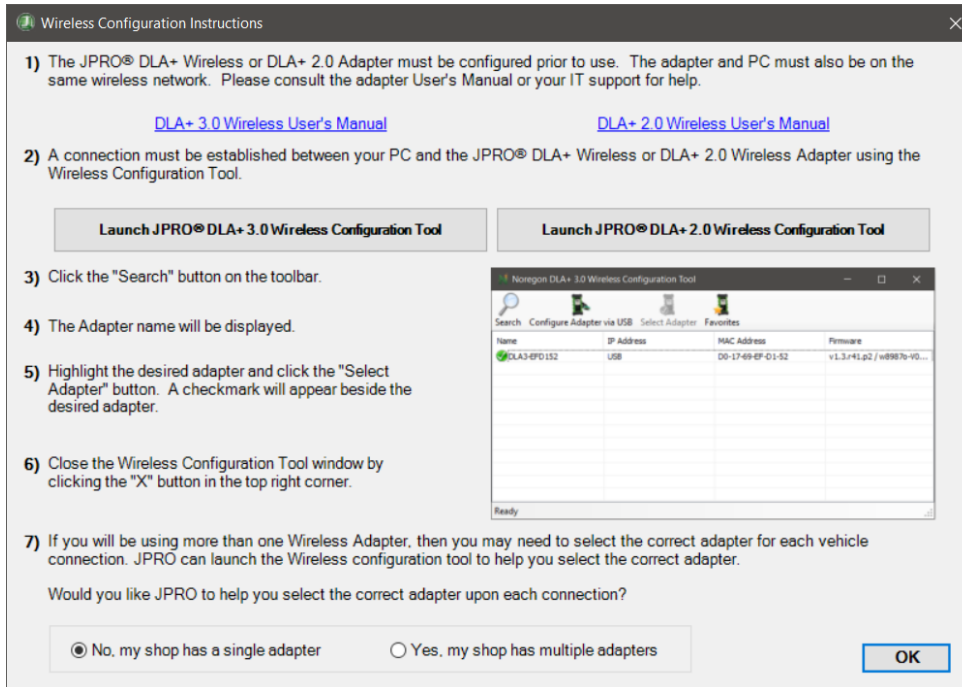
Help

Check for Updates

Select the **Check for Updates** button to be directed to Noregon's website where the latest updates to JPRO® Commercial Vehicle Diagnostics are available for download.

DLA+ Wireless Configuration Instructions

Select the **DLA+ Wireless Configuration Instructions** button for help with configuring a Noregon DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, or DLA+ Wireless adapter.



1) The JPRO® DLA+ Wireless or DLA+ 2.0 Adapter must be configured prior to use. The adapter and PC must also be on the same wireless network. Please consult the adapter User's Manual or your IT support for help.

[DLA+ 3.0 Wireless User's Manual](#) [DLA+ 2.0 Wireless User's Manual](#)

2) A connection must be established between your PC and the JPRO® DLA+ Wireless or DLA+ 2.0 Wireless Adapter using the Wireless Configuration Tool.

3) Click the "Search" button on the toolbar.

4) The Adapter name will be displayed.

5) Highlight the desired adapter and click the "Select Adapter" button. A checkmark will appear beside the desired adapter.

6) Close the Wireless Configuration Tool window by clicking the "X" button in the top right corner.

7) If you will be using more than one Wireless Adapter, then you may need to select the correct adapter for each vehicle connection. JPRO can launch the Wireless configuration tool to help you select the correct adapter.

Would you like JPRO to help you select the correct adapter upon each connection?

No, my shop has a single adapter Yes, my shop has multiple adapters

Name	IP Address	MAC Address	Firmware
DLA3-6FD152	USB	DD-17-69-6F-D1-52	v1.3.r41.p2 / w98879-v5...

Wireless Configuration Instructions

DLA+ Adapter Connectivity Test

Select the **DLA+ Adapter Connectivity Test** button to launch the Noregon DLA+ Adapter Family Connectivity Test application.

OTHER MAIN TOOLBAR OPTIONS (CONT.)

Update DLA Drivers

The **Update DLA Drivers button** will open an internet browser to the Noregon Adapter Drivers web page. From this site you can download the latest adapter driver versions.

View User's Guide

Select the **View User's Guide** button to view this document. This option requires Adobe Acrobat Reader.

About JPRO® Commercial Vehicle Diagnostics

Select the **About JPRO® Commercial Vehicle Diagnostics** button to view information about the application version, component versions, and web links. Click System Info for detailed information about your PC configuration that may be needed for technical support personnel.

What's New

Select the **What's New** button to view the What's New document which contains an overview of all features available in the JPRO® Commercial Vehicle Diagnostics application. This option requires Adobe Acrobat Reader.

JPRO® News & Insight

Select the **JPRO® News & Insight** button to see information providing quick access to technician tips, white papers, and other information to aid technicians in getting the most out of JPRO. This feature will automatically display upon each application launch unless disabled via user Preferences.

Support – Submit Issue

Selecting the **Submit Issue** button will open an internet browser to the Noregon JPRO® Support web page. From this site you can either check on the status of an open issue or request support by opening a new issue.

Support – Enable Remote Login

This option is to be used at the direction of Noregon support to help resolve open issues.

Contact Sales

Selecting the **Contact Sales** button will open an internet browser with contact information for purchasing additional adapters, cables or renewing your subscription. A current subscription is required to be eligible for future updates to the JPRO® Commercial Vehicle Diagnostics product.

APPENDIX A – DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

For a complete listing of common definitions, acronyms and abbreviations, please see the Industry Terms document available via [Data Monitor](#) or the [Fault Guidance](#) window