JPRO®



USER GUIDE | 2026 v1

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WHAT'S NEW

HEAVY DUTY

Allison

Allison Heavy-Duty features

Transmission	Read Proprietary Faults & Sensor Data	Check Transmission Lamp Display	Service Indicator Lamp Display	Reset Fast Adaptive Shifts	Reset Filter Life Reset
1000/2000 Pre-4th Gen	✔			✔	
WTEC II	✔				
WTEC III	✔				
1000/2000 4th Gen	✔			✔	✔
3000/4000 4th Gen	✔			✔	✔
1000/2000 5th Gen	✔	✔	✔	✔	✔
3000/4000 5th Gen	✔	✔	✔	✔	✔
TC10	✔				

Transmission	Reset Oil Life	Service Indicator Lamp Test	Transmission Fault Lamp Test
1000/2000 Pre-4th Gen			
WTEC II			
WTEC III			
1000/2000 4th Gen	✔	✔	✔
3000/4000 4th Gen	✔	✔	✔
1000/2000 5th Gen	✔	✔	✔
3000/4000 5th Gen	✔	✔	✔
TC10			

Cummins

Engine	Cylinder Cut-Out Test	DPF Service Regen	Air Handling Performance Test	Aftertreatment Outlet NOx Sensor Test	Aftertreatment Intake NOx Sensor	SCR Performance and System Test
Cummins X15	✔	✔	✔	✔	✔	✔

Eaton

Eaton UltraShift PLUS

Transmission	Adjust Clutch	Clear Clutch Data	Move Clutch To Service Position
Eaton UltraShift PLUS	✔	✔	✔

Transmission	Open Clutch	Grade Sensor Calibration	Grease Interval Reset
Eaton UltraShift PLUS	✔	✔	✔

Transmission	Low-Capacity Inertia Brake Test	Driver Interface Reset Utility
Eaton UltraShift PLUS	✔	✔

Mack Volvo

NEW MACK (ANTHEM, PIONEER) & NEW VOLVO VNL

- Engine Rollcall
- Read and clear proprietary engine faults

OFF HIGHWAY

Cummins

Cummins Proprietary Faults on:

- B4.5 CM2350 B114C
- F3.8 CM2450 F156C
- F3.8 CM3450 F169C

John Deere

John Deere Tier 4

Engine	Cylinder - Misfire Test	Cylinder- Electronic Compression Test	Control Unit- Info & Overview Test
John Deere Tier 4 4045	✔	✔	✔
John Deere Tier 4 6068	✔	✔	✔

Engine	EGR Valve - Clean Test	Communication - Error Test
John Deere Tier 4 4045	✔	✔
John Deere Tier 4 6068	✔	✔

Kubota

Engine	DPF Soot load Reset	DEF Injector Compensation
Kubota V3307-CR-TE4	✔	
Kubota V3800-TE4		✔

Yanmar

Engine	Cylinder Cutout Test
Yanmar 4TNV98C	✔

MISC

- New CAN Bus Diagnostics vehicle issue messages help technicians quickly identify wiring issues on the vehicle network.
    - **CAN H Open/ High Impedance-** Indicates the CAN High circuit may be open or disconnected.
    - **CAN L Open/ High Impedance**- Indicates the CAN Low circuit may be open or disconnected.
    - **CAN H Short/ Low Impedance**- Indicates the CAN High circuit may be shorted.
    - **CAN L Short/ Low Impedance**- Indicates the CAN Low circuit may be shorted.

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
  - Configuration 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

Engines	Transmissions	Braking Systems	Body & Chassis
GM Hino International Isuzu John Deere Off-Highway Komatsu Off-Highway Kubota Off-Highway Mack Mercedes-Benz PACCAR Sprinter Volvo			Mack Peterbilt Prevost Sprinter Sterling Thomas Built Volvo Van Hool Western Star

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.
- ✓ Interactive Wiring Diagrams make it easier to trace electrical connections.
- ✓ 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 clear faults can be removed. Contact Noregon support for more information.

- ✓ Access Bi-Directional functionality directly from the troubleshooting repair view.
- ✓ Works on a 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

Engines	Transmissions	Braking Systems	Body & Chassis
John Deere Off-Highway Komatsu Off-highway Kubota Off-Highway Mercedes-Benz PACCAR Sprinter			Western Star

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 XBT, 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 XBT, 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 XBT, 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 the 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:
    - Clean Truck Check - Emission Test Pre-scan
        - ✓ Indicates if the vehicle is ready to submit a scan using Truck Check Up for California Air Resources Board's (CARB) emissions compliance.

NOTE: CTC - Emission Test Prescan cannot guarantee CARB compliance.

        - ✓ No ABS faults reported, or lamps illuminated
        - ✓ Max Road Speed < 80 mph
        - ✓ DPF Pressure is reported

- Clean Truck Check Data Items group for Data Monitor displays J1939 emissions compliance data to assist with troubleshooting before scanning using Truck Check Up.
- 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 enable troubleshooting electrical problems and common performance complaints.
- Ability to define custom groups of related data parameters to display in Data Monitor.
- The 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 is 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 is not currently available.

- Ability to launch Cylinder Cut-Out directly from the 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.
- Ability to launch PTO parameter adjustments directly from the Vehicle Key Data Points display if available.
- Consumable Fluid screen to monitor fluids used by the vehicle and inform the user of low levels.
- Displays the trailer lamp status on the tractor brake key data points window.
- The Wheel Speed Window Test and Wheel Speed Chart Test are 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.
- CAN Bus Diagnostics provides live voltage and terminating resistance readings from the vehicle CAN Bus with the new DLA+ 3.0 XBT adapter.

NOTE: Reading voltages and terminating resistance requires the DLA+ 3.0 XBT adapter.

- Terminating resistance readings are reported on Bus Statistics and Connector Info with the new DLA+ 3.0 XBT adapter.

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:

Engine	Cruise Control Speed Limits	Cylinder Cut-Out Test	Idle Shutdown
PRE-ACERT/EPA 04 - 3126	✔	✔	✔
PRE-ACERT/EPA 04 - 3406E	✔	✔	✔
PRE-ACERT/EPA 04 - C7	✔	✔	✔
PRE-ACERT/EPA 04 - C12	✔	✔	✔
PRE-ACERT/EPA 04 - C15	✔	✔	✔
PRE-ACERT/EPA 04 - C18	✔	✔	✔
EPA 04 C7 ACERT	✔	✔	✔
EPA 04 C9 ACERT	✔	✔	✔
EPA 04 C13 ACERT	✔	✔	✔
EPA 04 C15 ACERT	✔	✔	✔
EPA 04 C18 ACERT	✔	✔	✔
EPA 07 C7 ACERT	✔	✔	✔
EPA 07 C9 ACERT	✔	✔	✔
EPA 07 C13 ACERT	✔	✔	✔
EPA 07 C15 ACERT	✔	✔	✔

Engine	Injection Actuator Pressure Test	Injector Solenoid Test	Injector Trim Calibration
PRE-ACERT/EPA 04 - 3126	✔	✔	
PRE-ACERT/EPA 04 - 3406E		✔	✔
PRE-ACERT/EPA 04 - C7	✔	✔	
PRE-ACERT/EPA 04 - C12		✔	✔
PRE-ACERT/EPA 04 - C15		✔	✔
PRE-ACERT/EPA 04 - C18		✔	✔
EPA 04 C7 ACERT	✔	✔	✔
EPA 04 C9 ACERT	✔	✔	✔
EPA 04 C13 ACERT		✔	✔
EPA 04 C15 ACERT		✔	✔
EPA 04 C18 ACERT		✔	✔
EPA 07 C7 ACERT		✔	
EPA 07 C9 ACERT		✔	
EPA 07 C13 ACERT		✔	

Engine	Injection Actuator Pressure Test	Injector Solenoid Test	Injector Trim Calibration
EPA 07 C15 ACERT		✔	

Engine	Intake Valve Actuator Test	Intake Valve Actuator Solenoid Test	Maximum Vehicle Speed Limit
PRE-ACERT/EPA 04 - 3126			✔
PRE-ACERT/EPA 04 - 3406E			✔
PRE-ACERT/EPA 04 - C7			✔
PRE-ACERT/EPA 04 - C12			✔
PRE-ACERT/EPA 04 - C15			✔
PRE-ACERT/EPA 04 - C18			✔
EPA 04 C7 ACERT			✔
EPA 04 C9 ACERT			✔
EPA 04 C13 ACERT	✔	✔	✔
EPA 04 C15 ACERT	✔	✔	✔
EPA 04 C18 ACERT			✔
EPA 07 C7 ACERT			✔
EPA 07 C9 ACERT			✔
EPA 07 C13 ACERT	✔	✔	✔
EPA 07 C15 ACERT	✔	✔	✔

Engine	Parked DPF Service Regeneration	Writable Parameters	Wiggle Test / Performance Issue Monitoring
PRE-ACERT/EPA 04 - 3126		✔	✔
PRE-ACERT/EPA 04 - 3406E		✔	✔
PRE-ACERT/EPA 04 - C7		✔	✔
PRE-ACERT/EPA 04 - C12		✔	✔
PRE-ACERT/EPA 04 - C15		✔	✔
PRE-ACERT/EPA 04 - C18		✔	✔

Engine	Parked DPF Service Regeneration	Writable Parameters	Wiggle Test / Performance Issue Monitoring
EPA 04 C7 ACERT		✔	✔
EPA 04 C9 ACERT		✔	✔
EPA 04 C13 ACERT		✔	✔
EPA 04 C15 ACERT		✔	✔
EPA 04 C18 ACERT		✔	✔
EPA 07 C7 ACERT	✔	✔	✔
EPA 07 C9 ACERT	✔	✔	✔
EPA 07 C13 ACERT	✔	✔	✔
EPA 07 C15 ACERT	✔	✔	✔

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:

Engine	Aftertreatment History	Aftertreatment Injector Flow Test	Aftertreatment Injector Leak Test
EPA 07: all ISX (15L)		✔	✔
EPA 10: all ISB, ISC, ISL, ISX	✔		
EPA 10: all ISX (12 and 15L)		✔	✔
EPA 13: all ISB, ISL, ISX	✔		

Engine	Aftertreatment History	Aftertreatment Injector Flow Test	Aftertreatment Injector Leak Test
EPA 13: all ISX (12 and 15L)		✔	✔
GHG17: all B6.7, L9, X15	✔		
GHG21: all B6.7, L9, X15	✔		

Engine	Aftertreatment Injector Shutoff Valve Test	Aftertreatment Maintenance Reset	Cylinder Cut-Out Test
EPA 02: ISB (3.9L)			✔
EPA 07: all ISX (15L)	✔		
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 10: all ISX (12 and 15L)	✔		
EPA 13: all ISB, ISL, ISX, PX-7, and PX-9		✔	✔
EPA 13: all ISX (12 and 15L)	✔		
GHG17: all B6.7, L9, X15, PX-7, and PX-9		✔	✔
GHG21: all B6.7, L9, X15, PX-7, and PX-9		✔	✔

Engine	Cylinder Misfire Monitor Test	DEF Doser Pump Override Test	DEF System Heater Test
EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8		✔	✔
EPA 13: all ISB, ISL, ISX, PX-7, and PX-9			✔

Engine	Cylinder Misfire Monitor Test	DEF Doser Pump Override Test	DEF System Heater Test
EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7		✔	
GHG17: all B6.7, L9, X12, X15, 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		✔	✔
CNG: All ISX 12G and ISX12N	✔		

Engine	DEF System Leak Test	DPF Service Regen	Engine Protection Parameters
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		✔	✔
EPA 13: all ISB, ISL, ISX (12L and 15L), PX-7, and PX-9	✔		
GHG17: all B6.7, L9, X12, X15	✔		
GHG17: all B6.7, L9, X12, X15, 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	✔	✔	✔
CNG: All ISX 12G and ISX12N			✔

Engine	Fan Override Test	Fuel Injector Calibration	Fuel Injector Performance Test
EPA 07: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems		✔	
EPA 10: all ISB, ISC, ISL, ISX	✔		
EPA 10: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems		✔	
EPA 10: all ISX (12 and 15L)			✔
EPA 13: all ISB, ISL, ISX	✔		
EPA 13: all ISX (12 and 15L)			✔
GHG17: all B6.7, L9, X15	✔		
GHG17: all L9, X12, and X15			✔
GHG21: all B6.7, L9, X15	✔		
GHG21: all B6.7, L9, X15, PX-7, and PX-9			✔

Engine	Fuel Injector Reset	Fuel Leakage Test	Fuel System Table Reset
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, PX-7, and PX-9	✔		
GHG17: all B6.7, L9, X12, X15, PX-7, and PX-9	✔		

Engine	Fuel Injector Reset	Fuel Leakage Test	Fuel System Table Reset
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	✔		
GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems		✔	
CNG: All ISX 12G and ISX12N			✔
EPA 07 6.7L ISB	✔	✔	

Engine	Idle Shutdown	J1939 Datalink Control Test	Maintenance Monitor Parameters
EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8	✔		
EPA 07: all ISC, ISL, ISX (12L and 15L), PX-6, and PX-8		✔	
EPA 10: all ISB, ISC, ISL, ISX		✔	✔
EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8	✔		
EPA 13: all ISB, ISL, ISX		✔	✔
EPA 13: all ISB, ISL, ISX, PX-7, and PX-9	✔		
GHG17: all B6.7, L9, X15		✔	✔
GHG17: all B6.7, L9, X15, PX-7, and PX-9	✔		
GHG21: all B6.7, L9, X15		✔	
GHG21: all B6.7, L9, X15, PX-7, and PX-9	✔		

Engine	Idle Shutdown	J1939 Datalink Control Test	Maintenance Monitor Parameters
CNG: All ISL, ISX, ISB			✔
CNG: All ISX 12G and ISX12N	✔		
EPA 07 6.7L ISB			✔

Engine	Memorized Components Reset	PTO Parameters	Road & Cruise Speed Limits
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		✔	✔
CNG: All ISX 12G and ISX12N		✔	✔
EPA 07/10/13: 6.7L ISB	✔		

Engine	Reset ECU Test	Reset Fast Adaptive Shifts	Reset Filter Life
EPA 07/10/13: 6.7L ISB	✔	✔	✔

Engine	Reset Oil Life	SCR Performance and System Test	Trip Information Parameters
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			✔

Engine	Reset Oil Life	SCR Performance and System Test	Trip Information Parameters
EPA 13: all ISB, ISL, ISX, PX-7, and PX-9		✔	✔
GHG17: all B6.7, L9, X12, X15, 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		✔	✔
CNG: All ISX 12G and ISX12N			✔
EPA 07/10/13: 6.7L ISB	✔		

Engine	Trip Reset	VGT Electronic Actuator Installation and Calibration	VGT Hysteresis Test
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 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, PX-7, and PX-9	✔	✔	
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	✔	✔	

Engine	Trip Reset	VGT Electronic Actuator Installation and Calibration	VGT Hysteresis Test
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	✔	✔	
GHG21: all B6.7, L9, X15, PX-7, and PX-9 with Common Rail Fuel Systems			✔
CNG: All ISX 12G and ISX12N	✔		

Engine	VSS Parameters	Wheel Speed Chart Test	Wiggle Test/Performance Issue Monitoring
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	✔		
CNG: All ISX 12G and ISX12N	✔		
EPA 07/10/13: 6.7L ISB		✔	
All Supported Engines			✔

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.
- 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 the Software Version, select the engine and look in the bottom left of JPRO.

- Bi-directional support for Detroit Diesel engines:

Engine	Cruise Speed Limits (Max and Min)	Cylinder Cut-Out	DEF Coolant Valve Control Test
CPC02T	✔		
CPC04T	✔		
CPC302T	✔		
CPC501T	✔		
Any supported CPC with MCM02T or MCM21T		✔	
Any supported CPC with ACM02T and MCM02T			✔
Any supported CPC with MCM21T and with ACM21T or ACM301T			✔

Engine	DEF Quantity Test	DOC Face Plug Cleaning	DPF Ash Accumulatsor Reset
CPC02T			✔
Any supported CPC with ACM02T, ACM21T, or ACM301T	✔		

Engine	DEF Quantity Test	DOC Face Plug Cleaning	DPF Ash Accumulatsor Reset
CPC02T with MCM02T		✔	
CPC04T with MCM02T or MCM21T		✔	
CPC02T with ACM02T			✔
CPC04T with ACM21T			✔
CPC302T with ACM21T or ACM301T and with MCM21T			✔
CPC501T with MCM21T and with ACM21T or ACM301T			✔

Engine	DPF Service Regen	EGR Actuator Slow Learn	EGR Delta Pressure Sensor Recalibration
CPC02T	✔		
CPC04T	✔		
CPC302T	✔		
CPC501T			
CPC501T with ACM02T, ACM21T, or ACM301T	✔		
DD13 any supported CPC with MCM02T		✔	✔
DD15 or DD16 any supported CPC with MCM21T		✔	✔

Engine	Fuel System Integrity Check Automatic	Fuel System Integrity Check Leak	Fuel System Integrity Check Manual
CPC501T with ACM301T and MCM21T	✔	✔	✔

Engine	Hydrocarbon Doser Purge	Idle Shutdown	Injector Codes
CPC02T		✔	
CPC04T		✔	
CPC302T		✔	
CPC501T		✔	
Any supported CPC with MCM02T or MCM21T	✔		
CPC501T with MCM21T			✔
Any supported CPC with MCM02T	✔		

Engine	Intake Throttle Valve Test	Metering Unit Flood Routine	Parked SCR Efficiency Test
CPC02T with ACM02T			✔
Any supported CPC with MCM02T	✔	✔	
CPC04T with ACM02T or ACM21T			✔
CPC302T with ACM21T or ACM301T			✔
CPC501T with ACM21T or ACM301T			✔

Engine	Performance Check Low Temp ATD	PTO Parameters	Request Driving Regen Test
CPC02T		✔	
CPC04T		✔	
CPC501T		✔	
CPC02T with MCM02T	✔		
CPC501T with ACM301T and MCM21T			✔
CPC04T with ACM02T or ACM21T	✔		
CPC302T with ACM21T	✔		

Engine	Road Speed Limits	SCR Air Pressure System Check	SCR Airless Doser System (ADS) Self Check
CPC02T	✔		
CPC04T	✔		
CPC302T	✔		
CPC501T	✔		
Any supported CPC with ACM02T		✔	
Any supported CPC with ACM02T or ACM21T			✔

Engine	SCR Output Component Test	SCR Replacement Test	Soot Sensor
Any supported CPC with ACM02T or ACM21T and with MCM02T or MCM21T	✔		
Any supported CPC with ACM301T		✔	

Engine	SCR Output Component Test	SCR Replacement Test	Soot Sensor
Any supported CPC with ACM301T and MCM21T			✔

Engine	VSS Parameters
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_01 0C	App_04 0A	App_2 104	App_3 105	acm_0x0 1EE	acm_0x0 23E	acm_0x0 354	mcm_0x0 47B	mcm_0x0 6B2
App_01 0D	App_04 0B	App_2 105	App_3 106	acm_0x0 1EF	acm_0x0 24E	acm_0x0 359	mcm_0x0 47C	mcm_0x0 6B9
App_01 0E	App_04 0D	App_2 107	App_3 107	acm_0x0 1F0	acm_0x0 211	acm_0x0 35C	mcm_0x0 47D	mcm_0x0 6C1
	App_04 0E	App_2 108	App_3 108	acm_0x0 1F3	acm_0x0 213		mcm_0x0 47E	mcm_0x0 6DB
	App_04 06	App_2 109	App_3 109		acm_0x0 221		mcm_0x0 477	mcm_0x0 6DE
	App_04 07				acm_0x0 232			mcm_0x0 6ED
	App_04 08				acm_0x0 236			mcm_0x0 6EF
	App_04 09				acm_0x0 250			mcm_0x0 6F2
	App_04 10							mcm_0x0 6F6
	App_04 11							mcm_0x2 A1B
	App_04 12							mcm_0x2 A13
	App_04 13							
	App_04 14							

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

- 08 DI Selection
- 09 DI Sw Config (EPA 10 only)
- 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:

Engine	Actuator Test	Aftertreatment Fuel Enable Actuator Leak Test	Aftertreatment Hydrocarbon Doser Leak Test
EPA 10 Maxxforce 11	✔		
EPA 10 Maxxforce 13	✔		
A26 GHG17	✔	✔	✔
2013 N13	✔		

Engine	Aftertreatment Hydrocarbon Dosing System Test	Aftertreatment Reset	Auxiliary Engine Speed Control (PTO) Parameters
EPA 07 Maxxforce 7			✔
EPA 07 Maxxforce DT			✔
EPA 07 Maxxforce 9			✔
EPA 07 Maxxforce 10			✔
EPA 07 Maxxforce 11		✔	✔
EPA 07 Maxxforce 13		✔	✔

Engine	Aftertreatment Hydrocarbon Dosing System Test	Aftertreatment Reset	Auxiliary Engine Speed Control (PTO) Parameters
EPA 10 Maxxforce 7			✔
EPA 10 Maxxforce 9			✔
EPA 10 Maxxforce 10			✔
EPA 10 Maxxforce 11		✔	✔
EPA 10 Maxxforce 13		✔	✔
EPA 10 Maxxforce 15			✔
EPA 10 Maxxforce DT			✔
A26 GHG17	✔		✔
2013 N13			✔
2015 N13			✔
N9			✔
N10			✔

Engine	CDPF Reset	Cylinder Cut-Out	DEF Doser Pump Override Test
EPA 07 Maxxforce 7		✔	
EPA 07 Maxxforce DT		✔	
EPA 07 Maxxforce 9		✔	
EPA 07 Maxxforce 10		✔	
EPA 07 Maxxforce 11		✔	
EPA 07 Maxxforce 13		✔	
EPA 10 Maxxforce 7			
EPA 10 Maxxforce 9	✔	✔	
EPA 10 Maxxforce 10	✔	✔	
EPA 10 Maxxforce 11		✔	
EPA 10 Maxxforce 13		✔	
EPA 10 Maxxforce DT	✔	✔	
A26 GHG17		✔	
2013 N13		✔	✔
2015 N13		✔	✔
N9		✔	✔
N10		✔	✔

Engine	DOC/DPF Replacement Reset	DPF Service Regen	Forced Active Regen
EPA 07 Maxxforce 7		✔	
EPA 07 Maxxforce DT		✔	
EPA 07 Maxxforce 9		✔	
EPA 07 Maxxforce 10		✔	
EPA 07 Maxxforce 11		✔	
EPA 07 Maxxforce 13		✔	
EPA 10 Maxxforce 7		✔	
EPA 10 Maxxforce 9		✔	
EPA 10 Maxxforce 10		✔	
EPA 10 Maxxforce 11		✔	
EPA 10 Maxxforce 13		✔	
EPA 10 Maxxforce DT		✔	
A26 GHG17	✔	✔	✔
2013 N13	✔	✔	
2015 N13	✔	✔	
N9	✔	✔	
N10	✔	✔	

Engine	Fuel Pressure Adaptation Reset	Idle Shutdown Time	KOEO Injector Test
EPA 07 Maxxforce 7	✔	✔	✔
EPA 07 Maxxforce DT		✔	✔
EPA 07 Maxxforce 9		✔	✔
EPA 07 Maxxforce 10		✔	✔
EPA 10 Maxxforce 9		✔	✔
EPA 10 Maxxforce 10		✔	✔
EPA 10 Maxxforce 11		✔	
EPA 10 Maxxforce 13		✔	
EPA 10 Maxxforce 15		✔	
EPA 10 Maxxforce DT		✔	✔
EPA 13 Maxxforce 7	✔	✔	
EPA 13 Maxxforce 9		✔	

Engine	Fuel Pressure Adaptation Reset	Idle Shutdown Time	KOEO Injector Test
EPA 13 Maxxforce 10		✔	
EPA 13 Maxxforce 11		✔	
EPA 13 Maxxforce 13		✔	
EPA 13 Maxxforce DT		✔	
A26 GHG17		✔	
2013 N13		✔	
N9		✔	✔
N10		✔	✔

Engine	KOER Standard Test	KOER Air Management Test	Road & Cruise Speeds
EPA 07 Maxxforce 7	✔	✔	✔
EPA 07 Maxxforce DT	✔	✔	✔
EPA 07 Maxxforce 9	✔	✔	✔
EPA 07 Maxxforce 10	✔	✔	✔
EPA 10 Maxxforce 7	✔	✔	
EPA 10 Maxxforce 9	✔	✔	✔
EPA 10 Maxxforce 10	✔	✔	✔
EPA 10 Maxxforce 11		✔	✔
EPA 10 Maxxforce 13			✔
EPA 10 Maxxforce 15			✔
EPA 10 Maxxforce DT	✔	✔	✔
EPA 13 Maxxforce 7	✔	✔	✔
EPA 13 Maxxforce 9	✔		✔
EPA 13 Maxxforce 10			✔
EPA 13 Maxxforce 11			✔
EPA 13 Maxxforce 13			✔
EPA 13 Maxxforce DT			✔
A26 GHG17	✔	✔	✔
2013 N13	✔		✔
2015 N13	✔	✔	✔
N9	✔	✔	✔
N10	✔	✔	✔

Engine	SCR Faults Reset	VSS Parameters
EPA 07 Maxxforce 7		✔
EPA 07 Maxxforce DT		✔
EPA 07 Maxxforce 9		✔
EPA 07 Maxxforce 10		✔
EPA 07 Maxxforce 11		✔
EPA 07 Maxxforce 13		✔
EPA 10 Maxxforce 7		✔
EPA 10 Maxxforce 9		✔
EPA 10 Maxxforce 10		✔
EPA 10 Maxxforce 11		✔
EPA 10 Maxxforce 13		✔
EPA 10 Maxxforce 15		✔
EPA 10 Maxxforce DT		✔
A26 GHG17	✔	✔
2013 N13	✔	✔
2015 N13	✔	✔
N9	✔	✔
N10	✔	✔

Auxiliary Engine Speed Control (PTO) Parameters

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

General PTO

- AESC – Mode
- AESC – Maximum Vehicle Speed
- AESC – In Cab Mode Preset
- AESC – In Cab Operator Interface
- AESC – Ramp Rate
- AESC – Maximum Engine Speed
- 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 With Clutch
- AESC – Disable With Brake
- AESC – Disable With APS
- AESC – Disable ATC With Service Brake
- AESC – Disable AESC With Parking Brake Released
- AESC – Disable AESC With Driveline Status
- AESC – Disable AESC With In-Cab Controls
- AESC – Disable AESC With Vehicle Speed
- AESC – SPDT Enable
- AESC – Disable RP With Service Brake
- AESC – Disable RP With Parking Brake Released
- AESC – Disable RP With Driveline Status
- AESC – Disable RP With In-Cab Controls
- AESC – Disable RP With Vehicle Speed
- AESC - Disable with Parking Brake

Preset

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

Advanced Configuration

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

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: Viewing Trip and Live Vehicle reports requires:

- DataMax parameter enabled on
  - ✓ Mack EPA07 to EPA10

- Bi-directional support for Mack and Volvo engines includes:

Engine	Aftertreatment Injector Activation for Flow Test	Cruise Max and Min Speeds	Cylinder Cut-Out
EPA 07	✔		
EPA 07 to EPA 10		✔	
EPA 07 to GHG17			✔

Engine	DEF Dosing Valve Test	DEF Pressure System Test	DPF Service Regen
EPA 07 to GHG17			✔
EPA 10 to GHG17	✔	✔	

Engine	DPF System Reset	EGR Function Test	Enable or Disable Cruise Control
EPA 07 to EPA 10			✔
EPA 07 to GHG17	✔	✔	

Engine	Exit Inducement Test	Fan Activation Test	Fuel Shut-off Valve Test
EPA 07 to EPA 10			✔
EPA 07 to GHG17		✔	
EPA 10 to GHG17	✔		

Engine	Hydrocarbon Dosing Control Valve Test	Idle Shutdown Time	Learned Data Reset
EPA 07 to EPA 10		✔	
EPA 07 to GHG17			✔
EPA 10	✔		

Engine	NOx Conversion Monitor Test	Purge Air Valve Test	Road Speed Limit
EPA 07 to EPA 10			✔
EPA 10		✔	
EPA 13 to GHG17	✔		

Engine	SCR Regeneration	Trip Reset	VGT Electronic Actuator Installation and Calibration
EPA 07 to EPA 10		✔	
EPA 13 to GHG17	✔		✔

Engine	VGT Function Test	VGT Monitor Test	Warm Hold Function Test
EPA 07 to EPA 10			✔
EPA 07 to GHG17	✔		
EPA 13 to GHG17		✔	

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 features.

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:

Engine	Cylinder Cut-Out	DPF Service Regen
EPA 07	✔	✔

NOTE: Can be started from either the Bi-Directional Test selection or the Aftertreatment Diagnostics screen.

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 XBT, 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:

Engine	Activate Air Shut Off Valve	Activate Fuel Dosing Valve Test	Automated Cylinder Performance Test
EPA 10 to EPA 13 (all MX Engines)			✔
GHG17 to GHG21 (all MX Engines)	✔	✔	

Engine	Check Internal DEF Pump Module Heater	Cylinder Cut-Out	Cylinder Compression Test
EPA 13 (all MX Engines)	✔		
GHG17 to GHG21 (all MX Engines)		✔	✔

Engine	DEF Doser Pump Test	DEF Heater Test (Inlet Pipe, Pipe, Pump, Return, Tank Heater Valve)	DPF Service Regen
EPA 10 to GHG17 (all MX Engines)	✔		
GHG17 to GHG21 (all MX Engines)		✔	✔

Engine	Enable Regeneration after Aftertreatment System Repair	Evaluate NOx Sensors Test (Before & After Catalyst)	Injector Calibration Test
EPA 10 to EPA 13 (all MX Engines)	✔		
EPA 13 (all MX Engines)		✔	✔
GHG17 (all MX Engines)			✔*
GHG21 (all MX Engines)			✔

NOTE: ✔* under GHG17 = supported on MX13 engines only

Engine	Install a New or Cleaned DPF	Prime the System with the Pump for DEF	Reset the Soot Level
EPA 10 to EPA 13 (all MX Engines)	✔		✔
GHG17 (all MX Engines)		✔	

Engine	Turbo Actuator Effort Test
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:

System	Clutch Apply Leak Test	Gear Split Range Activation Test	TCM Global Status
DT12 TCM01T	✔	✔	✔
DT12 TCM05T	✔	✔	✔

System	TCM Release Lock	Tilt Sensor Calibration	Transmission Learn Procedure Test
DT12 TCM01T	✔	✔	✔
DT12 TCM05T	✔	✔	✔

Heavy-Duty Features for Eaton

- Supports reading SAE faults and proprietary data for 2017 – 2022 Endurant transmissions.
- Bi-directional support for Eaton transmissions:

System	Clutch Calibration Test	Grade Sensor Calibration	Inertia Brake Test
2017 - 2022 Endurant	✔	✔	✔

System	Product Diagnostic Test
2017 - 2022 Endurant	✔

Heavy-Duty Support for Mack and Volvo Transmissions

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

Heavy-Duty Support for PACCAR

- Supports reading SAE faults and proprietary data for 2017 – 2022 TX-12 transmissions.
- Bi-directional support for PACCAR transmissions:

System	Clutch Calibration Test	Grade Sensor Calibration	Inertia Brake Test
2017 - 2022 TX-12	✔	✔	✔

System	Product Diagnostic Test	Rail Calibration Test
2017 - 2022 TX-12	✔	✔

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 supports 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 forEC-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 the 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:

System / Platform	ABS Air Bag Pressure Test	ABS Configuration	ABS Engine Limiting Test
EC-60 Premium/Adv.	✔		✔

System / Platform	ABS Air Bag Pressure Test	ABS Configuration	ABS Engine Limiting Test
EC-80 ATC			✔
EC-80 ESP/ESP+	✔		✔
EC-60 and EC-80		✔	

System / Platform	ABS Pressure Test	ABS Self Config Test	ATC Configuration Test
EC-60 Standard		✔	
EC-60 Premium/Adv.	✔	✔	
EC-80 ABS		✔	✔
EC-80 ATC			✔
EC-80 ESP/ESP+	✔		✔

System / Platform	Battery Voltage Test	Braking System Switches Test	Dashboard Lamp Tests
EC-60 and EC-80	✔	✔	✔

System / Platform	Drag Torque Test	ECU Reset	ESP Lamp Test
EC-60 Premium/Adv.	✔		
EC-80 ATC	✔		
EC-80 ESP/ESP+	✔		✔
EC-60 and EC-80		✔	

System / Platform	Maintenance Mode	Modulator Valve (Chuff) Tests	Steering Angle Test and Calibration
EC-60 Premium/Adv.			✔
EC-80 ESP/ESP+			✔
EC-60 and EC-80		✔	
Intellipark	✔		

System / Platform	Wheel Speed Chart Test	Wheel Speed Window Test	Yaw Rate and Lateral Accel. Test and Calibration
EC-60 Standard	✔	✔	
EC-60 Premium/Adv.	✔	✔	✔
EC-80 ABS	✔	✔	
EC-80 ATC	✔	✔	
EC-80 ESP/ESP+	✔	✔	✔
EC-60 and EC-80	✔	✔	
Intellipark	✔	✔	

System / Platform	Wiggle Test/Performance Issue Monitoring
EC-60 and EC-80	✔

ABS Configuration Parameters

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

ABS	• Configuration Additional Axle • Engine Retarder Control • Rail Mode
Tire Size	• Tire Size (RPM)
ATC	• ATC Control • Traction Control Switch

ESP	• Yaw Control • RSP • Steering Angle Sensor Orientation • Lateral Acceleration Sensor Orientation • Yaw Rate Sensor Orientation • Trailer Modulator • Air Bag
Broadcast	• High Resolution Wheel Speed • Wheel Speed Information • Electronic Brake Controller • Cruise Control/Wheel Speed • Brake Message • 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 with the tools to set the configuration and parameters of TABS-6™ Multi-Channel (MC) Trailer ABS ECUs.
- Bi-directional Support for Bendix Trailers:

ABS System	ABS Indicator Lamp Test	Axle Load Test	Battery Voltage Test
TABS-6™ Advanced Single-Channel	✔	✔	✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔	✔	✔

ABS System	Chuff Test	Door Switch Status Test	ECU Configuration
TABS-6™ Advanced Single-Channel		✔	
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔	✔	

ABS System	ECU Information Test	General Output Functions Test	Installation Angle Test
TABS-6™ Advanced Single-Channel	✔	✔	✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔	✔	✔

ABS System	Installation Configuration Test	Lift Axle Control Test	Lift Axle Sensing Test
TABS-6™ Advanced Single-Channel	✔	✔	✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔	✔	✔

ABS System	Lift Lower Test	Low Pressure Warning Emergency Test	Low Pressure Warning Service Test
TABS-6™ Advanced Single-Channel	✔	✔	✔
TABS-6™ Multi-Channel (MC)	✔	✔	
TABS-8™ Trailer ABS	✔	✔	✔

ABS System	P-21 Delivery Test	P-21 Modulator Test	P-22 Delivery Test
TABS-6™ Advanced Single-Channel		✔	
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔	✔	

ABS System	P-22 Modulator Test	Pad Wear Test	Pressure Sensor Test
TABS-6™ Advanced Single-Channel		✔	✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS		✔	✔

ABS System	S-C and S-D Sensor Tests	S-E and S-F Sensor Tests	Scratchpad Test
TABS-6™ Advanced Single-Channel	✔		✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔

ABS System	S-C and S-D Sensor Tests	S-E and S-F Sensor Tests	Scratchpad Test
TABS-8™ Trailer ABS	✔		✔

ABS System	Tire Inflation System Test	Wear Sensing Test	Wheel Speed Chart Test
TABS-6™ Advanced Single-Channel	✔		✔
TABS-6™ Multi-Channel (MC)	✔	✔	✔
TABS-8™ Trailer ABS	✔		✔

ABS System	Wheel Speed Window Test
TABS-6™ Advanced Single-Channel	✔
TABS-6™ Multi-Channel (MC)	✔
TABS-8™ Trailer ABS	✔

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:

System / Module	AutoVue Configuration	Blindspotter Configuration	Camera Snapshot Test
AutoVue® 3G LDW system	✔		
Blindspotter® Radar		✔	
AutoVue® FLC20™ Camera			✔

System / Module	Clear Stored Events and Videos	DIU Configuration	Indicator Component Tests
AutoVue® 3G LDW system	✔		✔
SafetyDirect® Web Portal Processor (5G)			✔
SafetyDirect® Web Portal Processor (3G and 5G)	✔		
Driver Interface Unit		✔	

System / Module	Lamp Component Tests	LDW Configuration	Output Component Tests
AutoVue® 3G LDW system	✔		✔
AutoVue® FLC20™ Camera		✔	
SafetyDirect® Web Portal Processor (5G)	✔		
SafetyDirect® Web Portal Processor (3G and 5G)			✔

System / Module	Pressure Trimming and Coil Polarity Test	Radar Service Alignment	Safety Direct Event Configuration
AutoVue® 3G LDW system			✔
SafetyDirect® Web Portal Processor (3G and 5G)			✔
Active Steering by Bendix CVS (AG12 software)	✔		
Wingman® FLR25™ Radar		✔	

System / Module	Safety Direct Event Selection Configuration	SDP3 Configuration	SDP5 Configuration
AutoVue® 3G LDW system	✔		
SafetyDirect® Web Portal Processor (3G)		✔	
SafetyDirect® Web Portal Processor (5G)			✔
SafetyDirect® Web Portal Processor (3G and 5G)	✔		

System / Module	SDP5 System Configuration	Speaker Volume Configuration	SPTAC Calibration
AutoVue® 3G LDW system		✔	
AutoVue® FLC20™ Camera			✔

System / Module	SDP5 System Configuration	Speaker Volume Configuration	SPTAC Calibration
SafetyDirect® Web Portal Processor (5G)	✔		
SafetyDirect® Web Portal Processor (3G and 5G)		✔	

System / Module	Startup Chirp Volume Setting	TSR Configuration	Wingman FLR Configuration
AutoVue® FLC20™ Camera		✔	
SafetyDirect® Web Portal Processor (3G version 21.19 and above)	✔		
SafetyDirect® Web Portal Processor (5G)	✔		
Wingman® FLR20™ / FLR21™ Radar			✔
Vorad VS500 Radar			✔

System / Module	Wingman Fusion Blindness Adjustment
Wingman® FLR21™ Radar	✔

Safety Direct Event Configuration Parameters	Safety Direct Event Selection Configuration Parameters
NOTE: The exact Safety Direct Event Selection Configuration parameters available vary based on ECU type.	**NOTE:** The exact Safety Direct Event Selection Configuration parameters available vary based on ECU type.
SD Event Collection • Safety Direct Event Reporting • Transmit Time Before Event Trigger	**Notification Beep:** • Excessive Curve Speed • Excessive Braking

• Transmit Time After Event Trigger • SD Manual Event Video Length • SD Overspeed Grace Threshold • SD Overspeed Video Snapshots OTA **SD Event Triggers** • 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 **SD Min Speeds** • Braking Trigger Minimum Speed • Excessive Turning Trigger Minimum Speed • Following Distance Minimum Speed	• Distance Alert • Forward Collision Warning • Collision Mitigation Braking • ESC • RSC • Over Speed Limit • Vehicle Speeding **Video Recording:** • 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 a local file.

- Bi-directional support for Bendix TPMS:

System / Module	TPMS Ambient Sensor Configuration	TPMS Backup and Restore	TPMS Configuration
All SmarTire™ TPMS solutions	✔	✔	✔

System / Module	TPMS Lamp Display Configuration	TPMS Parameters	TPMS Scratchpad
All SmarTire™ TPMS solutions		✔	
SmarTire™ Standard TPMS solutions	✔		
SmarTire™ NextGen TPMS solutions	✔		✔

TPMS Parameters

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

Global Settings

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

Sensor Fault Time Programming

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

Programming Restrictions

- Gauge Units Menu
- Gauge Parameters Menu
- Gauge Axle Menu
- Gauge Altitude Menu
- Gauge Learn Menu
- Gauge Profile Menu
- Gauge Password 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
- Vehicle ID
- Trailer Learn
- Exclusive Trailer
- Exclusive Trailer ID

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:

System / Module	Cartridge Lifetime Prediction Reset Test	Cartridge Reset Test	Oil Change Reset Test
EAC (Standalone)	✔		
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:

System / Module	Dashboard Lamp Tests	Enable/Disable ATC (Automatic Traction Control)	Memorized Components Reset
All Wabco braking systems (except mBSP)	✔		
HPB brakes		✔	
All pneumatic braking systems		✔	
All pneumatic and hydraulic braking systems (with J1587 communications)			✔

System / Module	Modulator Valve (Chuff) Test	Wheel Speed Chart Test	Wheel Speed Window Test
All pneumatic braking systems	✔		
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:

System / Module	Wiggle Test/Performance Issue Monitoring
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:

Engine	CTIS Pressure Tests	CTIS Supply Tank Pressure Test
Dana CTIS (J1939 Available)	✔	✔

Heavy-Duty Support for Detroit Assurance

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

System Type	Radar Alignment	Radar Parameters
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 XBT, 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 Prevost

- Displays all standard and proprietary fault codes for all Prevost 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.

- When selecting the off-highway connection type, you will be asked if you are connecting to John Deere equipment. Select "Yes" to connect to John Deere equipment. Select "No" for all other off-highway equipment.

Off-Highway Support for Bobcat

- Bi-directional Support for Bobcat engines:

Engine Type	Wiggle Test/Performance Issue Monitoring
DL02	✔
DL03	✔

> **NOTE:** Bobcat 6-pin Off-Highway cable is required.

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

<table>
<tr><th>Equipment</th><th>Supported On</th></tr>
<tr><td>Mini-Excavators</td><td><table><tr><th>Engine: DL02</th></tr><tr><td>E45</td></tr><tr><td>E50</td></tr><tr><td>E55</td></tr></table></td></tr>
<tr><td>Track Loaders</td><td><table><tr><th>Engine: DL02</th><th>Engine: DL03</th></tr><tr><td>T650</td><td>T630</td></tr><tr><td></td><td>T770</td></tr><tr><td></td><td>T870</td></tr></table></td></tr>
<tr><td>Skid Steer Loaders</td><td><table><tr><th>Engine: DL02</th><th>Engine: DL03</th></tr><tr><td>S530</td><td>S770</td></tr><tr><td>S630</td><td></td></tr><tr><td>S650</td><td></td></tr></table></td></tr>
</table>

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

Off-Highway Support for Caterpillar

- Bi-directional support for Caterpillar engines:

Engine Model	Cylinder Cut-Out Test	Wiggle Test/Performance Issue Monitoring
C4.4	✔	✔
C6.6	✔	✔
C7.1	✔	✔
C9.3	✔	✔
C9.3B	✔	✔
C13 ACERT T4i & T4		✔
C13	✔	

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

Equipment Type	Supported On	
Compact Track Loader	**Engine: C2.2**	
	239D3	
	249D3	
Genset	**Engine: C2.2**	
	XQ35	
Hydraulic Shovel	**Engine: C27**	
	6030	
Industrial Engine	**Engines**	
	C13	
	C13B	
	C15	
	C18	
	C27	
	C3.4B	
	C4.4	
	C7	
	C9	
	C9.3	
Material Handler	**Engine: C7**	
	MH3037	
Petroleum Power Train (Transmission)	**Engine: C9**	**Engine: C13**
	CX31-P600-C9I	**CX31-C13I**
	C27	**CX31-P600-C13I**
	CX35-P800-C27I	**TH35-C13I**
	TH48-E70-C27I	
	Engine: C9.3	**Engine: C18**
	CX31-P600-C9.3I	**CX31-C18I**
	C15	**CX35-P800-C18I**
	C31-P600-C15I	**CX31-P600-C18I**
	TH35-C15I	**CX35-P800_C18I**
	TH35-C15T	**CX38-P892-C18I**

Equipment Type	Supported On
Skid Steer (Both)	**Engine: C2.2**
	216B2
	216B3
	226B2
	226B3
	226D3
	232B2
	232D
	232D3
	236D3
	239D
	242B2
	247B2
	247B3
	249D
	257B2

- 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	**Engine: C3.6**	**Engine: C7.1**
	AP400	AP1000
	AP455	AP1000 F
	Engine: C4.4	AP1000E
	AP500E	AP1055
	AP555E	AP1055 F
	BG500E	AP1055E
	BG555E	BG1000E
	Engine: C4.4B	BG1055E
	AP500F	
	AP555F	
	AP600F	
	AP655F	
Backhoe Loader	**Engine: C3.4B**	**Engine: C4.4B**
	415F2	416F
	415F2 IL	416F2
	Engine: C3.6	420F
	415	420F2 IT
	416	428F2

Equipment Type	Supported On	
	Engine: C3.6	**Engine: C4.4B**
	420	430F
	420 XE	430F2
	424	430F2 IT
	430	432F
	440	432F2
	Engine: C4.4	434F
	416F	434F2
	420E	444F
	420F	444F2
	428F	450
	430E	450F
	430F	
	432F	
	434F	
	444F	
	450E	
	450F	
	432	
	434	
	444	
Cold Planer	**Engine: C9.3**	**Engine: C9.3B**
	PM310	PM310
	PM312	PM312
	PM313	PM313
Compact Wheel Loader	**Engine: C4.4**	**Engine: C4.4B**
	914G2	910M
		914M
		918M
Crawler Dozer	**Engine: C3.6**	**Engine: C7.1**
	D1	D5
	D1 LGP	D6K2
	D2	D6N LGP
	D2 LGP	D6N XL
	D3	C6.6
	D3 LGP	D6K2
	Engine: C4.4	D6K2 LGP
	D3K LGP	D6K2 XL
	D3K XL	D6N LGP
	D3K2 LGP	D6N XL
	D3K2 XL	**Engine: C9.3**
	D4K LGP	D6T

Equipment Type	Supported On	
	Engine: C4.4	Engine: C9.3
	D4K XL	D6T LGP
	D4K2 LGP	D6T XL
	D4K2 XL	D6T XL VPAT
	D5K LGP	D6T XW
	D5K XL	D7E
	D5K2 LGP	D7E LGP
	D5K2 XL	
	Engine: C4.4B	Engine: C9.3B
	D3K LGP	D6
	D3K2 LGP	D6 XE
	D3K2 XL	D7
	D4	Engine: C15
	D4K2 LGP	D8
	D4K2 XL	D8T
	D5K2 LGP	
	D5K2 XL	
	D6K2 LGP	
	D6K2 XL	
Excavator	Engine: C3.4B	Engine: C6.6
	311F LRR	320E
	313F GC	320E L
	Engine: C3.6	320E LN
	313	320E LRR
	313 GC	320E RR
	315	320E/E L
	315 GC	320E/E L/E LN
	317 GC	323E
	Engine: C4.4	323E L
	312E	323E LN
	312E L	323E SA
	314E CR	Engine: C7.1
	314E LCR	320
	316E L	323
	318E L	323F L
	320	324E
	M323F	324E L
	Engine: C4.4B	326
	312E	326F L
	312E L	326F LN

	312F	329E

Equipment Type	Supported On	
	Engine: C4.4B	Engine: C7.1
	313F	329E L
	313F L	329E LN
	314E CR/E LCR	329E/E L
	314F	329F L
	315F L	330
	316E L	330 GC
	316F L	330F
	318E L	330F L
	318F L	333
	320 GC	335
	320F L	335F L
	323F LN	335F LCR
	323F SA	336
	325F L	336 GC
	Engine: C9.3	Engine: C9.3B
	336E	336
	336E H	340
	336E L	345 GC
	336E LH	Engine: C13
	336E LN	349E
	336E LNH	349E L
	336F	349E L HVG
	Engine: C9.3	Engine: C13
	336F L	349E L VG
	336F L XE	349F
	336F LN	349F L
	336F LN XE	
	336F LXE	
	336F XE	
	340F	
Wheeled Excavators	Engine: C9.3B	Engine: C13
	350	349F/F L
	Engine: C15	352F
	374F L	352F-VG
Feller Buncher	Engine: C7.1	
	563C	
	573C	
General	Engine: C7.1	Engine: C9.3B
	548	568

Forestry	558	FM568

Equipment Type	Supported On	
	Engine: C7.1	
	FM538	
	Engine: C9.3	
	568	
Knuckleboom Loader	Engine: C4.4B	Engine: C6.6
	559D	559C
	579D	579C
Landfill Compactor	Engine: C15	
	826K	
Load Haul Dump	Engine: C15	
	R2900	
Log Loader	Engine: C7.1	Engine: C9.3
	538	568
	548	Engine: C9.3B
	558	568 LL
	FM538	FM568
Material Handler	Engine: C7.1	
	MH3022	
	MH3024	
	MH3026	
	MH3032	
	MH3040	
Motor Grader	Engine: C7.1	Engine: C13
	140 GC	14
	Engine: C9.3	14M
	12M	14M III
	140	16M
	140M	16M III
	150	18M III
	160M	
Off-Highway Truck	Engine: C9.3	Engine: C15
	725	735B
	725C	735C
	725C2	740
	Engine: C13	740B
	730	770
	730C	770G
	730C2	
	Engine: C3.4B	Engine: C4.4B

Padfoot Compactor	CP34	CP12

Equipment Type	Supported On	
	Engine: C3.4B	Engine: C4.4B
	CP44B	CP54B
	CP5	CP56B
	Engine: C3.6	CP68B
	CP11 GC	CP74B
	CP13 GC	Engine: C7.1
	CP7	815
	Engine: C4.4	815K
	CP44	816
	CP54B	816K
	CP56B	Engine: C15
	CP68B	824
	CP74B	825
		825K
		826
Pipelayer	Engine: C4.4B	Engine: C15
	PL61	PL83
	Engine: C9.3	PL87
	PL72	
Pneumatic Compactor	Engine: C3.4B	Engine: C4.4, C4.4B
	CW14	CW34
	CW16	
Road Reclaimer/ Recycler	Engine: C9.3B	Engine: C15
	RM400	RM500
		RM500B
Smooth Drum Compactor	Engine: C3.4B	Engine: C4.4
	CB44B	CB34
	CB46B	CB44B
	CB7	CB54B
	CB8	CB64
	CD10	CS44
	CD44B	CS54
	CD54B	CS54 XT
	CD8	CS54B
	CS34	CS56B
	CS5	CS64B
	Engine: C3.6	CS68B
	CB10	CS74B
	CB7	CS78B
	CB8	CS44B
	CS10 GC	Engine: C4.4B

	CS11 GC	CB10
	CS12 GC	CB15

Equipment Type	Supported On	
	Engine: C3.6	Engine: C4.4B
	CS7	CB16
		CB44B
		CS54B
		CS56B
		CS64B
		CS68B
		CS74B
		CS78B
Telehandler	Engine: C3.4B	Engine: C3.6
	TH336C	TL1055
	TH337C	TL1255
	TH3510D	TL642
	TH406C	TL943
	TH407C	Engine: C4.4
	TH408D	TH3510D
	TH414C	TH357D
	TH417C	TH408D
	TH514C	TL642C
	TH514D	TL1055D
	TL642D	TL1255D
	TL943C	
	TL943D	
Track Loader	Engine: C7.1	Engine: C9.3
	953	973K
	953K	
	963	
	963K	
Track Processor/Harvester	Engine: C9.3	
	568	
Wheel Dozer	Engine: C7.1	
	814	
	814K	
Wheel Feller Buncher	Engine: C7.1	
	563D	
	573D	
	Engine: C6.6	Engine: C9.3B

Wheel Loader	**924K**	**966**
	930K	**Engine: C9.3**
		966M

Equipment Type	Supported On	
	Engine: C7.1	Engine: C9.3
	926M	966M XE
	930	972K
	930M	972M
	938M	972M XE
	950	Engine: C13
	950K	980K
	950M	980M
	950M Z	982M
	962K	Engine: C15
	962M	986
	962M Z	
	966	
Wheel Scraper	Engine: C9.3	Engine: C13
	627	621
	627K	621K
	637K	623
	Engine: C15	623K
	657K	627
		627K
Wheel Skidder	Engine: C7.1	
	525D	
	535D	
	545D	
	555D	

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

Off-Highway Support for Cummins

- Bi-directional support for Cummins engines:

Engine Model	Cylinder Cut-Out Test	DPF Service Regen	Fuel Leakage Test
QSB4.5	✔	✔	
QSB6.7	✔		✔
QSF3.8	✔	✔	
QSL9	✔	✔	✔

Engine Model	Cylinder Cut-Out Test	DPF Service Regen	Fuel Leakage Test
QSX15	✔	✔	✔
B6.7	✔	✔	✔
L9		✔	

Engine Model	SCR Performance and System Test	Wheel Speed Chart Test or Wheel Speed Window Test	Wiggle Test/Performance Issue Monitoring
QSB4.5	✔		✔
QSB6.7	✔		✔
QSF3.8	✔		✔
QSL9	✔		✔
QSX15		✔	✔
B6.7	✔		✔
L9	✔		

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	**Engine: QSB4.5** **ASC 110 D**

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	Engine: QSF2.8	Engine: QSF3.8
	RT 75	RT 120

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	Engine: QSB6.7
	C828S

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
Drum Roller	Engine: QSB5.9
	BW 200 Series

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	Engine: QSC8.3	Engine: QSL9
	HT 275	HT 275
Directional Drill	Engine: F3.8	Engine: QSB6.7
	JT24	JT100 ALL TERRAIN
	Engine: QSB4.5	JT100
	JT25	JT60 ALL TERRAIN
	JT30 ALL TERRAIN	JT60
	JT30	
	JT40	
	JT40 ALL TERRAIN	

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	Engine: QSB3.3
	CC 2200 C
	CC2300
	Engine: QSB3.3

Equipment Type	Supported On	
	CC3200	
Compactor	Engine: QSF2.8	Engine: QSB6.7
	CP 1200	CT3000
	Engine: QSB4.5	F1000T
	CP 274	
Wheeled Finisher	Engine: QSB6.7	
	F 3030C	
	F 2500 C	
	F 2500 CS	
	MF2500CL	
	MF2500CM	
	MF2500CS	
Wheeled Paver	Engine: QSB6.7	
	F 2500 W	
	F1000W	
	F800W	
	F800T	
Vibratory Roller	QSB3.3	Engine QSB4.5
	150 A	CA 250 D-II
	150 AD	CA 250 PD
	CA 150	CA 2500 D
	QSF3.8	CA 2500 PD
	CA 2500	CA 250-II
	CA 2500 D	CA 252 D
	CA 2500 PD	CA 252
	CA 3500 D	CA 302 D
	CA 3500 PD	CA 302 PD
	CC 4000 C VI	CA 3500 D
	CC 4000 VI	CA 3500 PD
	CC 4200 C VI	CA 4000 D
	CC 4200 VI	CA 4000 PD
	CC 6200 C VI	CC 4200
	CC 6200 VI	CC 5200
	QSB6.7	CC 6200
	CA 362 D	CA5500D
	CA 702 D	CA5500PD
	CA 702 PD	CA6000D
	CC 7200	

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	**Engine: ISB6.7**
	D 152
	D 154
	D 172
	D 174

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	Engine: QSB4.5	Engine: QSL9
	ZW140	ZW310-6
	ZW150	Engine: QSM11
	ZW140-6	ZW310-5A
	Engine: QSB6.7	ZW330
	ZW180	Engine: QSX15
	ZW180-5	ZW370
	ZW200-5	
	ZW200-5A	
	ZW200-6	

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	Engine: QSB4.5	
	906 E	
	908 E	
	H 926 E-ESD	
	H 928 E-ESD	
Off Highway Truck	Engine: QSB4.5	Engine: QSB6.7
	912 F	922 C
Wheel Excavator	Engine: QSB4.5	
	MX 14	
	MX 16	
	MX 18	

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	
Wheel Loader	QSB6.7	QSX15
	260LC-9A	R850LC-9
	300LC-9A	R800LC-7A
	HX220AL	R800LC-9
	HX220LR	R800LC-9A
	X12	
	HX140A L	
	HX480A L	
	HX520A L	
Compactor	QSF3.8	
	HX140LC	
	QSL9	
	330LC-9A	
	380LC-9A	
	QSM11	
	R480LC-9	
Wheel Excavator	Engine: QSF3.8	
	HR110C	
	HR120C	
	HR140C	
Wheel Excavator	Engine: QSB4.5	Engine: QSB6.7
	HW140A	HW210A
	HW160A	HW250A MH
	HW170A CR	R140W-9A

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	Engine: QSB6.7	Engine: QSM11
	427	467ZX
	435S	
	437	
	437HT	
	457S	
Articulated Dump Truck	700 series	
Backhoe Loader	Engine: QSB6.7	
	HMEE	

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	Engine: B6.7
	T2
	TT618i

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	**Engine: QSB4.5**	**Engine: QSM11**
	60ZV-2 SERIES	**90ZV-2**
		90ZV
	Engine: QSB6.7	**Engine: QSL9**
	70TM7 SERIES	**85ZV**
	70TMV-2	**90Z7**
	70Z7 SERIES	
	70ZV-2 SERIES	

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	**Engine: QSF2.8**
	RW-85
Motor Grader	**Engine: QSF3.8**
	685D
	695B
	G700B

Equipment Type	Supported On
Chip Spreader	Engine: QSB4.5 CSM

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
Rough Terrain Crane	Engine: QSB6.7 LRT 1090-2.1 LRT 1100-2.1

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	Engine: QSB4.5	Engine: QSL9
	RTC 8050 SII	75 RT
	Engine: QSB6.7	RTC 80160 SII
	100 RT	

		Engine: QSB6.7
		120 RT
		RTC 8065 SII
All-Terrain Crane	Engine: QSX15	
	175 AT	
Crane	Engine: QSB6.7	Engine: QSL9
	138 HSL	298 HSL
	228 HSL	348 HSL
	238 HSL	TCC 1200
	218 V	TCC 1400
	248 HSL	TCC 2500
	TCC 750	TCC 500
	TCC 800	Engine: QSX15
	Engine: ISX12	HTC 8675 Series II
	HTC 8690 LB	HTC 8690 LB
	HTC 8690	HTC 8690
Telescopic Crane	Engine: X12	
	HTT 86100	
	HTT 86110	
	HTT 8675	

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	Engine: QSB5.9
	5100-2

Equipment Type	Supported On
Excavator	Engine: QSF3.8 913E Engine: QSB4.5 915E Engine: QSB4.5 W915E Engine: QSL 936E Engine: L9 939E Engine: QSM11 945E Engine: QSG12 950E Engine: QSX15 970E Engine: X12 950E
Mining Truck	Engine: QSX15 DR50C
Directional Drill	Engine: QSC8.3 RD45A-CS Engine: QSM11 SD36A Engine: QSX15 SH46A
Diaphragm Wall Grab	Engine: QSM11 SG50A SG70
Trencher	Engine: QSM11 SX40A Engine: QSX15 SX50
Paver	Engine: QSB6.7 509A
Vibratory Roller	Engine: QSB4.5 6212E 6213E 6214E 6520E 6612E
Wheel Loader	Engine: QSB6.7 848H Engine: B6.7 856H Engine: QSL9 862H 870H Engine: L9 877H Engine: QSM11 886H Engine: X12 890H

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	**Engine: QSB6.7**	**Engine: QSM11**
	MLC100	15000
	MLC100A	888
	MLC150	999
	MLC80A	**Engine: QSG12**
	MLC90A	MLC300
	Engine: QSC8.3	**Engine: QSX15**
	777	1015
	Engine: QSL9	16000
	14000	18000
	555	2250
	MLC165	31000
		MLC650

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	Engine: QSM11 D350

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	Engine: QSF3.8 T944X 445F2

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	Engine: QSF2.8	Engine: QSF3.8
	SV414D	SV544D
	SV414T	SV544T

Equipment Type	Supported On
Tandem Roller	Engine: QSF3.8 SW994

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	Engine: QSM11 SCC3500A	
Cold Planer	Engine: QSX15 SCM600-3	
Grader	Engine: QSB6.7 SAG200C-6 SMG180C-6 SMG200C-6	Engine: QSC8.3 SMG200C-6
Combination Roller	Engine: QSB5.9 SPR260C-6 SPR300C-6	
Asphalt Pavers	Engine: QSB4.5 SAP60C-7	
Crane	Engine: QSL9 SCC1350A SCC2600A	
Vibratory Roller	Engine: QSB4.5 SSR100C-6 SSR120C-6	

Equipment Type	Supported On	
Excavator	**Engine: QSB6.7**	**Engine: QSL9**
	SY215C	SY305C LC
	SY215CLC	SY335C LC
	SY225C	SY365C
	SY235CLC	SY390H
	SY265C	**Engine: QSG12**
		SY500H

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	**Engine: B6.7**	**Engine: QSX15**
	640	6100E
	Engine: QSB6.7	690 HD
	1100E	
	624	
Material Handler	**Engine: QSB4.5**	**Engine: QSB6.7**
	8100	8160 EQ
	8130 EQ	738 M
	818 M	
	Engine: B4.5	
	821R E	
	824 G	

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	Engine: QSB4.5	Engine: QSB6.7
	GTC-350	GTC-600
		GTC-800

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	
Skid Steer	Engine: QSF3.8	
	R265T	
Articulated Dump Truck	Engine: QSM11	Engine: QSC8.3
	TA 27-7	TA25-7
	TA 30-7	
	TA 25-7	
Wheel Loader	Engine: QSM11	
	TL 420	
	TL 450	
Rock Truck	Engine: QSM11	
	TR 35	

Equipment Type	Supported On	
Crane	Engine: QSC8.3	Engine: L9
	T340-1	T 340-1 XL
Rough Terrain Crane	Engine: QSB6.7	Engine: QSB4.5
	RT 780	RT 230
	1065	
	RT 555	
	RT 670	
Hydraulic Excavator	Engine: QSB6.7	
	TC 210 LC	
	TC 210	
	TC 240 LC	
	TC 240	
	TC 260 LC	
Wheel Loader	Engine: QSB6.7	Engine: QSM11
	TL 210	TL 420
	TL 260	TL 450
	TL 310	
Wheeled excavator	Engine: QSB6.7	
	TW 190	

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	Engine: QSB6.7
	234
Skidder	600D series

Equipment Type	Supported On
Feller Buncher	Engine: QSB6.7 M700 series 845

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	Engine: QSB3.3 BC1200XL	Engine: QSB6.7 BC2100XL
Forestry Tractor	Engine: QSF3.8 FT100	Engine: QSL9 FT300

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	Engine: QSL9	Engine: QSX15
	W 120 XTI	W 200 FI
	W 150 CFI	W 200 HI
	W 250I	W 207 FI
		W 250I

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	Engine: B3.3	
	CMPS 170	
	CMPS 228	
	TML 704	
Tug	Engine: QSB3.3	Engine: QSB4.5
	M 100	M 100
Conventional Pushback Tractor	Engine: QSF2.8	Engine: QSB6.7
	M 60	M 400
	Engine: QSB4.5	MB 2
	M 200	MB 4
	MB 4	
	M400	

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	Engine: QSC8.3	Engine: QSM11
	LW600K	LW700KV
		LW800K
		LW800KN
		LW900KN
Grader	Engine: QSB4.5	Engine: QSL9
	GR135C	GR300
	Engine: QSB6.7	
	GR180C	
Rough Terrain Crane	Engine: QSB6.7	Engine: QSL9
	RT25	RT100
	RT35	RT120E
	Engine: QSB6.7	Engine: QSL9
	RT40E	RT200E
	RT50	RT80
	RT50A	RT90E
	RT55E	RT90U
	RT55U	
	RT60A	
	RT70E	
Excavator	Engine: X12	
	XE490U	
Crane	Engine: QSL9	
	QUY150	
Directional Drill	Engine: B5.9	
	XR120D	

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	**Engine: M11**	
	ZDG650	
Excavator	**Engine: F3.8**	**Engine: M11**
	ZE135E-10F	**ZE480E**
	ZE155E-10	**Engine: X15**
		ZE700E
Directional Drill	**Engine: M11**	**Engine: L9**
	ZR280C	**ZR220A**
	ZR360C	
	ZR360L	
Rough Terrain Crane	**Engine: B6.7**	**QSC8.3**
	RT25	**RT100**
	RT35	**RT110**
	RT60	
	RT61	
	RT65	
	RT75	
	RT80	
Crane	**Engine: L9**	
	QUY180	
	ZCC1300	
	ZCC2600	

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 Deutz

- Supports reading and clearing SAE faults
- Supports reading proprietary sensor data for the listed Deutz engines:

- ✓ EMR 3 - EDC 16 UC40, Electronic Diesel Control, Common Rail
- ✓ EMR 3 - EDC 7 UC31, Electronic Diesel Control, Common Rail
- ✓ EMR 4 - EDC 17 CV52, Electronic Diesel Control, Common Rail
- ✓ EMR 4 - EDC 17 CV54, Electronic Diesel Control, Common Rail
- ✓ EMR 4 - EDC 17 CV56, Electronic Diesel Control, Common Rail

NOTE: Deutz 12-pin Off-Highway cable is required.

Ahlmann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Ahlmann Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Wheel Loaders</td><td>
2008 – Current
<table>
<tr><th>EMR3 – EDC 7 UC31, EMR3-EDC 16 UC40</th></tr>
<tr><td>AZ 150E</td></tr>
<tr><td>AZ 210</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52</th><th>EMR4 - EDC 17 CV54</th></tr>
<tr><td>AF 1050</td><td>AZ 55F</td></tr>
<tr><td>AF 1200</td><td>AZ 95E</td></tr>
<tr><td>AZ 150F</td><td>AX</td></tr>
<tr><td>AZ 210F</td><td></td></tr>
<tr><td>AZ 95E</td><td></td></tr>
<tr><td>AZ 95F</td><td></td></tr>
<tr><td>AZ75F</td><td></td></tr>
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2020 – Current
<table>
<tr><th>EMR4 - EDC 17 CV56</th></tr>
<tr><td>AZ 210F</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Ammann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the

following Ammann Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Asphalt Pavers</td><td>
2014 – Current
<table>
<tr><th>EMR4-EDC 17 CV52</th><th>EMR4-EDC 17 CV52, EMR4-EDC 17 CV54</th></tr>
<tr><td>AFT 200-2</td><td>AFT 400-2</td></tr>
<tr><td>AFT 300-2</td><td>AFT 400-3</td></tr>
</table>
</td></tr>
<tr><td>Drum Roller</td><td>
2013 – 2022
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV56</th></tr>
<tr><td>ASC 110</td></tr>
</table>
2014 - Current
<table>
<tr><th>EMR4 - EDC 17 CV52</th><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr>
<tr><td>ARS 150</td><td>ART 240</td></tr>
<tr><td>ARS 170</td><td></td></tr>
<tr><td>ARS 200</td><td></td></tr>
<tr><td>ARS 220</td><td></td></tr>
</table>
2020 - Current
<table>
<tr><th>EMR4 - EDC 17 CV56</th></tr>
<tr><td>ARS 150</td></tr>
<tr><td>ARS 170</td></tr>
<tr><td>ARS 200</td></tr>
<tr><td>ARS 220</td></tr>
</table>
2008 - Current
<table>
<tr><th>EMR3 - EDC 7 UC31, EMR3 - EDC 16 UC40</th></tr>
<tr><td>ARS 200</td></tr>
<tr><td>ARS 220</td></tr>
</table>
</td></tr>
<tr><td>Paver</td><td>
2008 - Current
<table>
<tr><th>EMR3-EDC 7 UC31, EMR3-EDC 16 UC40, EMR4-EDC 17 CV52, EMR4-EDC 17 CV54</th></tr>
<tr><td>AFW 400-2</td></tr>
<tr><td>AFW 400-3</td></tr>
</table>
</td></tr>
<tr><td>Tandem Roller</td><td>
2014 - Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV52</th></tr>
<tr><td>ARP 95C</td><td>ARX 90</td></tr>
<tr><td>ARS 110</td><td>ARP 95</td></tr>
<tr><td>ARS 130</td><td>ARX 110</td></tr>
<tr><td>ARX 110C</td><td></td></tr>
</table>
</td></tr>
</table>

Equipment Type	Supported On
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	ARX 110K
	ARX 90C
	ARX 90K

NOTE: Deutz 12-pin Off-Highway cable is required.

Armatrac

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Armatrac Off-Highway equipment types and models:

Equipment Type	Supported On	
Tractor	2014 - Current	
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54	EMR4 - EDC 17 CV54
	1104 LUX SERIES	804.4 LUX SERIES
	EMR4 - EDC 17 CV52	
	1254 LUX CRD4	

NOTE: Deutz 12-pin Off-Highway cable is required.

ASV

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

Equipment Type	Supported On
Compact Track Loader	2007 – 2014
	EMR4 - EDC 17 CV54
	RT 65

Equipment Type	Supported On
	2014 – Current
	EMR4 - EDC 17 CV54
	VT 70

NOTE: Deutz 12-pin Off-Highway cable is required.

Atlas

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Atlas Off-Highway equipment types and models:

Equipment Type	Supported On
Excavator	**2014 – Current**
	EMR4 - EDC 17 CV52
	170LC Series
	190LC Series
	2020 – Current
	EMR4 - EDC 17 CV56
	160LC Series
	170LC Series
	210LC Series
	340LC Series
Material Handler	**2010 – Current**
	EMR3 - EDC 16 UC40
	350MHE Series
	2014 – Current
	EMR4 - EDC 17 CV52
	160MH Series
	180MH Series
	200MH Series
	350MHE Series
	520MH Series
	2020 – Current
	EMR4 - EDC 17 CV56
	400MHE Series

Equipment Type	Supported On
Railroad Excavator	**2014 - Current** **EMR4 - EDC 17 CV52** **1400ZW Series** **1600ZW Series**
Wheel Excavator	**2010 – Current** **EMR3 - EDC 16 UC40** **150W Series** **2014 – Current** **EMR4 - EDC 17 CV52** **140W Series** **150W Series** **160W Series** **160WSR Series** **180WSR Series** **2020 – Current** **EMR4 - EDC 17 CV56** **180WSR Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Basak

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Basak Off-Highway equipment types and models:

Equipment Type	Supported On	
Tractor	**2014 – Current**	
	EMR4 - EDC 17 CV54, EMR4 - EDC 17 CV52	**EMR4 - EDC 17 CV52**
	5120 (RED POWER)	**5115**
	2017 – 2025	
	EMR4 - EDC 17 CV52	
	5105	

Equipment Type	Supported On
	2021– 2025 **EMR4 - EDC 17 CV52** **5095** **2022 – 2025** **EMR4 - EDC 17 CV54** **5075**

NOTE: Deutz 12-pin Off-Highway cable is required.

Belarus-MTZ

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Belarus-MTZ Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2008 – Current** **EMR3 - EDC 7 UC31** **900 Series** **2010 – Current** **EMR3 - EDC 16 UC40** **1500 Series** **900 Series** **2012 – 2016** **EMR4 - EDC 17 CV52, EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31** **3000 Series** **2014 – 2024** **EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31** **1000 Series** **2012 – 2024** **EMR3 - EDC 16 UC40** **2000 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Bomag

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

Equipment Type	Supported On
Asphalt Pavers	**2008 – Current** **EMR3 - EDC 7 UC31** **BF 800 Series** **BF 900 Series** **2010 – Current** **EMR3 - EDC 16 UC40** **BF 800 Series** **BF 900 Series**
Compactor	**2008 – Current** **EMR3 - EDC 7 UC31, EMR3-EDC 16 UC40** **BW 200 Series** **EMR3 - EDC 7 UC31, EMR3-EDC 16 UC40** **BW 27RH Series** **2014 – Current** **EMR4 - EDC 17 CV52, EMR4-EDC 17 CV54**: **BW 200 Series**, **BW 28RH Series** **EMR4 - EDC 17 CV52**: **BW 27RH Series**, **BW 100 Series** **2020 – Current** **EMR4 - EDC 17 CV56** **BW 27RH Series** **BW 200 Series**
Landfill Compactor	**2008 – Current** **EMR3 - EDC 7 UC31, EMR3-EDC 16 UC40** **BC 1000 Series** **BC 400 Series** **BC 500 Series** **BC 600 Series** **BC 700 Series** **BC 900 Series**
Milling	**2014 – Current**

Equipment Type	Supported On
Machines	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV56 BM 500 Series BM 600 Series
Soil Stabilizer	2008 – Current EMR3 - EDC 7 UC31, EMR3 - EDC 16 UC40, EMR4-EDC 17 CV52 RS 600 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Bulmor

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bulmor Off-Highway equipment types and models:

Equipment Type	Supported On	
Side Loader Forklift	2014 – Current	
	EMR4-EDC 17 CV54	EMR4-EDC 17 CV52
	DQ 60-80 SERIES	DQR 50-80 SERIES
	DQN 40-50 SERIES	

NOTE: Deutz 12-pin Off-Highway cable is required.

Cabela's

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Cabella's Off-Highway equipment types and models:

Equipment Type	Supported On
Tractors	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **LM75**

NOTE: Deutz 12-pin Off-Highway cable is required.

Carraro

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Cabella's Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2014 – Current** **EMR4 - EDC 17 CV54** **Compact Series, Engine: Tier 5/Stage V**

NOTE: Deutz 12-pin Off-Highway cable is required.

Case CE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Case CE Off-Highway equipment types and models:

Equipment Type	Supported On
Compactor	**2014 – Current** **EMR4-EDC 17 CV52, EMR4-EDC 17 CV54** **SV200 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Caterpillar

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Caterpillar Off-Highway equipment types and models:

Equipment Type	Supported On	
Telehandlers	**2014 – Current**	
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54	**EMR4 - EDC 17 CV54**
	TH 400 Series	**TH 200 Series**
	TH 300 Series	

NOTE: Deutz 12-pin Off-Highway cable is required.

CLAAS

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following CLAAS Off-Highway equipment types and models:

Equipment Type	Supported On
Telescopic Loader	**2010 – Current**
	EMR3-EDC 16 UC40
	Scorpion Series, Engine: Tier 1/Stage I Tier 3/Stage III

Equipment Type	Supported On
Telescopic Loader	**2014 – Current**
	EMR4 - EDC 17 CV52, EMR4-EDC 17 CV54, EMR4-EDC 17 CV56
	Scorpion Series, Engine: Final Tier 4/Stage IV
	Scorpion Series, Engine: Interim Tier 4/Stage IIIB

NOTE: Deutz 12-pin Off-Highway cable is required.

Clark

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Clark Off-Highway equipment types and models:

Equipment Type	Supported On	
Forklift	2014 – Current	
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54	EMR4-EDC 17 CV54
	C 40-55S	C 60D-80D
	C 60-80	

NOTE: Deutz 12-pin Off-Highway cable is required.

CombiLift

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following CombiLift Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	2014 – Current
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54
	C-1000 Series
	C-12000 Series
	C-14000 Series
	C-17000 Series
	C-22000 Series
	C-26000 Series
	SL-10000 Series
	SL-12000 Series
	SL-4000 Series
	SL-5000 Series
	SL-6000 Series
	SL-9000 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Deutz

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Deutz Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Engine</td><td>
2008 – Current
<table>
<tr><th>EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31</th><th>EMR3 - EDC 16 UC40</th></tr>
<tr><td>TCD 2012 L04</td><td>TCD 2013 L06</td></tr>
<tr><td>TCD 2012 L06</td><td></td></tr>
<tr><td>TCD 2013 L04</td><td></td></tr>
</table>
2010 – Current
<table>
<tr><th>EMR3 - EDC 7 UC31</th></tr>
<tr><td>TCD 2013 L06</td></tr>
</table>
2013 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV54</th></tr>
<tr><td>TCD 3.6</td><td>TCD 2.2</td></tr>
<tr><td>TCD 2.9</td><td></td></tr>
<tr><th>EMR4 - EDC 17 CV52</th><th>EMR4-EDC 17 CV56</th></tr>
<tr><td>TCD 4.1</td><td>TCD 4.1</td></tr>
<tr><td>TCD 6.1</td><td>TCD 6.1</td></tr>
<tr><td>TCD 7.8</td><td></td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52</th><th>EMR4 - EDC 17 CV54</th></tr>
<tr><td>D 2.9</td><td>TCD 2.2</td></tr>
<tr><td>TCD 12.0</td><td>TCD 2.9</td></tr>
<tr><td>TCD 16.0</td><td>TCD 2013 L06</td></tr>
<tr><td>TCD 2.9</td><td></td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Deutz-Fahr

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Deutz Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Telescopic Loader</td><td>2013 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40, EMR3-EDC 7 UC31</th></tr><tr><td>AGROVECTOR Series</td></tr></table></td></tr>
<tr><td>Tractor</td><td>2007 – 2012<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV56</th></tr><tr><td>6 Series</td></tr></table>2008 – Current<table><tr><th>EMR3 - EDC 7 UC31, EMR3-EDC 16 UC40</th></tr><tr><td>6 G Series</td></tr><tr><td>6 W Series</td></tr></table>2010 – Current<table><tr><th>EMR3 - EDC 7 UC31</th></tr><tr><td>6 W Series</td></tr></table>2013 – Current<table><tr><th>EMR3 - EDC 7 UC31</th><th>EMR4 - EDC 17 CV52</th></tr><tr><td>AGROTRON L Series</td><td>5 Series</td></tr><tr><td>AGROTRON X Series</td><td></td></tr><tr><th>EMR3 - EDC 16 UC40</th><th>EMR4 - EDC 17 CV54</th></tr><tr><td>AGROTRON 600 TTV Series</td><td>5 C Series</td></tr><tr><td>AGROFARM Series</td><td>5 P Series</td></tr><tr><td>AGROTRON 1000 TTV Series</td><td>5 Series</td></tr><tr><td>AGROTRON 400 TTV Series</td><td>5 TTV Series</td></tr><tr><td>AGROTRON K Series</td><td></td></tr><tr><td>AGROTRON L Series</td><td></td></tr><tr><td>AGROTRON M Series</td><td></td></tr><tr><td>AGROTRON X Series</td><td></td></tr></table>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52</th></tr><tr><td>6 C Series</td></tr><tr><td>6 C TTV Series</td></tr><tr><td>6 TTV Series</td></tr><tr><td>7 ST Series</td></tr><tr><td>7 TTV Series</td></tr><tr><td>8 TTV Series</td></tr><tr><td>9 TTV Series</td></tr></table>2019 – 2024<table><tr><th>EMR4 - EDC 17 CV52</th></tr><tr><td>7 Series</td></tr></table></td></tr>
</table>

Equipment Type	Supported On
	2020 – Current **EMR4 - EDC 17 CV56** **6 P Series** **6 TTV Series** **6.4 Series** **6.4 TTV Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Ditch Witch

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

Equipment Type	Supported On
Directional Drill	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **JT10** **JT20**
Trencher	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **RT105** **RT120 QUAD** **RT125** **RT45** **RT80 QUAD** **2017 – 2024** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **RT120** **RT80**
Vacuum Excavator	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **FX50** **FX65** **FXT50**

Equipment Type	Supported On
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	FXT65 AIR
	FXT65
	FXT50 AIR

NOTE: Deutz 12-pin Off-Highway cable is required.

Dynapac

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

Equipment Type	Supported On
Asphalt Pavers	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	SD 1000 Series
	2023 – 2024
	EMR4 - EDC 17 CV54
	F 1000 Series
Combination Roller	2014 – Current
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54
	1000 Series
Tandem Roller	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	CO 2000 Series
Vibratory Roller	2012 – 2016
	EMR3 - EDC 16 UC40, EMR3 - EDC 17 UC31
	CA 3000 Series
	2012 – 2024
	EMR3 - EDC 16 UC40, EMR3 - EDC 17 UC31
	CA 4000 Series
	CA 6000 Series
	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	CG 2000 Series

Equipment Type	Supported On
	2014 – 2024 **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **CA 1000 Series** **CC 2000 Series** **CC 3000 Series** **2023 – 2024** **EMR3-EDC 16 UC40, EMR3-EDC 17 UC31** **CA 5000 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Epiroc

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Epiroc Off-Highway equipment types and models:

Equipment Type	Supported On
Directional Drill	**2008 – Current** **EMR3 - EDC 17 UC31** **Boomer E** **Boomer E10** **Boomer E2** **Boomer E20** **Boomer L** **Boomer M** **Boomer M20** **Boomer S1** **Boomer XE WE** **Boomer XL3D** **SIMBA E70S** **SIMBA M4** **SIMBA M6** **SCOOPTRAM ST3.5**

Equipment Type	Supported On

2010 – Current

EMR3 - EDC 16 UC40
Boomer E
Boomer E10
Boomer E2
Boomer E20
Boomer L
Boomer M
Boomer M20
Boomer S1
Boomer XE WE
Boomer XL3D
SIMBA E70S
SIMBA M4
SIMBA M6
SIMBA S7

2014 – Current

EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54	EMR4 - EDC 17 CV52
Boomer 281	Boomer L
Boomer 282	Boomer M
Boomer E	Boomer S1
Boomer E10	Boomer M20
Boomer E2	SIMBA E70S
Boomer E20	SIMBA M6
DIAMEC 6M	EMR4 - EDC 17 CV54
SIMBA 1354	Boomer S10S
Boomer M1L	Boomer T1
Boomer S2	Boomer XL3D
Boomer XE WE	SIMBA M4
SIMBA S7	
Boomer S1	

2020 – Current

EMR4 - EDC 17 CV56
Boomer E10
Boomer E2
Boomer E20
Boomer L
Boomer M
Boomer M20
Boomer XE WE

Equipment Type	Supported On
	EMR4 - EDC 17 CV56
	SIMBA E70S
	SIMBA M6
	SIMBA S7
Wheel Loader	2008 – Current
	EMR3 - EDC 17 UC31, EMR3 - EDC 16 UC40
	SCOOPTRAM ST3.5

NOTE: Deutz 12-pin Off-Highway cable is required.

Erkunt

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Erkunt Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	2008 – Current
	EMR3 - EDC 17 UC31, EMR3 - EDC 16 UC40
	HAÅžMET 110 LÃœKS CRD
	KUDRET 100 LÃœKS CRD
	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	HASRET 125 LÃœKS CRD4
	KUDRET 105 LÃœKS CRD4
	KUVVET 130 LÃœKS CRD4

NOTE: Deutz 12-pin Off-Highway cable is required.

Faresin

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Faresin Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td rowspan="2">Telescopic Loader</td><td>
2008 – Current
<table>
<tr><th>EMR3 - EDC 17 UC31,</th></tr>
<tr><td>FH Series, Engine: Tier 3/Stage III</td></tr>
</table>
2010 – Current
<table>
<tr><th>EMR3 - EDC 16 UC40</th><th>Engine: QSB3.3</th></tr>
<tr><td rowspan="3">FH Series, Engine: Tier 3/Stage III</td><td>CC 2200 C</td></tr>
<tr><td>CC2300</td></tr>
<tr><td>CC3200</td></tr>
</table>
2014 – Current
</td></tr>
<tr><td>
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr>
<tr><td>10.65 Classic 74 (Heavy Duty Range)</td></tr>
<tr><td>17.40 HLS 74 (Big Range)</td></tr>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr>
<tr><td>7.30C Classic 74 (Compact Range)</td></tr>
<tr><td>7.30C HLS 74 (Compact Range)</td></tr>
<tr><td>7.30C VPS 100 (Compact Range)</td></tr>
<tr><td>7.30E Classic 74 (Middle Range)</td></tr>
<tr><td>7.30E HLS 74 (Middle Range)</td></tr>
<tr><td>7.30E VPSE 100 (Middle Range)</td></tr>
<tr><td>7.35 Classic 74 (Middle Range)</td></tr>
<tr><td>7.35 HLS 74 (Middle Range)</td></tr>
<tr><td>7.35 VPSE 100 (Middle Range)</td></tr>
<tr><td>7.45 Classic 74 (Middle Range)</td></tr>
<tr><td>7.45 HLS 74 (Middle Range)</td></tr>
<tr><td>7.45 VPSE 100 (Middle Range)</td></tr>
<tr><td>8.40 Classic 74 (Middle Range)</td></tr>
<tr><td>8.40 HLS 74 (Middle Range)</td></tr>
<tr><td>8.40 VPSE 100 (Middle Range)</td></tr>
<tr><td>9.30 Classic 74 (Middle Range)</td></tr>
<tr><td>9.30 HLS 74 (Middle Range)</td></tr>
<tr><td>9.30 VPSE 100 (Middle Range)</td></tr>
<tr><td>9.30C Classic 74 (Compact Range)</td></tr>
<tr><td>9.30C HLS 74 (Compact Range)</td></tr>
<tr><td>9.30C VPS 100 (Compact Range)</td></tr>
</table>
</td></tr>
</table>

Equipment Type	Supported On
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	9.40 Classic 74 (Heavy-Duty Range)
	9.40 HLS 74 (Heavy-Duty Range)
	9.40 VPSE 100 (Heavy-Duty Range)
	9.60 Classic 74 (Heavy-Duty Range)
	9.60 HLS 74 (Heavy-Duty Range)
	9.60 VPSE 100 (Heavy-Duty Range)
	9.70 HLS 74 (Heavy-Duty Range)
	9.70 VPSE 100 (Heavy-Duty Range)
	10.65 HLS 74 (Heavy-Duty Range)
	10.65 VPSE 100 (Heavy-Duty Range)
	1.35 Classic 74 (Middle Range)
	11.35 HLS 74 (Middle Range)
	11.35 VPSE 100 (Middle Range)
	14.42 Classic 74 (Big Range)
	14.42 HLS 74 (Big Range)
	17.40 Classic 74 (Big Range)
	17.45 Classic 74 (Big Range)
	17.45 HLS 74 (Big Range)
	2020 – Current
	EMR4 - EDC 17 CV56
	10.65 Classic 74 (Heavy-Duty Range)
	11.35 Classic 74 (Middle Range)
	17.40 Classic 74 (Big Range)
	17.40 HLS 74 (Big Range)
	7.30C Classic 74 (Compact Range)
	7.30C HLS 74 (Compact Range)
	7.30C VPS 100 (Compact Range)
	7.30E Classic 74 (Middle Range)
	7.30E HLS 74 (Middle Range)
	7.30E VPSE 100 (Middle Range)
	7.35 Classic 74 (Middle Range)
	7.35 HLS 74 (Middle Range)
	7.35 VPSE 100 (Middle Range)
	7.45 Classic 74 (Middle Range)
	7.45 HLS 74 (Middle Range)
	7.45 VPSE 100 (Middle Range)
	8.40 Classic 74 (Middle Range)
	8.40 HLS 74 (Middle Range)
	8.40 VPSE 100 (Middle Range)
	9.30 Classic 74 (Middle Range)

Equipment Type	Supported On
	EMR4 - EDC 17 CV56
	9.30 HLS 74 (Middle Range)
	9.30 VPSE 100 (Middle Range)
	9.30C Classic 74 (Compact Range)
	9.30C HLS 74 (Compact Range)
	9.30C VPS 100 (Compact Range)
	9.40 Classic 74 (Heavy-Duty Range)
	9.40 HLS 74 (Heavy-Duty Range)
	9.40 VPSE 100 (Heavy-Duty Range)
	9.60 Classic 74 (Heavy-Duty Range)
	9.60 HLS 74 (Heavy-Duty Range)
	9.60 VPSE 100 (Heavy-Duty Range)
	9.70 Classic 74 (Heavy-Duty Range)
	9.70 HLS 74 (Heavy-Duty Range)
	9.70 VPSE 100 (Heavy-Duty Range)
	10.65 HLS 74 (Heavy-Duty Range)
	10.65 VPSE 100 (Heavy-Duty Range)
	11.35 HLS 74 (Middle Range)
	11.35 VPSE 100 (Middle Range)
	14.42 HLS 74 (Big Range)
	14.42 Classic 74 (Big Range)
	EMR4 - EDC 17 CV56
	17.45 Classic 74 (Big Range)
	17.45 HLS 74 (Big Range)

NOTE: Deutz 12-pin Off-Highway cable is required.

Fendt

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Fendt Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	2014 – Current
	EMR4 - EDC 17 CV52
	500 VARIO Series (Power/PowerPlus), Engine: Final Tier 4/Stage IV
	500 VARIO Series (Power/PowerPlus), Engine: Interim Tier 5/Stage V
	500 VARIO Series (Profi/ProfiPlus), Engine: Final Tier 4/Stage IV

Equipment Type	Supported On
	EMR4 - EDC 17 CV52 500 VARIO Series (Profi/ProfiPlus), Engine: Tier 5/Stage V 700 VARIO Series (Power/PowerPlus), Engine: Final Tier 4/Stage IV 700 VARIO Series (Power/PowerPlus), Engine: Tier 5/Stage V 700 VARIO Series (Profi/ProfiPlus), Engine: Final Tier 4/Stage IV 700 VARIO Series (Profi/ProfiPlus), Engine: Tier 5/Stage V 700 VARIO Series, Engine: Interim Tier 4/Stage IIIB 800 VARIO Series, Engine: Interim Tier 4/Stage IIIB 800 VARIO Series, Engine: Tier 5/Stage V 800 VARIO Series, Engine: Final Tier 4/Stage IV 900 VARIO Series, Engine: Final Tier 4/Stage IV 900 VARIO Series, Engine: Interim Tier 4/Stage IIIB **2020 – Current** **EMR4 - EDC 17 CV56** 300 VARIO Series, Engine: Interim Tier 4/Stage IIIB 500 VARIO Series (Power/PowerPlus), Engine: Interim Tier 4/Stage IIIB 500 VARIO Series (Profi/ProfiPlus), Engine: Interim Tier 4/Stage IIIB 700 VARIO Series, Engine: Interim Tier 4/Stage IIIB

NOTE: Deutz 12-pin Off-Highway cable is required.

Fenwick

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Fenwick Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2008 – Current** **EMR3-EDC 7 UC31** 396 Series (H50-H80) **2010 – Current** **EMR3-EDC 7 UC40** 396 Series (H50-H80) **2014 – Current** **EMR4-EDC 17 CV54** 1202 Series (H20-H35)

Equipment Type	Supported On
	2020 – Current
	EMR4-EDC 17 CV56
	396 Series (H50-H80)

NOTE: Deutz 12-pin Off-Highway cable is required.

Fuchs

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Fuchs Off-Highway equipment types and models:

Equipment Type	Supported On
Material Handler	**2008 – Current**
	EMR3 - EDC 7 UC31
	MHL350 Series
	2014 – Current
	EMR4 - EDC 17 CV52
	340F Series
	350F Series
	AHL350 Series
	MHL310 Series
	EMR4 - EDC 17 CV52
	MHL330 Series
	MHL340 Series
	MHL350 Series
	MHL360 Series
	MHL370 Series
	MHL380 Series
	MHL430 Series
	RHL320 Series
	RHL330 Series
	RHL350 Series
	RHL360 Series
	RHL370 Series
	RHL380 Series
	RHL390 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Gehl

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Gehl Off-Highway equipment types and models:

Equipment Type	Supported On
Articulated Loader	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **750**
Compact Track Loader	**2001 – 2011** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **RT 250** **2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **RT 255**
Skid Steer	**2011 – 2013** **EMR4 - EDC 17 CV52, EMR4-EDC 17 CV54** **V 420**
Telescopic Loader	**2014 – Current** **EMR4-EDC 17 CV52, EMR4-EDC 17 CV54** **RS6-34**

NOTE: Deutz 12-pin Off-Highway cable is required.

Genie

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Gehl Off-Highway equipment types and models:

Equipment Type	Supported On
	2014 – Current

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Telehandlers</td><td>
<table>
<tr><th>EMR4-EDC 17 CV52</th><th>EMR4-EDC 17 CV54</th></tr>
<tr><td>GTH-2000 SERIES</td><td>GTH-2000 SERIES</td></tr>
<tr><td>GTH-1000 SERIES</td><td>GTH-5000 SERIES</td></tr>
<tr><td>GTH-1200 SERIES</td><td>GTH-1000 SERIES</td></tr>
<tr><td>GTH-1500 SERIES</td><td>GTH-2500 SERIES</td></tr>
<tr><td>GTH-2500 SERIES</td><td>GTH-3000 SERIES</td></tr>
<tr><td>GTH-3000 SERIES</td><td>GTH-800 SERIES</td></tr>
<tr><td>GTH-800 SERIES</td><td>GTH-600 SERIES</td></tr>
<tr><td>GTH-600 SERIES</td><td></td></tr>
</table>
</td></tr>
<tr><td>Articulated Boom Lift</td><td>2014 – Current
<table>
<tr><th>EMR4-EDC 17 CV52</th><th>EMR4-EDC 17 CV54</th></tr>
<tr><td>Z-100 SERIES</td><td>Z-100 SERIES</td></tr>
<tr><td>Z-40 SERIES</td><td>Z-80 SERIES</td></tr>
<tr><td></td><td>Z-60 SERIES</td></tr>
<tr><td></td><td>Z-50 SERIES</td></tr>
<tr><td></td><td>Z-40 SERIES</td></tr>
</table>
</td></tr>
<tr><td>Scissor Lifts</td><td>2014 – Current
<table>
<tr><th>EMR4-EDC 17 CV52, EMR4-EDC 17 CV54</th></tr>
<tr><td>GS-3300 SERIES</td></tr>
<tr><td>GS-4300 SERIES</td></tr>
<tr><td>GS-5300 SERIES</td></tr>
</table>
</td></tr>
<tr><td>Telescopic Boom Lifts</td><td>2014 – Current
<table>
<tr><th>EMR4-EDC 17 CV52, EMR4-EDC 17 CV54</th></tr>
<tr><td>S-40 Series</td></tr>
<tr><td>S-60 Series</td></tr>
<tr><td>S-80 Series</td></tr>
<tr><td>SX-100 Series</td></tr>
<tr><td>SX-120 Series</td></tr>
<tr><td>SX-130 Series</td></tr>
<tr><td>SX-150 Series</td></tr>
<tr><td>SX-180 Series</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Hamm

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hamm Off-Highway equipment types and models:

Equipment Type	Supported On
Vibratory Rollers	**2001 – 2003**
	EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31
	3411
	3410
	2007 – 2008
	EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31
	3625
	2008 – Current
	EMR3 - EDC 7 UC31
	3411
	3412
	3414
	3516
	3518
	3520
	2010 – Current
	EMR3 - EDC 16 UC40
	3411
	EMR3 - EDC 16 UC40
	3412
	3414
	3516
	3518
	3520
	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	H 11I
	EMR4 - EDC 17 CV52
	H 12I
	H 13I
	H 14I
	H 16I
	H 18I
	H 20I
	H 25I

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td></td><td>2020 – Current<table><tr><th>EMR4 - EDC 17 CV56</th></tr><tr><td>H 13I</td></tr><tr><td>H 14I</td></tr><tr><td>H 16I</td></tr><tr><td>H 18I</td></tr><tr><td>H 20I</td></tr><tr><td>H 25I</td></tr></table></td></tr>
<tr><td>Double Drum Rollers</td><td>2008 – Current<table><tr><th>EMR3 - EDC 7 UC31</th></tr><tr><td>HD + 110</td></tr><tr><td>HD + 140</td></tr></table>2010 – Current<table><tr><th>EMR3 - EDC 16 UC40</th></tr><tr><td>HD + 110</td></tr><tr><td>HD + 140</td></tr></table>2014 – Current<table><tr><th>EMR4 - EDC 17 CV54</th></tr><tr><td>HD + 80</td></tr></table></td></tr>
<tr><td>Pneumatic Roller</td><td>2008 – Current<table><tr><th>EMR3 - EDC 7 UC31</th></tr><tr><td>GRW 10</td></tr><tr><td>GRW 15</td></tr><tr><td>GRW 18</td></tr><tr><td>GRW 24</td></tr></table>2010 – Current<table><tr><th>EMR3 - EDC 16 UC40</th></tr><tr><td>GRW 10</td></tr><tr><td>GRW 15</td></tr><tr><td>GRW 18</td></tr><tr><td>GRW 24</td></tr></table>2014 – Current<table><tr><th>EMR4-EDC 17 CV52, EMR4-EDC 17 CV54</th><th>EMR4 - EDC 17 CV52</th></tr><tr><td>GRW 1801-10</td><td>HP180</td></tr><tr><td></td><th>EMR4 - EDC 17 CV54</th></tr><tr><td></td><td>HP280</td></tr></table></td></tr>
<tr><td>Tandem</td><td>2008 – Current</td></tr>
</table>

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Roller</td><td>
<table>
<tr><th>EMR3 - EDC 7 UC31</th></tr>
<tr><td>HD + 120</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV52</th></tr>
<tr><td>DV + 90</td><td>HD + 120</td></tr>
<tr><td>HD + 110</td><td>HD + 140</td></tr>
</table>
2020 – Current
<table>
<tr><th>EMR4 - EDC 17 CV56</th></tr>
<tr><td>HD + 120</td></tr>
<tr><td>HD + 140</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Hangcha

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hangcha Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Forklift</td><td>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr>
<tr><td>CPCD80 X</td></tr>
<tr><td>CPCD100 X</td></tr>
<tr><td>CPCD120 X</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Hansa

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hansa Off-Highway equipment types and models:

Equipment Type	Supported On
Multipurpose Vehicle	**2014 – Current**
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54
	APZ 1003

NOTE: Deutz 12-pin Off-Highway cable is required.

Haulotte

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Haulotte Off-Highway equipment types and models:

Equipment Type	Supported On	
Knuckle Boom Lift	**2014 – Current**	
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54	**EMR4 - EDC 17 CV52**
	HA 32	**HA 41**

NOTE: Deutz 12-pin Off-Highway cable is required.

Heli

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Heli Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2014 – Current**
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	CPC 40 Series
	CPC 50 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Hitachi

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

Equipment Type	Supported On
Forklift	**2014 – Current**
	EMR4-EDC 17 CV54
	ZW60-6 Series
	ZW70-6 Series
Wheel Loader	**2014 – Current**
	EMR4-EDC 17 CV52
	ZX100W-7 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Holder

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Holder Off-Highway equipment types and models:

Equipment Type	Supported On
Implement Carriers Holder	**2014 – Current**
	EMR4 - EDC 17 CV52
	S 100
	S 130

NOTE: Deutz 12-pin Off-Highway cable is required.

Hurlimann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hurlimann Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Tractor</td><td>
2008 – Current
<table>
<tr><th>EMR3 - EDC 7 UC31</th></tr>
<tr><td>SX Series</td></tr>
<tr><td>XB MAX Series</td></tr>
<tr><td>XL Series</td></tr>
<tr><td>XM Series</td></tr>
<tr><td>XT Series</td></tr>
</table>
2010 – Current
<table>
<tr><th>EMR3 - EDC 16 UC40</th></tr>
<tr><td>SX Series</td></tr>
<tr><td>XB MAX Series</td></tr>
<tr><td>XL DCR Series</td></tr>
<tr><td>XL Series</td></tr>
<tr><td>XM Series</td></tr>
<tr><td>XT Series</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52</th><th>EMR4-EDC 17 CV54</th></tr>
<tr><td>XM K Series</td><td>XT T4 Hi Level Series</td></tr>
<tr><td></td><td>XT T4 V Drive Series</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Iseki

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Iseki Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Tractor</td><td>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4-EDC 17 CV54</th><th>EMR4 - EDC 17 CV52, EMR4-EDC 17 CV56</th></tr>
<tr><td>TJV Series</td><td>TJW3 Series</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

JLG

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following JLG Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Telescopic Boom Lifts</td><td>
1998 – 2025
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr>
<tr><td>1850</td></tr>
</table>
2005 – 2024
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40, EMR3-EDC 7 UC31</th></tr>
<tr><td>1350</td></tr>
</table>
2007 – 2011
<table>
<tr><th>EMR3 - EDC 7 UC31</th><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40, EMR3-EDC 7 UC31</th></tr>
<tr><td>1200</td><td>660</td></tr>
<tr><td>460</td><td></td></tr>
</table>
2007 – 2012
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40</th></tr>
<tr><td>1200</td></tr>
</table>
2008 - Current
<table>
<tr><th>EMR3 - EDC 7 UC31</th></tr>
<tr><td>740</td></tr>
<tr><td>800</td></tr>
<tr><td>1500</td></tr>
<tr><td>18 RS</td></tr>
<tr><td>24RS</td></tr>
</table>
2010 - Current
<table>
<tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40, EMR3-EDC 7 UC31</th><th>EMR3 - EDC 16 UC40</th></tr>
<tr><td>460</td><td>660</td></tr>
<tr><td>600</td><td>600</td></tr>
<tr><td>660</td><td>460</td></tr>
<tr><td>740</td><td>18 RS</td></tr>
<tr><td></td><td>24 RS</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td></td><td>2013 – 2017<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31</th></tr><tr><td>600</td></tr></table>2014 - Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR3 - EDC 16 UC40</th></tr><tr><td>460</td><td>1500</td></tr><tr><td>740</td><td></td></tr><tr><td>1500</td><td></td></tr><tr><td>18 RS</td><td></td></tr><tr><td>24 RS</td><td></td></tr></table></td></tr>
<tr><td>Articulated Boom Lift</td><td>2010 - Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54, EMR3-EDC 16 UC40, EMR3-EDC 7 UC31</th></tr><tr><td>800</td></tr></table>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>800</td></tr></table></td></tr>
<tr><td>Telehandlers</td><td>2010 - Current<table><tr><th>EMR4 - EDC 17 CV52</th><th>EMR3 - EDC 16 UC40</th></tr><tr><td>3614</td><td>619</td></tr><tr><td>3706</td><td></td></tr><tr><th>EMR4 - EDC 17 CV54</th><td></td></tr><tr><td>3706</td><td></td></tr><tr><td>3707</td><td></td></tr></table>2013 – 2017<table><tr><th>EMR4 - EDC 17 CV52</th></tr><tr><td>3510</td></tr></table>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52</th><th>EMR4 - EDC 17 CV54</th></tr><tr><td>1732</td><td>G 5</td></tr><tr><td>1644</td><td></td></tr></table>2019 – 2025<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>3706</td></tr></table>2021 – 2025<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>832</td></tr></table></td></tr>
</table>

Equipment Type	Supported On
	2022 – 2025 **EMR4 - EDC 17 CV54** **G 5**
Scissor Lift	**2008 – Current** **EMR3 - EDC 7 UC31, EMR3 - EDC 16 UC40** **RT 3394** **RT 4394** **RT 3394** **RT 4394** **2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **RT 3394** **RT 4394**

NOTE: Deutz 12-pin Off-Highway cable is required.

Kamag

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kamag Off-Highway equipment types and models:

Equipment Type	Supported On
Precision Mover	**2014 – Current** **EMR4 - EDC 17 CV52** **PM Series**
Precision Tractor	**2014 – Current** **EMR4 - EDC 17 CV52** **PT Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Kassbohrer Gelandefagrzeug

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kassboher Gelandefagrzeug Off-Highway equipment types and models:

Equipment Type	Supported On
Beach Cleaner	**2014 – Current**
	EMR4 - EDC 17 CV54
	Cherrington 5500

NOTE: Deutz 12-pin Off-Highway cable is required.

Kawasaki KCM

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

Equipment Type	Supported On
Wheel Loader	**2014 – Current**
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	60Z7 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Kramer

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kramer Off-Highway equipment types and models:

Equipment Type	Supported On
Articulated Loader	**2014 – Current**
	EMR4 - EDC 17 CV52
	KT300 Series
	KT400 Series
	KT500 Series

Equipment Type	Supported On
Loader	**2012 – 2016** **EMR4 - EDC 17 CV52** **3000 Series** **2012 – 2024** **EMR4 - EDC 17 CV52** **4000 Series** **2014 – Current** **EMR4 - EDC 17 CV52** **3500 Series**
Telescopic Loader	
Wheel Loader	**2014 – Current** **EMR4 - EDC 17 CV52** **4400 Series** **5500 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Lamborghini

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Lamborghini Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2010 – Current** **EMR3 - EDC 16 UC40** **R6 Series** **R7 Series** **R8 Series** **2014 – Current** **EMR4 - EDC 17 CV52** / **EMR4 - EDC 17 CV54** **MACH Series** / **Nitro R Series** **2020 – Current** **EMR4 - EDC 17 CV56** **Spark Series** **Spark VRT Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Landini

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Landini Off-Highway equipment types and models:

Equipment Type	Supported On	
Tractor	**2014 – Current**	
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54	**EMR4 - EDC 17 CV54**
	6H Series, Engine: Interim Tier4/Stage IIIB Final Tier 4/Stage IV	**4 Series, Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV**
		EMR4 - EDC 17 CV54
		4D Series, Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV
		REX 4 Series (F/V/GT), Engine: Interim Tier 4/Stage IIIB
		REX 4 Series (GE/GB), Engine: Interim Tier4/Stage IIIB
		Trekker Series, Engine: Interim Tier 4/Stage IIIB

NOTE: Deutz 12-pin Off-Highway cable is required.

LGMG

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following LGMG Off-Highway equipment types and models:

Equipment Type	Supported On
Articulated Boom Lift	**2014 – Current**
	EMR4 - EDC 17 CV54
	R 14J
	AR 16J

Equipment Type	Supported On
Scissor Lift	**2014 – Current** **EMR4 - EDC 17 CV54** **SR 1023D** **SR 1323D** **SR 1623D**
Telescopic Boom Lifts	**2014 – Current** **EMR4 - EDC 17 CV54** **T 20J** **T 26J** **T 65J** **T 85J**

NOTE: Deutz 12-pin Off-Highway cable is required.

Liebherr

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

Equipment Type	Supported On
Excavator	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54**: **R 914** **EMR4 - EDC 17 CV52**: **A 912 Compact**
Telehandlers	**2014 – Current** **EMR4-EDC 17 CV52** **T 32-7**

NOTE: Deutz 12-pin Off-Highway cable is required.

LiftKing

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following LiftKing Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2010 – Current** **EMR3 - EDC 16 UC40** **LK32C** **2014 – Current** **EMR4-EDC 17 CV52, EMR4-EDC 17 CV54** **LK16P**

NOTE: Deutz 12-pin Off-Highway cable is required.

Linde

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Linde Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2014 – Current** **EMR4-EDC 17 CV54** **1202 Series (H20-H35)**

NOTE: Deutz 12-pin Off-Highway cable is required.

Magni

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Magni Off-Highway equipment types and models:

Equipment Type	Supported On	
Articulated Loader	**2014 – Current**	
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54	**EMR4-EDC 17 CV52**
	HTH 10 Series	**RTH 4 Series**
		RTH 5 Series

Equipment Type	Supported On	
		TH 4 Series
		TH 5 Series
		TH 6 Series
Telescopic Crane	2014 – Current	
	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54	
	DTB 40 Series	
	DTB 30 Series	

NOTE: Deutz 12-pin Off-Highway cable is required.

Manitou

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Manitou Off-Highway equipment types and models:

Equipment Type	Supported On
Wheel Loaders	2014 – Current
	EMR4-EDC 17 CV54
	MLA 7-70 SERIES

NOTE: Deutz 12-pin Off-Highway cable is required.

Massey Ferguson

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Massey Ferguson Off-Highway equipment types and models:

Equipment Type	Supported On	
Self-Propelled Sprayer	2014 – Current	
	EMR4-EDC 17 CV52	EMR4-EDC 17 CV52, EMR4-EDC 17 CV54
	9300 Series	9400 Series

Equipment Type	Supported On
Tractor	**2014 – Current** **EMR4-EDC 17 CV52, EMR4-EDC 17 CV54** **9400 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

McCormick

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Linde Off-Highway equipment types and models:

Equipment Type	Supported On	
Tractor	**2014 – Current**	
	EMR4-EDC 17 CV54	**EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54**
	TX Series, Engine: Interim Tier 4/Stage IIIB	**X6 Series (35/45/55), Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV**
	X4 Series (30/40/50/55/60/70), Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV	
	X4 Series (F/V/XL), Engine: Interim Tier 4/Stage IIIB	
	X4 Series (GE/GB), Engine: Interim Tier 4/Stage IIIB	
	X4M Series (30/40/50), Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV	
	X5 Series (35/45/55), Engine: Interim Tier 4/Stage IIIB-Final Tier 4/Stage IV	

NOTE: Deutz 12-pin Off-Highway cable is required.

Mecalac

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Mecalac Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Articulated Loader</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>AX700</td></tr><tr><td>AS700</td></tr><tr><td>AX850</td></tr><tr><td>AX1000</td></tr></table></td></tr>
<tr><td>Excavator</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52</th></tr><tr><td>15MC</td></tr></table></td></tr>
<tr><td>Mobile Excavator</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>11MWR</td></tr><tr><td>15MWR</td></tr><tr><td>7MWR</td></tr><tr><td>9MWR</td></tr><tr><td>AS900TELE</td></tr></table></td></tr>
<tr><td>Railroad Excavator</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52</th></tr><tr><td>106MRAIL</td></tr><tr><td>136MRAIL</td></tr><tr><td>156MRAIL</td></tr><tr><td>216MRAIL</td></tr></table></td></tr>
<tr><td>Telescopic Loader</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th></tr><tr><td>AT900</td></tr><tr><td>AT1050</td></tr></table></td></tr>
<tr><td>Wheel Loader</td><td>2014 – Current<table><tr><th>EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV52</th></tr><tr><td>12MTX</td><td>AS210</td></tr><tr><td>AF1050</td><td>AS600</td></tr><tr><td>AF1200</td><td>AS750</td></tr></table></td></tr>
</table>

Equipment Type	Supported On	
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54	EMR4 - EDC 17 CV52
	AS1000	AS850
	AS1600	
	AS900	

NOTE: Deutz 12-pin Off-Highway cable is required.

Menzi Muck

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Menzi Muck Off-Highway equipment types and models:

Equipment Type	Supported On
	2014 – Current
Wheel Excavator	EMR4 - EDC 17 CV52
	M220
	M545

NOTE: Deutz 12-pin Off-Highway cable is required.

Merlo

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Merlo Off-Highway equipment types and models:

Equipment Type	Supported On
	2008 – Current
Concrete Mixer	EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31
	DBM Series

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Telehandlers</td><td>
2008 – Current
<table>
<tr><th>EMR3 - EDC 7 UC31</th><th>EMR3 - EDC 16 UC40</th></tr>
<tr><td>P45.XX</td><td>P34.XX</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV52</th></tr>
<tr><td>TF35.XX</td><td>P40.XX</td></tr>
<tr><td></td><td>TF33.XX</td></tr>
<tr><td></td><td>TF42.XX</td></tr>
<tr><td></td><td>TF45.XX</td></tr>
</table>
2020 – Current
<table>
<tr><th>EMR4 - EDC 17 CV56</th></tr>
<tr><td>TF38.XX</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

MST

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following MST Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Excavator</td><td>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV52</th></tr>
<tr><td>M220</td></tr>
<tr><td>M300</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Mustang by Manitou

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Mustang by Manitou Off-Highway equipment types and models:

Equipment Type	Supported On
Skid Steer Loader	**2014 – Current** **EMR4 - EDC 17 CV54**: 2500RT, 2550RT, 3200VT **EMR4 - EDC 17 CV52**: 4200V

NOTE: Deutz 12-pin Off-Highway cable is required.

Paus

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Paus Off-Highway equipment types and models:

Equipment Type	Supported On
Loader	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54**: PFL 10, PFL 30, PFL 8, SL9075, SL9088, TSL9075, TSL9088 **EMR4 - EDC 17 CV52**: PFL 20 **2020 – Current** **EMR4 - EDC 17 CV56**: PFL 10, PFL 30, PFL 8
Mining Scalers	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54**: 853 S8, 1253 S10 **2020 – Current**

Equipment Type	Supported On
	EMR4 - EDC 17 CV56
	1253 S10
	853 S8
Mining Truck	2008 – Current
	EMR3 - EDC 7 UC31, EMR3 - EDC 16 UC40
	UNI 50
	2014 – Current
	EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54
	MINCA 18
	MINCA 5.1
	UNI 40
	2020 – Current
	EMR4 - EDC 17 CV56
	MINCA 18
	MINCA 5.1
	UNI 40
Wheel Loader	2014 – Current
	EMR4-EDC 17 CV52, ERM4-EDC 17 CV54 / EMR4 - EDC 17 CV52
	TL9065 / TL9078

NOTE: Deutz 12-pin Off-Highway cable is required.

PB

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following PB Off-Highway equipment types and models:

Equipment Type	Supported On
Scissor Lift	2014 – Current
	EMR4 - EDC 17 CV54
	S320 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Pellenc

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Pellenc Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2014 – Current** **EMR4 - EDC 17 CV54** **130**

NOTE: Deutz 12-pin Off-Highway cable is required.

Pettibone

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Pettibone Off-Highway equipment types and models:

Equipment Type	Supported On
Telehandlers	**2014 – Current** **EMR4 - EDC 17 CV54** **1046X** **944X** **T944X**

NOTE: Deutz 12-pin Off-Highway cable is required.

Powerscreen

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Powerscreen Off-Highway equipment types and models:

Equipment Type	Supported On
Conveyor	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **CT65** **CT80**
Scalping Screen	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54** **Warrior 600** **Warrior 1200**

NOTE: Deutz 12-pin Off-Highway cable is required.

Sakai

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

Equipment Type	Supported On
Tandem Roller	**2008 – Current** **EMR3 - EDC 7 UC31, EMR3-EDC 16 UC40** **SW850N**

NOTE: Deutz 12-pin Off-Highway cable is required.

Same

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Same Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2008 – Current** **EMR3 - EDC 7 UC31** **Iron 100/110/120**

Equipment Type	Supported On
	2010 – Current **EMR3 - EDC 16 UC40** **Iron 100/110/120** **Iron 115/125/135 Continuo** **Iron 130/185 DCR** **Iron 150/170/190 Continuo** **2014 – Current** **EMR4 - EDC 17 CV52** **Audax Series** **2020 – Current** **EMR4 - EDC 17 CV56** **Fortis 100 Series** **Fortis 100.4 Series** **Fortis Infinity Line 100 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Sandvik

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sandvik Off-Highway equipment types and models:

Equipment Type	Supported On
Bi-directional Drill	**2007 – 2012** **EMR4-EDC 17 CV52, EMR4-EDC 16 UC40** **DD SERIES** **2010 – Current** **EMR3 - EDC 16 UC40** **DL Series** **DS Series** **2014 – Current** **EMR4 - EDC 17 CV52** **DS Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Sany

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

Equipment Type	Supported On
Backhoe Loader	**2014 – Current** **EMR4 - EDC 17 CV52** **SLB95**
Excavator	**2014 – Current** **EMR4 - EDC 17 CV52** **SY155W**
Wheel Loader	**2014 – Current** **EMR4 - EDC 17 CV52**: **SW305**, **SW405** **EMR4 - EDC 17 CV54**: **SW115**

NOTE: Deutz 12-pin Off-Highway cable is required.

Scarab

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Scarab Off-Highway equipment types and models:

Equipment Type	Supported On
Sweeper	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54** **Maven 65** **Minor 25**

NOTE: Deutz 12-pin Off-Highway cable is required.

Schaeff

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Schaeff Off-Highway equipment types and models:

Equipment Type	Supported On
Excavator	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54**: TC 125 **EMR4 - EDC 17 CV5**: TC 85

NOTE: Deutz 12-pin Off-Highway cable is required.

Schaffer

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Schaeffer Off-Highway equipment types and models:

Equipment Type	Supported On
Loader	**2008 – Current** **EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31**: 9300T Series, 9500T Series **2014 – Current** **EMR4 – EDC 17 CV52**: 8600T SERIES, 9600T SERIES **EMR4 - EDC 17 CV54**: 5600T SERIES, 5600Z SERIES, 6600T SERIES, 8600T SERIES, 9600T SERIES

NOTE: Deutz 12-pin Off-Highway cable is required.

Sennebogen

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

Equipment Type	Supported On
Telescopic Crane	**2010 – Current** **EMR3 - EDC 16 UC40** **HPC Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Skyjack

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Skyjack Off-Highway equipment types and models:

Equipment Type	Supported On
Telehandlers	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54** **SJ1040 TH Series** **SJ1050 TH Series** **SJ1250 TH Series** **SJ510 TH Series** **SJ640 TH Series** **SJ840 TH Series**
Boom Lifts	**2014 - Current** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54** **SJ40 T Series** **SJ60 AJ Series** **SJ60 T Series** **SJ80 T Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Snorkel

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Snorkel Off-Highway equipment types and models:

Equipment Type	Supported On
All-Terrain Telescopic Boom Lift	**2014 – Current** **EMR4 - EDC 17 CV54** **600 Series**
Telescopic Boom Lifts	**2012 – 2014** **EMR4 – EDC 17 CV52**: **2000 Series** **EMR4- EDC 17 CV52**: **400 SERIES** **EMR4 – EDC 17 CV54**: **2001 SERIES**
Rough Terrain Telehandler	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54** **SR1000 Series** **SR9000 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Still

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Still Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2014 – Current** **EMR4-EDC 17 CV52, EMR4-EDC 17 CV54**: **RX70 (7331-7334 SERIES)** **EMR4 – EDC 17 CV52**: **RX70 (7341-7344 Series)** **2020 – Current** **EMR4-EDC 17 CV56** **RX70 (7341-7344 SERIES)**

NOTE: Deutz 12-pin Off-Highway cable is required.

Takeuchi

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Takeuchi Off-Highway equipment types and models:

Equipment Type	Supported On
Wheel Loader	**2014 – Current** **EMR4 - EDC 17 CV54**: **TW65 Series 2** **EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54**: **TW95 Series**
Mini Excavator	**2014 – Current** **EMR4 - EDC 17 CV52, EMR4 - EDC 17 CV54**: **TB2150 Series**
Skid Steer	**2014 – Current** **EMR4 – EDC 17 CV54**: **TS80 Series**
Wheel Loader	**2014 – Current** **EMR4 – EDC 17 CV54**: **TW80 Series 2**

NOTE: Deutz 12-pin Off-Highway cable is required.

Taylor

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Taylor Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	**2014 – Current** **EMR4 - EDC 17 CV54**: **GT 100 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Tecnoma

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Tecnoma Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Tractor</td><td>
2008 – Current
<table>
<tr><th>EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31</th></tr>
<tr><td>AXH 110</td></tr>
<tr><td>P 140</td></tr>
<tr><td>P 160</td></tr>
<tr><td>S 120 H</td></tr>
<tr><td>TXH 110</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 - EDC 17 CV56</th></tr>
<tr><td>P 160</td><td>P 140</td></tr>
<tr><td>P 140</td><td>P 160</td></tr>
<tr><td>EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54</td><td>S 120 H</td></tr>
<tr><td>S 120 H</td><td></td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Terex

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

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Backhoe Loader</td><td>
2014 – Current
<table>
<tr><th>EMR4 - EDC 17 CV54</th></tr>
<tr><td>TLB 840</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Terrion

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Terrion Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2012 – 2024** **EMR3 - EDC 16 UC40, EMR3 - EDC 7 UC31** **4000 Series** **7000 Series** **5000 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Textron GSE-TUG

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Textron GSE-TUG Off-Highway equipment types and models:

Equipment Type	Supported On
Deicer	**2008 – Current** **EMR3 - EDC 7 UC31** **Safegaero 220** **2010 – Current** **EMR3 - EDC 16 UC40** **Safegaero 220** **2014 – Current** **EMR4 – EDC 17 CV52** **Safegaero 220** **2020 – Current** **EMR4 - EDC 17 CV56** **Safegaero 220**
Pushback-Tug	**2008 – Current**

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td></td><td>
<table>
<tr><th colspan="2">EMR3- EDC 7 UC31, EMR3- EDC 16 UC40</th></tr>
<tr><td colspan="2">TBL</td></tr>
<tr><td colspan="2">180</td></tr>
<tr><td colspan="2">2014 – Current</td></tr>
<tr><th>EMR4 – EDC 17 CV52, EMR4 - EDC 17 CV54</th><th>EMR4 – EDC 17 CV52</th></tr>
<tr><td>TBL-180</td><td>TBL-400</td></tr>
<tr><td>TUG GT-35</td><td>TUG 660</td></tr>
<tr><td>TUG MH</td><td>TUG M1A</td></tr>
<tr><td>TUG MR</td><td>TUG MA</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Thwaites

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Thwaites Off-Highway equipment types and models:

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td>Wheeled Dump Truck</td><td>
<table>
<tr><td colspan="2">2014 – Current</td></tr>
<tr><th colspan="2">EMR4 – EDC 17 CV52</th></tr>
<tr><td colspan="2">9 Tonne</td></tr>
</table>
</td></tr>
</table>

NOTE: Deutz 12-pin Off-Highway cable is required.

Trepel

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Trepel Off-Highway equipment types and models:

Equipment Type	Supported On
Deck Loader	**2010 – Current** **EMR4 – EDC 17 CV52EMR3 - EDC 16 UC40** **Champ 140** **Champ 200** **Champ 350**
Pushback Tug	**2010 – Current** **EMR3 - EDC 16 UC40** **Challenger 280** **Challenger 430** **Challenger 550** **2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **Challenger 150**

NOTE: Deutz 12-pin Off-Highway cable is required.

TYM

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following TYM Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **T130** **T62** **T654** **T69** **T754** **T76** **T78** **TJV985**

Equipment Type	Supported On
	EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54
	TS125
	TS130

NOTE: Deutz 12-pin Off-Highway cable is required.

Ursus

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Ursus Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	2014 – Current
	EMR4 – EDC 17 CV52
	C-3150
	C3150 V

NOTE: Deutz 12-pin Off-Highway cable is required.

Valpadana

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Valpadana Off-Highway equipment types and models:

Equipment Type	Supported On
Tractors	2014 – Current
	EMR4 – EDC 17 CV54
	9000 Series
	7000 Series

NOTE: Deutz 12-pin Off-Highway cable is required.

Venieri

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Venieri Off-Highway equipment types and models:

Equipment Type	Supported On
Backhoe Loader	**2014 – Current** **EMR4 – EDC 17 CV52** **10.23D** **10.23E** **10.33C**
Wheel Loader	**EMR4 – EDC 17 CV54** **5.63C** **EMR4 – EDC 17 CV54** **7.63C** **8.23F** **8.23G** **8.63TL** **9.63C**

NOTE: Deutz 12-pin Off-Highway cable is required.

Vermeer

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Vemeer Off-Highway equipment types and models:

Equipment Type	Supported On
Directional Drill	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **D10X15 S3** **D20X22 S3** **D23X30 S3**

Equipment Type	Supported On
Pile Driver	**2014 – Current** **EMR4 – EDC 17 CV52** **PD10**
Stump Grinder	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **SC852**
Tractor	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **RTX125012** **RTX450** **RTX550** **RTX750** **XTS125012**
Trommel Screen	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **TR5300**
Wood Chipper	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **BC1000XL**

NOTE: Deutz 12-pin Off-Highway cable is required.

Vogele

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Vogele Off-Highway equipment types and models:

Equipment Type	Supported On
Paver	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **700 I** **800 3I**

Equipment Type	Supported On
	EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54 1300 31

NOTE: Deutz 12-pin Off-Highway cable is required.

Volvo CE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Volvo CE Off-Highway equipment types and models:

Equipment Type	Supported On
Cold Planer	2010 – Current EMR3 - EDC 16 UC40 MW Series (XY)

NOTE: Deutz 12-pin Off-Highway cable is required.

Wacker Neuson

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Wacker Neuson Off-Highway equipment types and models:

Equipment Type	Supported On
Articulated Dump Truck	2014 – Current EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54 DV 100 Series DV 60 Series DV 90 Series
Telehandler	2014 – Current EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54 TH 700 Series

Equipment Type	Supported On
Wheel Loader	**2014 – Current** **EMR4 – EDC 17 CV54** **WL 50 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Weidemann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Weidemann Off-Highway equipment types and models:

Equipment Type	Supported On
Wheel Loader	**2012 – current** **EMR4 – EDC 17 CV52** **9000 Series** **9500T Series** **EMR4 – EDC 17 CV54** **3000 Series** **2000 Series** **2000T Series** **3000T Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Weycor

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Weycore Off-Highway equipment types and models:

Equipment Type	Supported On
Vibratory Roller	**2014 – Current** **EMR4 – EDC 17 CV54** **AW1000 Series**
Wheel Loader	**2014 – Current** **EMR4 – EDC 17 CV52** **AR250 Series** **AR600 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Wirtgen

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

Equipment Type	Supported On
Cold Planer	**2014 – Current** **EMR4 – EDC 17 CV52** **W 100 RI** **W 120 RI** **W 50 RI** **W 60 RI** **EMR4 – EDC 17 CV54** **W 35 RI** **2020 – Current** **EMR4 – EDC 17 CV56 AW1100 Series** **W 100 RI** **W 120 RI** **W 50 RI** **W 60 RI**
Paver	**2008 – Current** **EMR3 - EDC 7 UC31 700 I AR250 Series** **SP 15I** **SP 20I**

<table>
<tr><th>Equipment Type</th><th>Supported On</th></tr>
<tr><td></td><td>
<table>
<tr><th>EMR3 - EDC 7 UC31 700 I AR250 Series</th></tr>
<tr><td>SP25I</td></tr>
<tr><td>SP 61I</td></tr>
<tr><td>SP 62I</td></tr>
<tr><td>SP 64I</td></tr>
<tr><td>WPS 62I</td></tr>
</table>
2010 – Current
<table>
<tr><th>EMR3 - EDC 16 UC40</th></tr>
<tr><td>SP 15I</td></tr>
<tr><td>SP 20I</td></tr>
<tr><td>SP 25I</td></tr>
<tr><td>SP 61I</td></tr>
<tr><td>SP 62I</td></tr>
<tr><td>SP 64I</td></tr>
<tr><td>WPS 62I</td></tr>
</table>
2014 – Current
<table>
<tr><th>EMR4 – EDC 17 CV52</th></tr>
<tr><td>SP 15I</td></tr>
<tr><td>SP 20I</td></tr>
<tr><th>EMR4 – EDC 17 CV52</th></tr>
<tr><td>SP 25I</td></tr>
<tr><td>SP 61I</td></tr>
<tr><td>SP 62I</td></tr>
<tr><td>SP 64I</td></tr>
<tr><td>WPS 62I</td></tr>
</table>
</td></tr>
<tr><td>Texture Curing Machine</td><td>
2014 – Current
<table>
<tr><th>EMR4 – EDC 17 CV52</th></tr>
<tr><td>TCM 180I</td></tr>
<tr><td>TCM 95I</td></tr>
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NOTE: Deutz 12-pin Off-Highway cable is required.

Wollard

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

Equipment Type	Supported On
Loader	**2014 – Current** **EMR4 – EDC 17 CV52** **TC 999** **TC 888**
Passenger Stair	**2014 – Current** **EMR4 – EDC 17 CV52** **CMPS 170** **CMPS 228**
Scissor Lift	**2014 – Current** **EMR4 – EDC 17 CV52** **TML 704**

NOTE: Deutz 12-pin Off-Highway cable is required.

XCMG

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

Equipment Type	Supported On
Asphalt Pavers	**2010 – Current** **EMR3 - EDC 16 UC40** **RP1356**
Boom Hydraulic Pilot Drill	**2010 – Current** **EMR3 - EDC 16 UC40** **TZ3 Series**
Forklift	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **FD40T-JT** **FD45T-JT** **FD50T-JT** **FD70T-JT**

NOTE: Deutz 12-pin Off-Highway cable is required.

XTREME

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following XTREME Off-Highway equipment types and models:

Equipment Type	Supported On
Telehandler	**2014** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **XR 1500 Series** **XR 2000 Series** **XR 600 Series**

NOTE: Deutz 12-pin Off-Highway cable is required.

Yanmar

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Yanmar Off-Highway equipment types and models:

Equipment Type	Supported On
Wheeled Excavator	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **B 110W** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **B 95W**
Mini Excavator	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **SV 120**
Wheel Loader	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **V 120**

NOTE: Deutz 12-pin Off-Highway cable is required.

Zetor

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Zetor Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV56** **Crystal Series (Engine: Final Tier 4 / Stage IV)** **Hortus Series (Engine: Interim Tier 4 / Stage IIIB)** **EMR4 – EDC 17 CV54** **Major Series (Engine: Interim Tier 4 / Stage IIIB)**

NOTE: Deutz 12-pin Off-Highway cable is required.

ZoomLion

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

Equipment Type	Supported On
Knuckle Boom	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **ZA14J**
Telescopic Boom Lift	**2014 – Current** **EMR4 – EDC 17 CV52, EMR4 – EDC 17 CV54** **ZT26J**

NOTE: Deutz 12-pin Off-Highway cable is required.

Off-Highway Support for John Deere

- Bi-directional support for John Deere engines:

Engine with applicable equipment and Compatibility Code	Communication Error Test	Control Unit Info and Overview Test	Cylinder Misfire Test
4045 & 6068	✔	✔	✔
4045 & 6068 - 22020E03	✔	✔	✔
4045 & 6068 - 22020E0D	✔	✔	✔
4045 & 6068 - 21011203	✔	✔	✔
4045 & 6068 - 21011506	✔	✔	✔
4045 & 6068 - 22020C02	✔	✔	✔
4045 & 6068 - 21010E03	✔	✔	✔
4045 & 6068 - 10020403	✔	✔	✔
4045 & 6068 - 10020304	✔	✔	✔
4045 & 6068 - 22021106	✔	✔	✔
4045 & 6068 - 17011101	✔	✔	✔

Engine with applicable equipment and Compatibility Code	Cylinder Electronic Compression Test	EGR Valve Clean Test
4045 & 6068 - 22020E03	✔	✔
4045 & 6068 - 22020E0D	✔	✔
4045 & 6068 - 21011203	✔	✔
4045 & 6068 - 21011506	✔	✔
4045 & 6068 - 22020C02		✔
4045 & 6068 - 21010E03		✔

Engine with applicable equipment and Compatibility Code	Cylinder Electronic Compression Test	EGR Valve Clean Test
4045 & 6068 - 22021106	✔	✔
4045 & 6068 - 22020D01	✔	✔
4045 & 6068 - 17011101	✔	✔

Air-O-Fan

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Air-O-Fan Off-Highway equipment types and models:

Equipment Type	Supported On
Harvest Sprayer	6068 D-40R

NOTE: Type-2 9-Pin Off-Highway cable is required.

Bell

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bell Off-Highway equipment types and models:

Equipment Type	Supported On
Wheel Loader	4045 L1204E 6068 L1506E L1706E

NOTE: Type-2 9-Pin Off-Highway cable is required.

Bourgoin

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bourgoin Off-Highway equipment types and models:

Equipment Type	Supported On
Harvester	**4045, 6068**
	BH7100

NOTE: Type-2 9-Pin Off-Highway cable is required.

CLAAS

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following CLAAS Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**4045**
	Arion 4X0 C (A21), Engine: Tier3/Stage III
	Arion 5X0 CMATIC (A34/35), Engine: Interim Tier 4/Stage IIIB
	Arion 5X0 CMATIC (A75), Engine: Final Tier 4/Stage IV
	Arion 5X0 HexaShift (A74), Engine: Interim Tier 4/Stage IIIB
	Arion 5X0 HexaShift (A74), Engine: Final Tier 4/Stage IV
	Arion 5X0 CEBIS (A18), Engine: Tier 3/Stage III
	Arion 5X0 CIS (A18), Engine: Tier 3/Stage III
	6068
	Arion 6X0 CMATIC (A77), Engine: Final Tier 4 / Stage IV
	Arion 6X0 CEMATIC (A36/A37), Engine: Interim Tier 4/Stage IIIB
	Arion 6X0 CEMATIC (A77), Engine: Final Tier 4/Stage IV
	Arion 6X0 HexaShift (A36/A37), Engine: Interim Tier 4/Stage IIIB
	Arion 6X0 HexaShift (A76), Engine: Final Tier 4/Stage IV
	Arion 6X0 C (A20), Engine: Tier 3/Stage III
	Arion 6X0 CEBIS (A19), Engine: Tier 3/Stage III
	Arion 6X0 CIS (A19), Engine: Tier 3/Stage III
	Axion 8X0 CEBIS (A31), Engine: Tier 3/Stage III
	Axion 8X0 CEBIS (A09/A30), Engine: Tier 3/Stage III
	Axion 8X0 CIS (A09/A30), Engine: Tier 3/Stage III

NOTE: Type-2 9-Pin Off-Highway cable is required.

COE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following COE Off-Highway equipment types and models:

Equipment Type	Supported On
Bankout	4045 R10 R Series R8 R Series
Bin Carrier	4045 W8 R Series
Catching Frame Receiver	4045 L2 R Series
Elevator	4045 E5 Series
Shaker	4045 C7 R Series M7 R Series S7 R Pro Series S7 R Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

CombiLift

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following CombiLift Off-Highway equipment types and models:

Equipment Type	Supported On	
Forklift	4045	6068
	C-14000 Series	C-55000 Series
	C-30000 Series	
	4045 & 6068	
	C-25000 Series	

NOTE: Type-2 9-Pin Off-Highway cable is required.

Energreen

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Energreen Off-Highway equipment types and models:

Equipment Type	Supported On
Brushcutter Machine	4045
	ILF Alpha

NOTE: Type-2 9-Pin Off-Highway cable is required.

Flory

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Flory Off-Highway equipment types and models:

Equipment Type	Supported On
Sweeper	4045
	33 Series
	34 Series
	79 Series

Equipment Type	Supported On
	4045, 6068 78 Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

Genie

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Genie Off-Highway equipment types and models:

Equipment Type	Supported On
Telehandler	4045 GTH-1000 Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

Global Environmental

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Global Environmental Off-Highway equipment types and models:

Equipment Type	Supported On
Multi-purpose Vehicle	4045 V6 Air

NOTE: Type-2 9-Pin Off-Highway cable is required.

Grim

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Grim Environmental Off-Highway equipment types and models:

Equipment Type	Supported On
Sprayer GT	6068 Serie GT Serie Maxi

NOTE: Type-2 9-Pin Off-Highway cable is required.

John Deere

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following John Deere Off-Highway equipment types and models:

Equipment Type	Supported On	
Dozers	4045 550P 550K 650K Series 6068 700K 700L 750K 750J	
Backhoe Loaders	4045	4045H
	310K EP	310SL
	310P	315SK
	310SJ	310J
	310SJ TC	310K
	310SK TC	310SK
	310SL	310L
	315SJ	325J
	320P	410J

Equipment Type	Supported On	
	410J TC	410K
	4045	4045H
	410K TC	410L
	410P	6068H
		WL53
		WL56
Compact Track Loader	Yanmar 4TNV	
	317G	
	325G	
	331G	
	333G	
Crawler Dozer	4045	
	450P	
	550J	
	550P	
	4045	
	650J	
	650P	
	450K / 450K LGP	
	6068	
	700J	
	700L XLT / 700L LGP	
	750L / 750L XLT / 750 L LGP	
Crawler Loader	6068	
	755D	
Combines	6068	
	S400 Series	
	WTS Series	
	W500 Series	
	W600 Series	
	S500 Series	
	STS Series	
	T500 Series	
	6068HZ	
	CWS Series	
Engine	Engines	
	4045	
	6068	

Equipment Type	Supported On
Excavators	**4045**
	30G / 35G / 50G / 60G / 75G / 85G
	CH300 Series
	CH900 Series
	130G
	130G LC
	120D
	160D LC
	160G LC
	180G LC
	200G
	E230 LC
	6068
	200D
	200G
	6068
	210G
	210G LC
	240D LC
	250G
	250G LC
	E300 LC
Feller Buncher	**6068**
	643L-II
	843L-II
Forwarders	**4045HFC93**
	1010G
	910G
	6068HFC93
	1110G
	1210G
	1510G
Harvester	**6068H**
	1070E
	1170E
High Speed Dozer	**6068**
	764
Knuckle Boom	**6068**
	337E

Equipment Type	Supported On	
Loader	437E	
Loader Backhoe	4045HT	
	710L	
	310E	
	6068	
	710J	
	710K	
Log Skidder	6068	
	640L-II	
	648L-II	
	748L-II	
Motor Graders	6068	
	620G	
	622G	
	620GP	
	620P	
	622GP	
	622P	
Skid Steer Loader	Yanmar 4TNV	
	318G	
	320G	
	330G	
Swing Machines	6068	
	2154D	
	2954D	
	2154G	
	2156G	
	2454D	
	2654G	
	2656G	
Tractor	4045	4045, 6068
	4030 Series	6025 Series
	5000 E Series	6030 Series
	5M Series	
	5MH Series	
	5R Series	
	6D Series	
	4045	
	5RN Series	

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<tr><th>6068</th></tr>
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<tr><td>210K EP</td><td>544K II</td></tr>
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<tr><td>210L EP</td><td>644J</td></tr>
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<tr><td></td><td>624L</td></tr>
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NOTE: Type-2 9-Pin Off-Highway cable is required.

Kuhn

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Kuhn Off-Highway equipment types and models:

Equipment Type	Supported On
Self-propelled Silage Cutter	**4045** **SPV Access Series**

NOTE: Type-2 9-Pin Off-Highway cable is required.

Liebherr

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

Equipment Type	Supported On
Telehandler	**4045** **TL 435-10**
Wheel Loader	**4045** **L 514** **L 518** **L 524** **L 526** **L 528** **L 538** **L 546**

NOTE: Type-2 9-Pin Off-Highway cable is required.

Manitou

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Manitou Off-Highway equipment types and models:

Equipment Type	Supported On
Telehandler	4045
	MT 10000 Series
	MT 12000 Series
	MT 6000 Series
	MT 8000 Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

Mazzotti

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Mazzotti Off-Highway equipment types and models:

Equipment Type	Supported On	
Self-Propelled Sprayer	4045	6068
	IBIS 2130, Engine: Final Tier 4/Stage IV	IBIS 3180 LP, Engine: Final Tier 4/Stage IV
	IBIS 2130, Engine: Interim Tier 4/Stage IIIB	IBIS 3180 LP, Engine: Tier 3/Stage IIIA
	IBIS 2130, Engine: Tier 3/Stage IIIA	MAF 2580, Engine: Tier 3/Stage IIIA
	IBIS 2530, Engine: Final Tier 4/Stage IV	MAF 3580, Engine: Tier 3/Stage IIIA
	IBIS 2530, Engine: Interim Tier 4/Stage IIIB	PowerTech PSS 6068

Equipment Type	Supported On	
	IBIS 2530, Engine: Tier 3/Stage IIIA	MAF 4240, Engine: Tier 5/Stage V
	MAF 2580, Engine: Final Tier 4/Stage IV	MAF 5240, Engine: Tier 5/Stage V
	4045	PowerTech PSS 6068
	MAF 2580, Engine: Tier 5/Stage V	MAF 6240, Engine: Tier 5/Stage V
	MAF 3180, Engine: Final Tier 4/Stage IV	
	MAF 3580, Engine: Tier 5/Stage V	

NOTE: Type-2 9-Pin Off-Highway cable is required.

Menzi Muck

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Menzi Muck Off-Highway equipment types and models:

Equipment Type	Supported On
Wheel Excavator	4045
	A91F

NOTE: Type-2 9-Pin Off-Highway cable is required.

Monchiero

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Monchiero Off-Highway equipment types and models:

Equipment Type	Supported On
Harvester	6068 20240
Shaker	4045 30140

NOTE: Type-2 9-Pin Off-Highway cable is required.

MTS-Sandei

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following MTS-Sandei Off-Highway equipment types and models:

Equipment Type	Supported On
Harvester	6068 TH Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

OXBO

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following OXBO Off-Highway equipment types and models:

Equipment Type	Supported On
Harvester	4045 1080 6120 XL Series 6068 4420 6220 6420 PH80

Equipment Type	Supported On
Self-Propelled Merger	4045 5170 5180 6068 4334

NOTE: Type-2 9-Pin Off-Highway cable is required.

Paus

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Paus Off-Highway equipment types and models:

Equipment Type	Supported On
Forklift	4045 PGS 18 6068 PGS 22 PGS 26 PGS 30

NOTE: Type-2 9-Pin Off-Highway cable is required.

Sgariboldi

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sgariboldi Off-Highway equipment types and models:

Equipment Type	Supported On
Feeder	6068 Combi 8217 Combi 8220 Combi 8223 Combi 8225 Combi 8228 Grizzly 8118 Grizzly 8120 Grizzly 8122 Grizzly 8125 Grizzly 8128 Gulliver 8021 Gulliver 8025 Gulliver 8028 Gulliver 8031 Titanium 8130 Titanium 8132 Titanium 8136 Titanium 8140

NOTE: Type-2 9-Pin Off-Highway cable is required.

Sitrex-AGM

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sitrex-AGM Off-Highway equipment types and models:

Equipment Type	Supported On
Feeder	4045 Feedstar 120 Feedstar 140 Feedstar 170 Feedstar 200 Premier 110 Premier 120

Equipment Type	Supported On
	4045
	Premier 140
	Premier 170
	Premier 200
	6068
	Rapido 150
	Rapido 180
	Rapido 200
	Rapido 220
	Virage Maxi 200
	Virage Maxi 220
	Virage Maxi 240
	Virage Maxi 270
	Premier Maxi 200
	Premier Maxi 220
	Premier Maxi 240
	Premier Maxi 270
	Premier Maxi 300

NOTE: Type-2 9-Pin Off-Highway cable is required.

Spierings

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Spierings Off-Highway equipment types and models:

Equipment Type	Supported On
Crane	**4045**
	SK1265, Engine: Euro 4
	SK498, Engine: Euro 4
	SK597, Engine: Euro 6
	6068
	SK487, Engine: Euro 6+

NOTE: Type-2 9-Pin Off-Highway cable is required.

Strautmann

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Strautmann Off-Highway equipment types and models:

Equipment Type	Supported On
Mixer	**4045** **Sherpa Series** **6068** **Verti-Mix Double SF Series** **Verti-Mix SF Series**

NOTE: Type-2 9-Pin Off-Highway cable is required.

TYM

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following TYM Off-Highway equipment types and models:

Equipment Type	Supported On
Tractor	**4045** **K120**

NOTE: Type-2 9-Pin Off-Highway cable is required.

Vermeer

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

Equipment Type	Supported On
Chipper	4045 AX19
Crushing and Processing Equipment	4045HFC93 TR626
Directional Drill	4045 D24X40 S3 D36X50 S2 D40X55 S3 6068 D100X120 S2
Trencher	6068H, 6068 T555III T558III

NOTE: Type-2 9-Pin Off-Highway cable is required.

VREDO

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following VREDO Off-Highway equipment types and models:

Equipment Type	Supported On
Multi-Purpose	6068 VR2716

NOTE: Type-2 9-Pin Off-Highway cable is required.

Weiss McNair

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Weiss McNair Off-Highway equipment types and models:

Equipment Type	Supported On
Sweeper	4045T 2850 Series 2930 Series 4045 JD80 Series JD80LP Series

NOTE: Type-2 9-Pin Off-Highway cable is required.

Off-Highway Support for Komatsu

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

Equipment Type	Supported On	
Excavators	SAA4D95LE-7	SAA6D114E-6
	PC138USLC-11	PC360LC-11
	SAA6D107E-7	SAA6D125E-7
	PC200LC-8	PC490LC-11
	SAA6D107E-3	SAA4D95LE-6
	PC210LC-11	PC88MR-10
	PC290LC-11	
	SAA6D114E-5	
	PC360LC-10	
Wheel Loaders	SAA6D107E-2	
	WA270-7	
	WA320-7	

Equipment Type	Supported On
	WA380-7
	SAA6D107E-3
	WA270-8
	WA320-8
	WA380-8

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

- Bi-directional support for Komatsu equipment:

Platform/Engine	Aftertreatment Injector Flow Test	Aftertreatment Injector Leak Test	Aftertreatment Injector Shutoff Test
Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7	✔	✔	✔

Platform/Engine	Cylinder Cut-out Test	DEF Doser Pump Override Test	DPF Service Regen
Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7	✔	✔	✔

Platform/Engine	Fuel Injector Performance Test	Fuel Leakage Test	SCR Performance and System Test
Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7	✔	✔	✔

Platform/Engine	Wiggle Test/Performance Issue Monitoring	VGT Hysteresis Test
Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7	✔	✔

Off-Highway Support for Kubota

- Supports proprietary sensor data for supported engines with part number 1H01 Aftertreatment Control Unit on applicable equipment.
- Bi-directional support for Kubota engines:

Engine	Cylinder Cut Off Test	DPF Regen	DPF Regen Interval Time Reset
V2607-CR-TE4 (On applicable equipment)			✔
V3307-CR-TE4 (On applicable equipment)	✔	✔	
V3800-TIEF4 (On applicable equipment)	✔	✔	✔

Engine	DPF Soot Load Reset	EGR Valve On/Off Function	Fuel Injector Compensation
V2607-CR-TE4 (On applicable equipment)	✔		✔
V3307-CR-TE4 (On applicable equipment)			✔
V3800-TIEF4 (On applicable equipment)	✔	✔	✔

Engine	Injector Injection Control Function Test	Supply Pump Learning Test	Wiggle Test / Performance Issue Monitoring
V2607-CR-TE4 (On applicable equipment)		✔	
V3307-CR-TE4 (On applicable equipment)		✔	✔
V3800-TIEF4 (On applicable equipment)		✔	✔
Supported engines with part number 1H01 Aftertreatment Control Unit on applicable equipment	✔		

Ammann

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

Equipment Type	Supported On
Rollers	**V3307-CR-T** **ARS70**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Bandit

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bandit Off-Highway equipment types and models:

Equipment Type	Supported On
Other AG Equipment	**V3307-CR-T** **Citrus Special Bin Bandit** **High Density Bin Bandit** **High Density / Platform Bin Bandit** **Low Profile Bin Bandit**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Barbco

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Barbco Off-Highway equipment types and models:

Equipment Type	Supported On
Bore/Drill Rigs	**V3307-CR-T** **30 – 250**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Bomag

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Barbco Off-Highway equipment types and models:

Equipment Type	Supported On
Pavers	**V3307-CR-T** **BF 200 C-2**
Rollers	**V3307-CR-T** **BW 141 AD-5** **BW 145 D-5**

Equipment Type	Supported On
	V3307-CR-T
	BW 145 DH-5
	BW 145 PDH-5
	BW 151 AC-5
	BW 151 AD-5
	BW 151 AD-5 AM
	BW 154 ACP-4I
	BW 154 ACP-4I AM
	BW 154 ACP-4V
	BW 154 ACP-4V AM
	BW 154 AD-5
	BW 154 AP-4I
	BW 154 AP-4I AM
	BW 154 AP-4V
	BW 154 AP-4V AM
	BW 154 APO-4V
	BW 177 DH-5
	BW 177 PDH-5
	BW11RH-5

NOTE: Kubota 4-Pin Off-Highway cable is required.

Bright

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Bright Off-Highway equipment types and models:

Equipment Type	Supported On
Rough Terrain Forklifts	V330CR-T
	BD3-7570 Back Deck (Poultry Forklift)

NOTE: Kubota 4-Pin Off-Highway cable is required.

Broderson

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Broderson Off-Highway equipment types and models:

Equipment Type	Supported On
Cranes	V3307-CR-T
	IC-100-B
	IC-80-L

NOTE: Kubota 4-Pin Off-Highway cable is required.

Chicago Pneumatic

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Chicago Pneumatic Off-Highway equipment types and models:

Equipment Type	Supported On
Rollers	V3307-CR-T
	SR130D / SR130PD
	SR140

NOTE: Kubota 4-Pin Off-Highway cable is required.

Dieci

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Dieci Off-Highway equipment types and models:

Equipment Type	Supported On
Rough Terrain Forklifts	**V3307-CR-T** **Agri Pivot T60** **Apollo 26.6** **Zeus GD 40.7 / 38.8 / 38.10 / 35.11 / 40.13** **Mini Agr 26.6** **V3800-CR-TE4-TI** **Agri Farmer 28.7 GD / 30.7 GD / 28.9 GD / 30.9 GD** **Icarus GD 40.14 / 40.17 / 50.18**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Dynapac

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

Equipment Type	Supported On
Rollers	**V3307-CR-T** **CA1300D, CA1300PD & CA1400(P)D** **CA1400D / PD (Stage IIIB/T4f)** **CA1400D / PD (Stage V)**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Ferrari

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Ferrari Off-Highway equipment types and models:

Equipment Type	Supported On
AG Tractors	**V3800-CR-TE4** **THOR K105 AR / K105 RS** **VEGA K105**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Global Pump

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Global Pump Off-Highway equipment types and models:

Equipment Type	Supported On
Pumps	**V3800-CR-TE4-TI** **4GSH (High Head Pump)** **V3800-CR-TE4** **6GST (Trash Pump)**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Hamm

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hamm Off-Highway equipment types and models:

Equipment Type	Supported On
Rollers	**V3307-CR-T** **DV+ 70i VV-S/VO-S/VT-S** **H 5i & H 5i P** **H 7i & H 7i P & H 7i VIO**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Hitachi

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

Equipment Type	Supported On
Rollers	**V3307-CR-T**
	ZC125M-5

NOTE: Kubota 4-Pin Off-Highway cable is required.

Hyster

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Hyster Off-Highway equipment types and models:

Equipment Type	Supported On
Forklifts	**V3800-CR-TE4-TI**
	H135FT & H155FT (Doc Engine)
	H135FT & H155FT (H.O. Engine)
	H170FT, H175FT & H190FT
	S135FT & S155FT

NOTE: Kubota 4-Pin Off-Highway cable is required.

John Bean

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following John Bean Off-Highway equipment types and models:

Equipment Type	Supported On
Other Industrial Equipment	V3800-CR-TE4 Sewer JET 700

NOTE: Kubota 4-Pin Off-Highway cable is required.

Kubota

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

Equipment Type	Supported On	
Ag Tractors	V3307-CR-T	V3800-CR-TE4
	MR60	M100G
	MR600H	M100GE
	MR65	MR1000A
	MR650H	M1010W-K
	MR70	M1010W-L
	MR700H	M105GX III
	V3307-CR-T-E4B	M105GX IV
	M7060	M1060W
	M6060	M110G
	M4D-071HDC12 4WD	M110GE
	M4-071HDC12 4WD	SL450H
	M4D-061HDC12 4WD	SL480H
	V3800-CR-TE4-TI	SL540H
	M6-101	SL600H
	M6-101U	SMZ805
	M6-111	SMZ875
	M6111U	SMZ955
	M6H-101	MR900
	M6L-111	MR97
	M6S-111 2WD	SL380H
	M6S-111 4WD	SL410H
	M4N-071	MR77

	V3800-CR-TE4-TI	V3800-CR-TE4
	M5L-111	MR800
	M5N-091	MR87
	M5N-111	M720W
		M860W-K
		M860W-L
		M95GX III
		M95GX IV
		M5-111 2WD
		M5-111 4WD
		M5-091 2WD
		M5-091 4WD
Compact Track Loader	V2607-CR-TE4	
	SVL 65-2s	
	V3800-CR-TE4	
	SVL 95-2s and SVL 97-2	
Excavators	V3307-CT-T	
	KX080-4a	
	KX080-4a 2PGL	
Skid Steer Loaders	V3307-CR-T	
	SSV75	

NOTE: Kubota 4-Pin Off-Highway cable is required.

LeeBoy

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following LeeBoy Off-Highway equipment types and models:

Equipment Type	Supported On
Pavers	V3800-CR-TE4-TI
	8520
	8520B
	8530
	8616C
	8616D

NOTE: Kubota 4-Pin Off-Highway cable is required.

MEC

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following MEC Off-Highway equipment types and models:

Equipment Type	Supported On
Aerial Lifts	**V3800-CR-TE4**
	Titan 40-S Telescopic
	Titan 60-S Telescopic

NOTE: Kubota 4-Pin Off-Highway cable is required.

Mitsubishi

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following MEC Off-Highway equipment types and models:

Equipment Type	Supported On
AG Tractors	**V3307-CR-T**
	GV60
	GV65
	GV70
	GVK60
	GVK65
	GVK70
	V3800-CR-TE4
	GV1000
	V3800-CR-TE4
	GV77
	GV800
	GV87

Equipment Type	Supported On
	V3800-CR-TE4
	GV900
	GV97
	GVK1000
	GVK77
	GVK800
	GVK87
	GVK900
	GVK97

NOTE: Kubota 4-Pin Off-Highway cable is required.

Morooka

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Morooka Off-Highway equipment types and models:

Equipment Type	Supported On
Crawler Carrier	V3800-CR-TE4-TI
	MST-700VDL
	MST-700VD 3.5

NOTE: Kubota 4-Pin Off-Highway cable is required.

Pasquali

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Pasquali Off-Highway equipment types and models:

Equipment Type	Supported On
AG Tractors	**V3800-CR-TE4** **Orion Sky Jump K105 Dualsteer**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Red Rhino

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Red Rhino Off-Highway equipment types and models:

Equipment Type	Supported On
Crushing and Processing Equipment	**V3307-CR-T** **7000+ Series**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Sakai

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

Equipment Type	Supported On
Rollers	**V3307-CR-T** **R2-4** **R2H-4 Static 3-Wheel 83" Roller** **SV204 Series (TB/TF/T/D)** **SW654**

Equipment Type	Supported On
	V3307-CR-T **SW654 & SW654ND Asphalt Roller** **SW654B** **SW654ND** **V3800-CR-TE4-TI** **GW754 Vibratory Tire Roller** **SW774 & SW774ND Asphalt Roller** **TZ704**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Sherman & Reilly

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sherman & Reilly Off-Highway equipment types and models:

Equipment Type	Supported On
Other Construction Equipment	**V3307-CR-T-E4B** **PLW-400X Plot Line Winder**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Snorkel

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Snorkel Off-Highway equipment types and models:

Equipment Type	Supported On
Aerial Lifts	**V3800-CR-TE4-TI** **2100SJ**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Sweeprite - Merit

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Sweeprite - Merit Off-Highway equipment types and models:

Equipment Type	Supported On
Scrubbers and Sweepers	**V3307-CR-T** **S3 Street Sweeper**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Takeuchi

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Takeuchi Off-Highway equipment types and models:

Equipment Type	Supported On
Skid Steer Loaders	**V3307-CR-T** **TL10V-2** **TL8R-2**

NOTE: Kubota 4-Pin Off-Highway cable is required.

TSE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following TSE Off-Highway equipment types and models:

Equipment Type	Supported On
Other Construction Equipment	**V3307-CR-T-E4B** **UP85BDT** **UP85BDTA (Badger)**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Vermeer

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

Equipment Type	Supported On
Other Construction Equipment	**V3800-CR-TE4** **Mega 2000 (VX100)** **Mega 2600 (VX100)** **VSK100XT-500 Air** **VXK100XT-500 Air** **VX100XT-800 Air**

NOTE: Kubota 4-Pin Off-Highway cable is required.

Wacker

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Wacker Off-Highway equipment types and models:

Equipment Type	Supported On
Rollers	V3307-CR-T RC50 & RC50P RC70 & RC70P

NOTE: Kubota 4-Pin Off-Highway cable is required.

Yale

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Yale Off-Highway equipment types and models:

Equipment Type	Supported On
Forklifts	V3800-CR-TE TI GP080-120VX (Turbo & DOC)

NOTE: Kubota 4-Pin Off-Highway cable is required.

Off-Highway Support for Volvo CE

- Supports reading proprietary diagnostic fault codes, event codes, and data for the following Volvo CE Off-Highway equipment types and models:

Equipment Type	Supported On	
Articulated Dump Truck	D9 A Series (XY D)	D11M A Series (XY G)
	D9B A Series (XY E)	D16J A Series (XY H)
	D11H A Series (XY F)	

Equipment Type	Supported On	
Asphalt Pavers	D6J	D8J
	ABG Series (XY B)	P Series (XY D)
	D6J & D7E	
	P Series (XY B)	
	D6E	
	P Series (XY C)	
Backhoe Loader	D5D	
	BL Series (XY B)	
	BL Series (XY)	
Excavator	D6D	D12D, D6E & D7E
	EW Series (XY B)	EC Series (XY C)
	D6E	D13H
	EW Series (XY C)	EC Series (XY D)
	D6H	D13J & D16J
	EW Series (XY D)	EC Series (XY E)
	D6J	
	EW Series (XY E)	
Grader	D7D	D8J
	G Series (XY B)	G Series (XY C)
	D7E	
	G Series (XY)	
Pipe Layer	D8H	D12D
	PL Series (XY D)	PL Series (XY)
	D8J	
	PL Series (XY E)	
Wheel Loader	D6E	
	L Series (XY F)	
	L Series (XY GZ)	

NOTE: Volvo CE 8-pin and 14-pin Off-Highway cables are required.

8 Common Diagnostic Connector Locations

- In Cab – Right Side Access Panel
- In Cab – Right Side of Seat
- In Cab – Behind Seat – Left
- In Cab – Behind Seat – Right
- In Cab – Behind Seat
- In Cab – Under Steering Wheel Below the Start Switch

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 - 2023
  - ✓ Econoline E-series – 2004 - 2014
  - ✓ Ford Motorhome/Incomplete Chassis (F-59/F-53) – 2015 - 2023
  - ✓ Transit Connect – 2010 - 2023
  - ✓ Transit vehicles – 2015 – 2023

- Supports the following Cummins engines in Ford models:
  - ✓ Cummins 5.9L ISB
  - ✓ Cummins 6.7L ISB
  - ✓ Cummins 8.3L ISB
- Supports the following Caterpillar engines in Ford models:
  - ✓ CAT 3126 Truck
  - ✓ CAT C-7 Truck
- Supports the medium-duty ISO 15765 and ISO 14229 messages.

- Gives users the ability to read and clear faults, read freeze frames, read sensor data, and display emission test results.

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

- Bi-directional support for **Ford Diesel** engines:

Engine / Application	KOEO On-Demand Self Test	KOER On-Demand Self Test	KOER Switch Test
3.2L Diesel (2015–2019)	✔	✔	✔
6.4L Diesel (2008–2021)	✔	✔	✔
6.7L Diesel (2011–2023)	✔	✔	✔

Engine / Application	KAM (Keep Alive Memory) Reset	KOEO Injector Buzz Test	KOER Glow Plug Monitor Self-Test
3.2L Diesel (2015–2019)	✔	✔	✔
6.4L Diesel (2008–2021)	✔	✔	✔
6.7L Diesel (2011–2023)	✔	✔	✔

Engine / Application	Misfire Monitor Profile Correction Learn Test	Power Balance Test	Relative Compression Test
3.2L Diesel (2015–2019)	✔	✔	✔
6.4L Diesel (2008–2021)	✔	✔	✔
6.7L Diesel (2011–2023)	✔	✔	✔

Engine / Application	Set EGR Throttle	Set EGR Position
3.2L Diesel (2015–2019)		
6.4L Diesel (2008–2021)	✔ up to 2021	

Engine / Application	Set EGR Throttle	Set EGR Position
6.7L Diesel (2011–2023)		✔ up to 2021

- Bi-directional support for **Ford Gasoline** engines:

Engine / Application	KOEO On-Demand Self-Test	KOER On-Demand Self-Test	KOER Switch Test
2.7L 4V V-6	✔	✔	✔
3.5L Gasoline (2020–2024)	✔	✔	✔
3.5L EcoBoost V-6 Gas	✔	✔	✔
3.7L V-6 Gas	✔	✔	✔
4.6L V-8	✔	✔	✔
5.0L V-8	✔	✔	✔
5.4L V-8	✔	✔	✔
6.2L V-8 Gas	✔	✔	✔
6.8L Gasoline	✔	✔	✔
6.8L CNG	✔	✔	✔
7.3L Gasoline	✔	✔	✔

Engine / Application	KAM (Keep Alive Memory) Reset	Power Balance Test	Relative Compression Test
2.5L Gas		✔	✔
2.7L 4V V-6	✔	✔	✔
3.5L Gasoline (2020–2024)	✔	✔	✔
3.5L EcoBoost V-6 Gas	✔	✔	✔
3.7L V-6 Gas	✔	✔	✔
4.6L V-8	✔	✔	✔
5.0L V-8	✔	✔	✔
5.4L V-8	✔	✔	✔
6.2L V-8 Gas	✔	✔	✔
6.8L Gasoline	✔	✔	✔
6.8L CNG	✔	✔	✔
7.3L Gasoline	✔	✔	✔

Engine / Application	Transmission Adaptive Learn Tests	Canister Purge Valve Check	Misfire Monitor Test
2.5L Gas			✔
2.7L 4V V-6			✔
3.5L Gasoline (2020–2024)		✔	✔
3.5L EcoBoost V-6 Gas			✔
3.7L V-6 Gas			✔
4.6L V-8			✔
5.0L V-8			✔
5.4L V-8			✔
6.2L V-8 Gas			✔
6.8L Gasoline	✔		✔
6.8L CNG	✔		✔
7.3L Gasoline	✔		✔

Engine / Application	Misfire Monitor Profile Correction Learn Test
2.5L Gas	✔
2.7L 4V V-6	✔
3.5L Gasoline (2020–2024)	✔
3.5L EcoBoost V-6 Gas	✔
3.7L V-6 Gas	✔
4.6L V-8	✔
5.0L V-8	✔
5.4L V-8	✔
6.2L V-8 Gas	✔
6.8L Gasoline	✔
6.8L CNG	✔
7.3L Gasoline	✔

- Bi-directional support for Ford Auxiliary components:

System	On-Demand Self-Test
Body Control Module	✔
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 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)	✔

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)	✔
System	**On-Demand Self-Test**
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)	✔

System	Wiggle Test / Performance Issue Monitoring	Wiper Control Test	Wiper Washer Rear Test
Generic Electronic Module (GEM)	✔	✔	✔
Smart Junction Box (SJB)	✔	✔	✔
All supported engines	✔		

- Bi-directional support for Ford brakes:

Brake System Type	G-Sensor Calibration Test	On Demand Self-Test	Sensor Initialization
2004–2021 Brakes	✔	✔	✔

- Bi-directional support for Ford Driver Assistance Systems:

System Type	IPMA Camera Alignment
Image Processing Module A forward facing camera with 2019 – 2024 supported engines	✔

- Bi-directional support for Ford Transmission Systems:

Transmission Platform	KOEO On Demand Self-Test	KOER On-Demand Self-Test	Transmission Solenoid Test
2004–2021 Transmissions	✔	✔	
10R80 Transmission (2020–2024)	✔	✔	✔

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
  - ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L Gas 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 2500 and 3500
  - ✓ 2021 – 2023 GMC Express and Chevy Savana
  - ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500
  - ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD
  - ✓ 2020 – 2023 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.
- Bi-directional support for GM Diesel engines:

Engine	NOx Sensor Reset	Reductant Heater Tests	Reductant System Leak Test
2010 - 2018 vehicles with a Duramax 6.6L Diesel engine	✔	✔	✔
2016 - 2018 GMC Canyon and Chevy Colorado with a 2.8L Diesel engine	✔	✔	✔

Engine	Reductant Tank Reset
2010 - 2018 vehicles with a Duramax 6.6L Diesel engine	✔
2016 - 2018 GMC Canyon and Chevy Colorado with a 2.8L Diesel engine	✔

Engine	DPF Catalyst Reset	DPF Pressure Sensor Reset	DPF Service Regen
2010 - 2022 vehicles with a Duramax 6.6L Diesel engine	✔	✔	✔
2016 - 2022 GMC Canyon and Chevy Colorado with a 2.8L Diesel engine	✔	✔	✔
GM 6.6L V8 (L5P) engine	✔	✔	✔
6.6L V8 (LML) engine			✔
6.6L V8 (LMM) engine			✔

Engine	Cylinder Cut-Out
2010 - 2022 vehicles with a Duramax 6.6L Diesel engine	✔
2016 - 2022 GMC Canyon and Chevy Colorado with a 2.8L Diesel engine	✔
GM 6.6L V8 (L5P) engine	✔
6.6L V8 (LML) engine	✔
6.6L V8 (LMM) engine	✔

- Bi-directional support for GM Gasoline engines:

Engine	HO2S Heater Learn	Idle Spark	Malfunction Indicator Lamp
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔	✔
2011 GMC Canyon and Chevy Colorado	✔	✔	✔

Engine	Spark Retard Angle
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔
2011 GMC Canyon and Chevy Colorado	✔

Engine	A/C Relay	CMP Actuator Solenoid	RVS Disable History Reset
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔	✔
2011 GMC Canyon and Chevy Colorado	✔	✔	✔

Engine	CMP Actuator (CAM Phaser)	Crankshaft Position Variation Learn Test
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 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 with 6.6L Gas engine	✔	✔

Engine	CMP Actuator (CAM Phaser)	Crankshaft Position Variation Learn Test
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔

Engine	Cylinder Cut-Out	Engine Controls Ignition Relay	Engine Speed Control
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔	✔
2011 GMC Canyon and Chevy Colorado	✔	✔	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 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 with 6.6L Gas engine	✔	✔	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔	✔

Engine	EVAP Purge Solenoid	Misfire Graphic
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔
2011 GMC Canyon and Chevy Colorado	✔	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 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 with 6.6L Gas engine	✔	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔

Engine	EVAP Purge/Seal Solenoid	EVAP Vent Solenoid	Fuel Control Loop Status
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔

Engine	EVAP Purge/Seal Solenoid	EVAP Vent Solenoid	Fuel Control Loop Status
2011 GMC Canyon and Chevy Colorado	✔	✔	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine	✔	✔	✔
2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine	✔	✔	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔	✔
2022 - 2024 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine	✔	✔	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔	✔

Engine	Fuel Pump Relay	Fuel Trim Enable	GEN L-Terminal
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔	✔

Engine	Fuel Pump Relay	Fuel Trim Enable	GEN L-Terminal
2011 GMC Canyon and Chevy Colorado	✔	✔	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine	✔	✔	✔
2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine	✔	✔	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔	✔
2022 - 2024 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine	✔	✔	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔	✔

Engine	HO2S Heater Tests
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔
2011 GMC Canyon and Chevy Colorado	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine	✔
2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine	✔

Engine	HO2S Heater Tests
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔
2022-2024 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔

Engine	Starter Relay	Throttle Position	Throttle Position Sweep
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔	✔	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔	✔	✔
2011 GMC Canyon and Chevy Colorado	✔	✔	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine	✔	✔	✔
2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine	✔	✔	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔	✔	✔
2022 - 2024 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine	✔	✔	✔

Engine	Starter Relay	Throttle Position	Throttle Position Sweep
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔	✔	✔

Engine	Reset Oil Life
2010 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine	✔
2010 - 2017 GMC Express and Chevy Savana with 6.0L Gas engine	✔
2011 GMC Canyon and Chevy Colorado	✔
2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine	✔
2021 - 2024 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine	✔
2020 – 2024 Freightliner trucks with 6.6L Gas engine	✔
2022-2024 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine	✔
2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine	✔

- Bi-directional support for GM Transmissions:

Transmission Tests	2010 - 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
High Side Driver 1	✔
Line PC Solenoid	✔
PC Solenoid 2	✔
PC Solenoid 3	✔
PC Solenoid 4	✔
PC Solenoid 5	✔
Reset Transmission Adapts	✔
Reset Transmission Oil Life	✔

Transmission Tests	2010 - 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Shift Transmission	✔
Shift Solenoid 1	✔
Shift Solenoid 2	✔
TCC Control Solenoid	✔

- Bi-directional support for GM Brake Control Module:

Brake Control Module Tests	2010 - 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
ABS Motor	✔
Automated Brake Bleed	✔
LF Inlet Valve Solenoid	✔
LF Outlet Valve Solenoid	✔
RF Inlet Valve Solenoid	✔
RF Outlet Valve Solenoid	✔
Rear Inlet Valve Solenoid	✔
Rear Outlet Valve Solenoid	✔

- Bi-directional support for GM Body Controllers:

Body Controllers Tests	2010 - 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Accy/RAP Relay	✔
Backup Lamps	✔
Courtesy Lamp	✔
DRL	✔
Fog Lamps	✔
High Beams	✔
Horn	✔
Incandescent Dimming	✔
LED Dimming	✔
LF Turn Signal	✔
LR Turn Signal	✔
Low Beams	✔
Parking Lamps	✔
RF Turn Signal	✔
RR Turn Signal	✔

Body Controllers Tests	2010 - 2012 GMC Express and Chevy Savana with a 6.0L Gas engine
Run/Crank Relay	✔
Shift Lock Solenoid	✔
Wiper High Speed Relay	✔
Wiper Relay	✔
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:

Engine	Cruise Speed Customization	Cylinder Cut-Out	DPF Manual Service Regen
All Hino engines (2011–2019)	✔	✔	✔

Engine	DPF Soot Load Customization	Idle Shutdown Customization	SCR Related Memory Reset
All Hino engines (2011–2019)	✔	✔	✔

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:

Engine	Cylinder Cut-Out	DPF Service Regen
5.2L (4HK1)	✔	✔
3.0L (4JJ1)	✔	✔

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:

Engine	Cylinder Cut-Out	Compression Test	Manual DPF Regen
EPA 07 Diesel Engine	✔	✔	✔

Engine	Injector Quantity Adjustment	Initialize Rail Pressure
EPA 07 Diesel Engine	✔	✔

- Bi-directional support for Sprinter instrument clusters:

Instrument Cluster Model	Oil Change Reset	Display Dimmer Test	Gauge Sweep Test
2007–2015 Instrument Cluster	✔	✔	✔

Instrument Cluster Model	LCD Display Test	Speaker Test
2007–2015 Instrument Cluster	✔	✔

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

TPM Model	Tire Pressure Monitor Test
2007–2015 TPM	✔

GENERAL FEATURES

- Only JPRO® DLA+ 3.0 XBT, 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 vehicles 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.
- 'User Guide' document shows 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.

- 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.
  - Interactive Wiring Diagrams make it easier to trace electrical connections.
  - 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 a 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 purchased.

- 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 purchased.

- 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: This feature is only available when JPRO® Professional Diagnostic Software with NextStep™ is purchased.

- 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.

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 provides technician-friendly descriptions for fault status values from both the Fault Display and the Data Monitor.
- FMI Assistance provides 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.
- 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. The 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 support 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 the customer's 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.

NOTE: Download link currently opens Clean Truck Check information website.

- Ability to download or launch Truck Check Up from the OEM Portal when it is released.
- Link to download ServiceMaxx diagnostic applications from the 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.
- 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 XBT, 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).

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

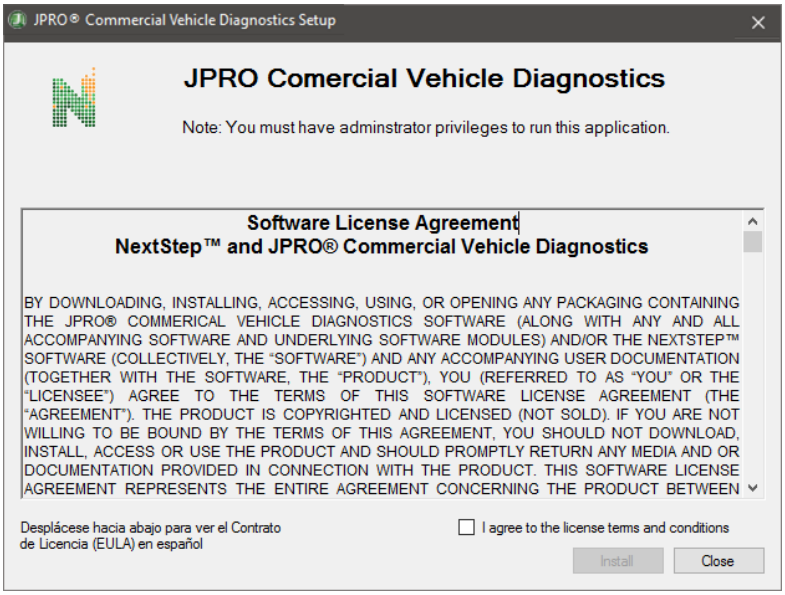
NOTE: Ensure the Noregon adapter driver and firmware are the most current available.

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

INSTALLATION

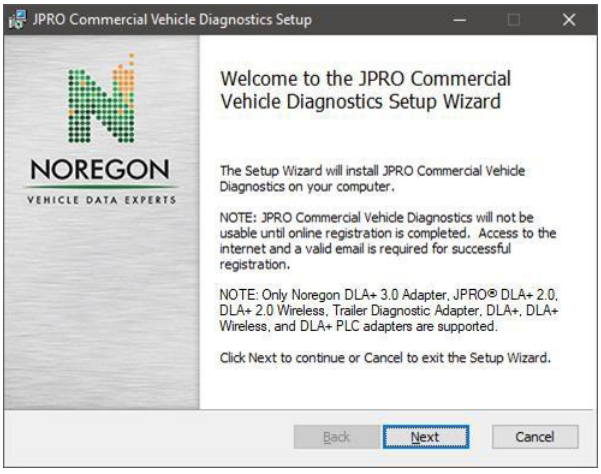
Follow the steps below to carry out the JPRO® Commercial Vehicle Diagnostics Setup installation:

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.**



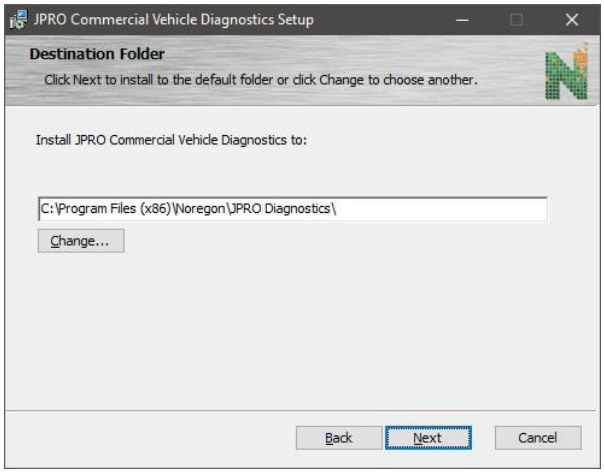
License Agreement

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



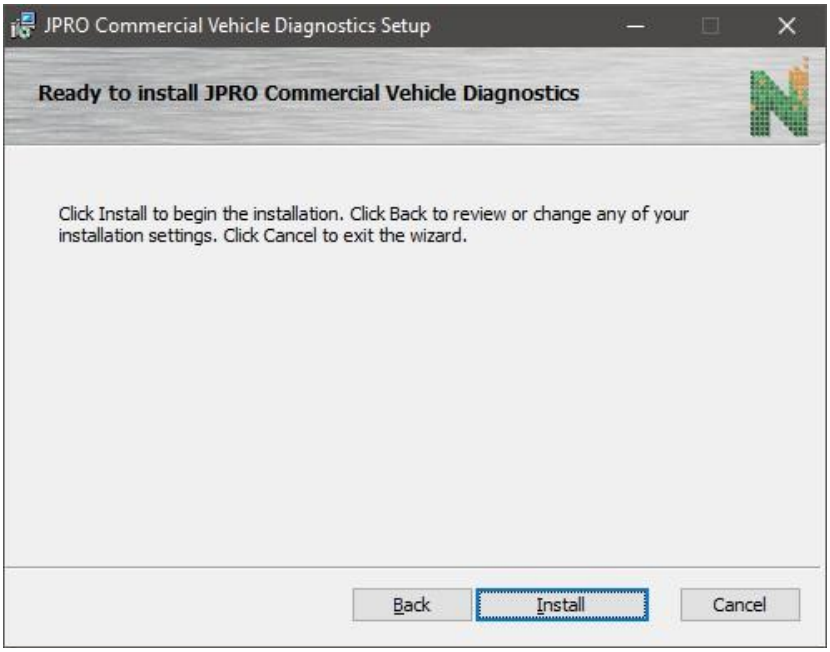
Installation Welcome Window

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



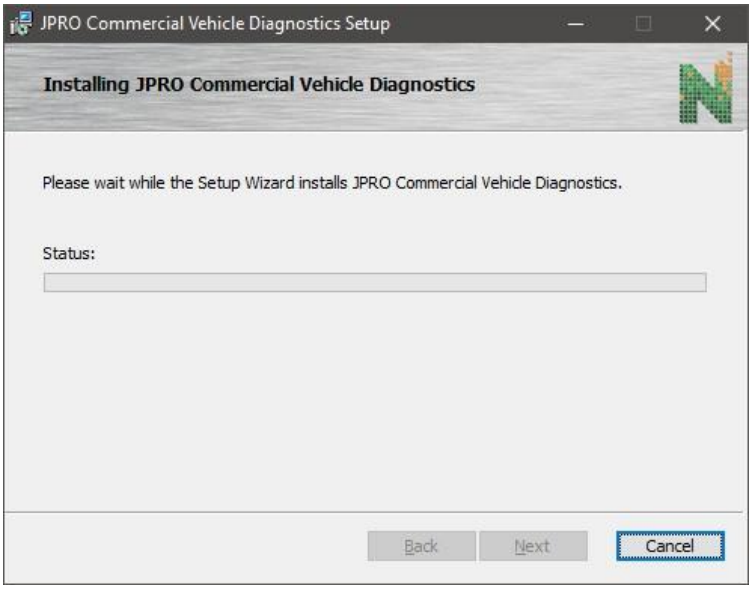
Destination Folder

5. 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 then clicking **OK**.
6. Click **Next** again to display the confirmation window, then select the **Install** button to start copying files to the computer.



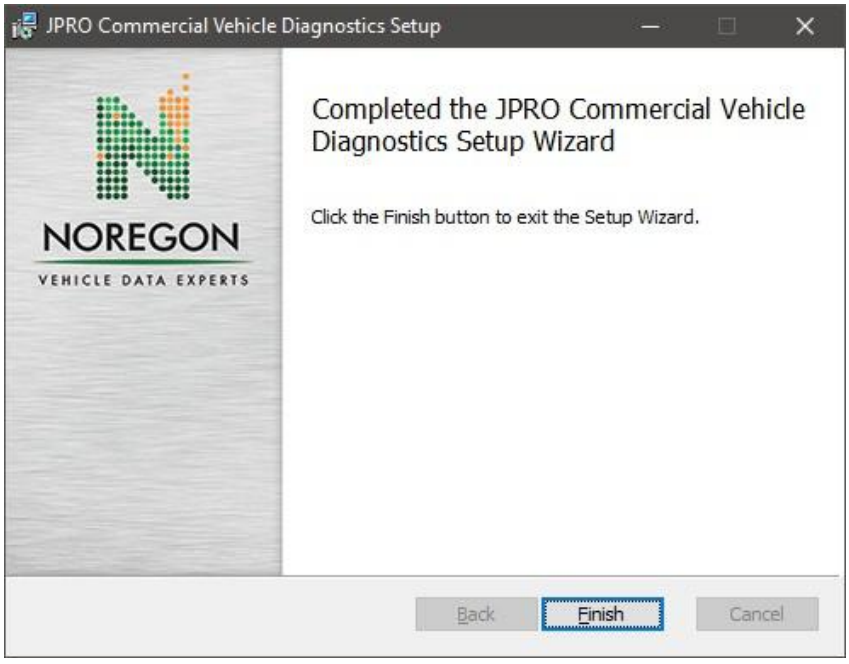
Installation Confirmation

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



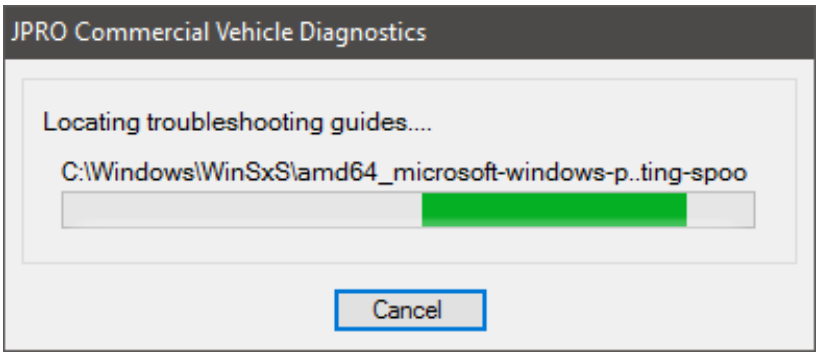
Installation Progress

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



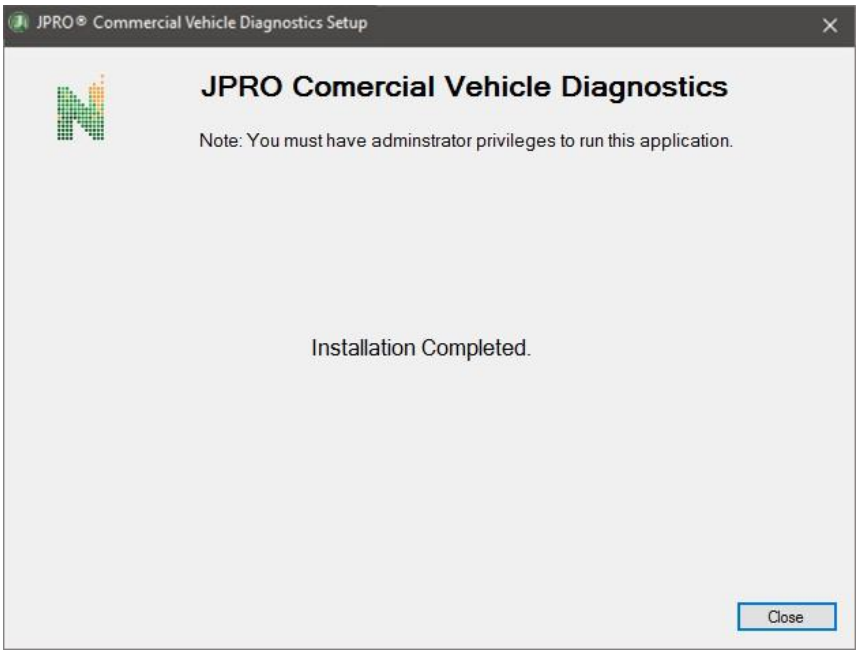
Installation Complete

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



Installation Complete

10. 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

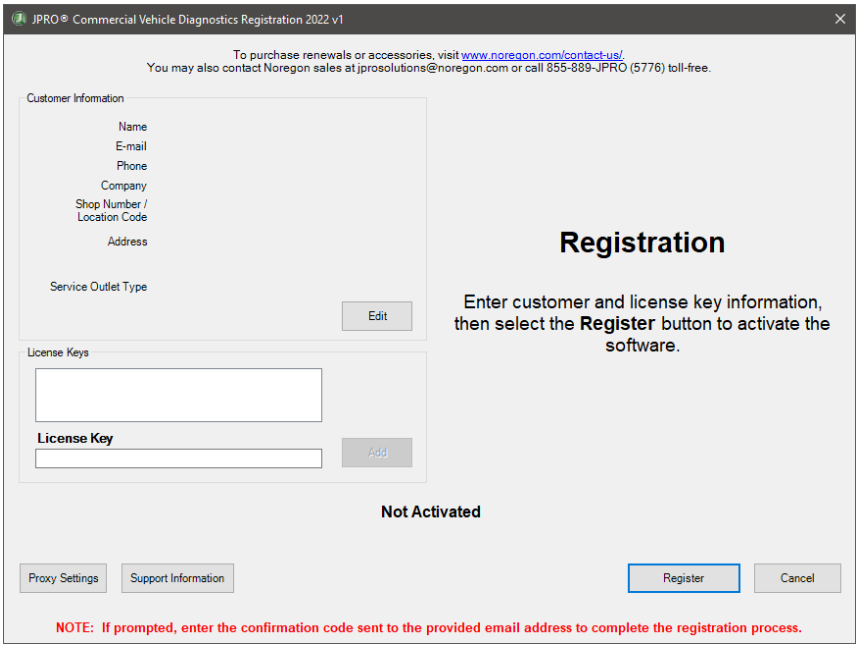
REGISTRATION

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 set up the application. The **Preferences Wizard** may be accessed at any time via the **Application Settings – Preferences Wizard** toolbar option.

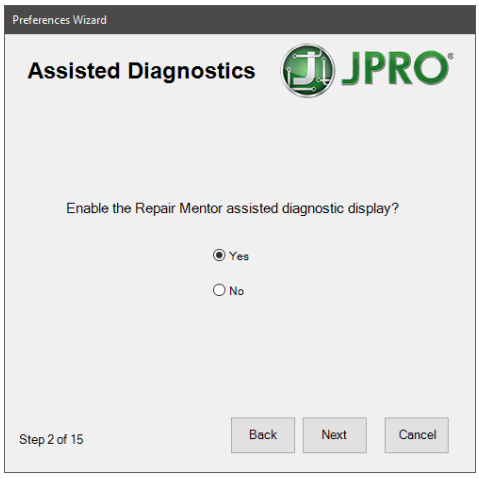
Follow the steps below to carry out the preferences wizard:

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 that prioritizes vehicle issues and provides guidance for diagnosing and repairing the issues.



Assisted Diagnostics Options

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 to see what the report header will look like.



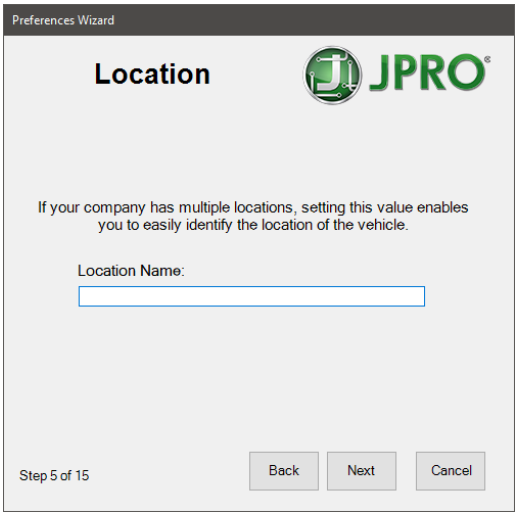
Logo & Company Information

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

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.



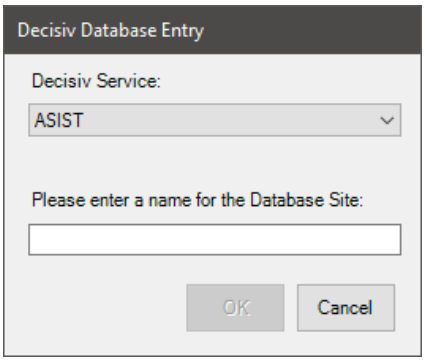
Location

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.



Decisiv Integration

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

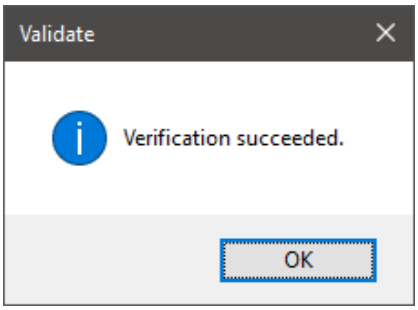
NOTE: The step below will require your local Decisiv Admin to look up the Dealer ID/Decisiv Username and Password. These items are only accessible with an admin user. They can be found under Admin - Customize Your Database - API Settings in the Decisiv interface.

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.

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b. Once you have entered a database name, the Dealer ID or Decisiv Username and Password will be required. To see if those items have been entered correctly, the

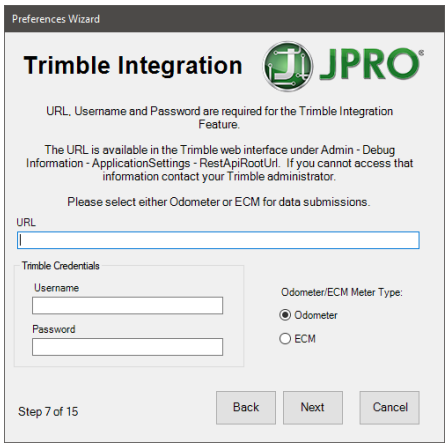
user can press the **Validate** button. The **Validate** dialog will be displayed to indicate success or failure.



Decisiv Integration - Database Validation Message

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

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



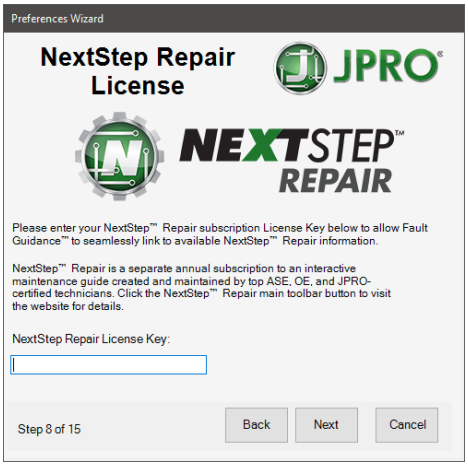
Trimble Integration

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.

- To set up 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**.

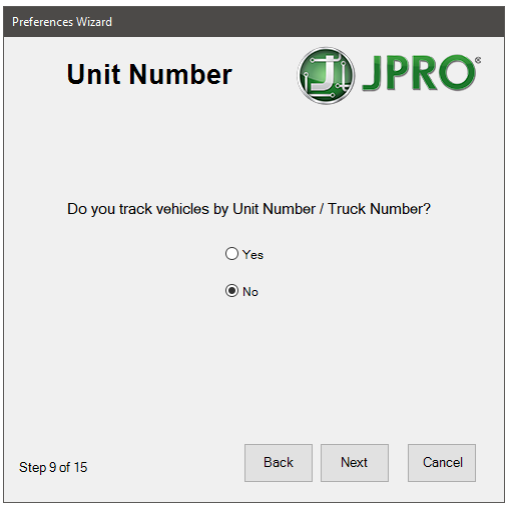
NOTE: You can select *Next* without configuring Trimble Integration; however, you will be unable to Submit to Trimble until this step is complete. You can access the settings for later configuration via the Application Settings - Preferences option.

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



NextStep Repair Integration

9. 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**.



Unit Number Settings

10. 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.

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



PM Checklist Customization

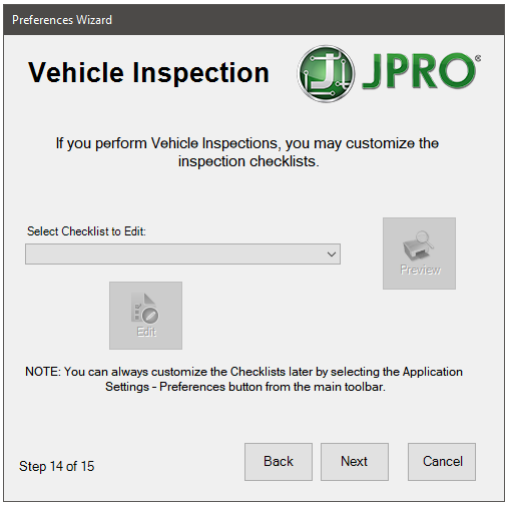
14. You can create a disclaimer that will appear on the **Vehicle Inspection** screen and all saved **Vehicle Inspection** reports.



Vehicle Inspection Disclaimer

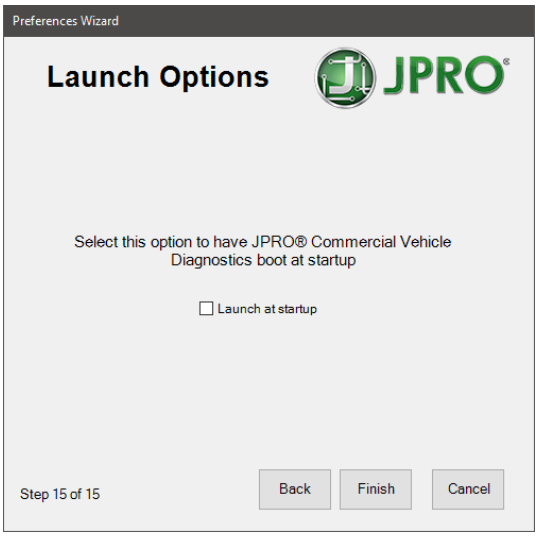
Checking **Include the Following Disclaimer** allows you to enter your disclaimer text.

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.
    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.



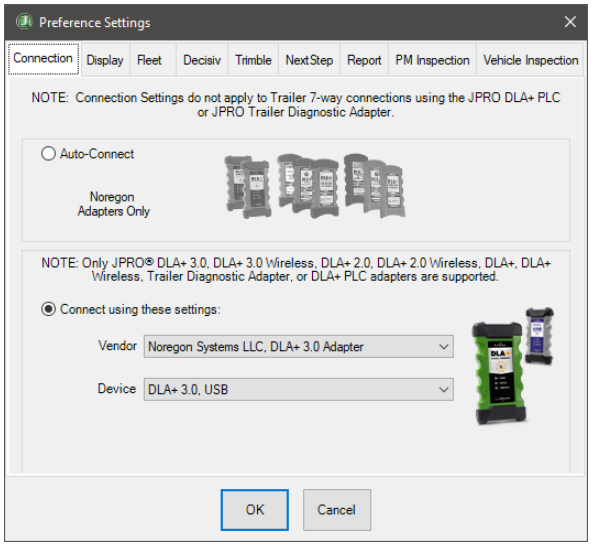
Application Launch Option

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

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

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

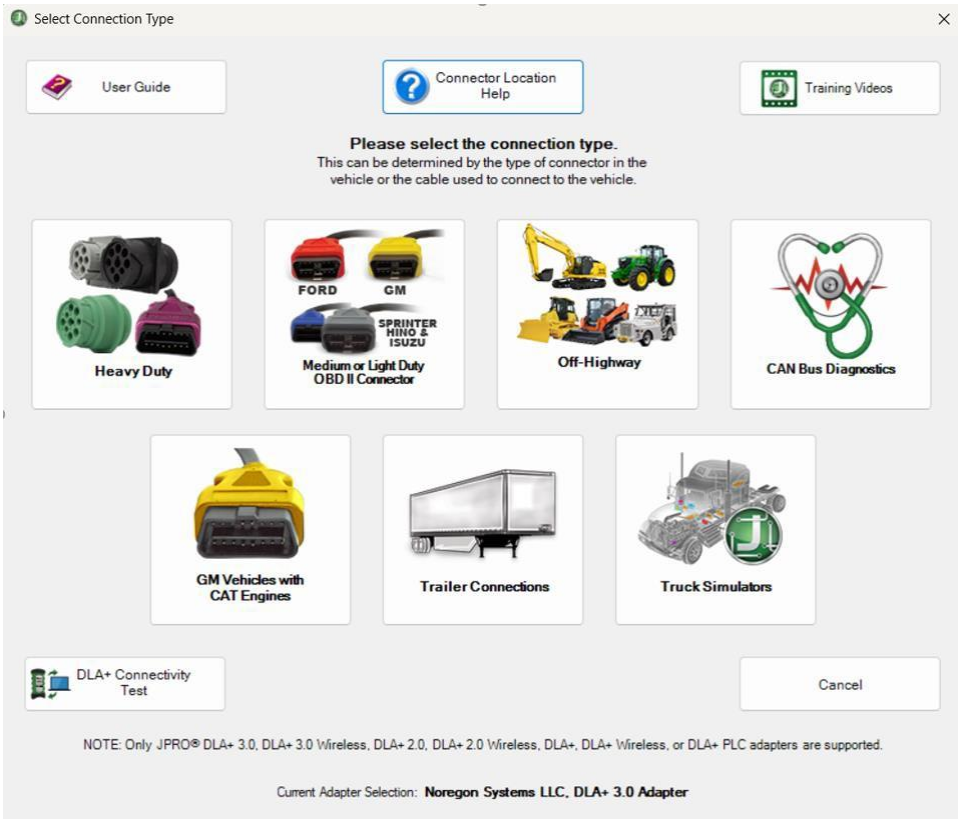
- ✓ DLA+ 3.0 XBT
- ✓ DLA+ 3.0
- ✓ DLA+ 3.0 Wireless
- ✓ DLA+ 2.0
- ✓ DLA+ 2.0 Wireless
- ✓ DLA+
- ✓ DLA+ Wireless
- ✓ DLA+ PLC
- ✓ Trailer Diagnostic Adapter (PLC connections only)

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.

Follow the steps below to connect the data bus on heavy-duty vehicles:

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.

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 **User Guide** to view the **User Guide** 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 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.

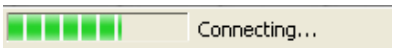
NOTE: If you have a Demo license, this button will not be available.

3. Select the Truck Simulators button to select a vehicle to simulate. See Virtual Truck Connection or Bendix Demo Truck Connection for more information.

a. Select the **Heavy Duty** button to connect to the vehicle data bus using all available protocols.

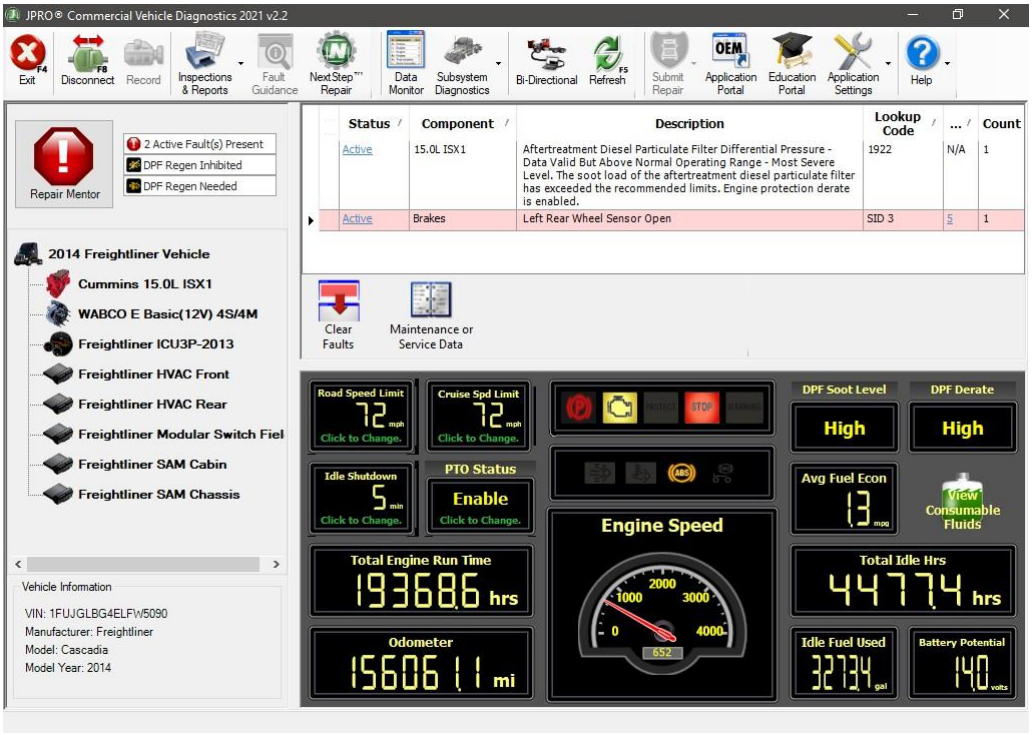
NOTE: If you have a Demo license, this button will not be available.

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



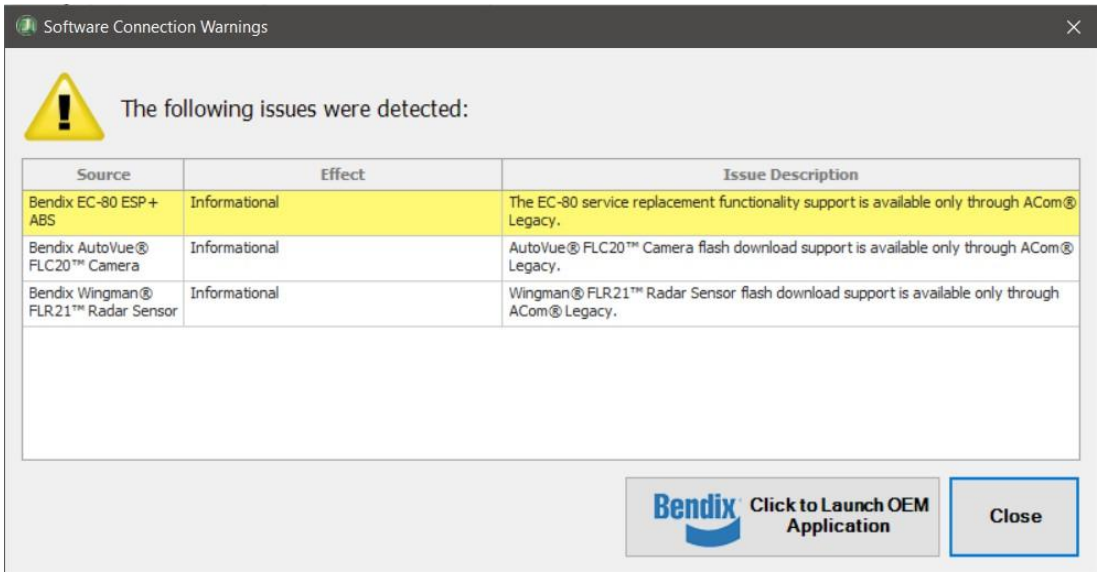
Connection Status Bar

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



Heavy-Duty Connection Main Screen

d. 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

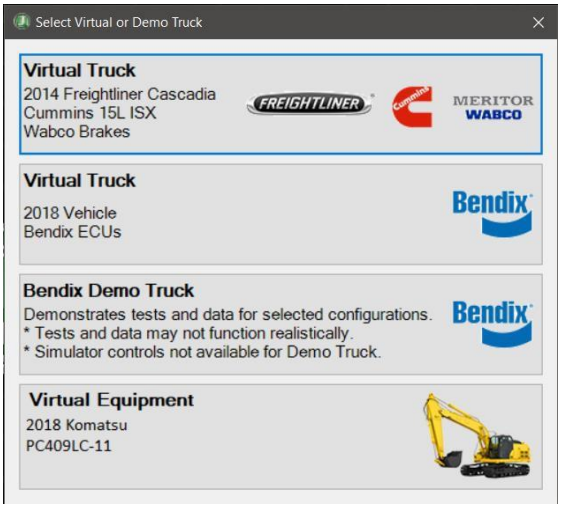
Virtual Truck Connection

JPRO always plays 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's 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.

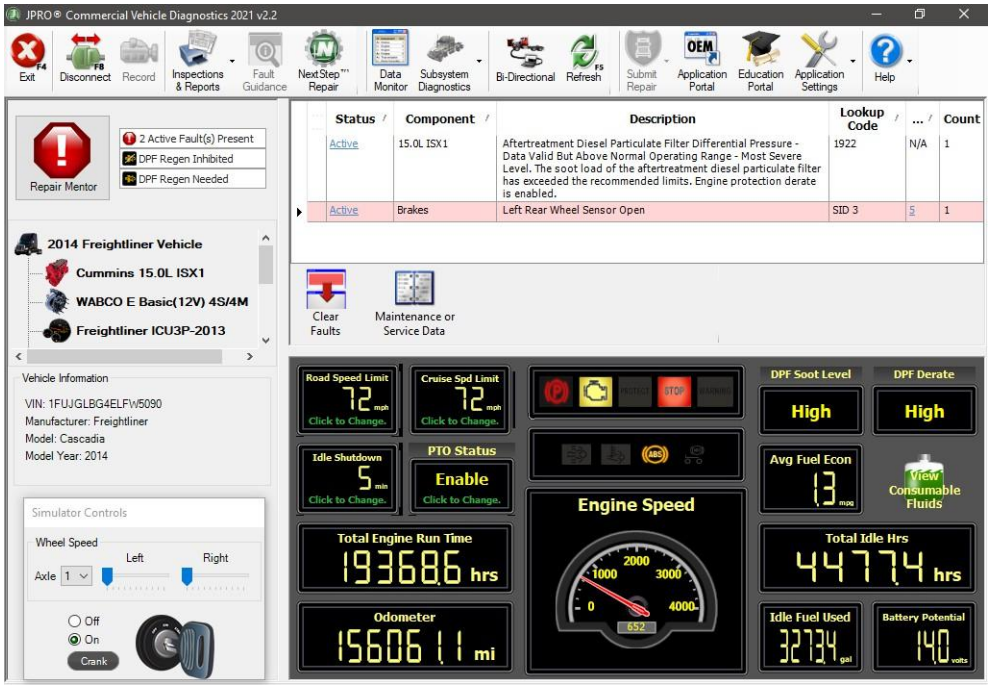


Select Virtual or Demo Truck

- 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.

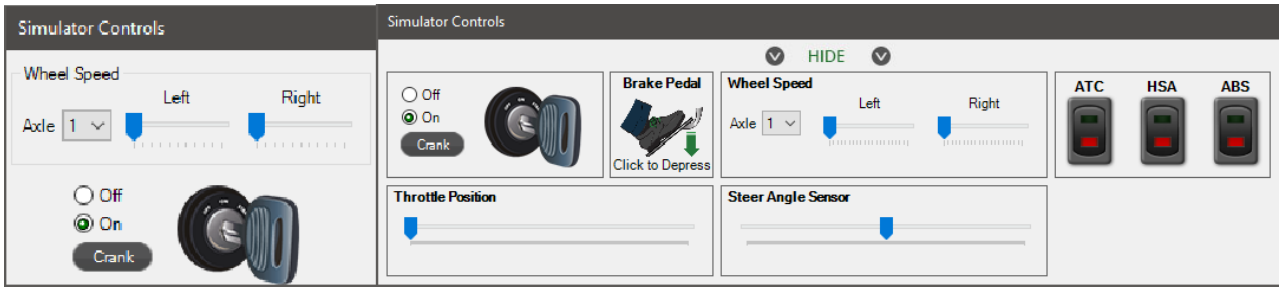
4. The application will enter a truck simulation mode, allowing you to exercise JPRO features for training and educational purposes.
5. The simulation should behave exactly as a normal Heavy-Duty vehicle connection. The **Vehicle Readiness**, **Fault Code Information** and **Key Data Point** windows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

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



Heavy-Duty Connection Main Screen

6. 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.
7. 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 is not available when connected to a Virtual Truck.

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

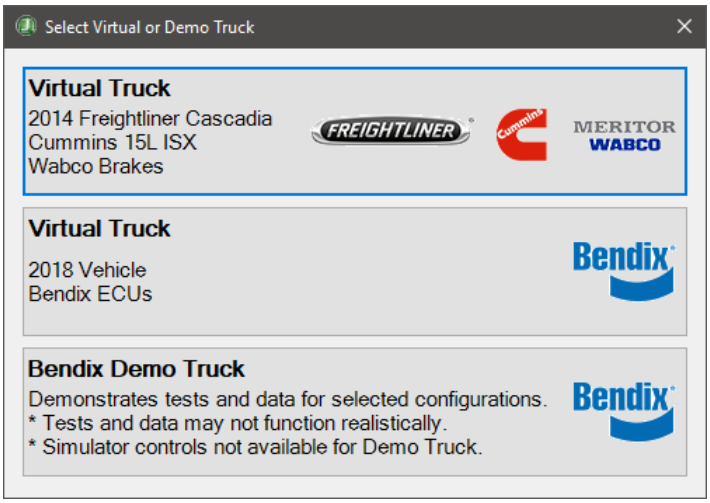
8. Select the **F8** key or the **Disconnect** button on the main toolbar to close the virtual truck simulation session.

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.

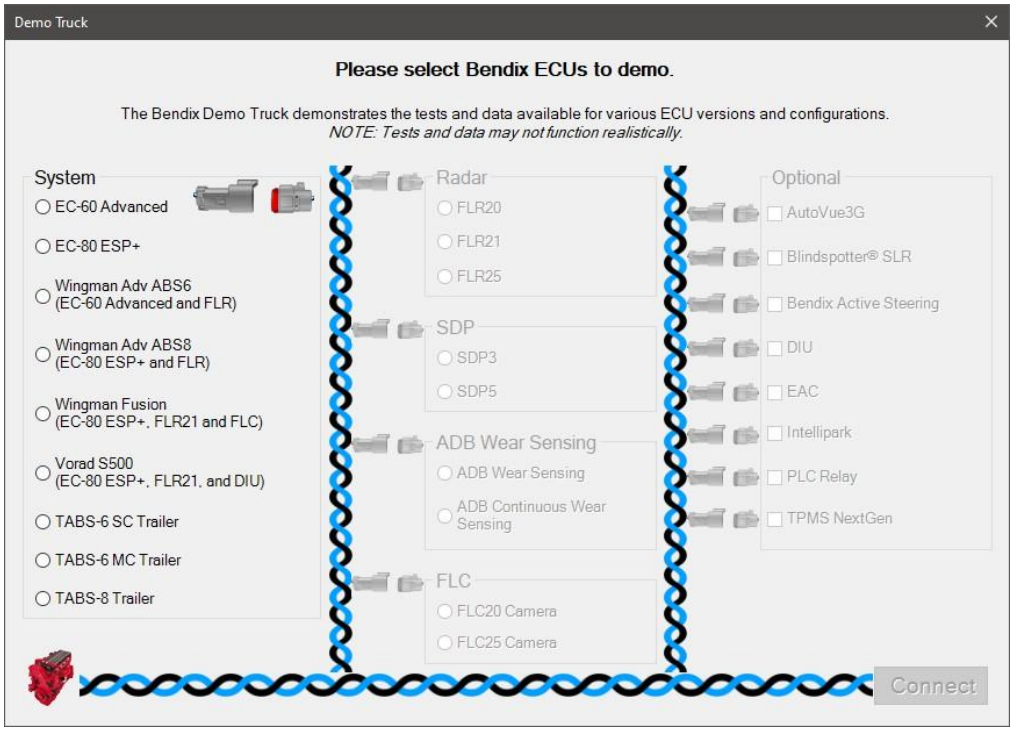
NOTE: This is for demonstration purposes only. Tests and data may not function realistically.

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.



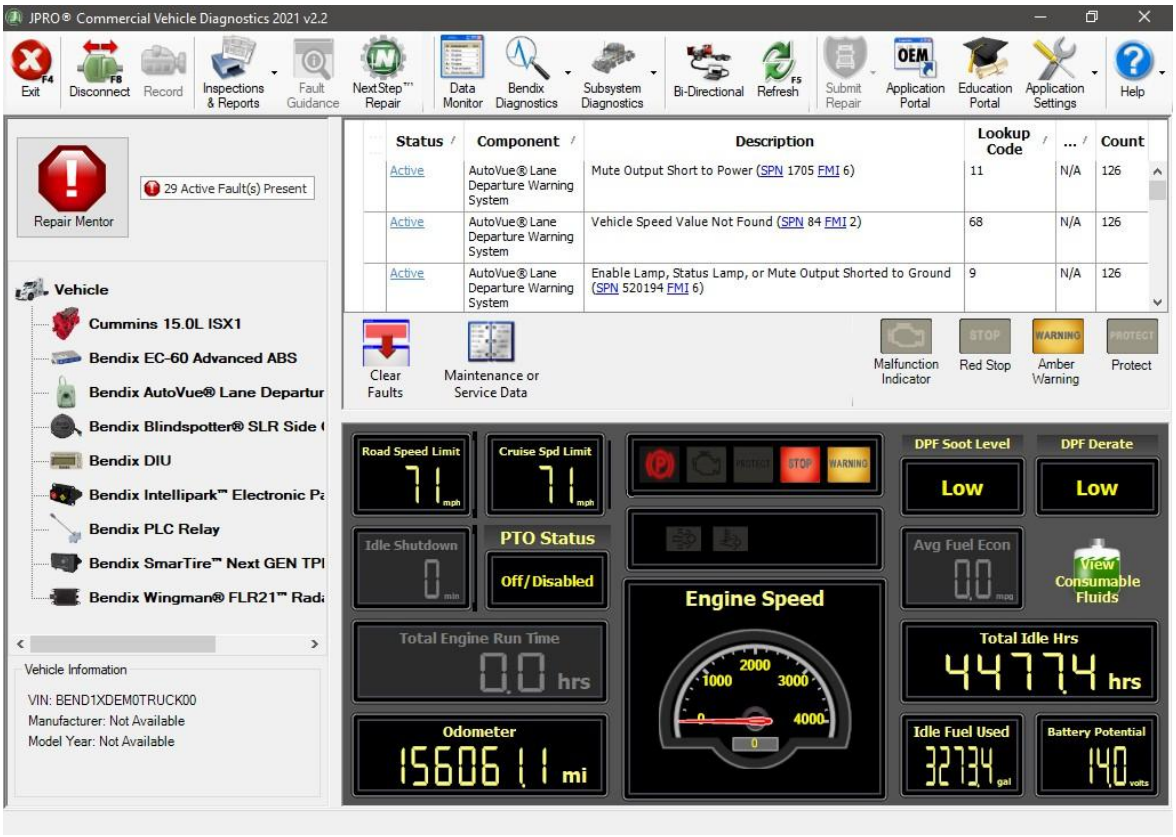
Select Virtual or Demo Truck

4. Choose Bendix Demo Truck from the Select Virtual or Demo Truck screen.
5. Select the desired System option to enable the 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.
7. Initially, the top portion of the Vehicle Readiness window will indicate the gathering of the vehicle's information. Once all vehicle information has been retrieved, the vehicle's health status is displayed.



Bendix Demo Truck Connection Main Screen

8. 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 is not available when connected to the Bendix Demo Truck.

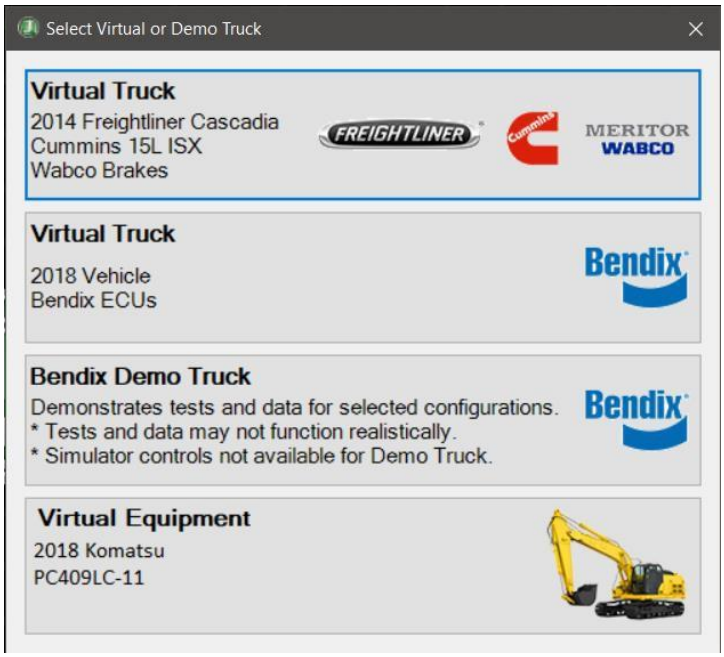
9. Select the F8 key or the **Disconnect** button on the main toolbar to close the demo truck session.

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.

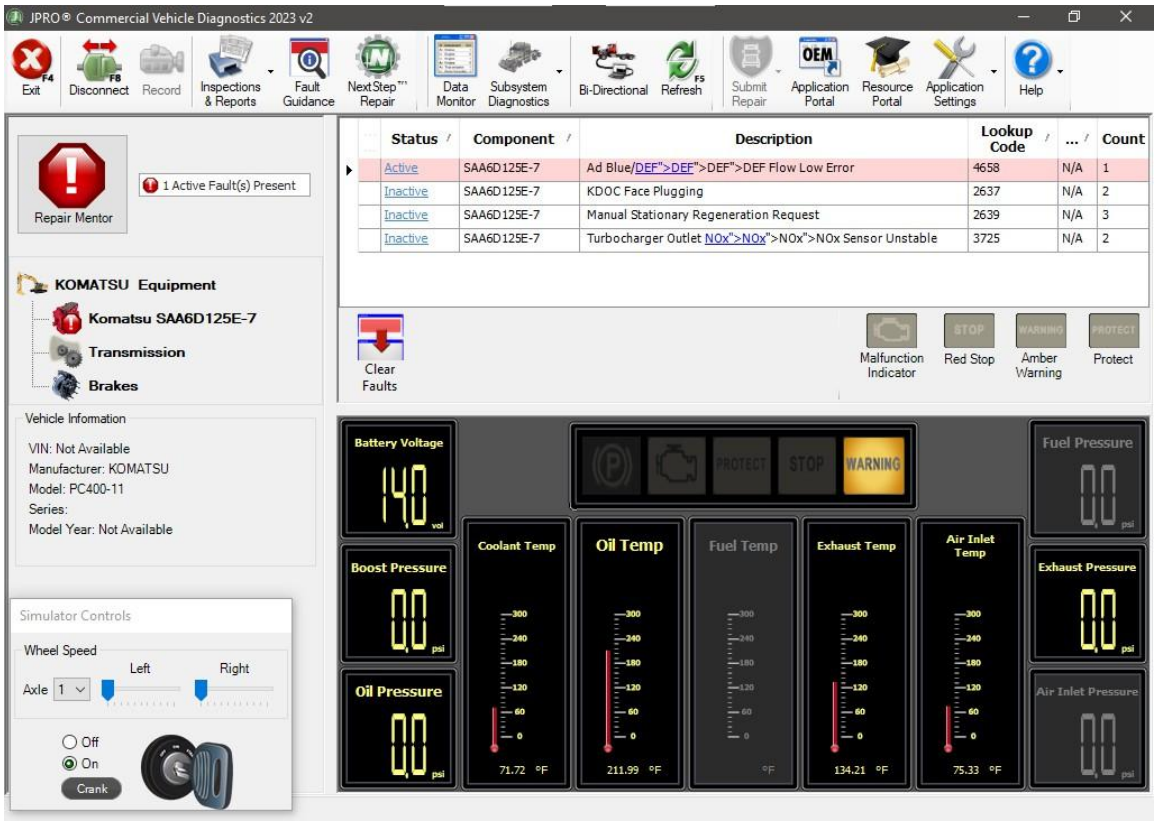
1. Select the F8 key or the **Connect** button on the main toolbar.
2. You will be prompted for the connection type. Select the **Truck Simulators** button.
3. Select the vehicle to simulate.



Select Virtual or Demo Truck

4. Choose Virtual Equipment from the Select Virtual or Demo Truck screen.
5. 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 of the vehicle's information. Once all vehicle information has been retrieved, the vehicle's health status is displayed.



Virtual Equipment Connection Main Screen

6. 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 is not available when connected to the Virtual Equipment.

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7. 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.

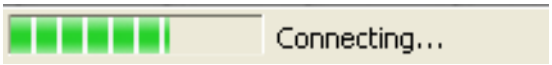
If using a USB connection, also connect the USB cable to the computer running JPRO® Commercial Vehicle Diagnostics.



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

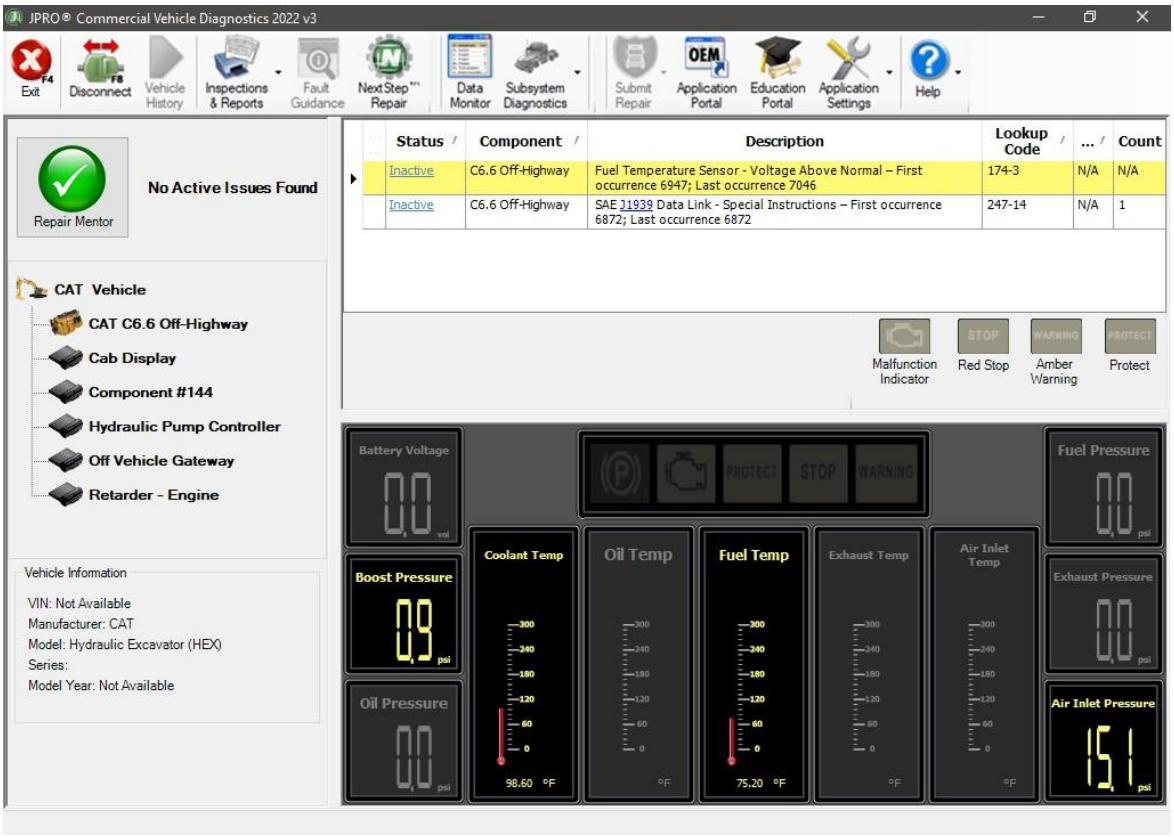
Follow the steps below to connect the data bus on Off-highway vehicles:

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



Off-Highway Connection Main Screen

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)**.

Follow the steps below to connect the data bus on medium-duty vehicles:

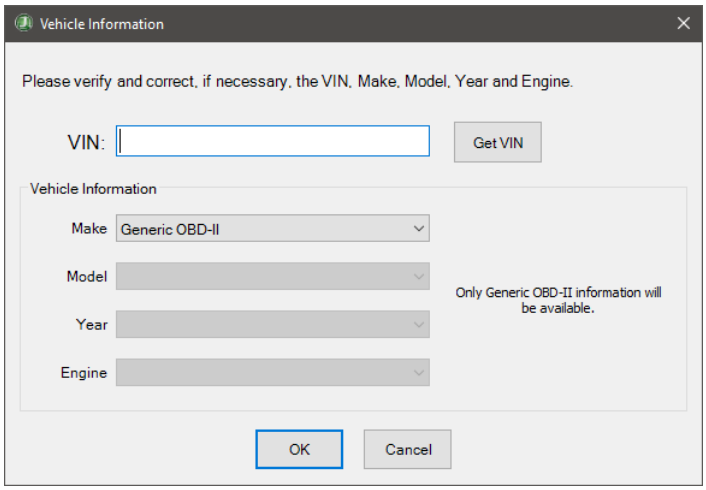
1. Select the **F8** key or the **Connect** button on the main toolbar.

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.

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



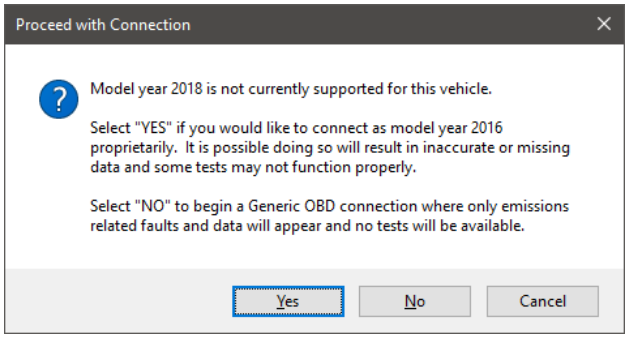
Vehicle Information

> **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 are not supported in any year.

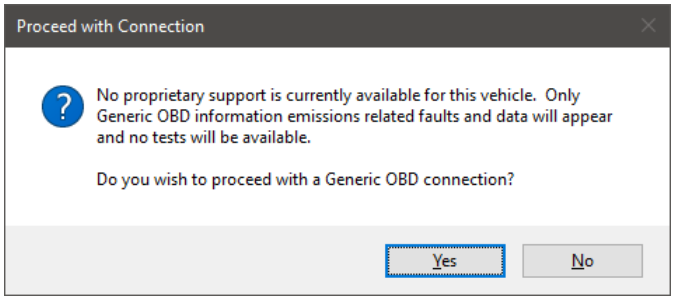
   Follow the steps below if the vehicle year is not supported:

   a. A prompt to choose to connect with proprietary support or, as a Generic OBD II, will display.



Proceed with Connection Question for Year Not Supported

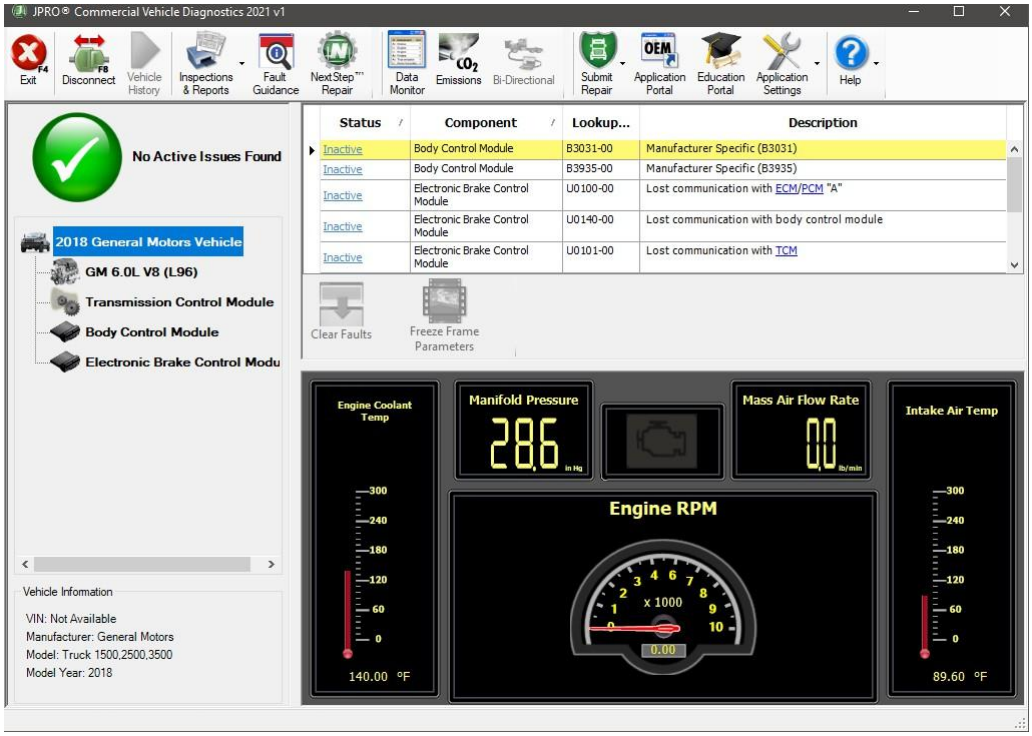
b. Select **Yes** to proceed with the connection proprietarily. Select **No** to proceed with a Generic OBD II connection.
c. If the vehicle make, model, and engine are not supported in any year, then a confirmation prompt to connect as Generic OBD II will display.



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.



Medium-Duty Connection Main Screen

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 XBT, 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 XBT, DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, or DLA+ Wireless** adapter are supported.

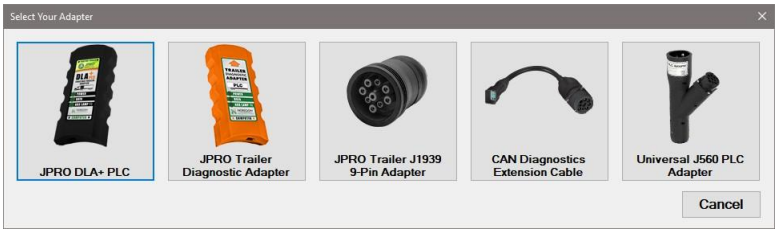
Connections to trailers equipped with a **9-Pin SAE J1939** connector using a Noregon **DLA+ 3.0 XBT, DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, or DLA+ PLC** adapter are also supported.

Follow the steps below to connect the data bus on a trailer:

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

> **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.

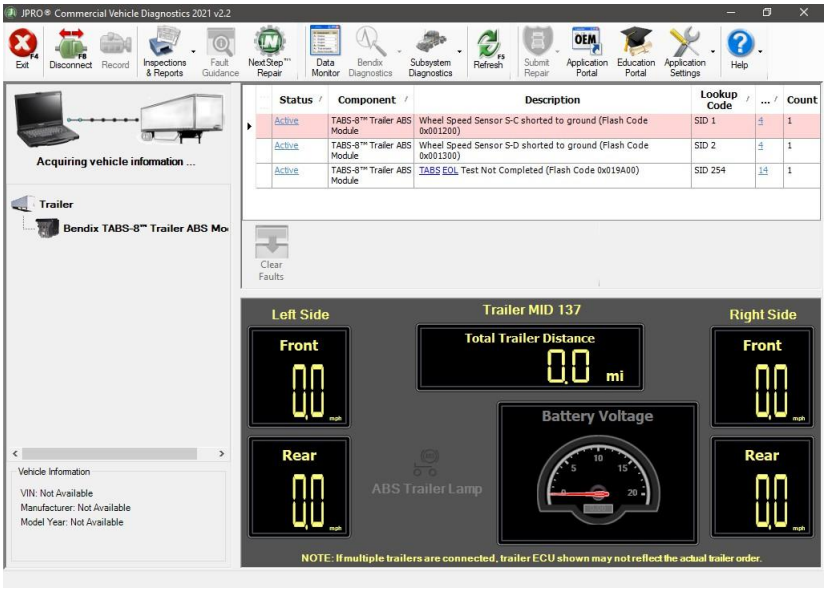


Select Your Adapter

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.

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



PLC Trailer Connection Main Screen

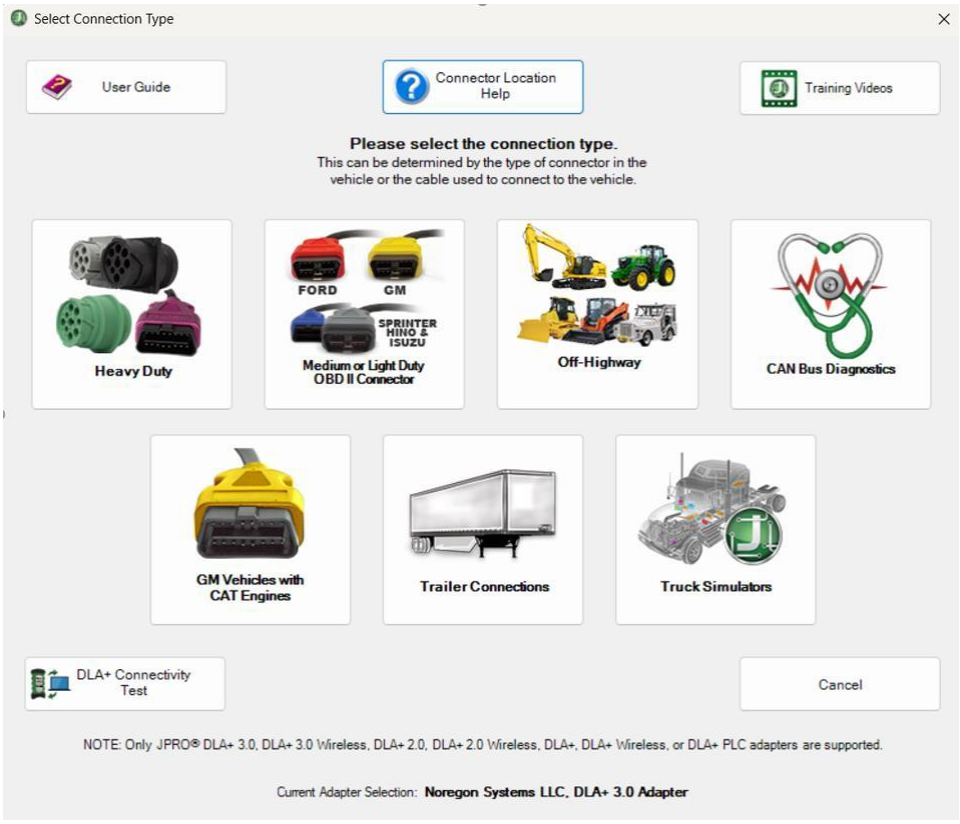
Connecting to the Data Bus with CAN Bus Diagnostics

Connect using the Noregon® DLA+ 3.0 XBT adapter to access CAN Bus Diagnostics, which provides live voltage and terminating resistance readings from the vehicle CAN Bus.

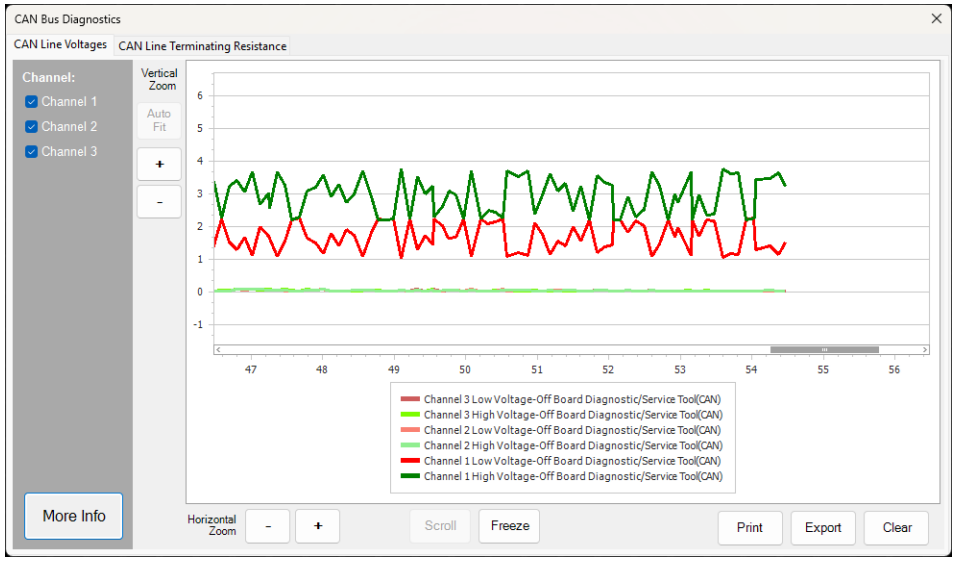
NOTE: CAN Bus Diagnostics is only supported with the new DLA+ 3.0 XBT adapter.

NOTE: The CAN Bus Diagnostics feature is not supported on connections to Paccar vehicles with green type 2 connectors and a build date between 2016 and October 8th 2018.

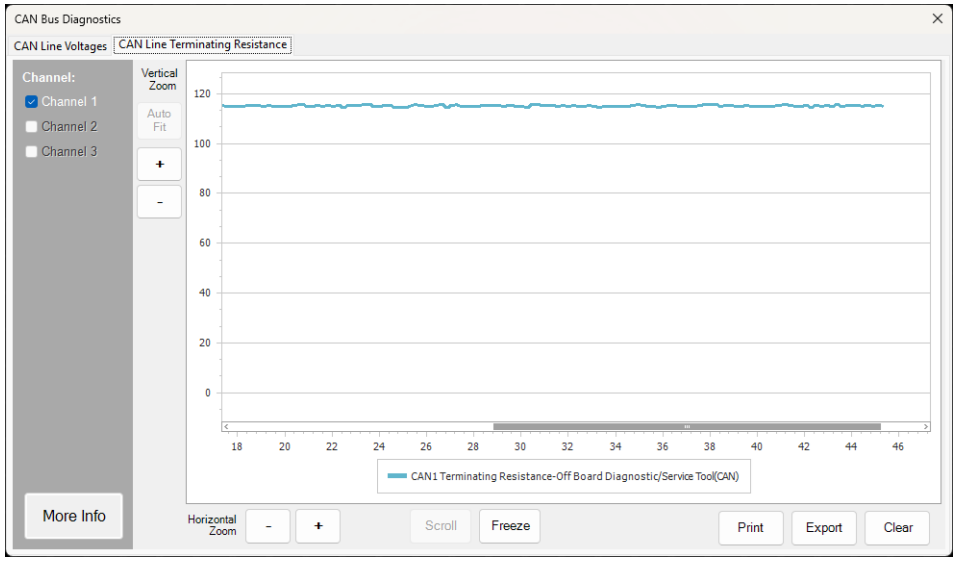
1. Select the F8 key or the Connect button on the main toolbar.
2. You will be prompted for the connection type. Select the CAN Bus Diagnostics button.



3. A progress bar in the lower left status bar will display the connection progress.
4. When the connection is established, **CAN Bus Diagnostics** will be displayed. Detected voltages for available CAN channels are graphed. Click the checkbox to add or remove desired channels from the graph.
   Select the **CAN Line Terminating Resistance** tab to view detected terminating resistance values.

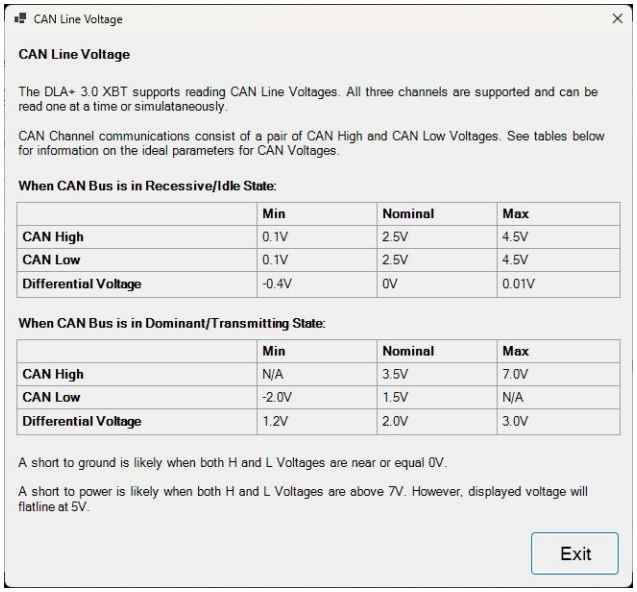


CAN Bus Diagnostics



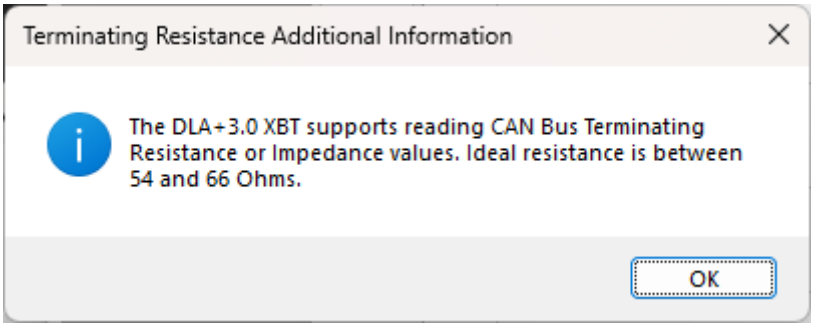
CAN Line Terminating Resistance Tab

5. Selecting More Info from the **CAN Line Voltages** tab will display important information about the detected voltage values.



CAN Line Voltages Tab

6. Selecting More Info from the **CAN Line Terminating Resistance** tab will provide additional information.



CAN Line Terminating Resistance Tab

7. Close the CAN Bus Diagnostics window to end the session.

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

Follow the steps below to find the Decisiv API username and password:

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

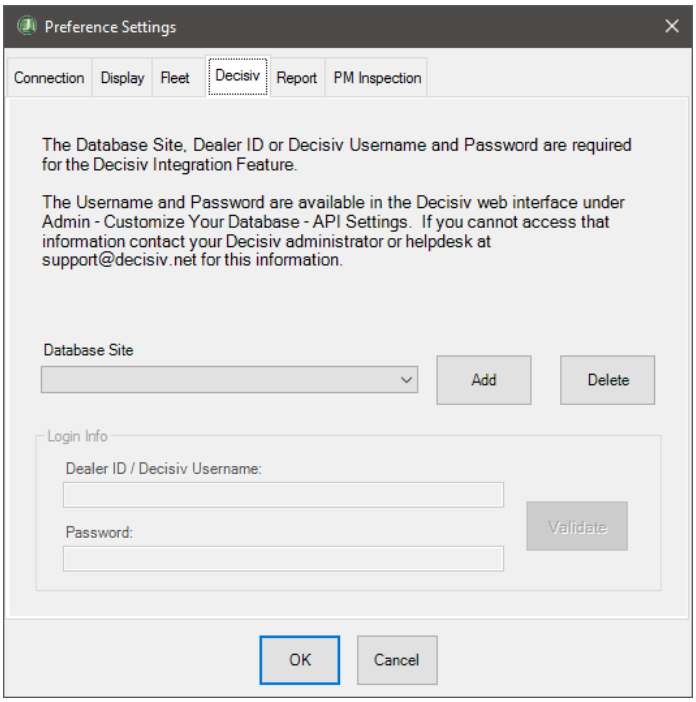
> **NOTE:** Only personnel with Decisiv Admin level access will see the Admin option. If you do not see it, contact your Decisiv Admin to complete these steps.

4. Select **Customize** Your Database.
5. Select **API Settings**.
6. If necessary, click the **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

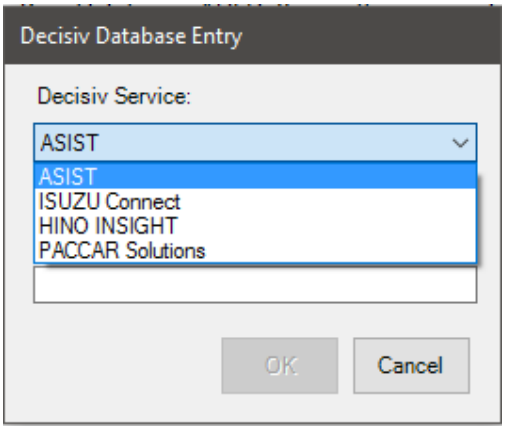
Follow the steps below to configure Decisiv (ASIST, PACCAR Solutions, ISUZU Connect, or HINO INSIGHT) Integration:

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 clearly indicates which 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

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 that the username and password have been entered correctly.
7. Repeat steps 3-6 for each database you need to configure for submission.

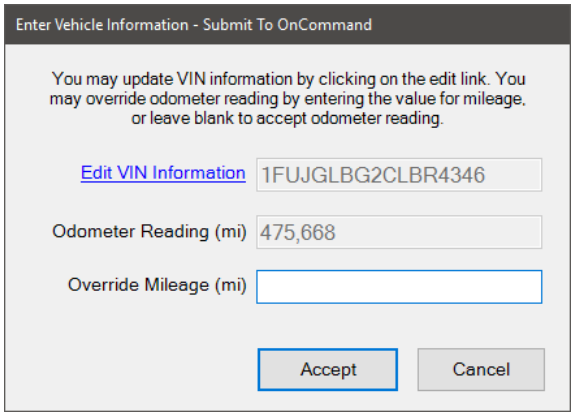
Send Vehicle Data to OnCommand

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 sending vehicle data to OnCommand™ is not available when connected to a Virtual or Demo Truck.

Follow the steps below to send vehicle data to On Command:

1. While connected to the Data Bus or at the end of playing back a log file, click the **Submit Repair – OnCommand** button.
2. You will be allowed 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).

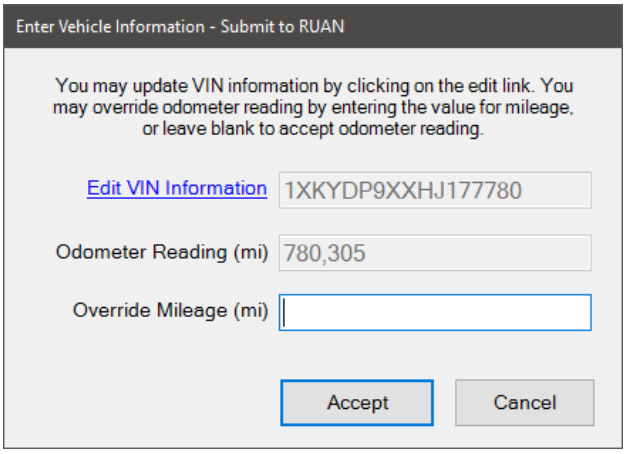
Send Vehicle Data to Ruan

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

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

Follow the steps below to send vehicle data to Ruan:

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



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.

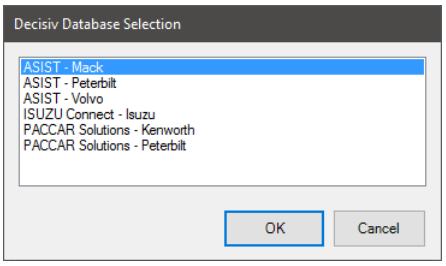
Send Vehicle Data to Decisiv (Asist, Paccar Solutions, Isuzu Connect or Hino Insight)

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

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

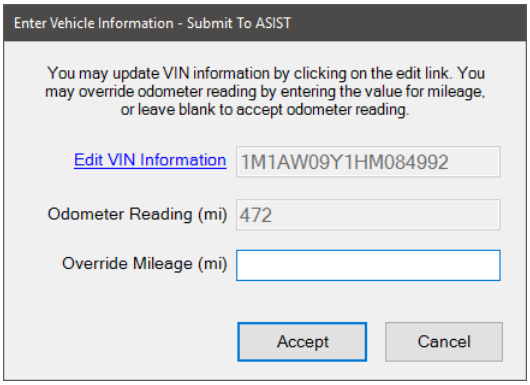
Follow the steps below to send vehicle data to Decisiv (ASIST, PACCAR Solutions, ISUZU Connect or HINO INSIGHT):

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.



Database Selection

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



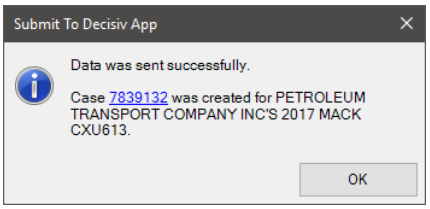
Submit – Enter Vehicle Information

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

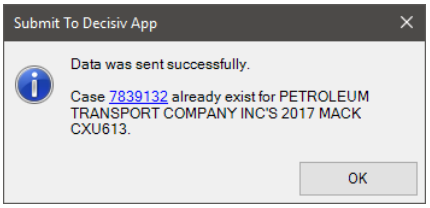
When Decisiv receives data from JPRO, it will send back info about what it did with the data. There are five different outcomes:

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.



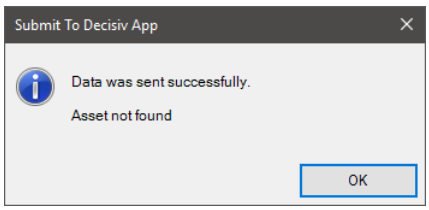
Submit - New Case Created

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.



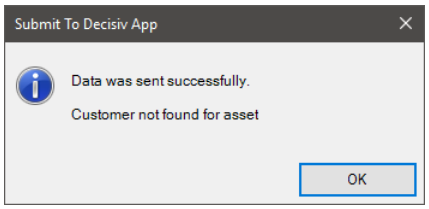
Submit – Existing Case

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 need to resubmit the vehicle data into a new case created for that asset.

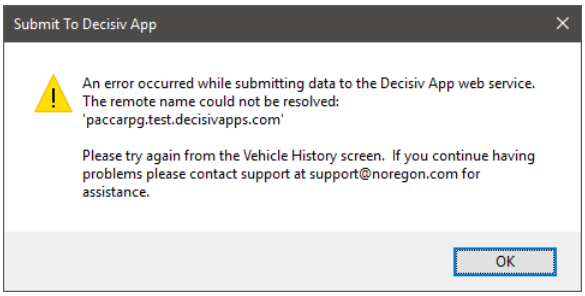


Submit – Asset Not Found

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

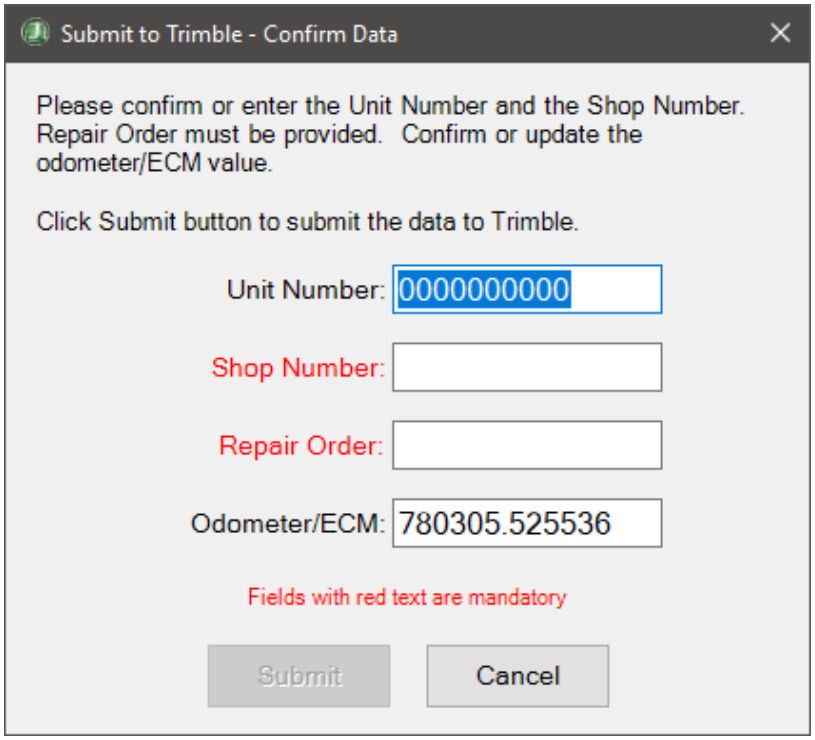
Send Vehicle Data to Trimble

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 sending vehicle data to Trimble is not available when connected to a Virtual or Demo Truck.

Follow the steps below to send vehicle data to trimble:

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.
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 – Enter Vehicle Information

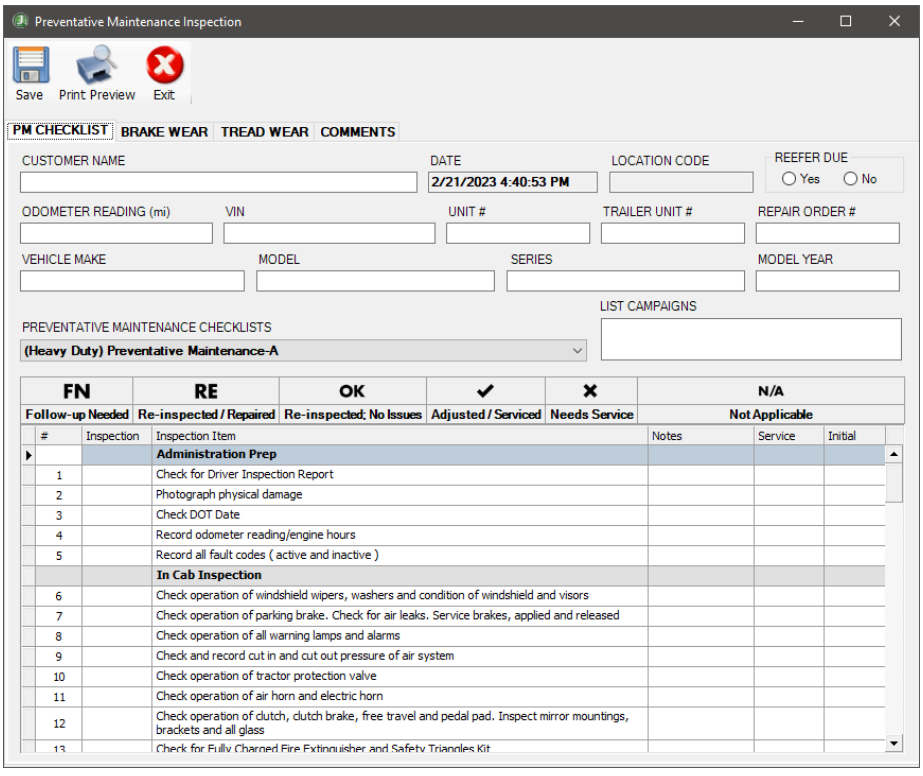
3. Select **Submit** once all required data has been provided to upload the vehicle information to Trimble.

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.

Follow the steps below for preventative maintenance inspection:

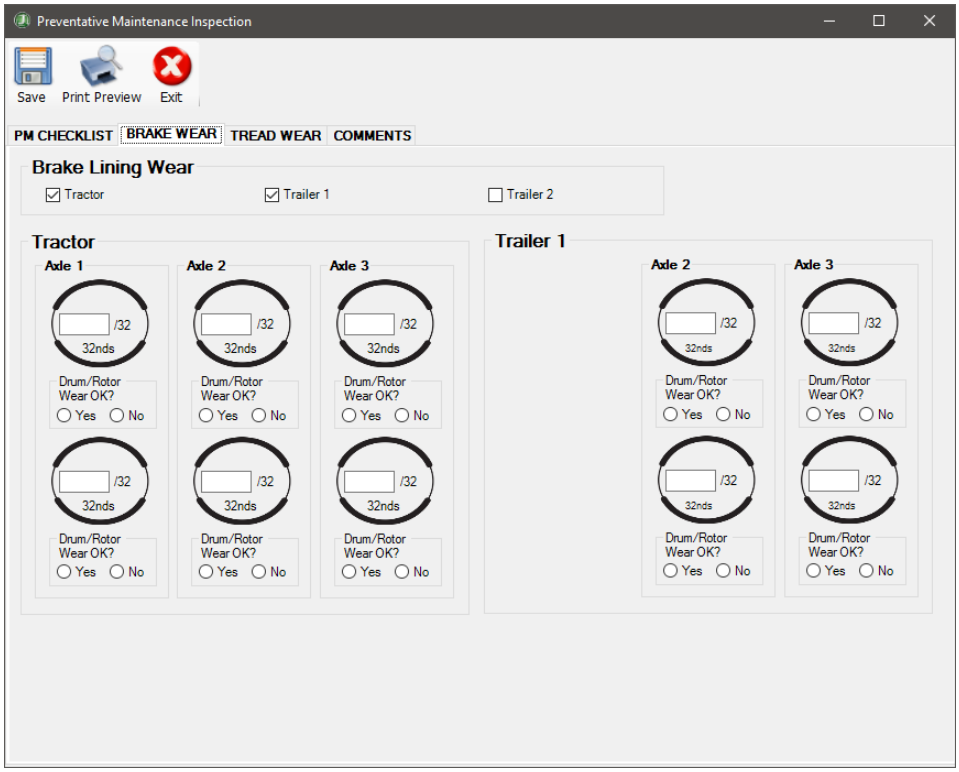
1. Follow the previous steps for connecting to the vehicle data bus if desired (You do not have to be connected to a vehicle to create a PM Inspection).
2. Select the **PM Inspection** button on the main toolbar to display the **Vehicle Inspection** window.



Preventative Maintenance Inspection

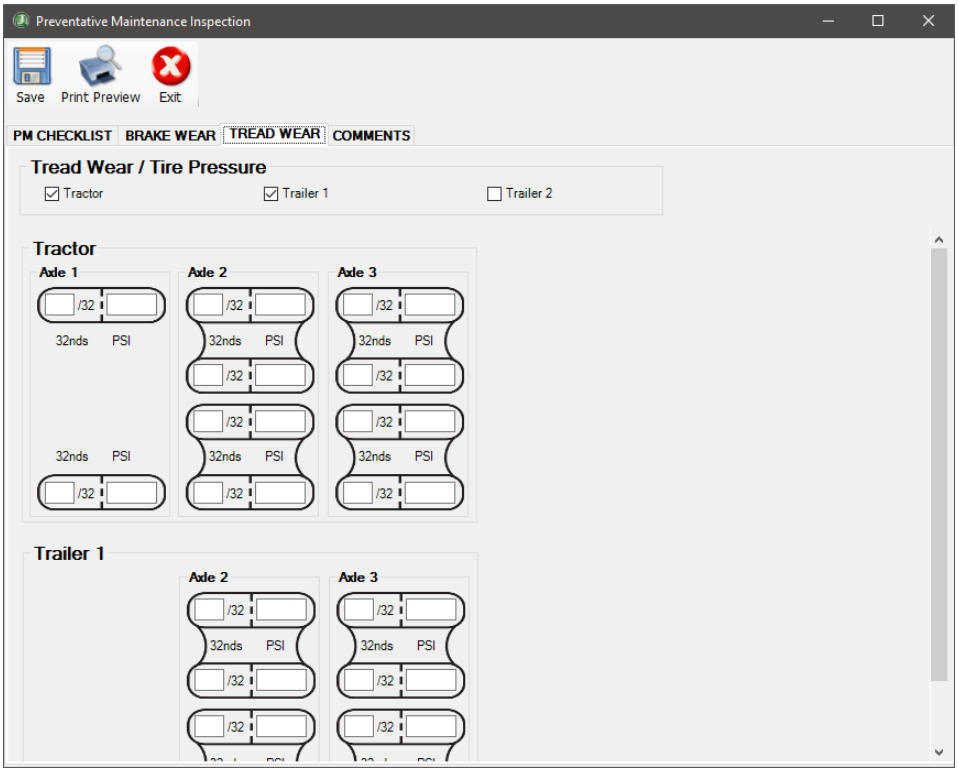
3. Here you can enter Customer Name, Reefer Due, Unit #, Repair Order #, etc.

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



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.



Tread Wear Inspection

10. Additional information can be added in the **Comments** tab.
11. 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.

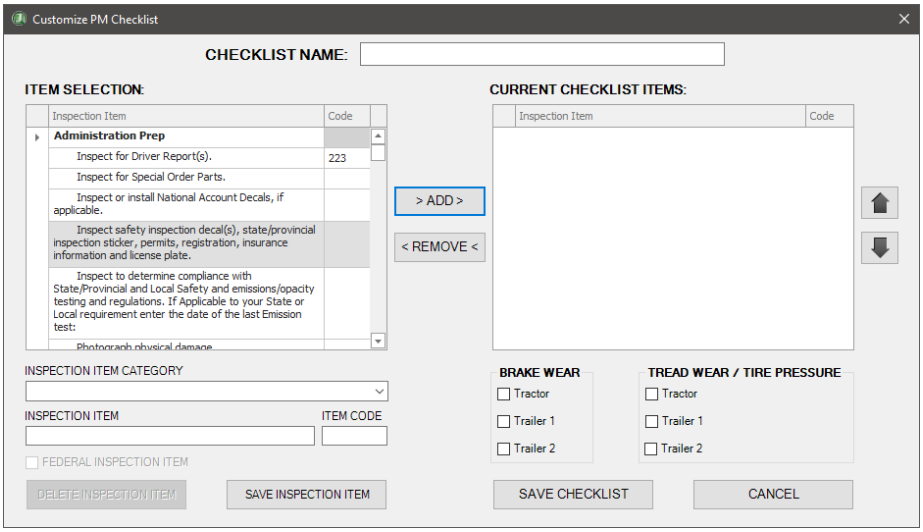
Customize PM Checklists

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 use one of the five default checklists as a template.

Create or Edit a Preventative Maintenance Checklist

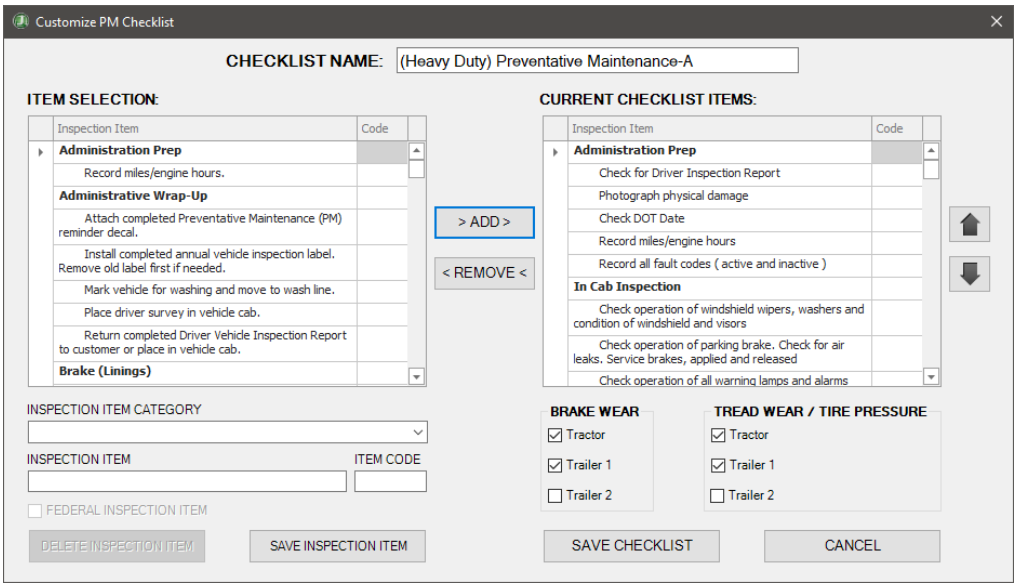
Follow the steps below for creating or editing a preventative maintenance checklist:

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

3. 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.

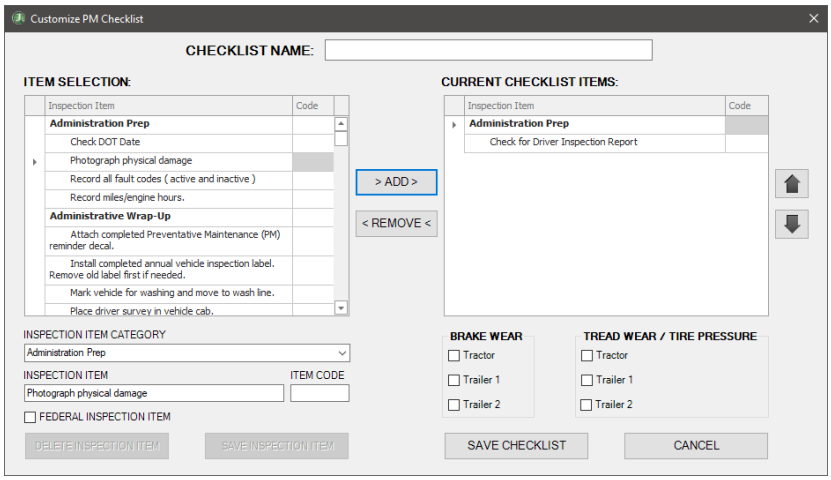


Edit Existing Checklist

4. 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.

5. 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.



Adding an Inspection Item

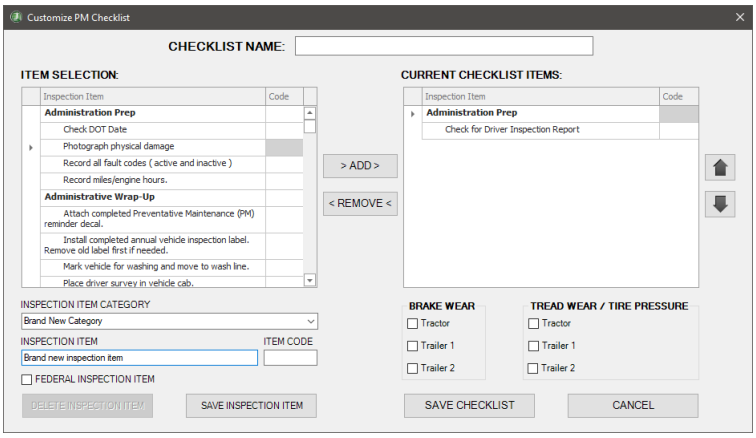
6. Any Inspection Item or category can be removed by selecting the desired item in the **Current Checklist Items** window and clicking the **Remove** button. The item will go back to the **Item Selection** window.
7. You can easily change the order of inspection categories or items within a category by clicking the up or down arrow.
8. You can add **Brake Wear** and **Tread Wear/Tire Pressure** controls by checking the vehicle types to include by default for this new checklist.
9. 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.

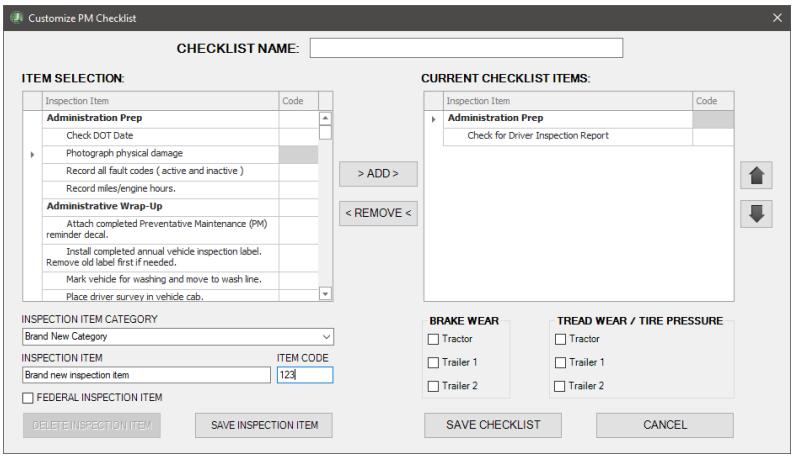
Follow the steps below to create custom inspection categories and items:

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



Create a Custom Category & Inspection Item

3. 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.
4. You can now add the new inspection item to the checklist being customized.
5. 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 the saved report.
6. Whenever you click on an item in either the **Item Selection** or **Current Checklist Items** window, that item's information appears in the lower left of the **Customize PM Checklist** window.
7. Enter the item code you want to add to the selected item in the Item Code box. Item codes can be any arrangement of letters and numbers.



Adding an Item Code

8. 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.
9. When you complete your checklist customization and click the **Save Checklist** button, any item codes you added will be saved 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.

Follow the steps below to share checklist templates:

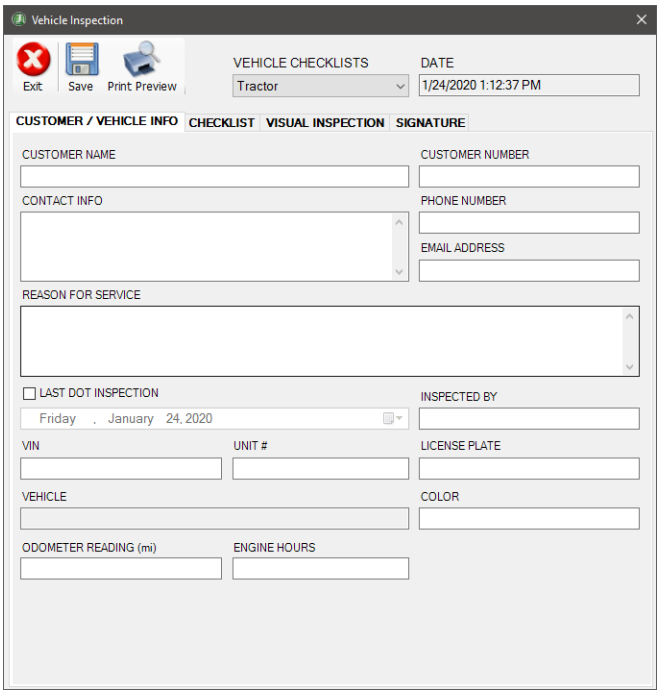
1. Click **Application Settings – Preferences** toolbar option – PM Inspection Settings tab.
2. Click **Add Template** to add a template someone has sent you. You can use the **Select PM Checklist Template** window to find the template file on your computer. Clicking **Open** will automatically add the 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 email or in a shared directory where others in your organization can access 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.

Follow the steps below for vehicle inspection:

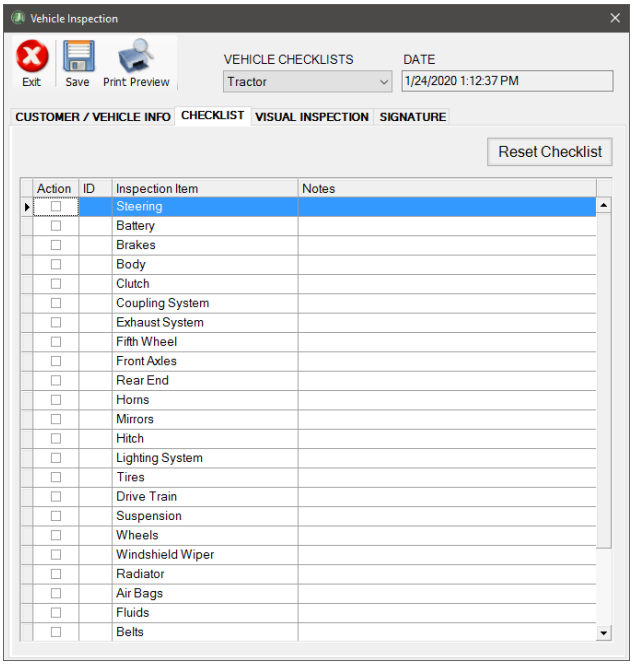
1. Follow the previous steps for connecting to the vehicle data bus if desired (You do not have to be connected to a vehicle to create a Vehicle Inspection).
2. Select the **Vehicle Inspection** button on the main toolbar to display the **Vehicle Inspection** window.



Vehicle Inspection

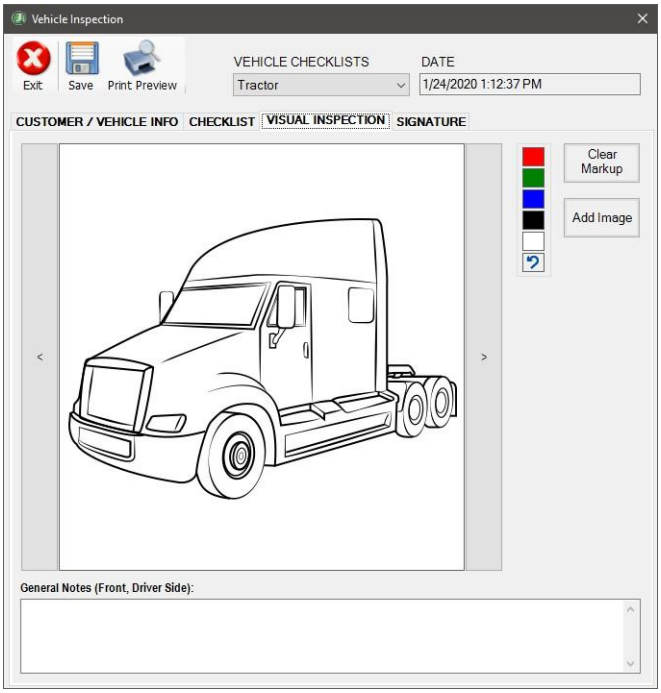
3. Here you can enter Customer Name and Contact Information, Reason for Service, Unit #, etc.
4. Vehicle Information (Odometer, VIN, Unit #, Vehicle Make, Vehicle Model, and Vehicle Year) may be captured from the data bus and will automatically display if available. You may add the information if not 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.
6. Select the **Checklist** tab to record notes and observations about vehicle inspection items.



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.



Vehicle Inspection – Visual Inspection

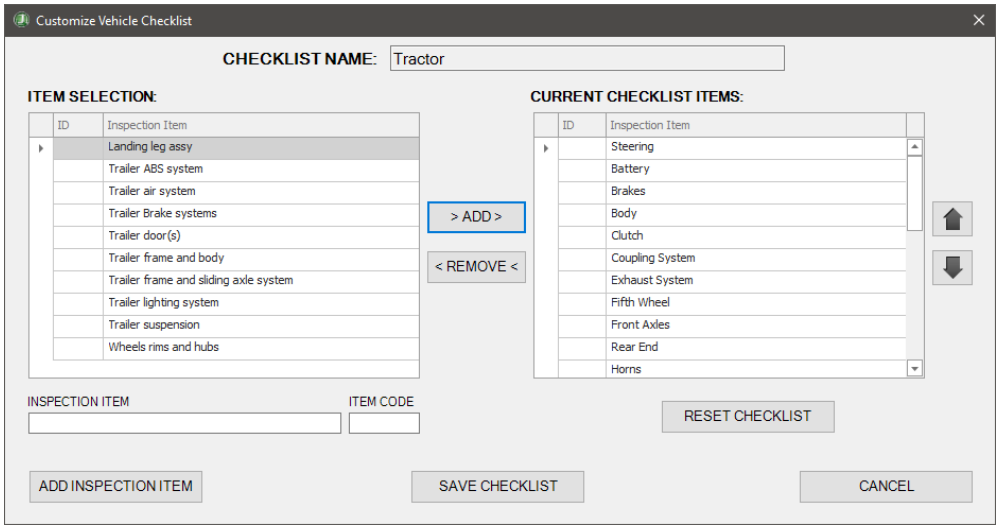
8. If desired, collect the customer's signature digitally via the **Signature** tab.
9. When finished, select the **Save** button to save the entered information. The information will automatically be included in the generated Vehicle Inspection Report. It will also be saved in the **Vehicle Inspection**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

Follow the steps below to customize the vehicle inspection checklist:

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.

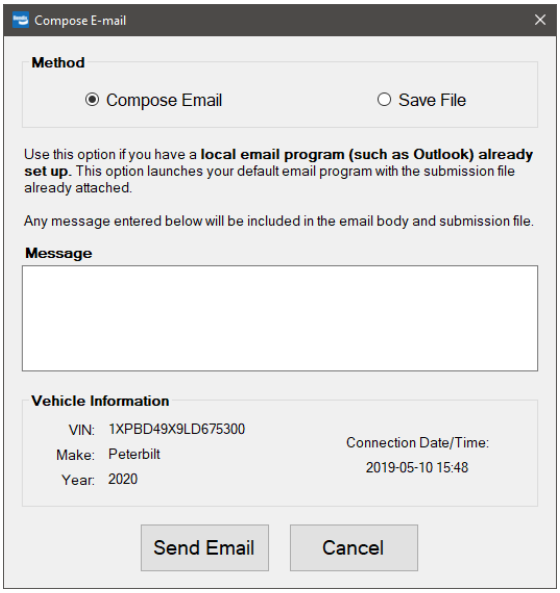


Customize Vehicle Checklist

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 selecting 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 selecting 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 for Submit Report

Compose Email

Follow the steps below to compose an 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

Follow the steps below to save the 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.

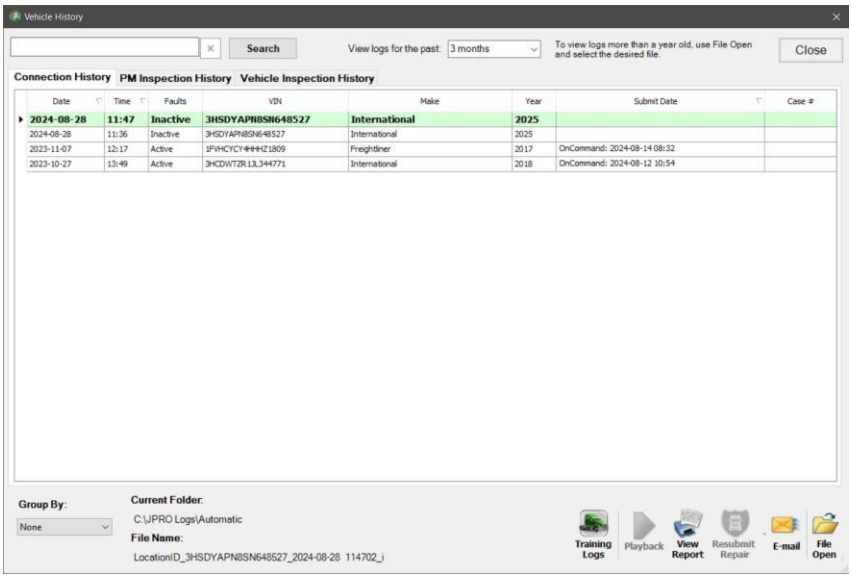
The **Connection History** tab also supports a Demo mode, enabling you to explore application features quickly and easily without needing access to vehicles.

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

Follow the steps below to check vehicle history:

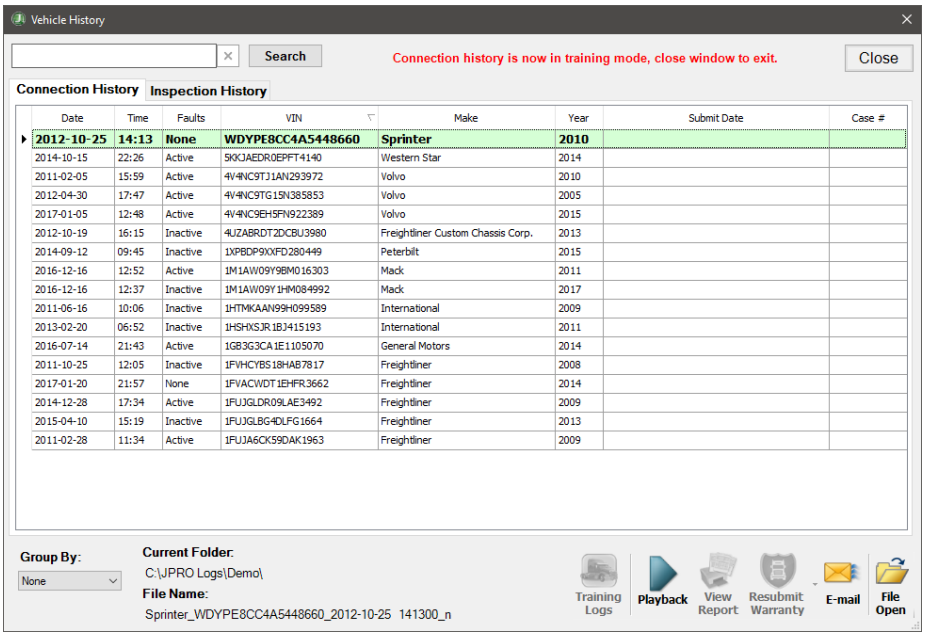
1. Select the **Vehicle History** button on the main toolbar.
2. The **Vehicle History** window appears with the **Connection History** tab selected and showing a listing of log files and reports located in the automatic log directory. By default, only log files for the past 3 months will be displayed. Log files up to 1 year old may be viewed by selecting one of the available options from the drop-down control.

NOTE: To view logs more than a year old, use File Open and select the desired file.



Connection History

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.
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.



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.

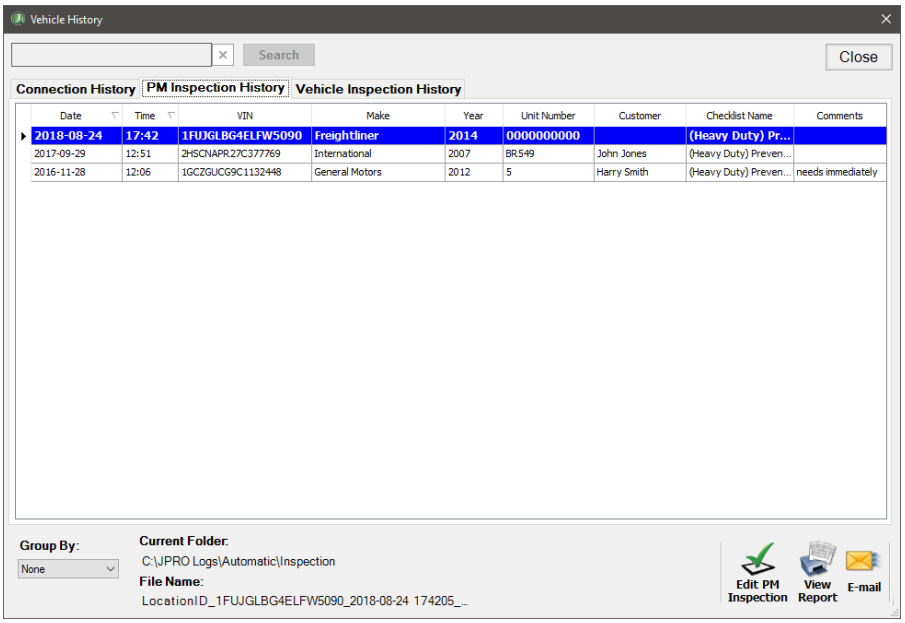
d. Select the **Resubmit Repair - OnCommand** button to re-upload the selected file to OnCommand™. This button is only enabled if the vehicle information was previously submitted to OnCommand.

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.

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.

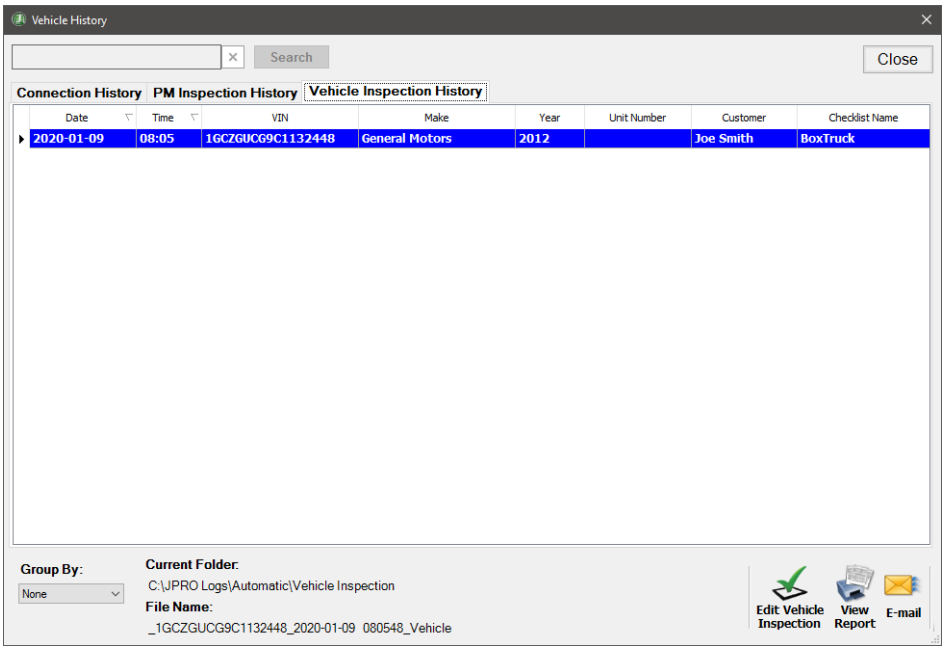


PM Inspection History

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.

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.

Follow the steps below to play back previously recorded data:

1. Select a log file of interest from the Vehicle History list or via the Vehicle History **File Open** button.
2. The **Playback toolbar** appears.



Playback Toolbar

3. The Vehicle Readiness, Fault Code Information, and Key Data Points window is displayed.
4. The Application status bar is updated with the name of the playback file.
5. The playback toolbar functions as follows:

	**Rewind** to the 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.

6. To close the playback file, select the **Disconnect** button from the main toolbar. The toolbar and all data views will close.
7. 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 are 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.

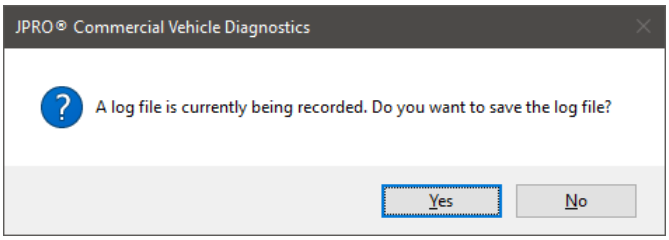
Heavy Duty, Off-Highway, or PLC Manual Recording for Later Troubleshooting

Follow the steps below for Heavy Duty, Off-Highway, or PLC manual recording:

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.

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



Save Log File Prompt

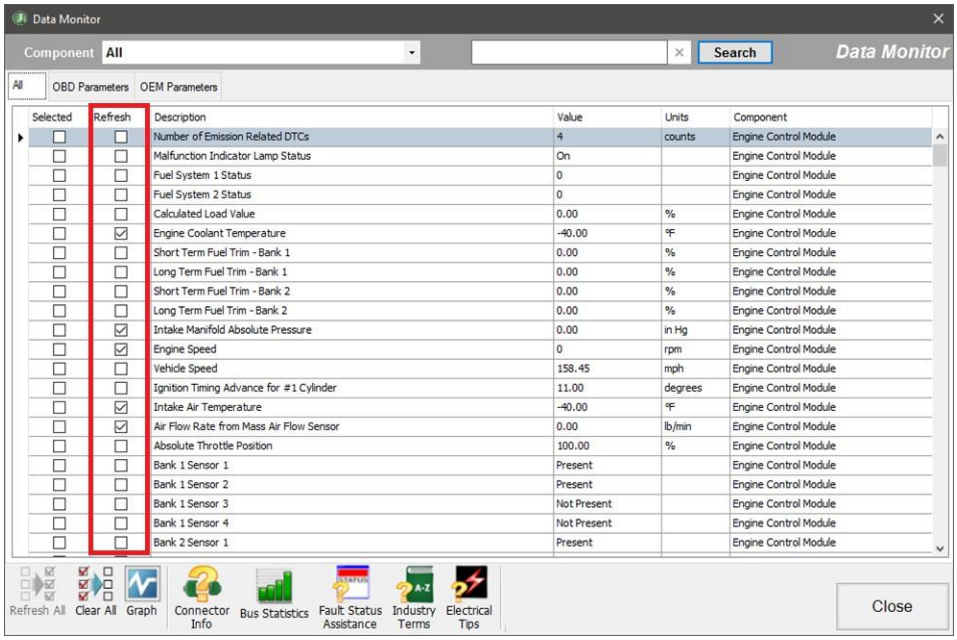
7. The standard Windows Save File dialog appears. Select a filename and a location for the file and click **Save**. The default location is located at C:\JPRO logs\Automatic. The file is saved to disk and can be played back using the Playback feature.

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

Follow the steps below for medium-duty manual recording:

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.
5. Open Data Monitor and select the 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



Medium-duty vehicle connections do **not** automatically refresh all sensor data. You must select the data items you desire to examine via the **Refresh checkbox** in the **Data Monitor** window. If no data is selected for refresh, then the data displayed in the Data Monitor will be stale and not useful in playback.

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

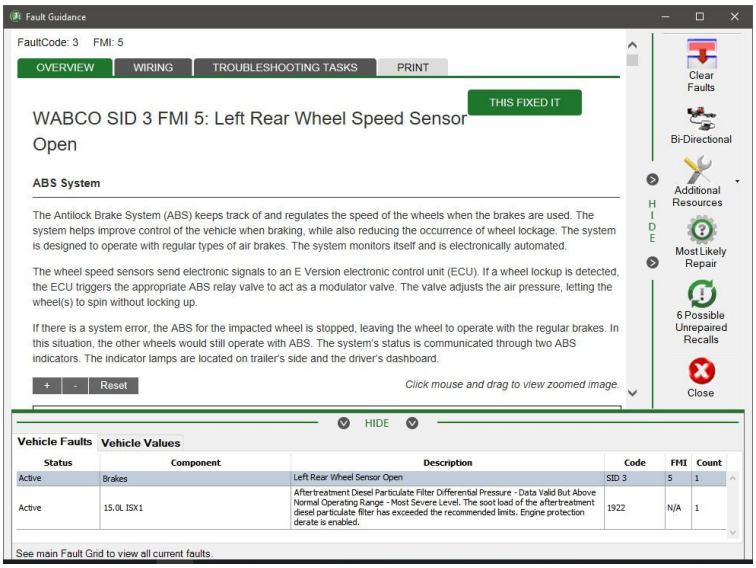
The **Fault Guidance** button on the main toolbar allows you to view troubleshooting information, wiring diagrams and step-by-step troubleshooting procedures for all reported faults that are supported by **Fault Guidance**.

Follow the steps below to view troubleshooting information:

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.



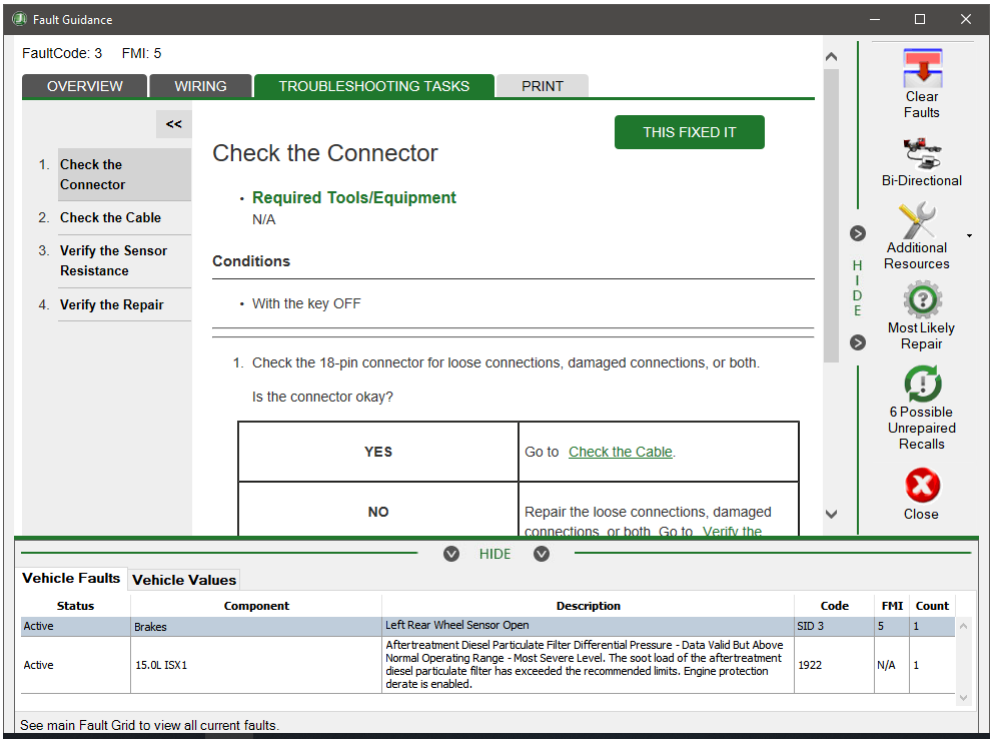
Fault Guidance Overview

NOTE: Internet access is required for access to the 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.

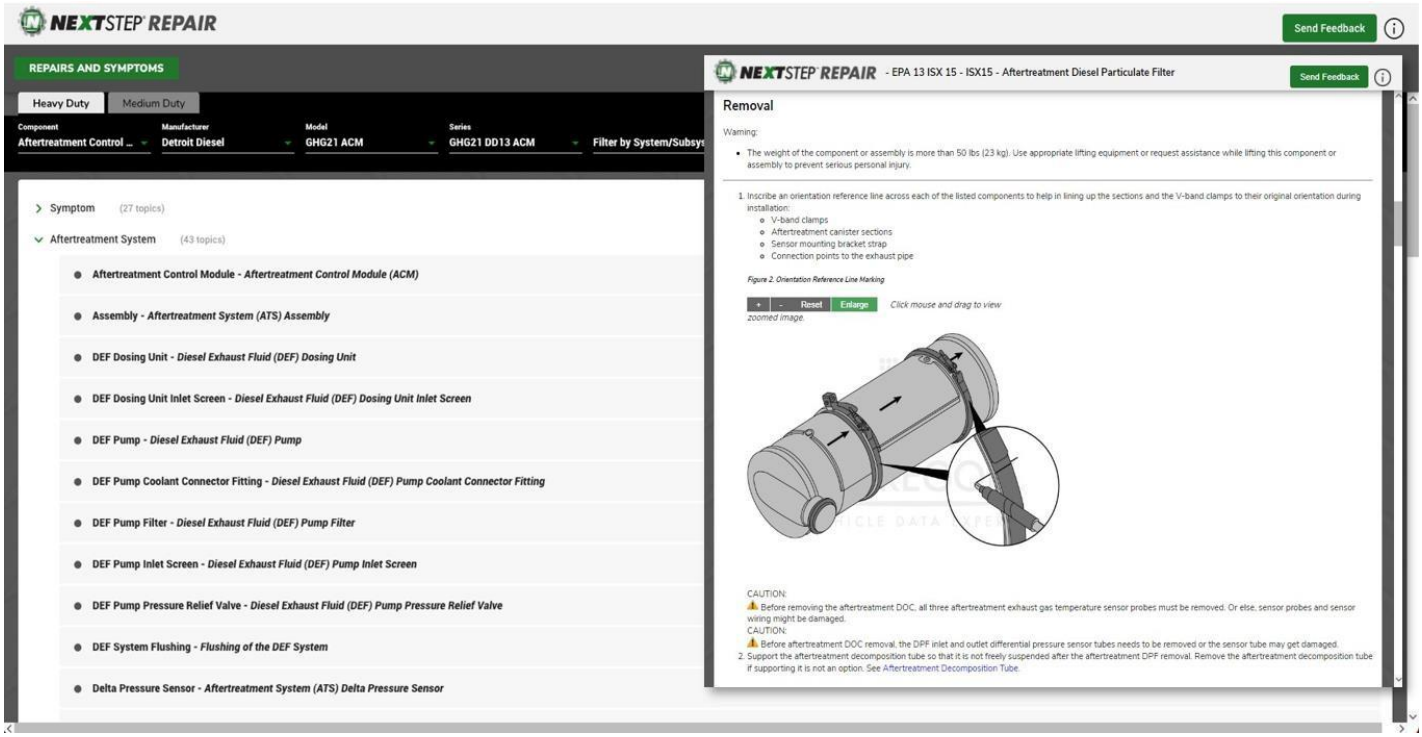
10. Select the **Additional Resources** button to access:
    - Select the **Applications** button to access JPRO's Application Portal.
    - Select the **Industry Terms** button to view definitions for common industry terms.
    - Select the **Maintenance or Service Data** button to view the installed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

> **NOTE:** The 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.

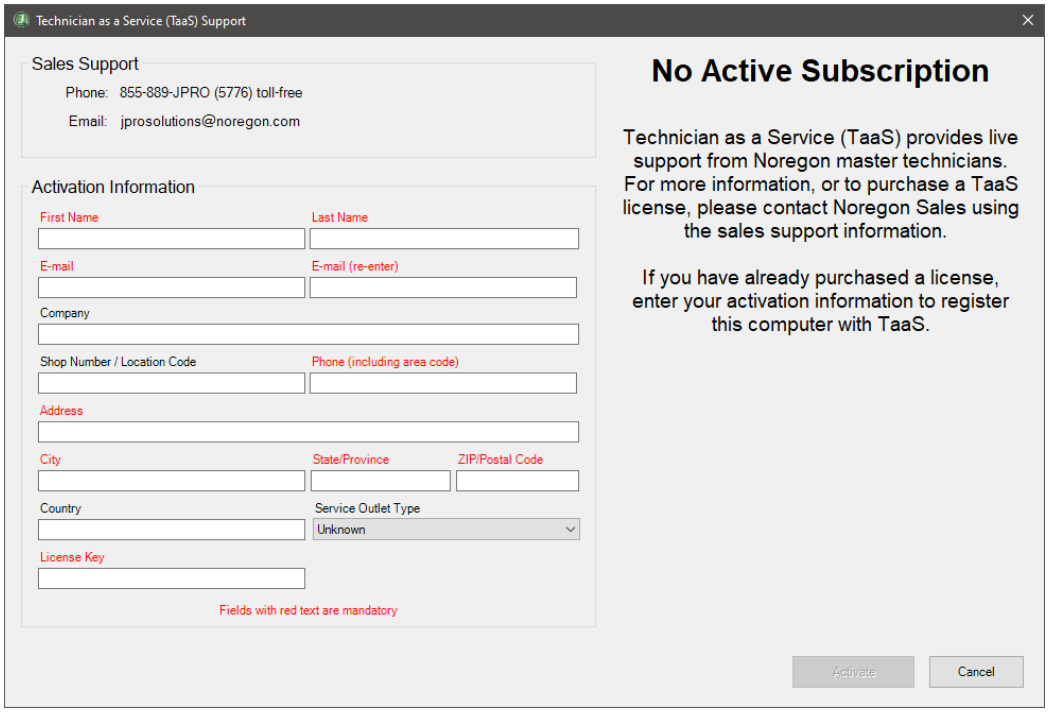
TECHNICIAN AS A SERVICE (TAAS)

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.



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: A 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

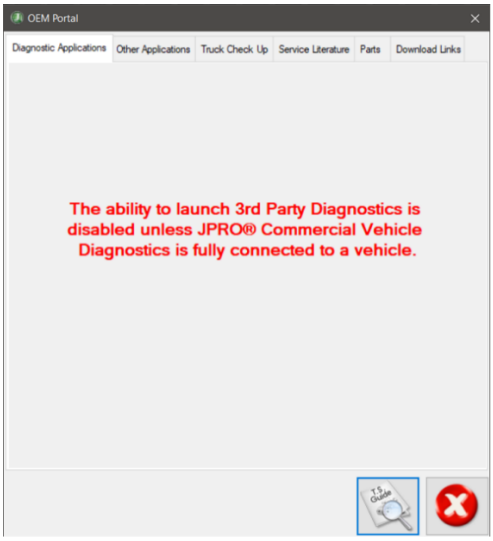
OEM Applications

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

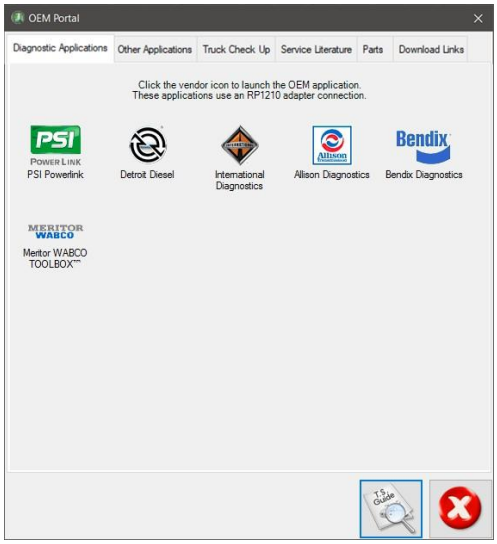
The **Diagnostic Applications** tab contains standard OEM diagnostic applications for heavy-duty trucks. Access to launching these OEM applications is disabled until JPRO® Commercial Vehicle Diagnostics is fully connected to a vehicle.

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 certifications and educational opportunities, including a library of resources specific to JPRO.

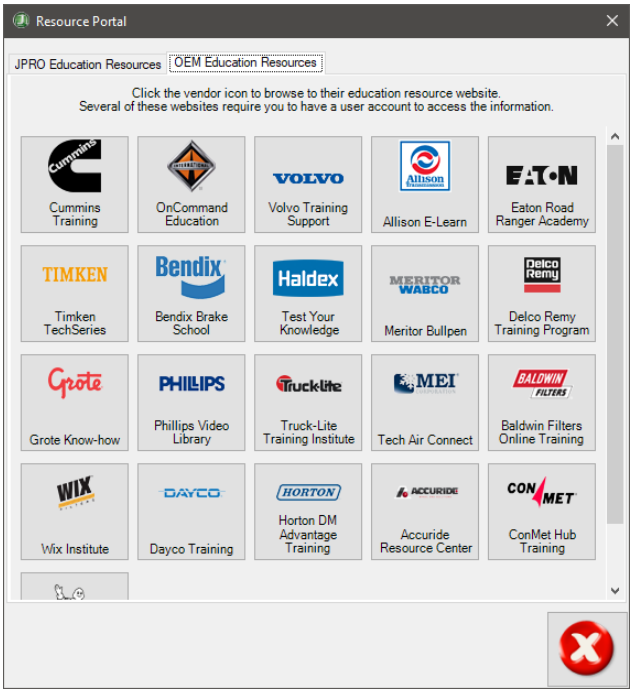
Select the **JPRO Education Resources** tab to access the **JPRO Resource Portal** web page. From the JPRO Resource Portal web page, you may access training videos, webinars, Tech Tips and many other useful resources. You may also use these resources to pursue JPRO Certification.

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



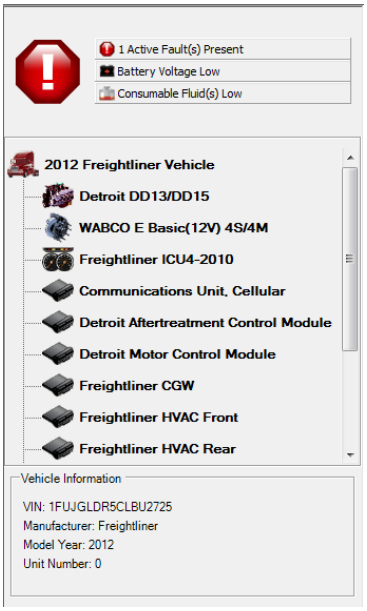
OEM Education Resources

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.



Vehicle Readiness

- 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 about 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.

NOTE: Trailer brake components will only appear if the vehicle's tractor brakes have a PLC gateway enabled. Bendix tractor brakes have this enabled by default. This is a configuration option for Wabco's 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 the types of sensors available.

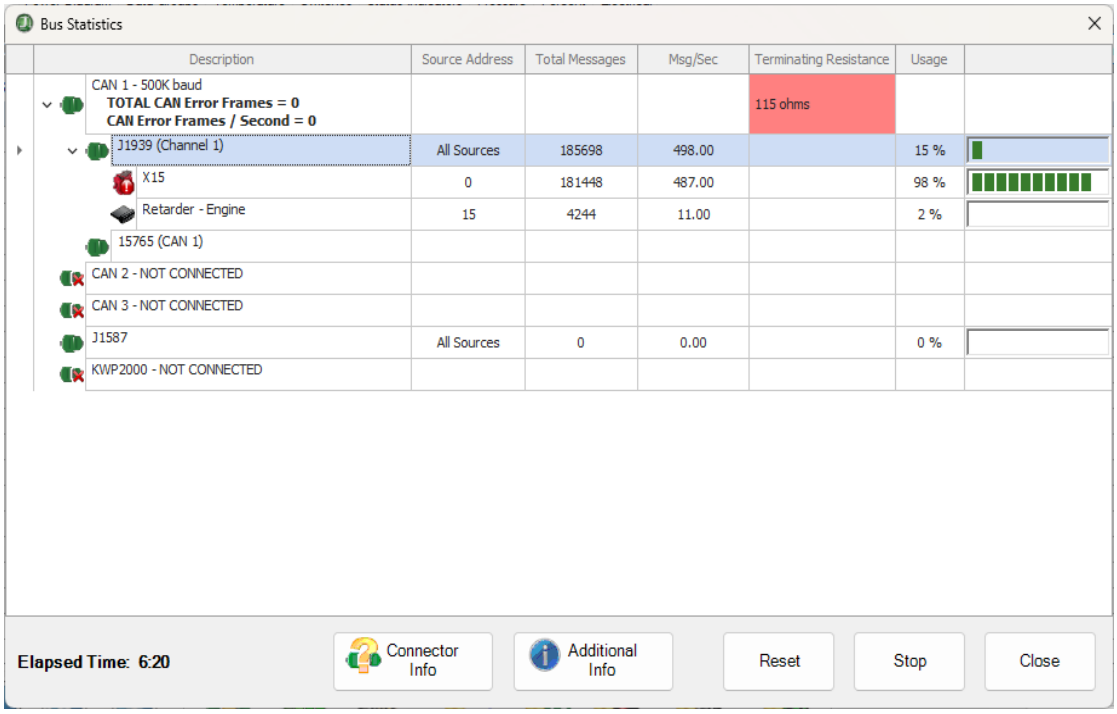
See Heavy Duty Data Monitor or Medium Duty Data Monitor for details.

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.

> **NOTE:** Terminating resistance readings are only available with the DLA+ 3.0 XBT adapter.



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.

NOTE: Terminating resistance readings are only available with the DLA+ 3.0 XBT adapter.

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

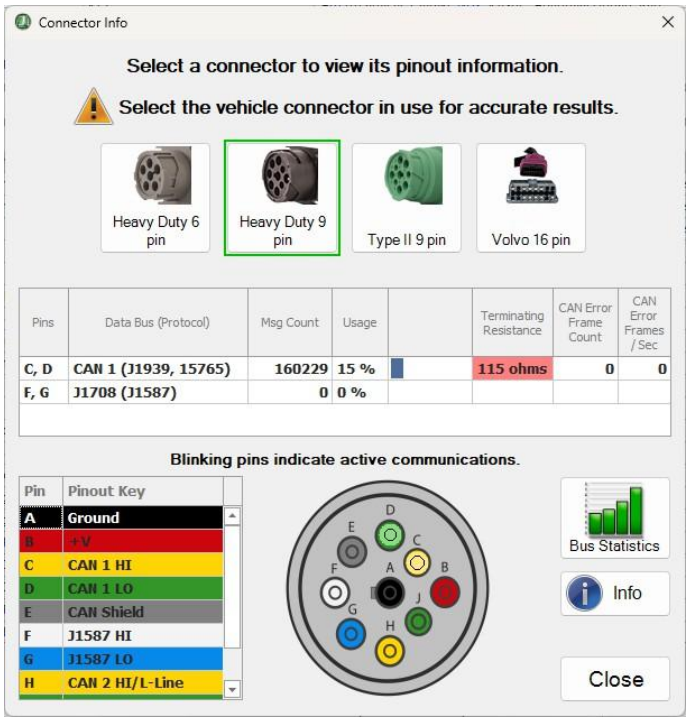
For live heavy-duty connections, the active communication protocols are shown with which pins are used by the protocol, the amount of traffic and CAN error frame counts and rate (if available).

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.

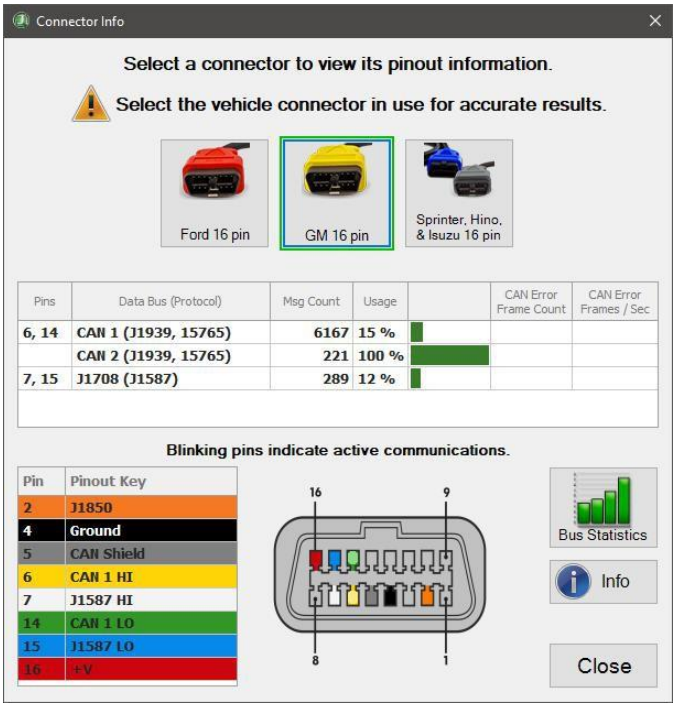
For other off-highway connections, please select the **Connector Location Help** button from the connection screen.

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.

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



Connector Info – Off-Highway Live Vehicle Connection

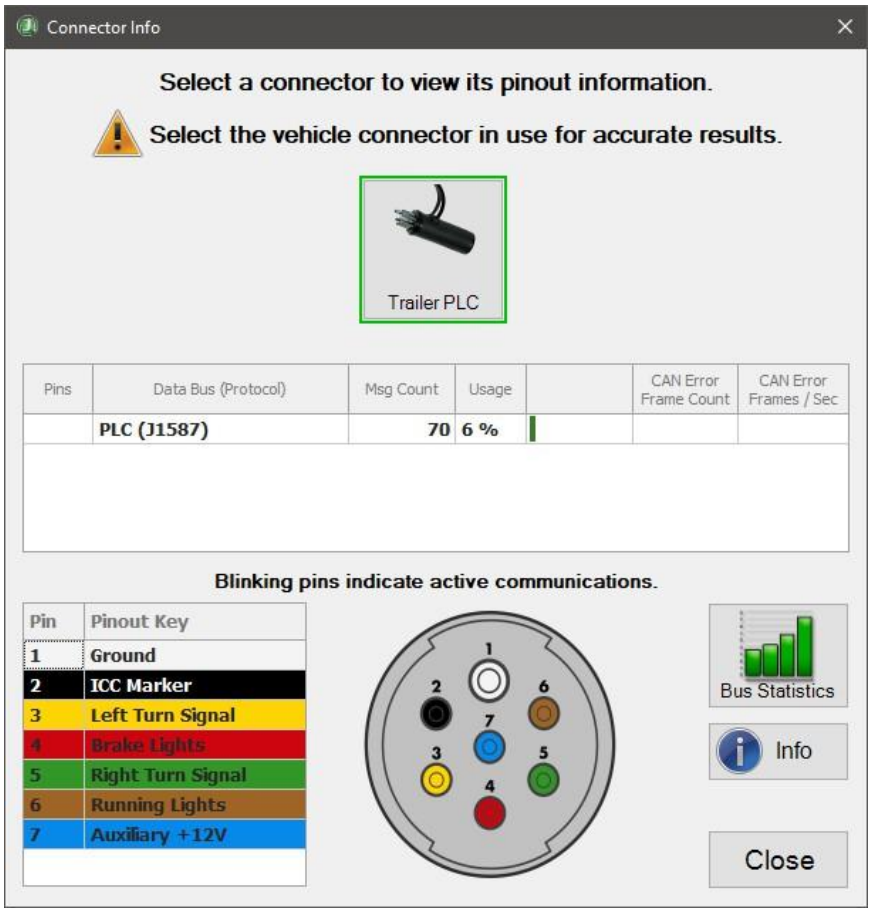
PLC Connector Info

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.

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

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



Connector Info – PLCs Live Vehicle Connection

Medium Duty Connector Info

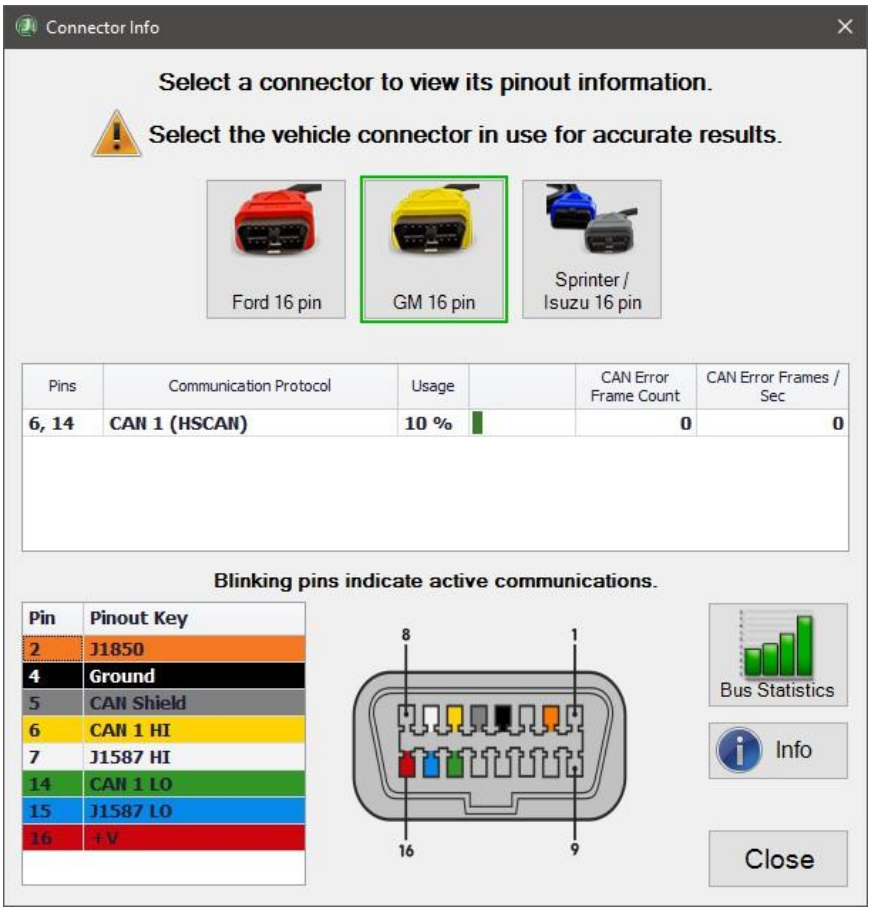
For live medium-duty connections, the active communication protocols are shown with which pins are used by the protocol, the amount of traffic and CAN error frame counts and rate.

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 the vehicle manufacturer, but all available connectors can be selected to display their pinout details.

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



Connector Info- Medium Duty Connection

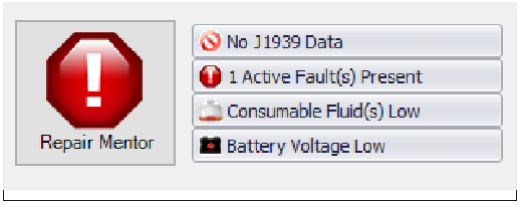
HEAVY DUTY DATA VIEWS

Vehicle Health and Repair Mentor

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

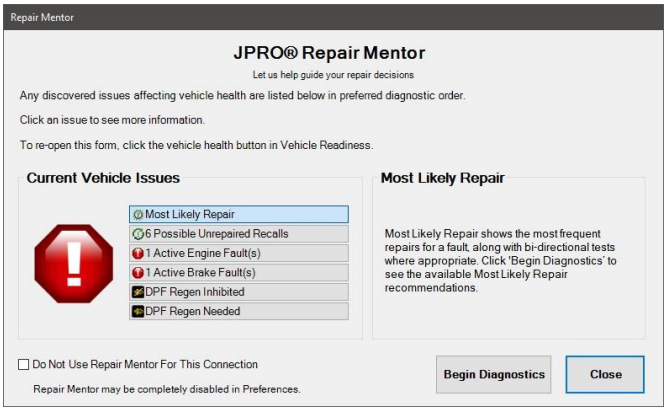
	A **Red Stop Sign** will be displayed if **active faults** are present, if no J1939 traffic is detected, or if **Road Worthiness** reports a failure.
	A **Yellow Warning Triangle** will be displayed when there are **no active faults**, but other issues are present.
	A **Green Check Mark** will be displayed when there are no active faults or active safety issues. 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

The repair mentor will display the active issues in priority order. The right side of the window displays guidance 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-up 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

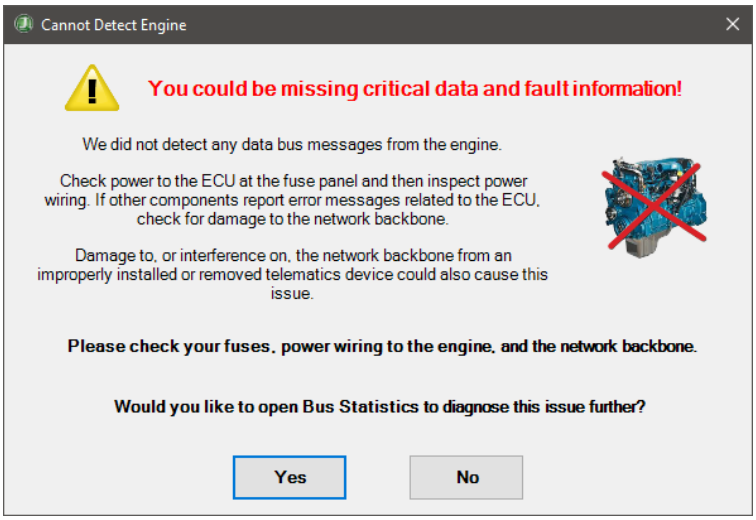
This issue only appears on vehicles from model year 2009 or newer, where no J1939 data bus traffic is detected. Model year is determined by the VIN. This issue will not appear on any vehicle older than 2009 or on vehicles where the model year cannot be determined.

The diagnostic 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 diagnostic 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 diagnostic 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 the 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 the 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.

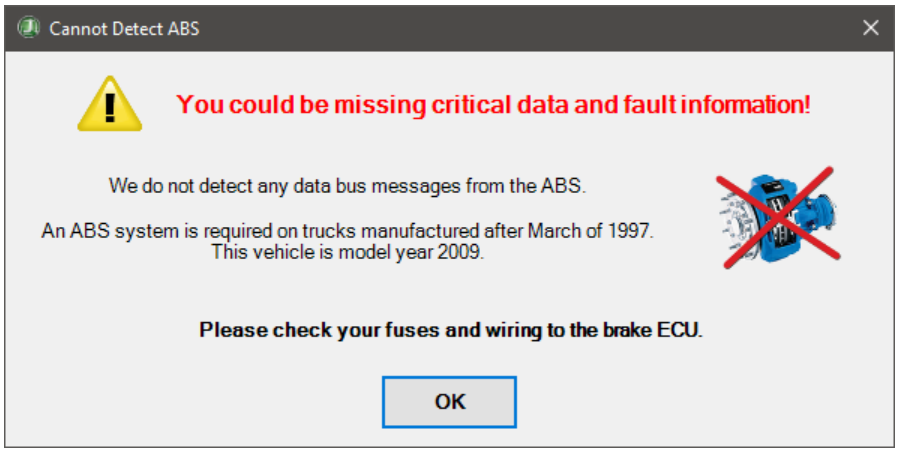
If the battery voltage is consistently above the threshold for 15 seconds or more, the issue will disappear.

The diagnostics aid for the **Battery Voltage Low** issue is the 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 diagnostic 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.

CAN Bus Off

This issue appears if a CAN channel controller is in a bus off state. The channel reporting the issue will be identified: CAN1, CAN2, or CAN3.

NOTE: This vehicle issue requires the DLA+ 3.0 XBT adapter.

CAN Buffer Full

This issue appears if a CAN channel transmit buffer is full. The adapter cannot transmit the detection frame for validation of the CAN bus. The channel reporting the issue will be identified: CAN1, CAN2, or CAN3.

NOTE: This vehicle issue requires the DLA+ 3.0 XBT adapter.

High CAN Bus Impedance

This issue appears if a CAN channel is open or has high impedance. The channel reporting the issue will be identified: CAN1, CAN2, or CAN3.

NOTE: This vehicle issue requires the DLA+ 3.0 XBT adapter.

Low CAN Bus Impedance

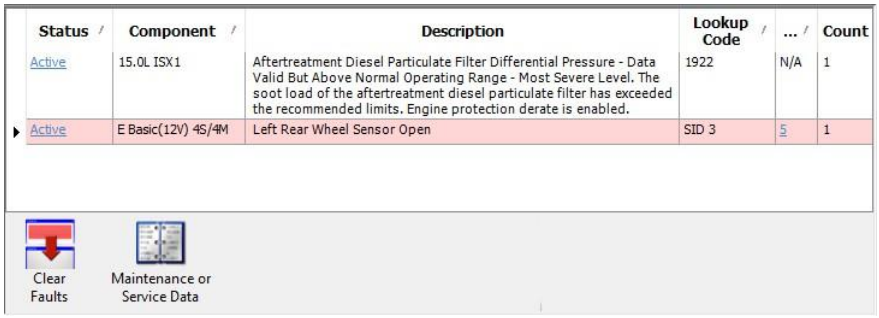
This issue appears if a CAN channel has a short or has low impedance. The channel reporting the issue will be identified: CAN1, CAN2, or CAN3.

NOTE: This vehicle issue requires the DLA+ 3.0 XBT adapter.

Fault Code Information

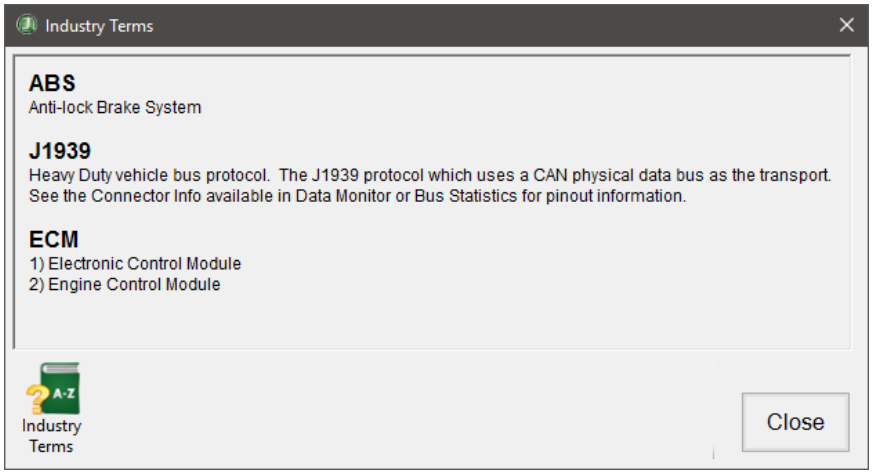
For heavy-duty vehicles, the **Fault Code Information** window displays all active and inactive faults detected on the vehicle data bus. Each fault lists the status, component, description, Lookup Code, FMI, and count. When selected, faults classified as active are highlighted in red and inactive faults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

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



Heavy Duty Fault Code Information

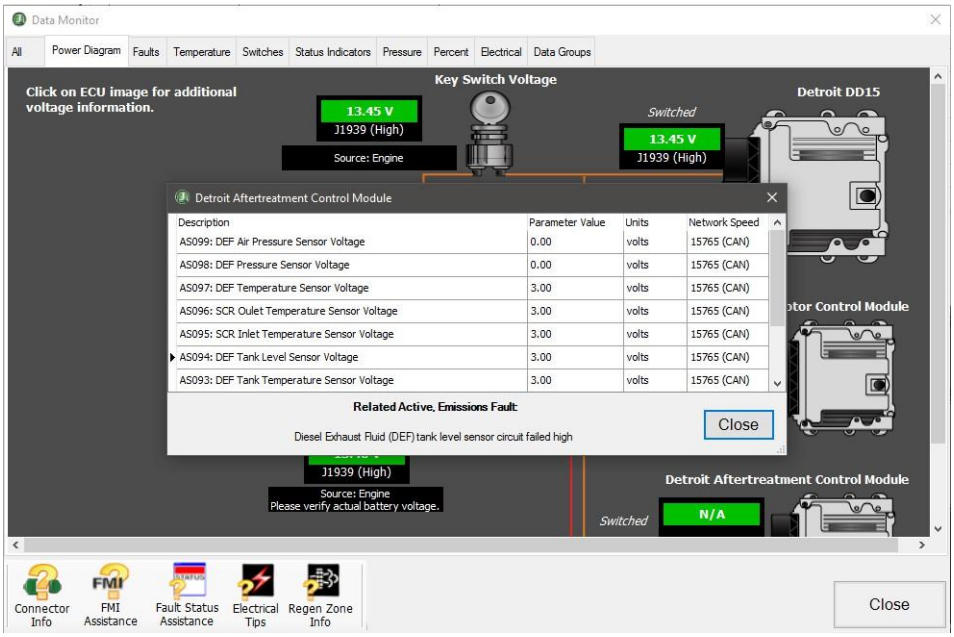
Click on a fault Description with a hyperlink to view the definition of the industry terms used in that fault description.



Industry Terms Pop-up window

Electrical Fault Information

Click on the **magnifying glass** button to view reported electrical data related to the fault.



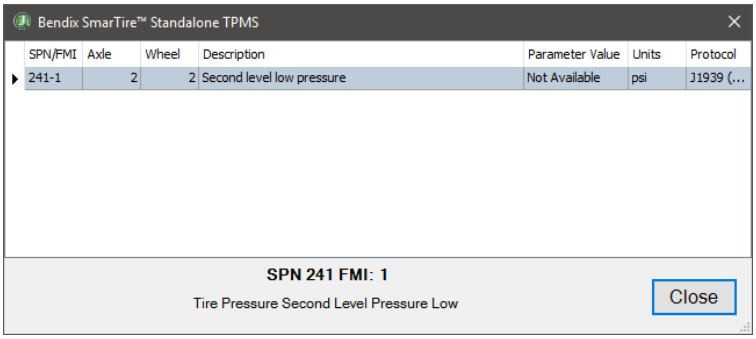
Electrical Fault Additional Information

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

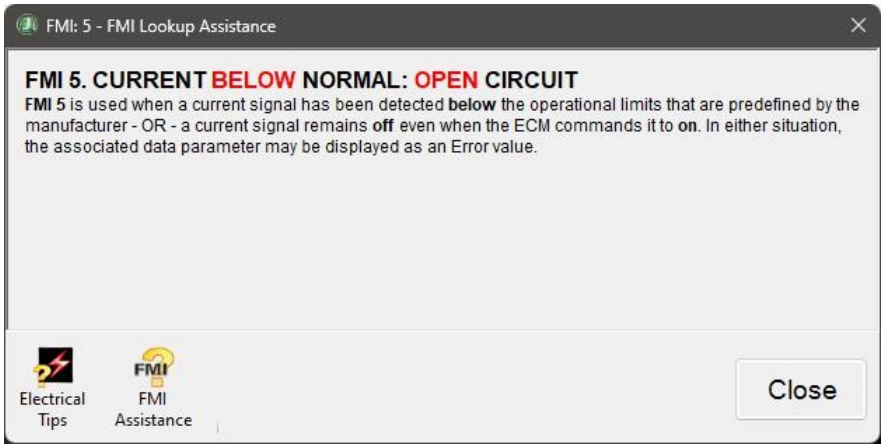
TPMS Fault Display



TPMS Fault Additional Information

FMI Assistance

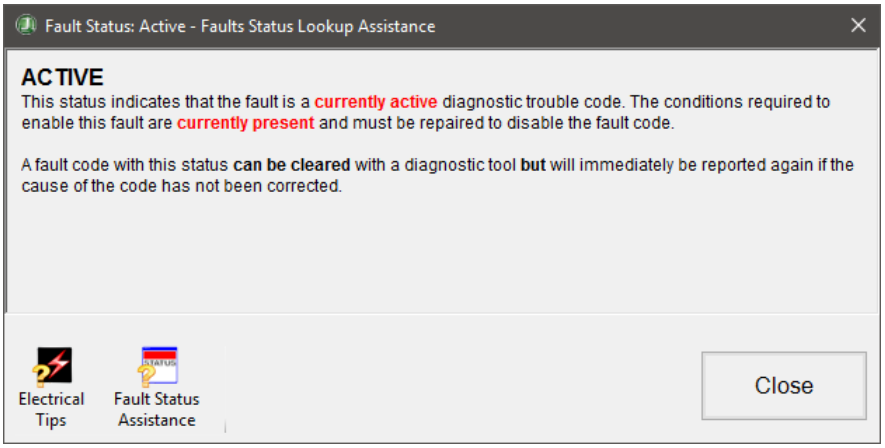
Click on the **FMI value** to see a technician-friendly description for the fault code FMI value.



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

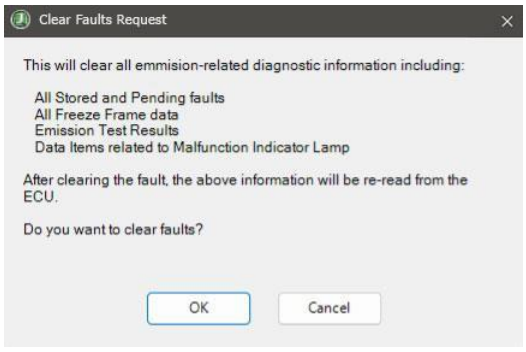


Clearing faults on WABCO braking systems can cause the ABS lamp to turn on. If all brake system faults have been repaired, driving the vehicle will turn the lamp off.



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.

Use the **Clear Faults** button to clear all active and inactive faults. A confirmation is displayed; click **OK** to clear faults.



Clear Faults Request Confirmation

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 include 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

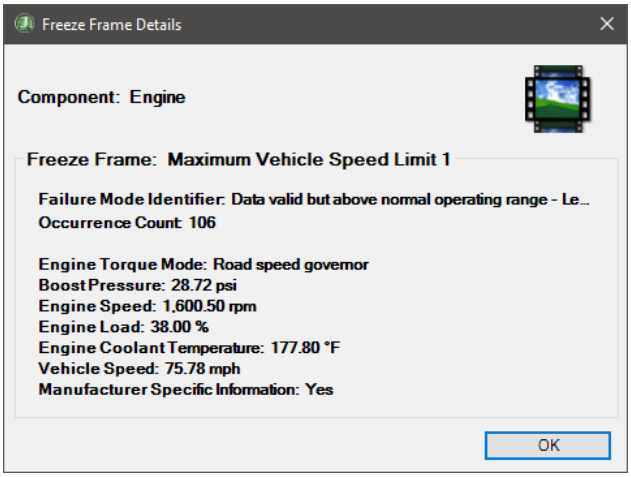
Launch a 3rd party (OEM) diagnostic application by clicking on the application Icon (i.e.). If there are multiple applications available for a given component, a dialog will be presented allowing for the selection of the desired application.

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

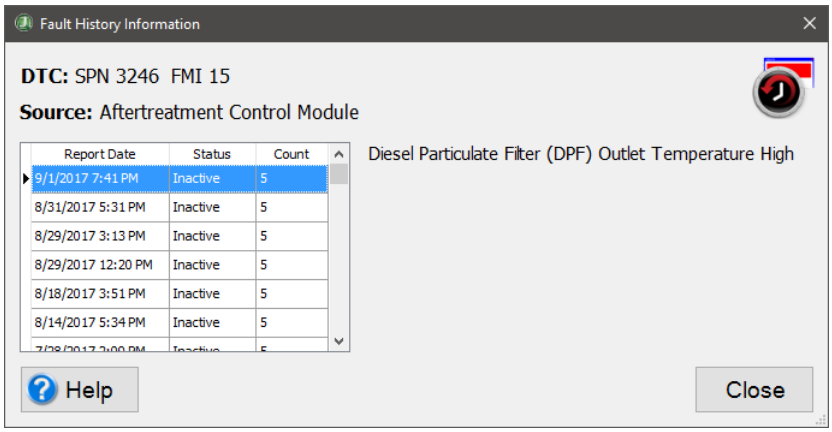
If there is Freeze Frame data available for the selected fault, the **Freeze Frame Parameters** icon becomes available. Click on the icon to view the **Freeze Frame** data for the currently selected fault.



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 the five lamps is shown:

	**Parking Brake Status:** Switch signal that indicates when the parking brake is set. Usually, the switch is actuated by the operator's park brake control, whether a pedal, lever 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 that 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.

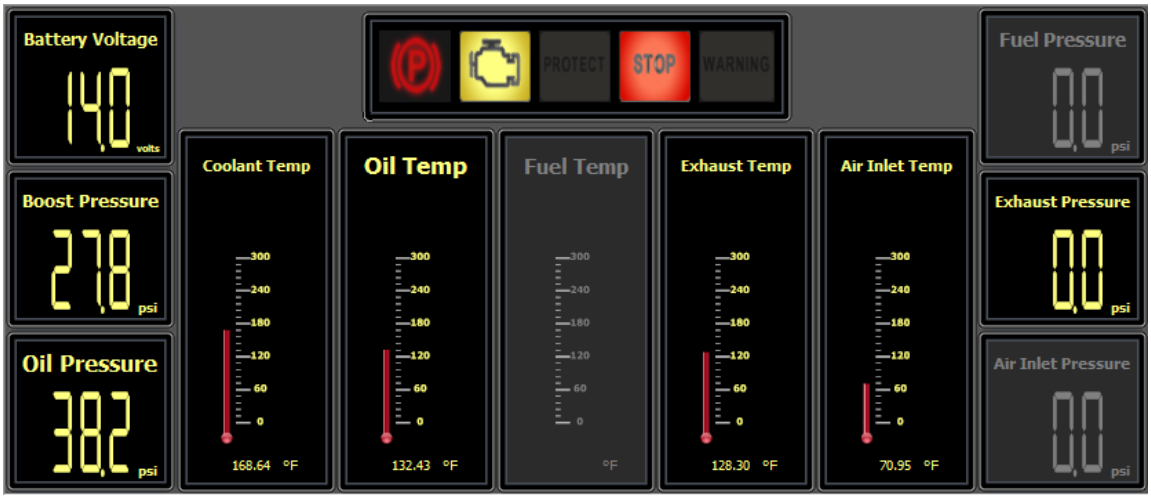
Clicking the **PTO Status** gauge when **Click to Change** is displayed will launch the **PTO Parameters** test.



Key Data Points

Engine Data Points

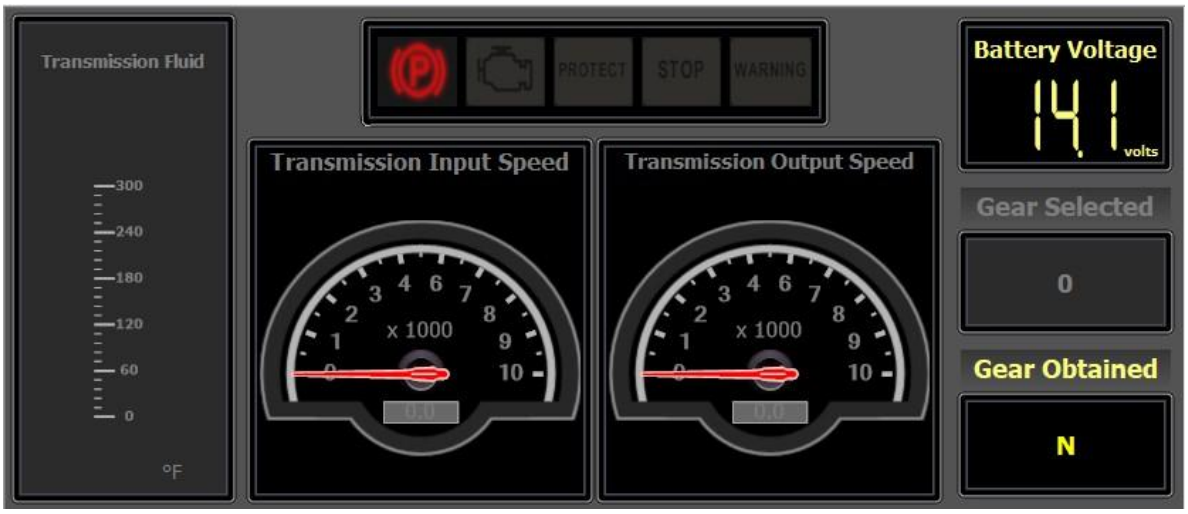
Air Inlet Pressure, Exhaust Pressure, Fuel Pressure, Boost Pressure, Oil Pressure, Oil Temperature, Coolant Temperature, Fuel Temperature, Exhaust Temperature, Air Inlet Temperature, and Battery Voltage.



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).



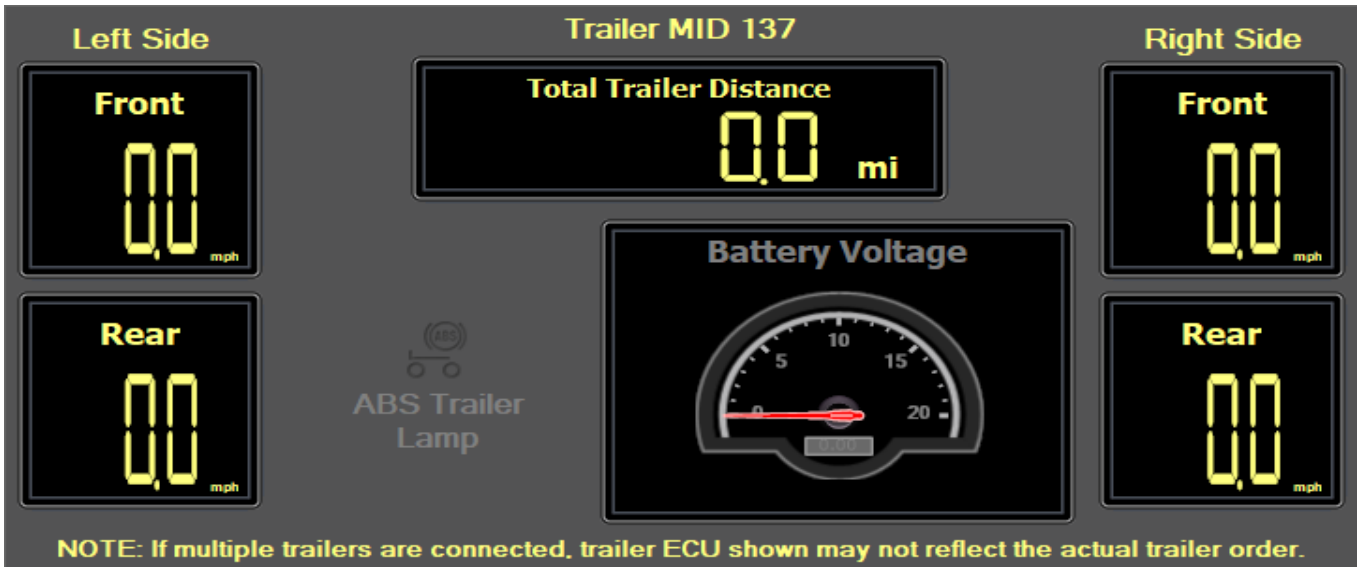
Brake Data Points

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

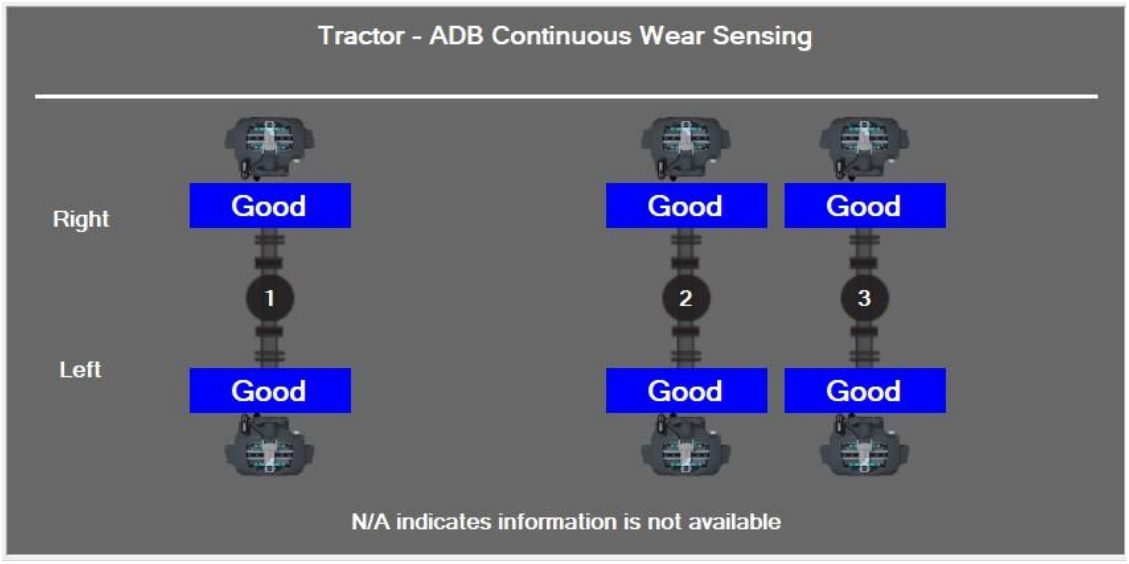
Trailer MID Address, Total Trailer Distance, Trailer ABS Lamp, Battery Voltage, and Wheel Speeds (J1708 only).



Trailer Key Data Points

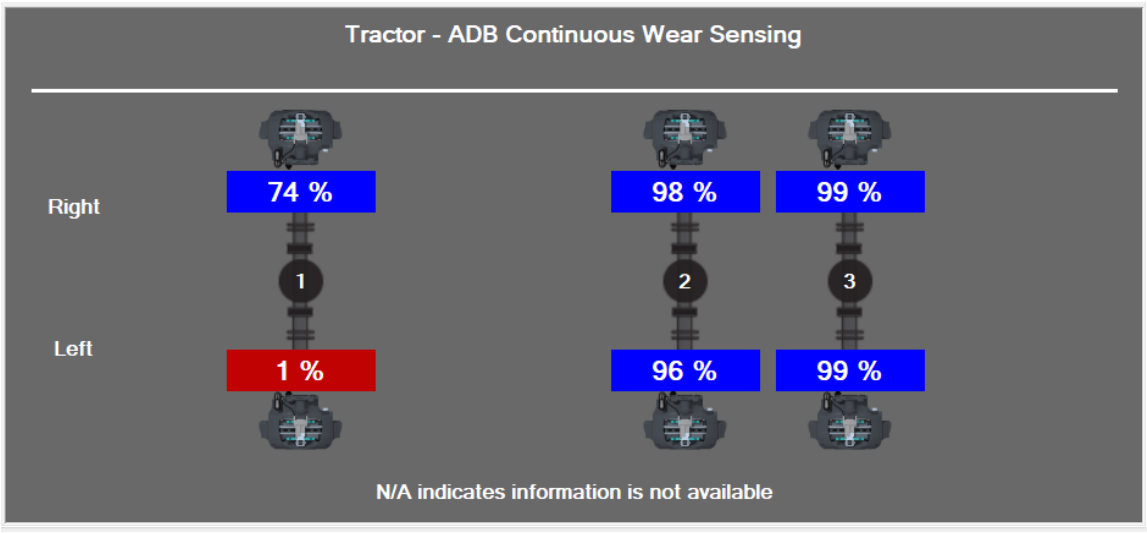
Data Points for Bendix ADB Wear Sensing

When an **ADB Wear Sensing** component is selected, the reported pad wear life status is displayed.



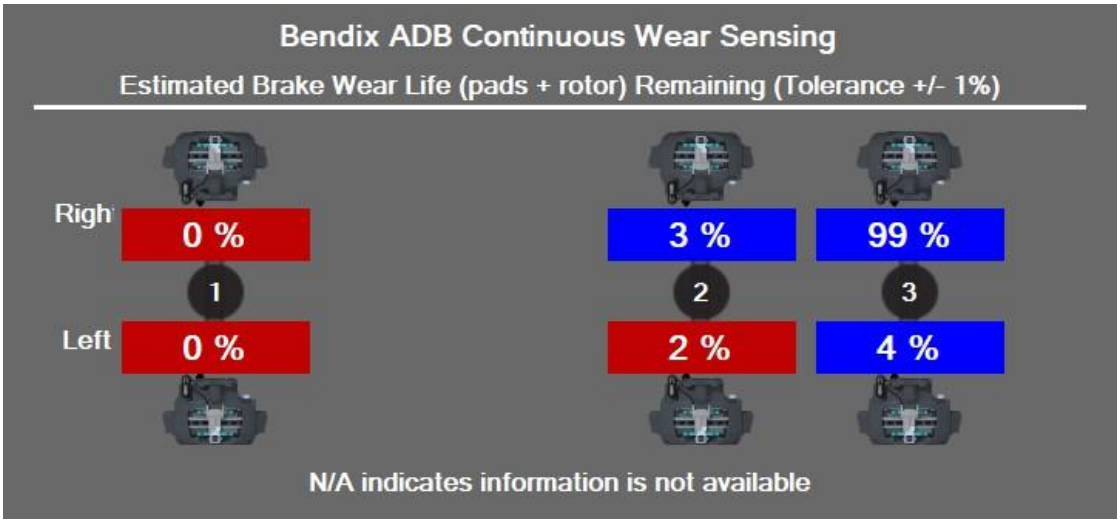
Key Data Points ADB Wear Sensing

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

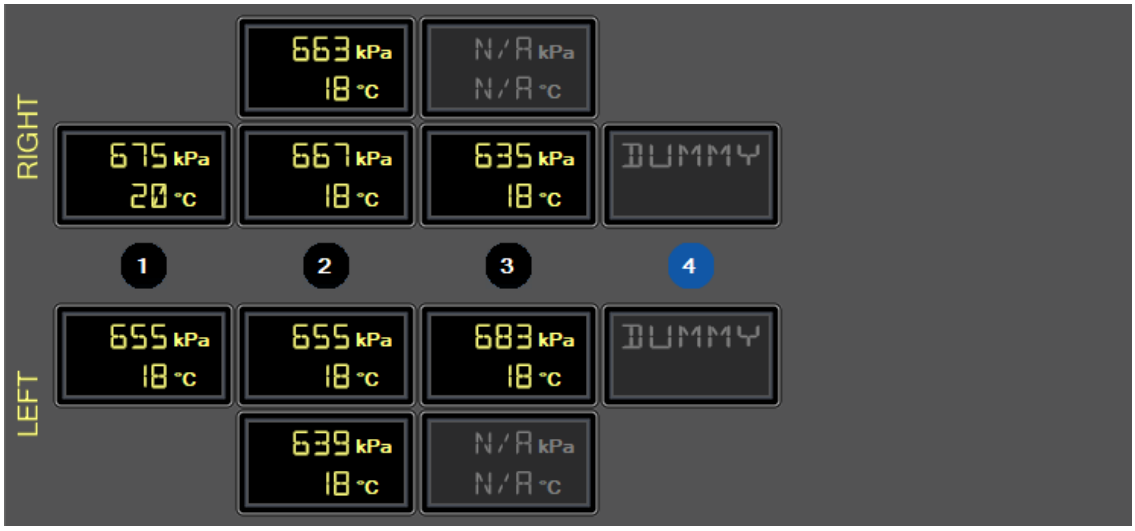
When a **Trailer ADB Continuous Wear Sensing – Standalone** component is selected, the estimated brake wear life (pads plus rotor) remaining is displayed.



Key Data Points Trailer ADB Continuous Wear Sensing – Standalone

Data Points for Bendix TPMS

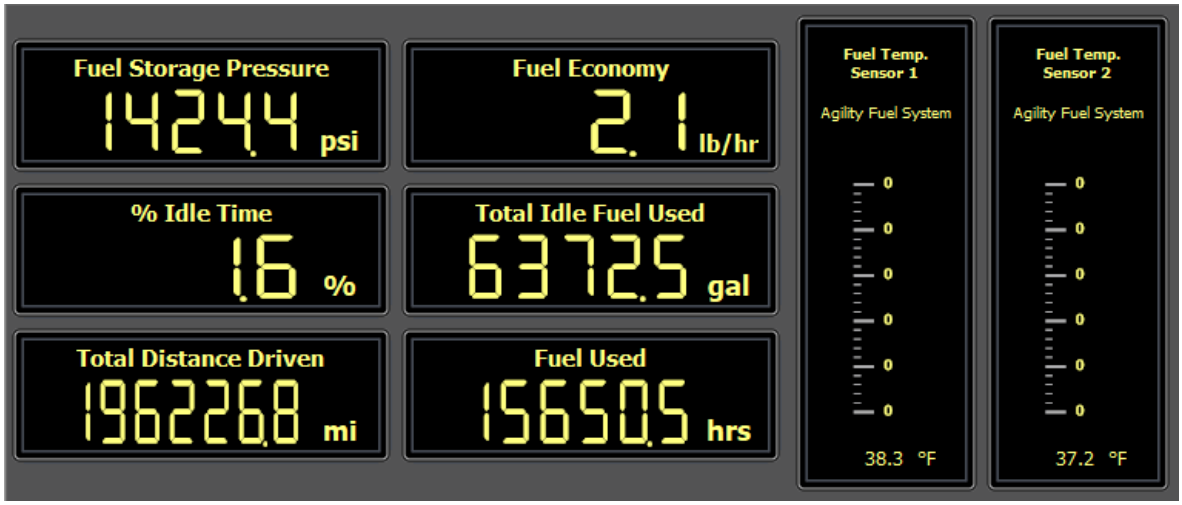
When a **TPMS** component is selected, the tire temperature and tire pressure for detected sensors are displayed. Blue axle numbers indicate Spare Tire sensors.



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

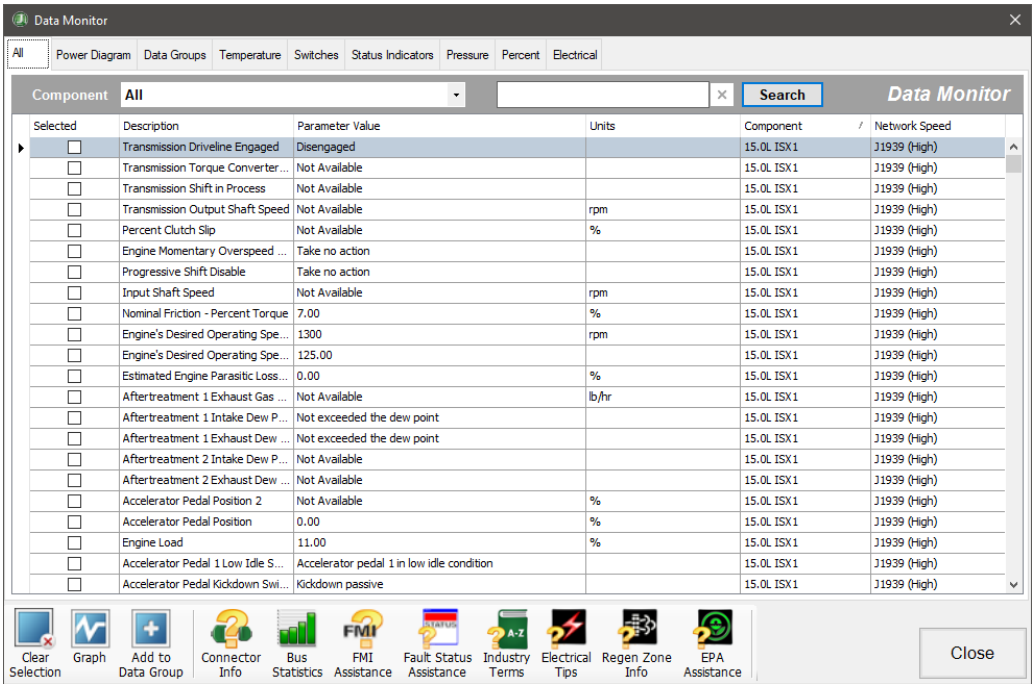
Data Monitor

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 the 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.

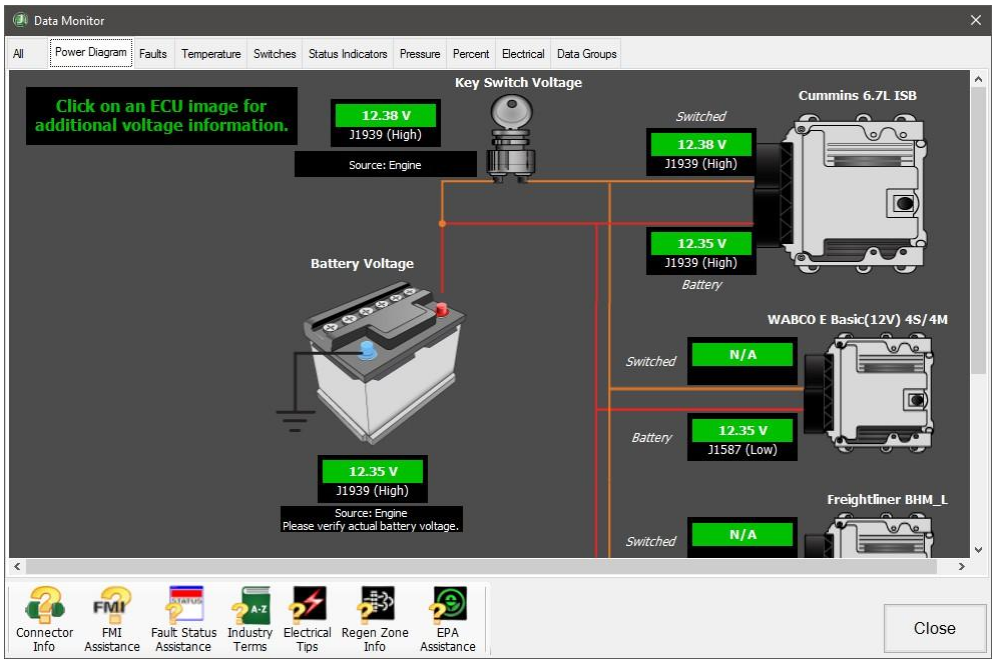
Follow the steps below to monitor the data:

1. Select 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.



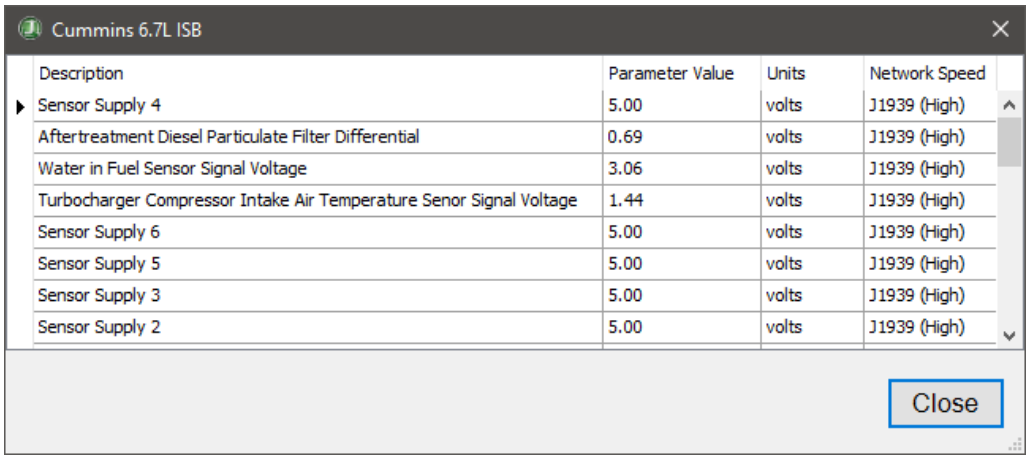
Data Monitor All Tab

3. Other **Data Monitor** tabs include: Power Diagram, Faults, Temperature, Switches, Status Indicators, Pressure, Percent, Electrical, and Data Groups.
4. Filter the **Data Monitor** list by selecting any component from the drop-down list at the top of the window.
5. **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.
6. 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 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 in red in the grid display. Data associated with inactive faults will be highlighted in yellow.



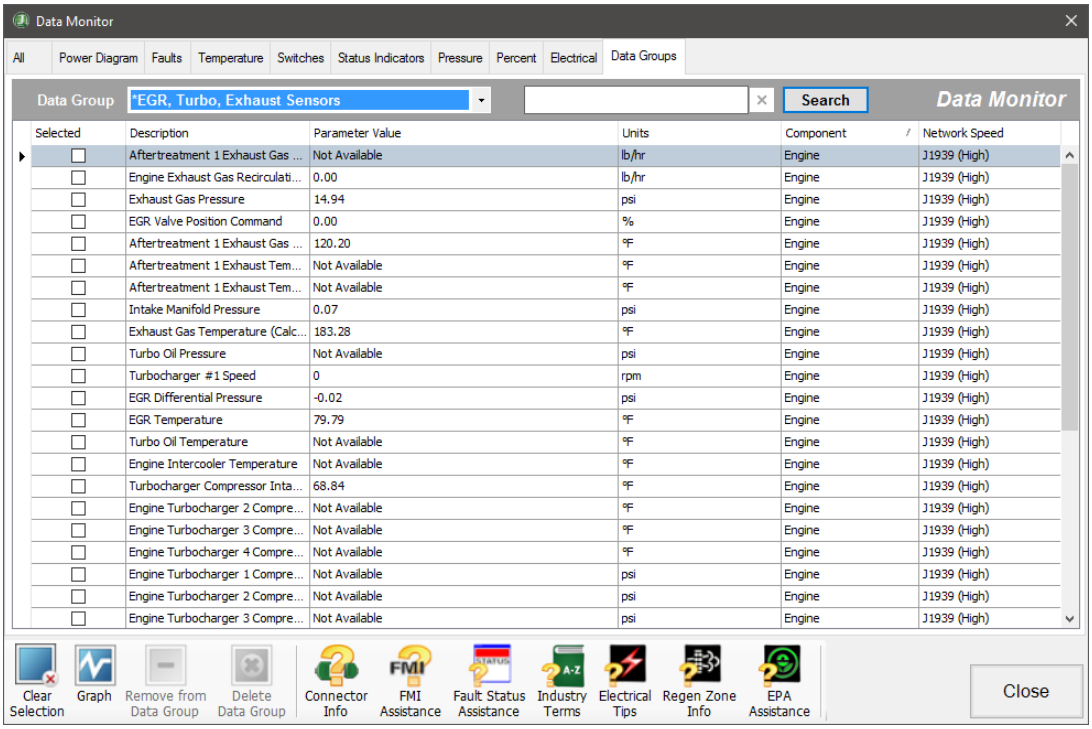
Data Monitor ECU Voltage Information

9. To view a graphical display of items in a specific category, select the **Temperature**, **Switches**, **Status Indicators**, ***Pressure***, **Percent**, or **Electrical** tab.



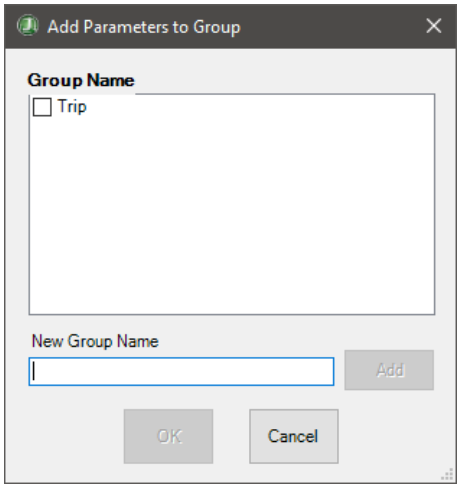
Data Monitor Tabs and Graphical Representations

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.

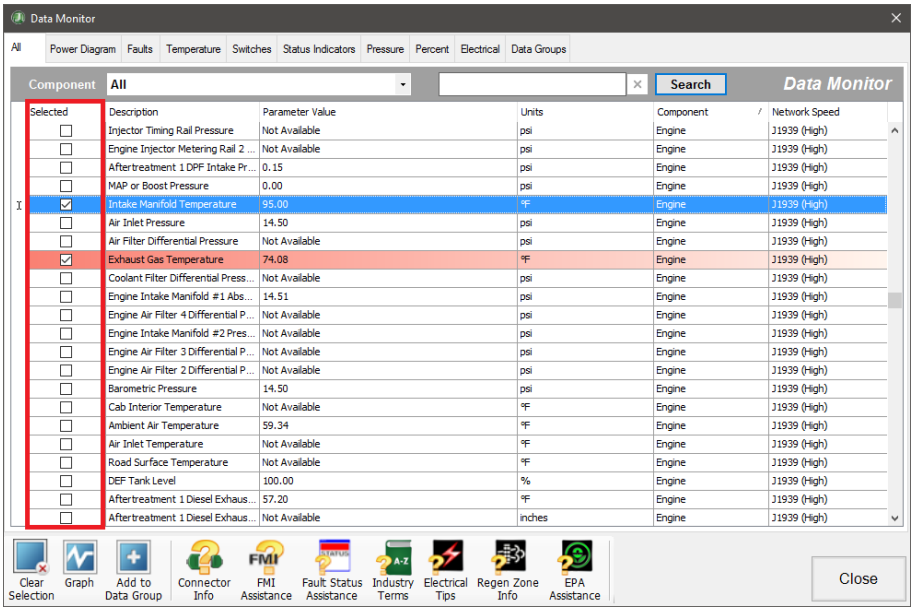
NOTE: Selected data items are component and protocol-specific. For example, adding Battery Voltage will not automatically display Battery Voltage reported by every component. Only the selected components, Battery Voltage from the selected protocol, would display in the Data Group.

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**.

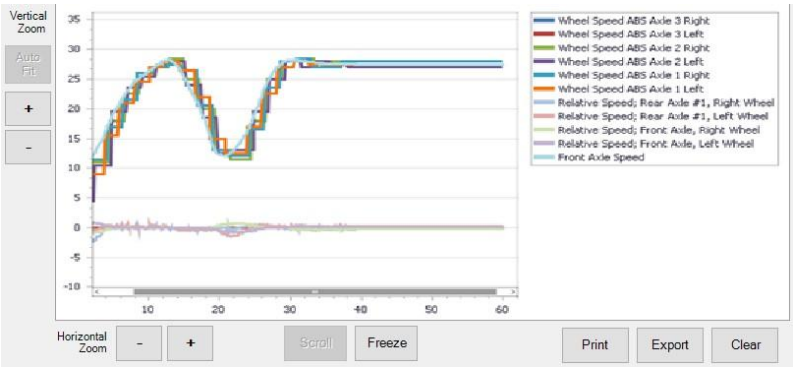
Follow the steps below to check the graph's heavy-duty data:

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:

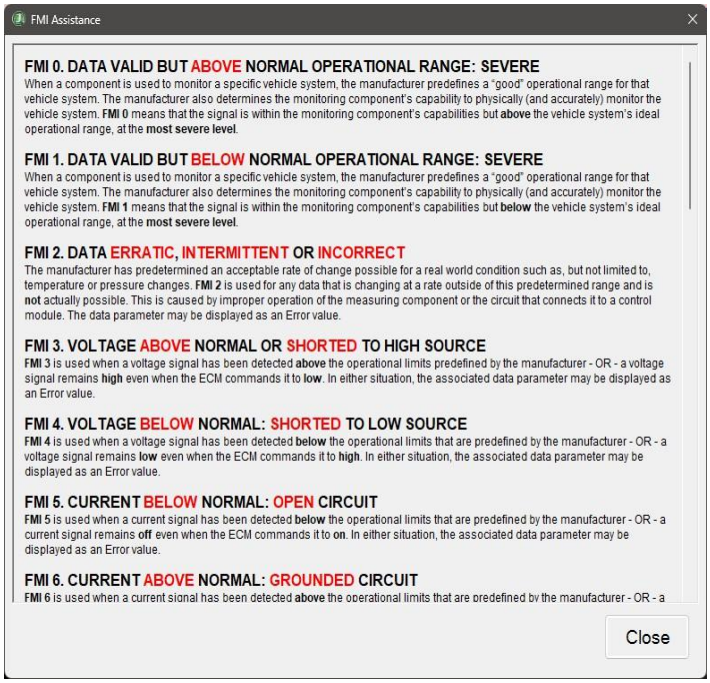
    a. Hover the cursor over the graph to see the value plotted.
    b. You can zoom each axis of the graph independently by clicking either the **+** or **–** button.
    c. Clicking the **Auto Fit** button will resize the graph to show all plotted data items.
    d. The **Scroll** button automatically 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

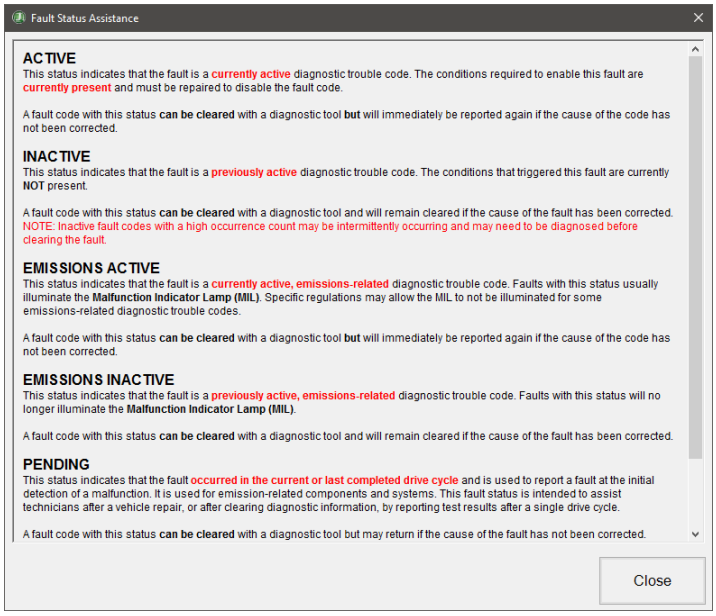
The **FMI Assistance** button will open a window containing extended FMI descriptions to aid technicians' understanding of the fault code FMI meaning.



FMI Assistance

Fault Status Assistance

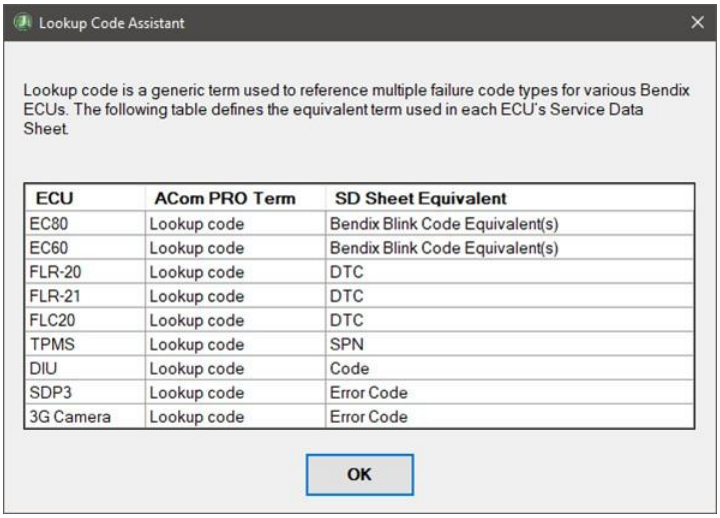
The **Fault Status Assistance** button will open a window containing extended Status descriptions for faults to aid technicians' understanding of fault Status meaning.



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.



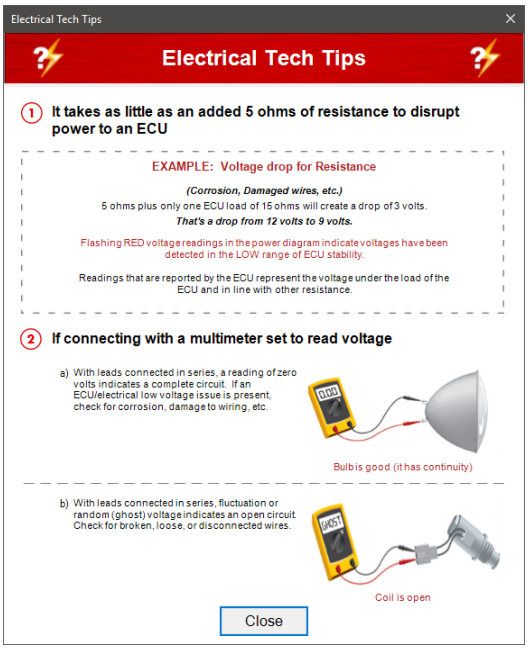
Lookup Code Assistant

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

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

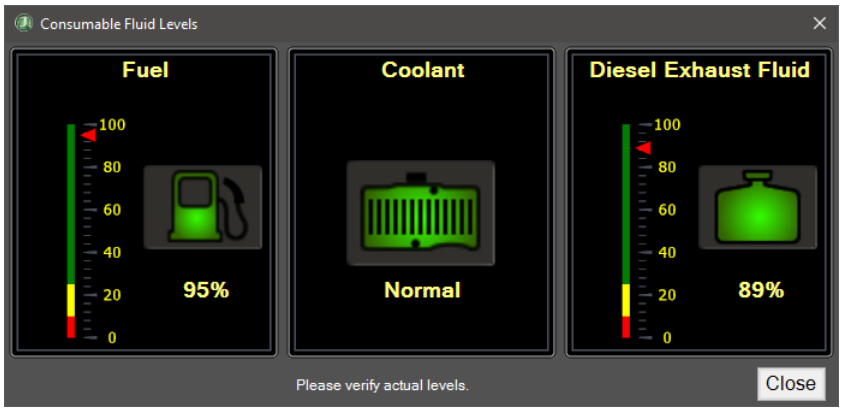
The **EPA Assistance** button opens a PDF file containing a basic explanation of EPA standards, the systems and technologies involved, as well as manufacturer examples.

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.

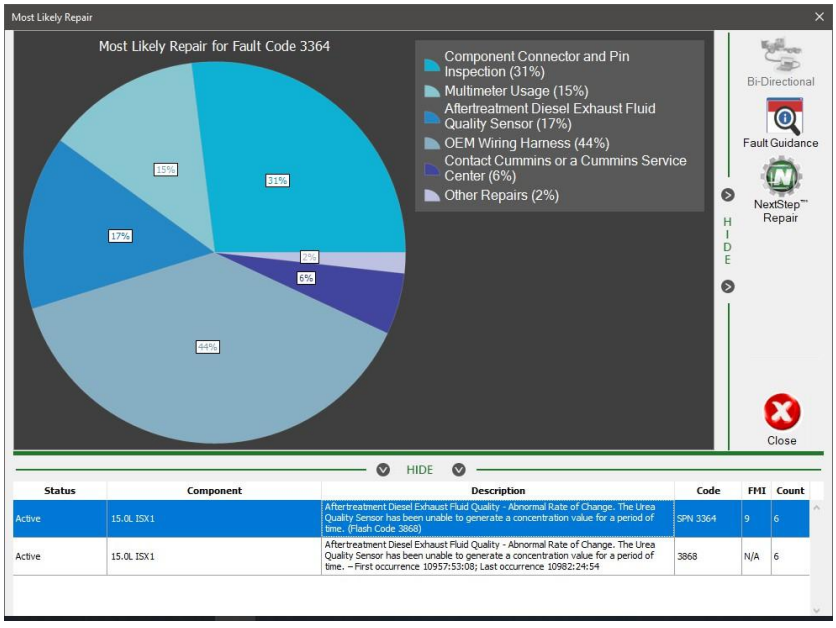
Most Likely Repair

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.

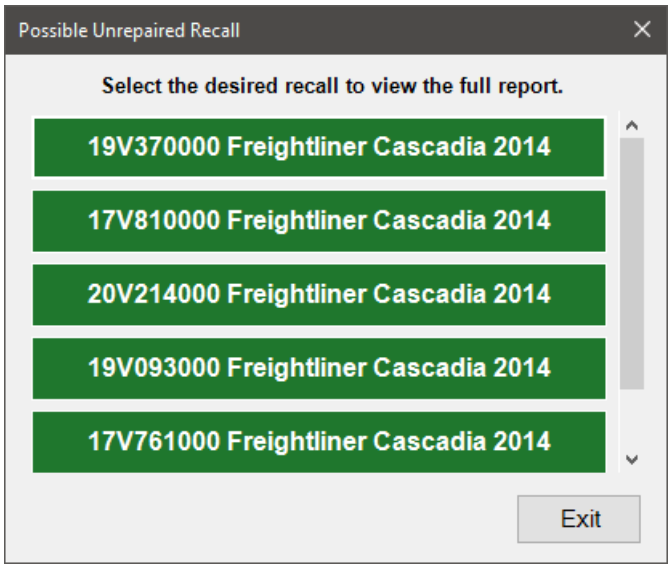
NOTE: The Bi-Directional button is not available during playback.

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.

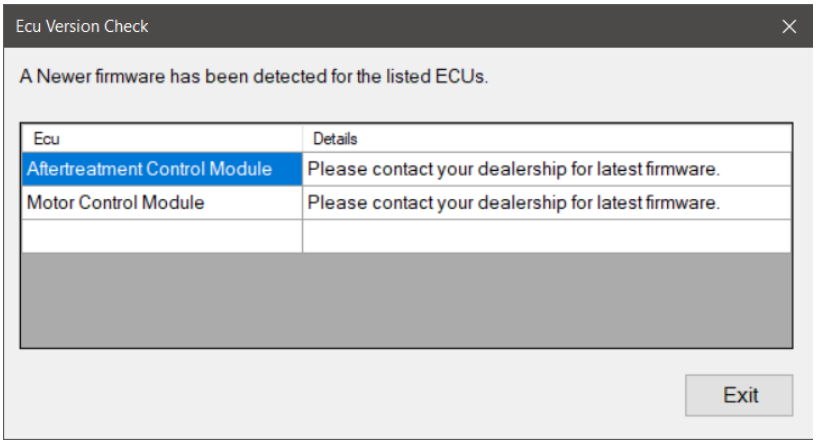
ECU Version Check

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 that a firmware update is available.



ECU Version Check

Bendix Diagnostics

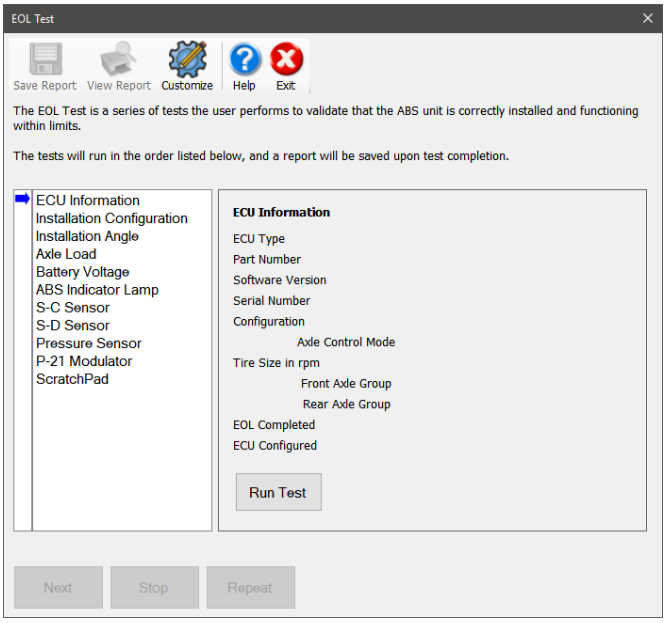
Bendix Diagnostics menu will be available only if Bendix components are detected on the data bus. Bendix Diagnostics provides access to component-specific diagnostic information screens. This can include:

- 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.

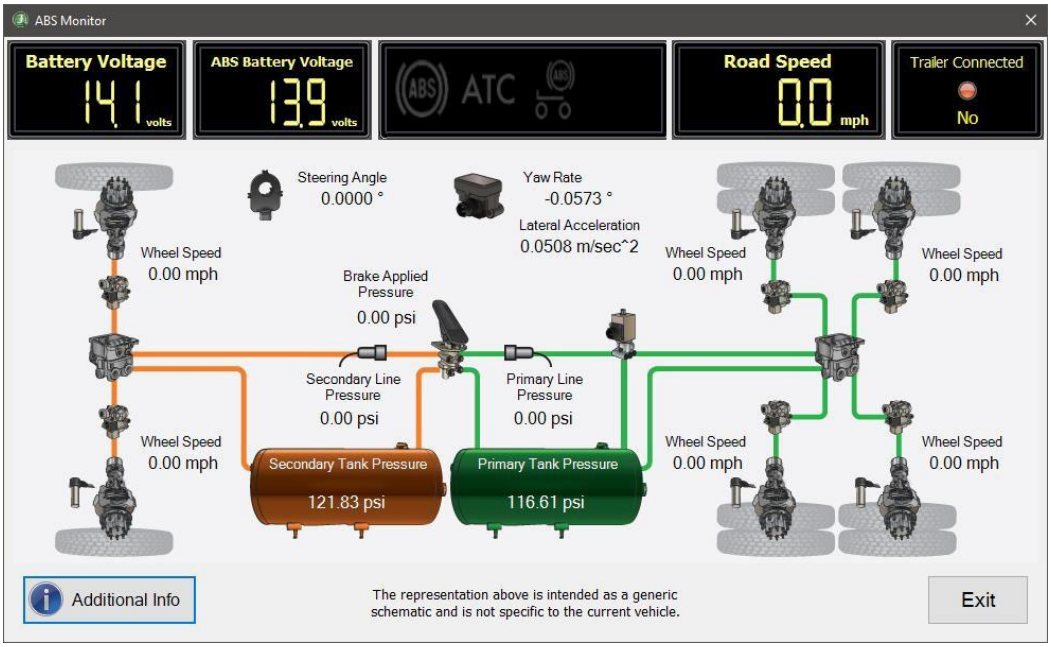
ABS Monitor

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

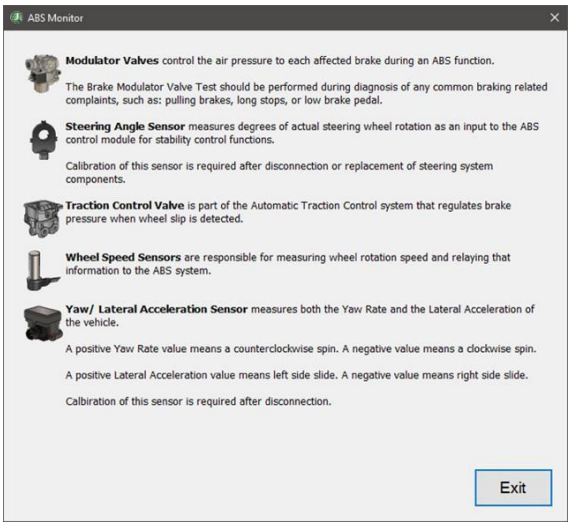
The following information is only displayed if the related components are detected on the vehicle:

- ✓ Steering Angle Sensor
- ✓ Yaw Rate/ Lateral Acceleration Sensor
- ✓ Hill Start Aid
- ✓ Pneumatic Line Pressure Sensors



ABS Monitor

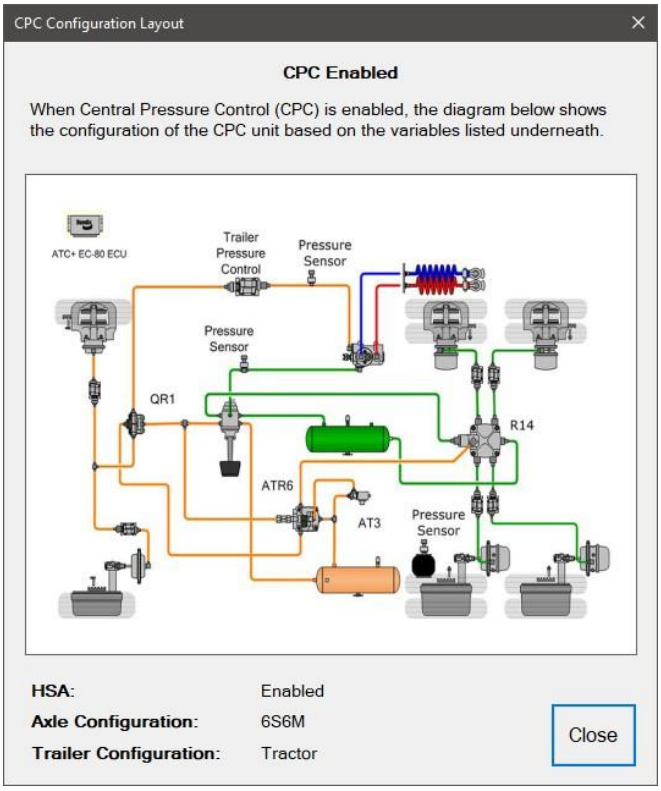
Clicking the **Additional Info** button displays a new window with explanations of the various components displayed in the **ABS Monitor**. The components displayed will change based on which components are detected on the vehicle.



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

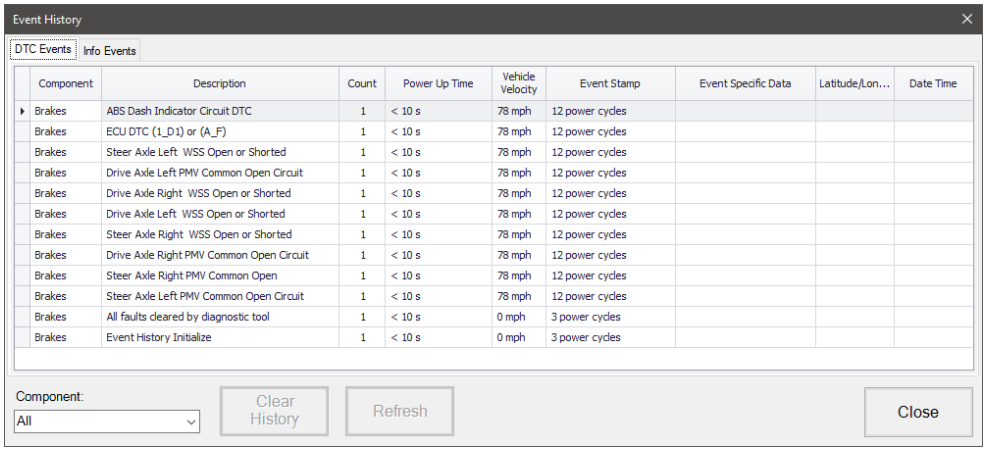
The **Bendix Event History** screen provides a detailed historical record of events reported by components that support this type of information. It is only available if a Bendix component supporting **Event History** records is available on the data bus.

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.

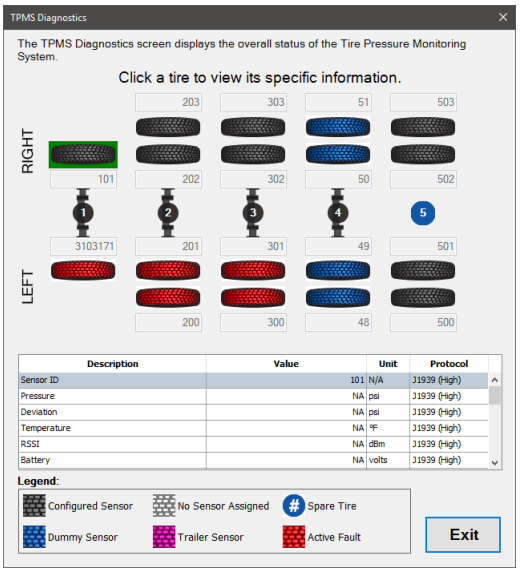


Event History

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.



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

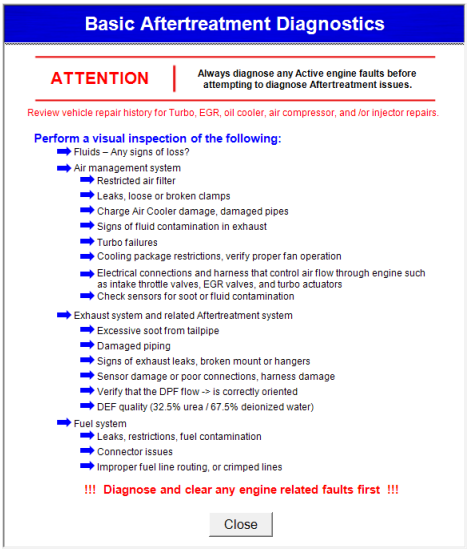
Aftertreatment Diagnostics

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.

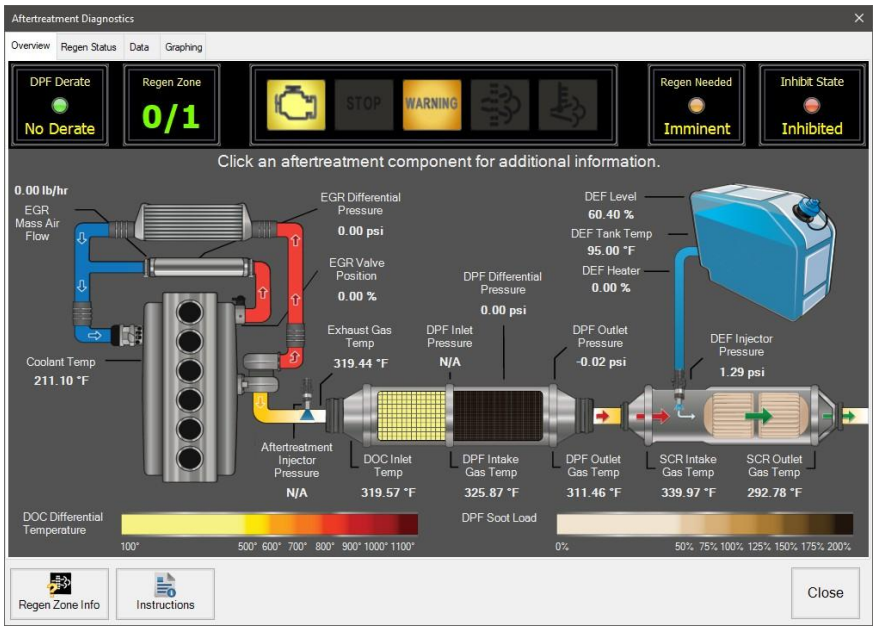
1. Select the **Aftertreatment Diagnostics** button on the main toolbar.

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.



Aftertreatment Diagnostic Instructions

3. The **Aftertreatment Diagnostics Overview** window is displayed, and an **Overview** tab displays a schematic of the aftertreatment system. Key data points labelled include the **DPF**, **EGR**, **SCR**, and **DEF Tank Sensor** readings.



Aftertreatment Diagnostics Overview

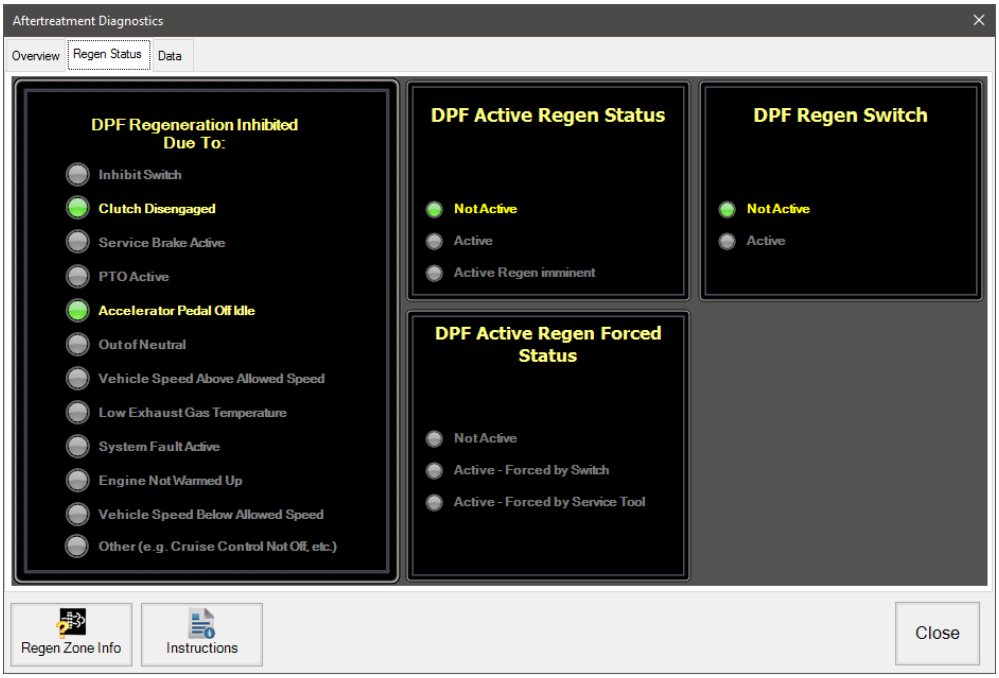
NOTE: On EPA 2007 engines, the schematic does not include the SCR and DEF Tank.

4. 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.
5. 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.
6. 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.



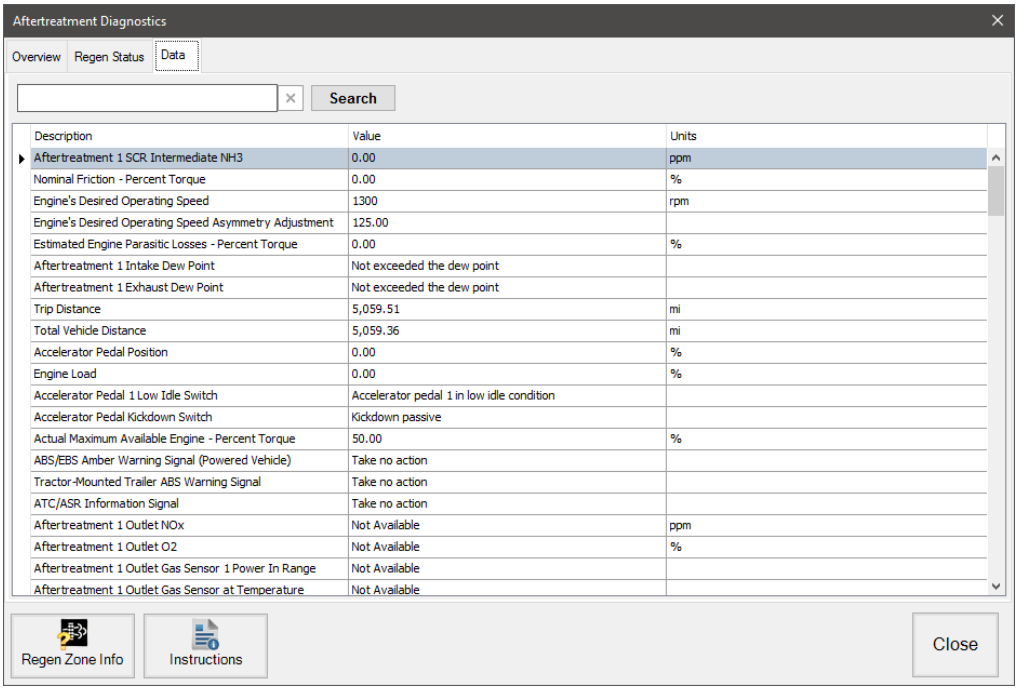
Aftertreatment Diagnostics with Bi-Directional Capabilities

7. Select the **Regen Status** tab to see the details for the Inhibit and DPF status.



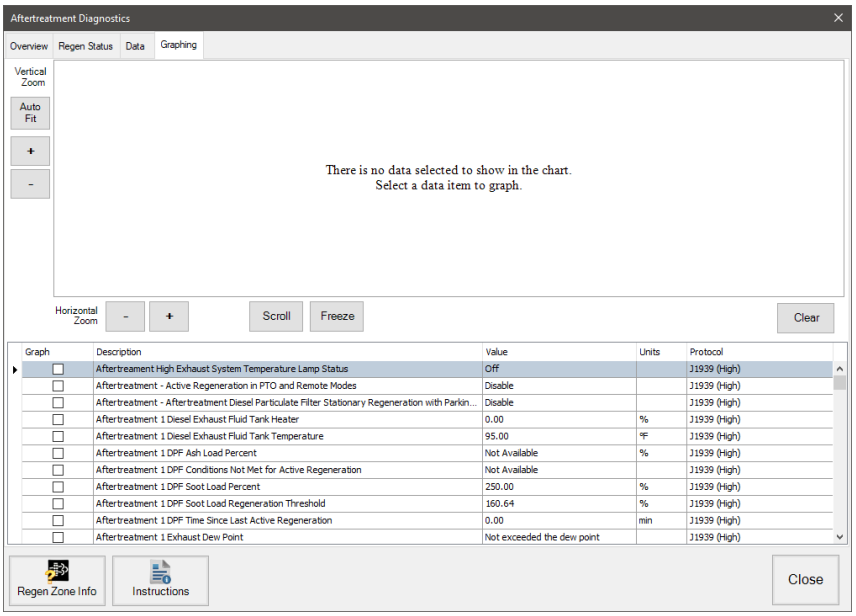
Aftertreatment Diagnostics Regen Status

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.



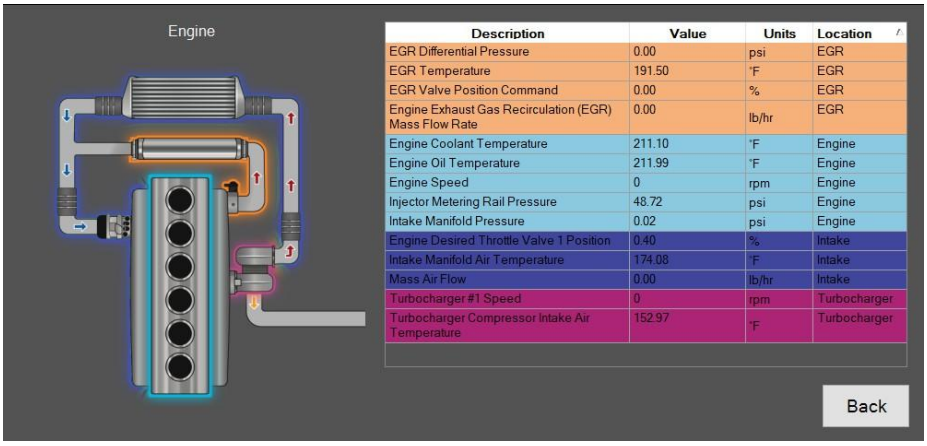
Aftertreatment Diagnostics Graphing

11. To customize the display:
    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.
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.

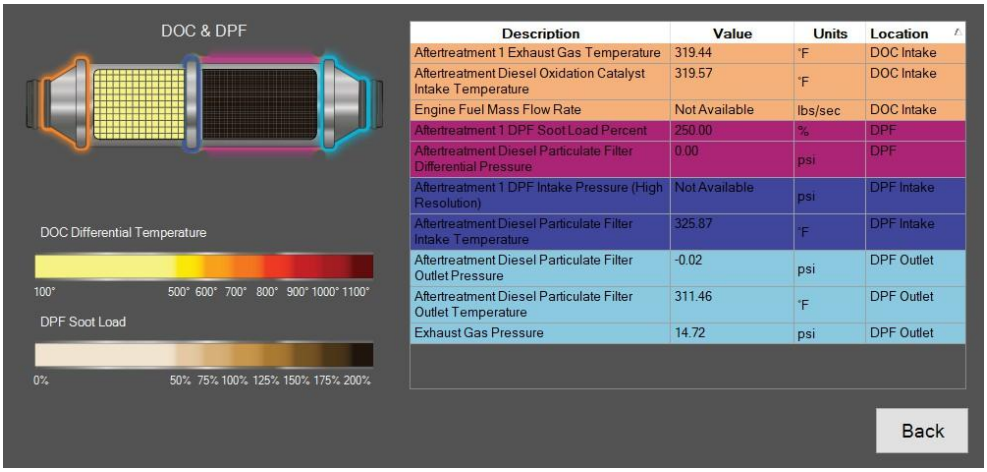


Aftertreatment Engine Data

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

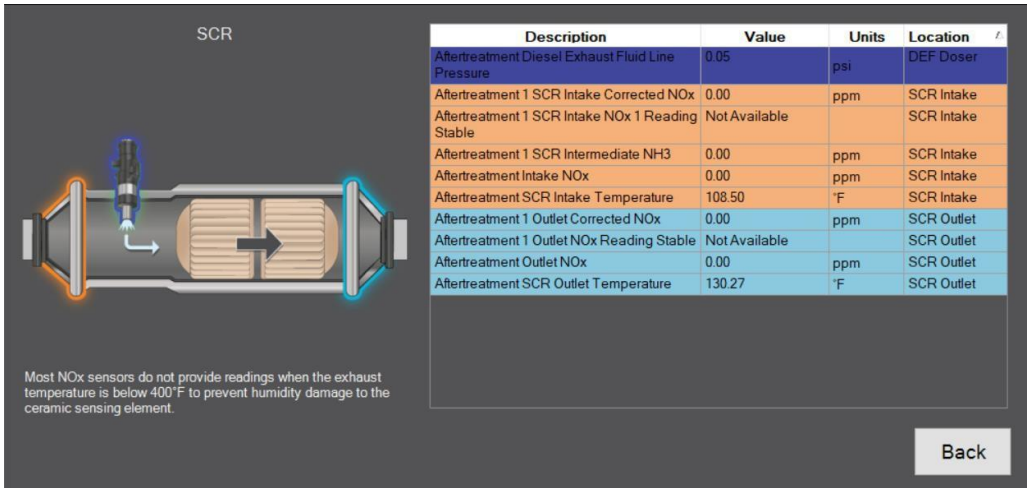
The DOC image color will change, displaying a gradient based on the DOC Intake and DPF Intake temperatures. Refer to the **DOC Differential Temperature** legend.

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.



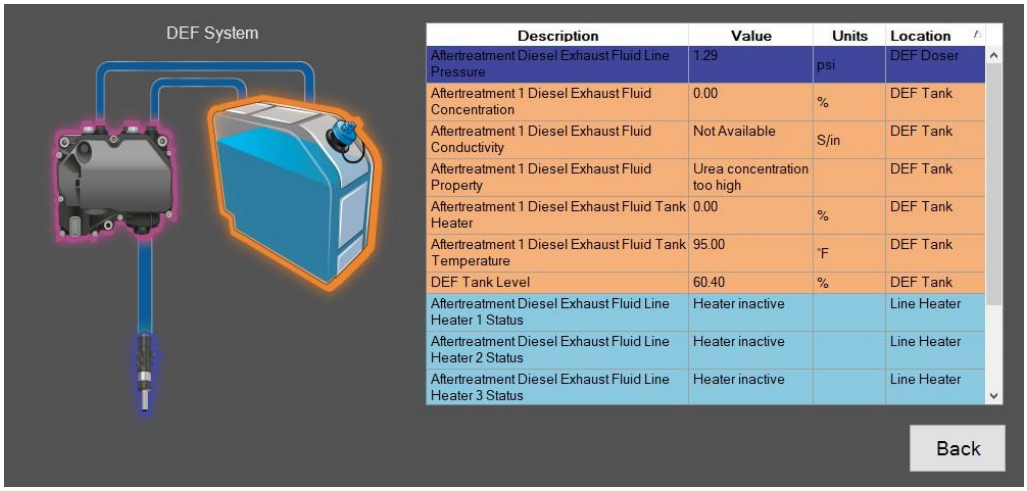
Description	Value	Units	Location
Aftertreatment Diesel Exhaust Fluid Line Pressure	0.05	psi	DEF Doser
Aftertreatment 1 SCR Intake Corrected NOx	0.00	ppm	SCR Intake
Aftertreatment 1 SCR Intake NOx 1 Reading Stable	Not Available		SCR Intake
Aftertreatment 1 SCR Intermediate NH3	0.00	ppm	SCR Intake
Aftertreatment Intake NOx	0.00	ppm	SCR Intake
Aftertreatment SCR Intake Temperature	108.50	°F	SCR Intake
Aftertreatment 1 Outlet Corrected NOx	0.00	ppm	SCR Outlet
Aftertreatment 1 Outlet NOx Reading Stable	Not Available		SCR Outlet
Aftertreatment Outlet NOx	0.00	ppm	SCR Outlet
Aftertreatment SCR Outlet Temperature	130.27	°F	SCR Outlet

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

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.

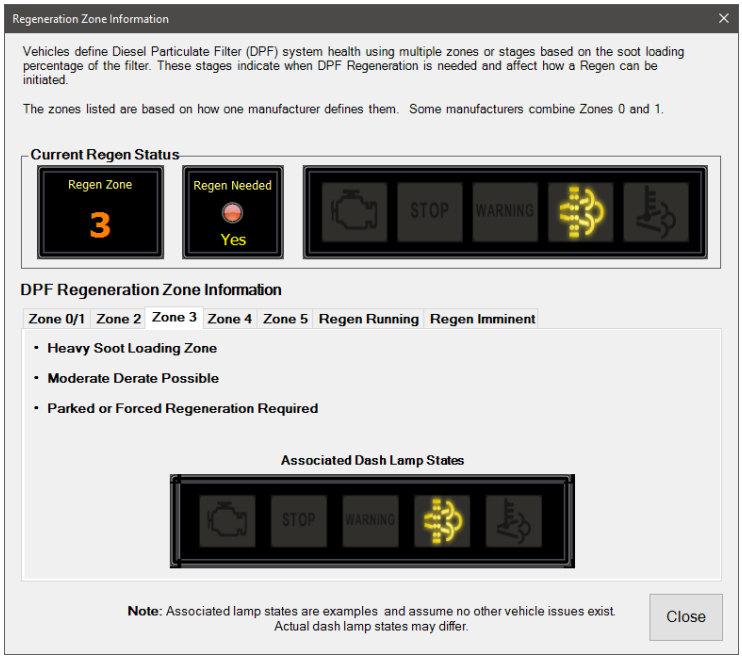
Click **Back** to return **to Aftertreatment Diagnostics** overview.

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

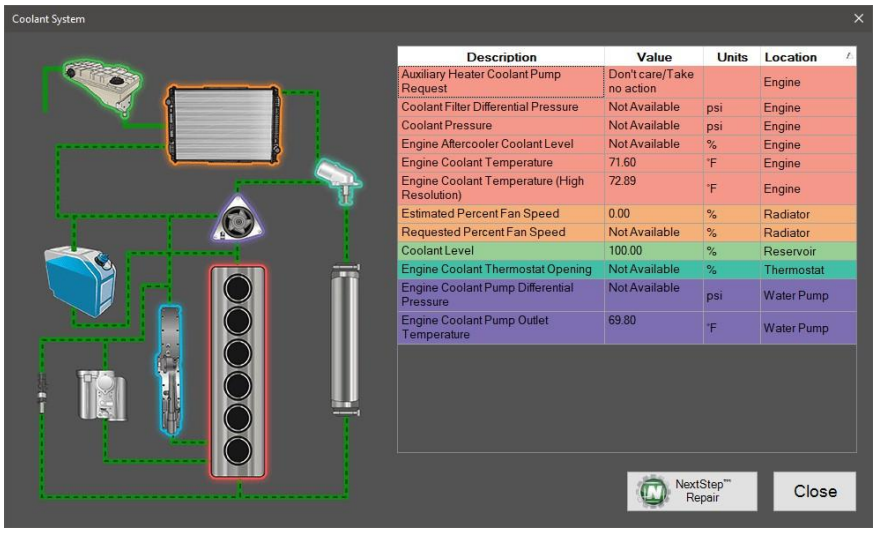
When displayed, the selected tab will display information specific to the current Regen Zone. Information for all Zones, including the special states of Regen Running and Regen Imminent, is also available.

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 is not currently available.

1. Select the **Coolant System** button from the main toolbar's **Subsystem Diagnostics** menu.
2. The **Coolant System** window opens, displaying coolant system-related data items.



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

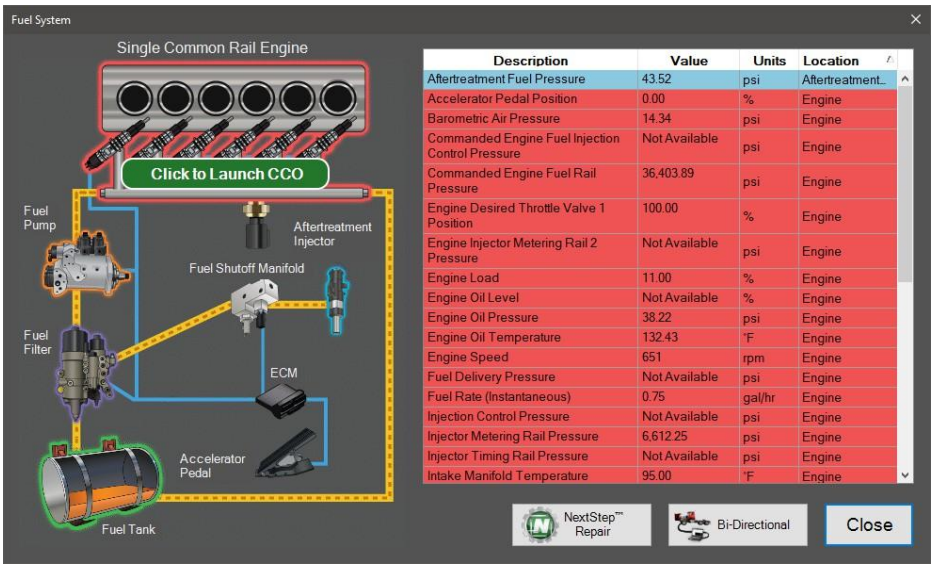
The **Fuel System** screen displays data from related components to assist in troubleshooting fuel system issues for the following heavy-duty vehicle engine types:

- 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 is not currently available.

The **Fuel System** button is not available until after all initial vehicle data is completely read.

1. Select the **Fuel System** button from the main toolbar's **Subsystem Diagnostics** menu.
2. The **Fuel System** window opens, displaying fuel system-related data items.



Fuel System - Single Common Rail

3. Click the engine when **Click to Launch CCO** is displayed to launch the **Cylinder Cut-Out** test.
4. Select **NextStep® Repair** to visit Noregon's NextStep® Repair troubleshooting information site. Please see the NextStep® Repair section in this document for more information.
5. 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.
6. The **Fuel Tank** image will change based on the reported Fuel Tank Level:

	> 90%		> 24%
	> 74%		> 14%
	> 49%		> 0%

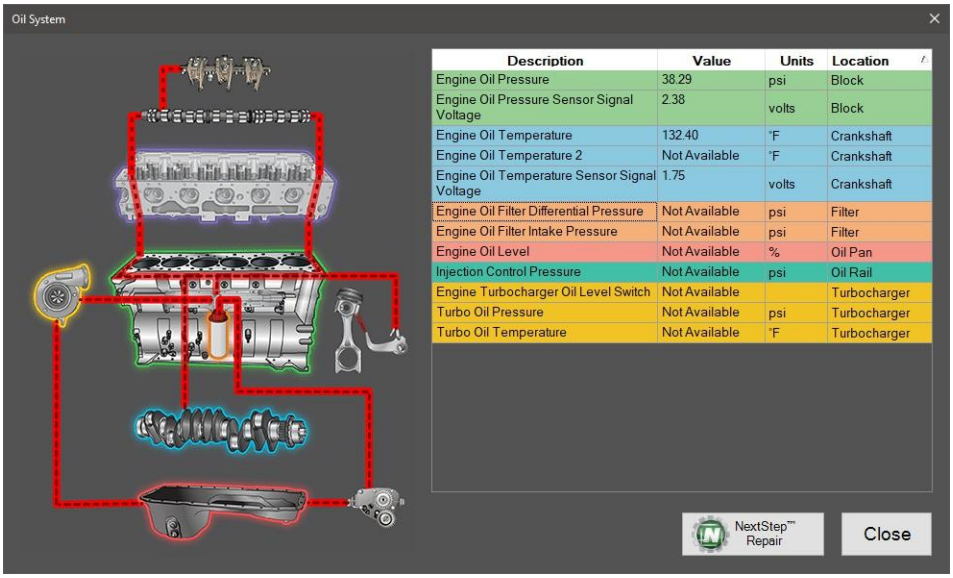
NOTE: The fuel tank image displayed may vary, but the fuel level displayed will be similar.

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 the **Oil System** button from the main toolbar's **Subsystem Diagnostics** menu.
2. The **Oil System** window opens, displaying oil system-related data items.



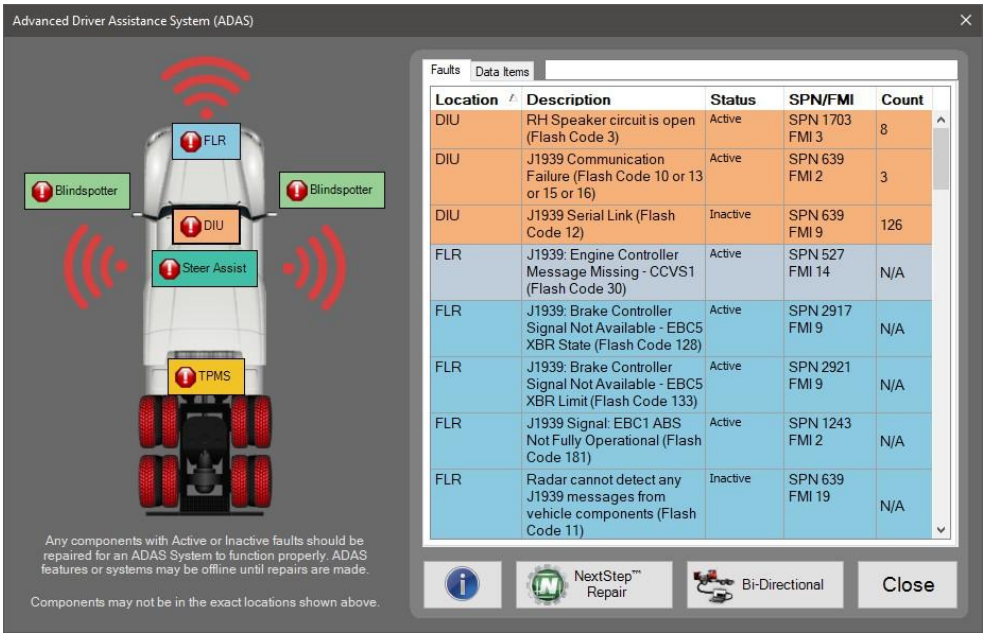
Oil System

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 the **ADAS** button from the main toolbar's Subsystem Diagnostics menu.
2. 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

3. 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.
4. Select the **Information** button to view additional ADAS related information.
5. 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

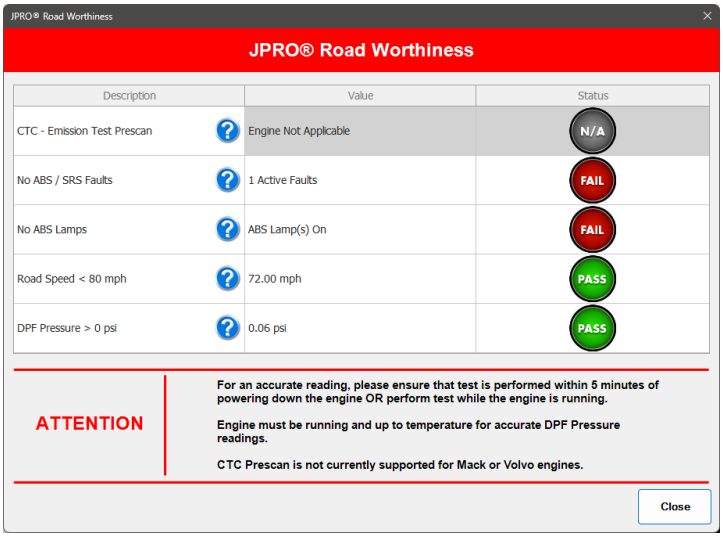
JPRO® Road Worthiness assesses a vehicle's safety and compliance for over-the-road operations by checking:

- ✓ Indicates if the vehicle is ready to submit a Clean Truck Check (CTC) scan using Truck Check Up for California Air Resources Board's (CARB) emissions compliance.
- ✓ No ABS faults reported, or lamps illuminated
- ✓ Max Road Speed < 80 mph
- ✓ DPF Pressure is reported

1. Select the **JPRO® Road Worthiness** button from the main toolbar.
2. **JPRO® Road Worthiness** opens, displaying a banner indicating the overall status of the vehicle and the evaluated diagnostic rules.

PASS	The title banner color will be **green** if one or more diagnostic rules report "**Pass**" and none report "**Fail**".
FAIL	The title banner color will be **red** if one or more diagnostic rules report "Fail".
N/A	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.



JPRO Road Worthiness

3. Click the **question mark** to view additional information about the desired road worthiness item.

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:

Supported On	ABS Air Bag Pressure Test	ABS Configuration	ABS Engine Limiting Test
Bendix Tractor Brakes	✔	✔	✔

Supported On	ABS Indicator Lamp Test	ABS Pressure Test	ABS Self Config Test
Bendix Tractor Brakes		✔	✔
Bendix Trailer Brakes	✔		

Supported On	Actuator Test	Activate Air Shut Off Valve	Activate Fuel Dosing Valve
International engines	✔		
PACCAR engines		✔	✔

Supported On	Aftertreatment Fuel Enable Actuator Leak Test	Aftertreatment Hydrocarbon Doser Leak Test	Aftertreatment Hydrocarbon Dosing System Test
International engines	✔	✔	✔

Supported On	Aftertreatment Injector Activation for Flow Test	Aftertreatment Injector Flow Test	Aftertreatment Injector Leak Test
Cummins engines		✔	✔
Mack and Volvo engines	✔		

Supported On	Aftertreatment Injector Shutoff Valve Test	Aftertreatment Maintenance Reset	Aftertreatment Reset
Cummins engines	✔	✔	
International engines			✔

Supported On	ATC Configuration	AutoVue Configuration	Automated Cylinder Performance Test
Bendix Driver Assistance Systems (DAS)		✔	
Bendix Tractor Brakes	✔		
PACCAR engines			✔

Supported On	Auxiliary Engine Speed Control (PTO) Parameters	Axle Load Test	Battery Voltage Test
Bendix Tractor Brakes			✔
Bendix Trailer Brakes		✔	✔
International engines	✔		

Supported On	Blindspotter Configuration	Braking System Switches Test	CDPF Reset
Bendix Driver Assistance Systems (DAS)	✔		
Bendix Tractor Brakes		✔	
International engines			✔

Supported On	CTIS Pressure Tests	CTIS Supply Tank Pressure Test	Camera Snapshot Test
Bendix Driver Assistance Systems (DAS)			✔
Dana	✔	✔	

Supported On	Cartridge Lifetime Prediction Reset Test	Check Internal DEF Pump Module Heater	Chuff Test
Bendix Air Treatment Systems	✔		
Bendix Trailer Brakes			✔
PACCAR engines		✔	

Supported On	Clear Stored Events and Videos	Clutch Apply Leak Test	Cylinder Compression Test
Bendix Driver Assistance Systems (DAS)	✔		
Detroit Diesel transmissions		✔	
PACCAR engines			✔

Supported On	Cylinder Cut-Out Test	Cylinder Misfire Monitor Test	DEF Coolant Valve Control Test
Caterpillar On-Highway engines	✔		
Caterpillar engines			
Cummins engines	✔	✔	
Dana			
Detroit Diesel engines	✔		✔
International engines	✔		
Mack and Volvo engines	✔		
Mercedes-Benz engines	✔		
PACCAR engines	✔		

Supported On	DEF Doser Pump Override Test	DEF Doser Pump Test	DEF Dosing Valve Test
Cummins engines	✔		
International engines	✔		
Mack and Volvo engines			✔
PACCAR engines		✔	

Supported On	DEF Heater Test	DEF Pressure System Test	DEF Quantity Test
Detroit Diesel engines			✔
Mack and Volvo engines		✔	
PACCAR engines	✔		

Supported On	DEF System Heater Test	DEF System Leak Test	DIU Configuration
Bendix Driver Assistance Systems (DAS)			✔
Cummins engines	✔	✔	

Supported On	DOC Face Plug Cleaning	DOC/DPF Replacement Reset	DPF Ash Accumulator Reset
Detroit Diesel engines	✔		✔
International engines		✔	

Supported On	DPF Service Regen	DPF System Reset	Dashboard Lamp Tests
Bendix Tractor Brakes			✔
Caterpillar engines	✔		

Cummins engines	✔		
Detroit Diesel engines	✔		
International engines	✔		
Kubota engines	✔		
Mack and Volvo engines	✔	✔	
Mercedes-Benz engines	✔		
PACCAR engines	✔		
Wabco Tractor Brakes			✔

Supported On	Door Switch Status Test	Drag Torque Test	ECU Configuration
Bendix Tractor Brakes		✔	
Bendix Trailer Brakes	✔		✔

Supported On	ECU Information Reset	ECU Reset	EGR Actuator Slow Learn
Bendix Tractor Brakes		✔	
Bendix Trailer Brakes	✔		
Detroit Diesel engines			✔

Supported On	EGR Delta Pressure Sensor Recalibration	EGR Function Test	ESP Lamp Test
Bendix Tractor Brakes			✔
Detroit Diesel engines	✔		
Mack and Volvo engines		✔	

Supported On	Enable Regeneration after Aftertreatment System Repair	Enable or Disable Cruise Control	Enable/Disable ATC (Automatic Traction Control)
Mack and Volvo engines		✔	
PACCAR engines	✔		
Wabco Tractor Brakes			✔

Supported On	Engine Protection Parameters	Evaluate NOx Sensors Test	Exit Inducement Test
Cummins engines	✔		
Mack and Volvo engines			✔
PACCAR engines		✔	

Supported On	Fan Activation Test	Fan Override Test	Forced Active Regen
Cummins engines		✔	
International engines			✔
Mack and Volvo engines	✔		

Supported On	Fuel Injector Calibration	Fuel Injector Performance Test	Fuel Injector Reset
Cummins engines	✔	✔	✔

Supported On	Fuel Leakage Test	Fuel Pressure Adaptation Reset	Fuel Shut-off Valve Test
Cummins engines	✔		
International engines		✔	
Mack and Volvo engines			✔

Supported On	Fuel System Integrity Check Automatic	Fuel System Integrity Check Leak	Fuel System Integrity Check Manual
Detroit Diesel engines	✔	✔	✔

Supported On	Gear Split Range Activation Test	General Output Functions Test	Hydrocarbon Doser Purge
Bendix Trailer Brakes		✔	
Detroit Diesel engines			✔
Detroit Diesel transmissions	✔		

Supported On	Hydrocarbon Dosing Control Valve Test	Idle Shutdown	Indicator Component Tests
Bendix Driver Assistance Systems (DAS)			✔
Caterpillar engines		✔	
Cummins engines		✔	
Detroit Diesel engines		✔	
International engines		✔	
Mack and Volvo engines	✔	✔	

Supported On	Injection Actuator Pressure Test	Injector Calibration Test	Injector Codes
Caterpillar engines	✔		
Detroit Diesel engines			✔
PACCAR engines		✔	

Supported On	Injector Solenoid Test	Injector Trim Calibration	Install a New or Cleaned DPF
Caterpillar engines	✔	✔	
PACCAR engines			✔

Supported On	Installation Angle Test	Installation Configuration Test	Intake Throttle Valve Test
Bendix Trailer Brakes	✔	✔	
Detroit Diesel engines			✔

Supported On	Intake Valve Actuator Solenoid Test	Intake Valve Actuator Test	J1939 Datalink Control Test
Caterpillar engines	✔	✔	
Cummins engines			✔

Supported On	KOEO Injector Test	KOEO Standard Test	KOER Air Management Test
International engines	✔	✔	✔

Supported On	KOER Standard Test	LDW Configuration	Lamp Component Tests
Bendix Driver Assistance Systems (DAS)		✔	✔
International engines	✔		

Supported On	Learned Data Reset	Lift Axle Control Test	Lift Axle Sensing Test
Bendix Trailer Brakes		✔	✔
Mack and Volvo engines	✔		

Supported On	Lift Lower Test	Low Pressure Warning Emergency Test	Low Pressure Warning Service Test
Bendix Trailer Brakes	✔	✔	✔

Supported On	Maintenance Mode	Memorized Components Reset	Metering Unit Flood Routine
Bendix Tractor Brakes	✔		

Supported On	Maintenance Mode	Memorized Components Reset	Metering Unit Flood Routine
Detroit Diesel engines			✔
Wabco Tractor Brakes		✔	

Supported On	Modulator Valve (Chuff) Test	NOx Conversion Monitor Test	Output Component Tests
Bendix Driver Assistance Systems (DAS)			✔
Bendix Tractor Brakes	✔		
Mack and Volvo engines		✔	
Wabco Tractor Brakes	✔		

Supported On	P-21 Delivery Test	P-21 Modulator Test	P-22 Delivery Test
Bendix Trailer Brakes	✔	✔	✔

Supported On	P-22 Modulator Test	PTO Parameters	Pad Wear Test
Bendix Trailer Brakes	✔		✔
Cummins engines		✔	
Detroit Diesel engines		✔	

Supported On	Parked SCR Efficiency Test	Performance Check Low Temp ATD	Pressure Sensor Test
Bendix Trailer Brakes			✔
Detroit Diesel engines	✔	✔	

Supported On	Pressure Trimming and Coil Polarity Test	Prime the System with the Pump for DEF	Purge Air Valve Test
Bendix Driver Assistance Systems (DAS)	✔		
Mack and Volvo engines			✔
PACCAR engines		✔	

Supported On	Radar Alignment	Radar Service Alignment	Request Driving Regen Test
Bendix Driver Assistance Systems (DAS)		✔	
Detroit Assurance radars	✔		
Detroit Diesel engines			✔

Supported On	Reset the Soot Level	Road & Cruise Speed Limits	S-C and S-D Sensor Tests
Bendix Trailer Brakes			✔
Caterpillar engines		✔	
Cummins engines		✔	
Detroit Diesel engines		✔	
International engines		✔	
Mack and Volvo engines		✔	
PACCAR engines	✔		

Supported On	S-E and S-F Sensor Tests	SCR Air Pressure System Check	SCR Airless Doser System (ADS) Self Check
Bendix Trailer Brakes	✔		
Detroit Diesel engines		✔	✔

Supported On	SCR Faults Reset	SCR Output Component Test	SCR Performance and System Test
Cummins engines			✔
Detroit Diesel engines		✔	
International engines	✔		

Supported On	SCR Regeneration	SCR Replacement Test	SDP3 Configuration
Bendix Driver Assistance Systems (DAS)			✔
Detroit Diesel engines		✔	
Mack and Volvo engines	✔		

Supported On	SDP5 Configuration	SDP5 System Configuration	SPTAC Calibration
Bendix Driver Assistance Systems (DAS)	✔	✔	✔

Supported On	Safety Direct Event Configuration	Safety Direct Event Selection Configuration	Scratchpad Test
Bendix Driver Assistance Systems (DAS)	✔	✔	
Bendix Trailer Brakes			✔

Supported On	Soot Sensor	Speaker Volume Configuration	Startup Chirp Volume Setting
Bendix Driver Assistance Systems (DAS)		✔	✔
Detroit Diesel engines	✔		

Supported On	Steering Angle Test and Calibration	TCM Global Status	TCM Release Lock
Bendix Tractor Brakes	✔		
Detroit Diesel transmissions		✔	✔

Supported On	TPMS Lamp Display Configuration	TPMS Parameters	TPMS Scratchpad
Bendix Tire Pressure Monitoring System	✔	✔	✔

Supported On	TPMS Signal Strength Test	TPMS Statistics	TSR Configuration
Bendix Driver Assistance Systems (DAS)			✔
Bendix Tire Pressure Monitoring System	✔	✔	

Supported On	Tilt Sensor Calibration	Tire Inflation System Test	Transmission Learn Procedure Test
Bendix Trailer Brakes		✔	
Detroit Diesel transmissions	✔		✔

Supported On	Trip Information Parameters	Trip Reset	Turbo Actuator Effort Test
Cummins engines	✔	✔	
Mack and Volvo engines		✔	
PACCAR engines			✔

Supported On	VGT Electronic Actuator Installation and Calibration	VGT Function Test	VGT Hysteresis Test
Cummins engines	✔		✔
Komatsu equipment			✔

Supported On	VGT Electronic Actuator Installation and Calibration	VGT Function Test	VGT Hysteresis Test
Mack and Volvo engines	✔	✔	

Supported On	VGT Monitor Test	VSS Parameters	Warm Hold Function Test
Cummins engines		✔	
Detroit Diesel engines		✔	
International engines		✔	
Mack and Volvo engines	✔		
Wabco Tractor Brakes			✔

Supported On	Wear Sensing Test	Wheel Speed Chart Test	Wheel Speed Window Test
All tractor braking systems that report wheel speeds		✔	✔
Bendix Tractor Brakes		✔	✔
Bendix Trailer Brakes	✔	✔	✔
Wabco Tractor Brakes			✔

Supported On	Wiggle Test/Performance Issue Monitoring	Wingman FLR Configuration	Wingman Fusion Blindness Adjustment
Agility fuel systems	✔		
All heavy-duty engines	✔		
Bendix Driver Assistance Systems (DAS)		✔	✔
Bendix Tractor Brakes	✔		

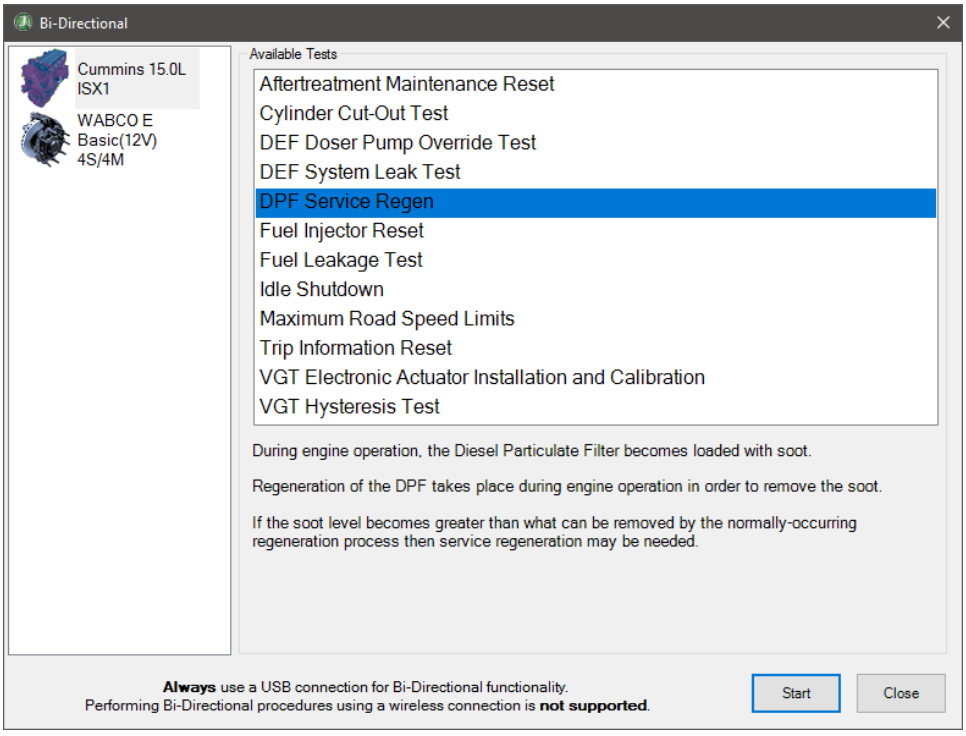
Supported On	Yaw Rate and Lateral Accel. Test and Calibration
Bendix Tractor Brakes	✔

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

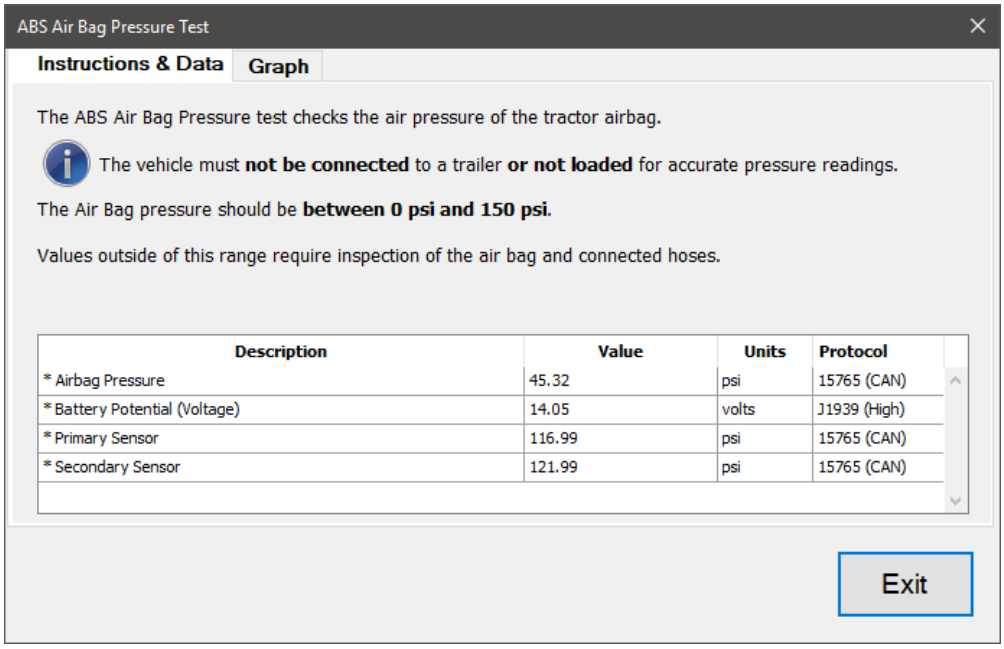
The **ABS Air Bag Pressure Test** is available on:

- ✓ 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.

Follow the steps below to perform the **ABS Air Bag Pressure Test:**

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 it 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

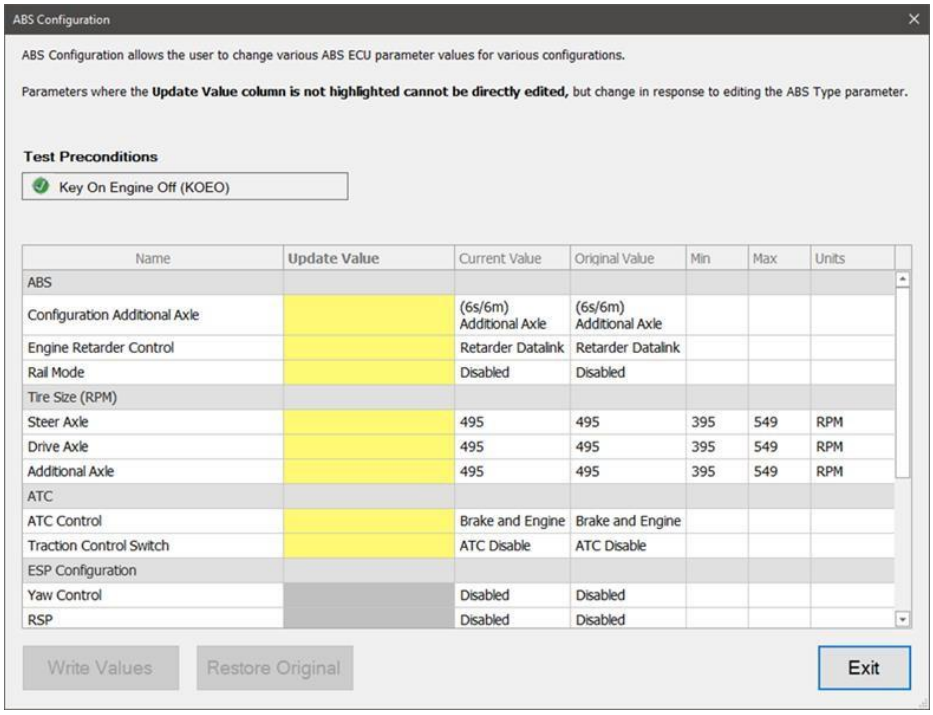
The **ABS Configuration** test is available on:

- ✓ Bendix EC-60 and EC-80 braking systems

This test allows the editing of ABS system parameters.

Follow the steps below to configure the 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 the **Write Values** button to send the new values 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

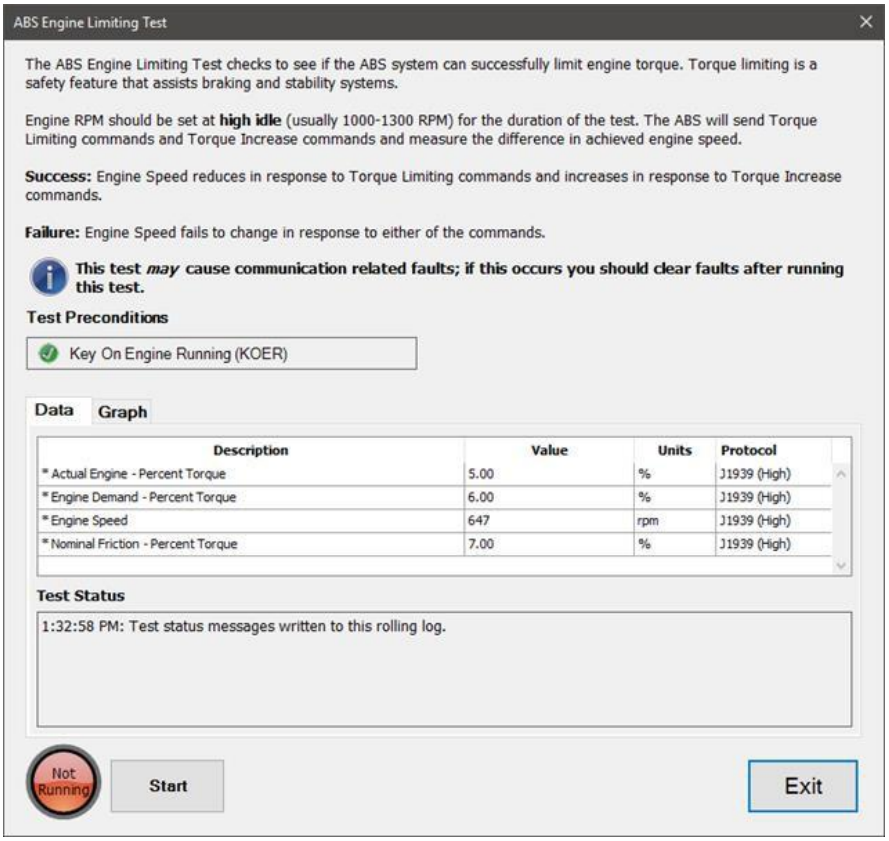
The **ABS Engine Limiting Test** is available on:

- ✓ 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.

Follow the steps below to perform the **ABS Engine Limiting Test:**

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

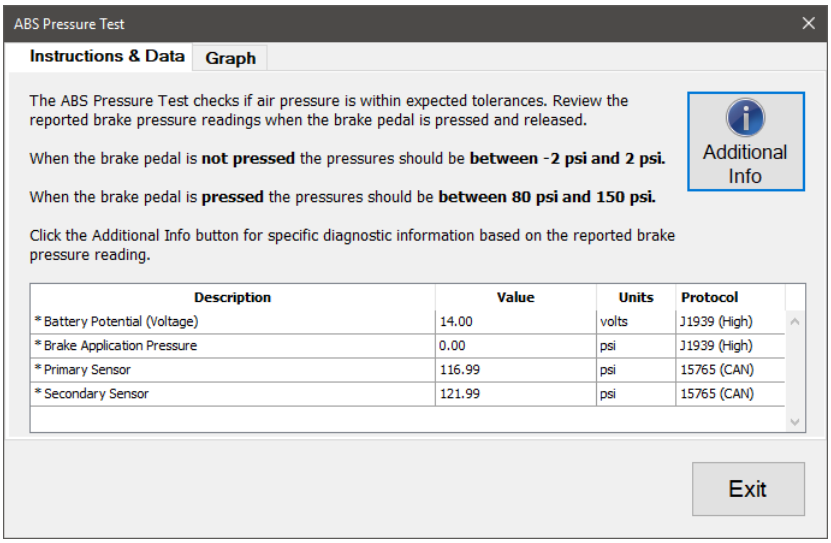
The **ABS Pressure** test is available on:

- ✓ 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.

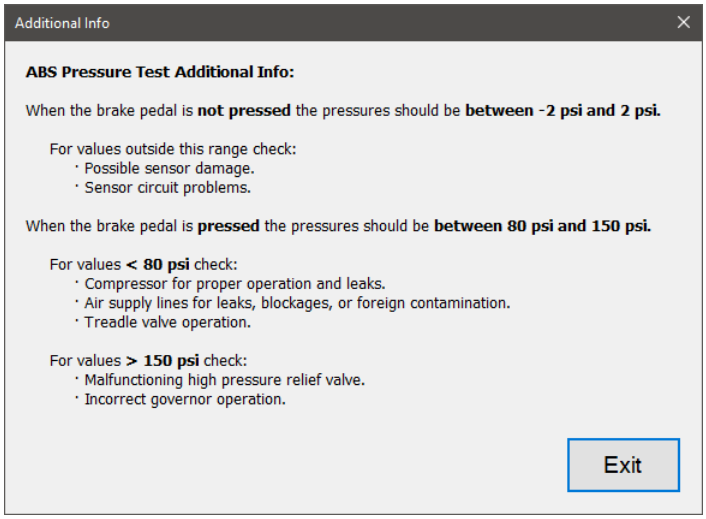
Follow the steps below to perform the **ABS Pressure Test:**

1. Select the **ABS Pressure Test** and press Enter or the **Start** button.
2. The test dialog will be displayed.



ABS Pressure Test

3. 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.
4. Clicking the **Additional Info** button will display additional test information. Click **OK** to close this window.



ABS Pressure Test Additional Info

5. When done, press the **Exit** button to return to the test selection dialog.

ABS Self Config Test

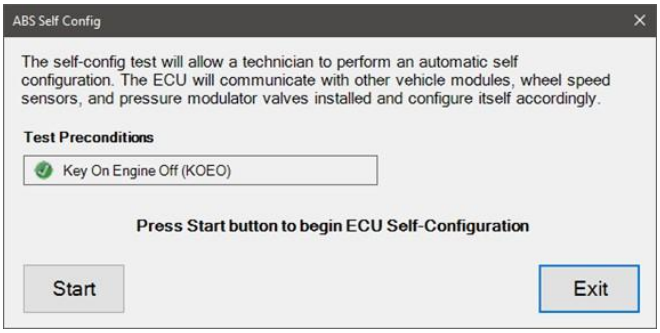
The **ABS Self Config** test is available on:

- ✓ EC-60 braking systems
- ✓ EC-80 ABS and ATC braking systems
- ✓ Cummins EPA 07/10/13: 6.7 ISB engines

This test performs an automatic self-configuration of the ABS ECU based on all installed and detected components and sensors.

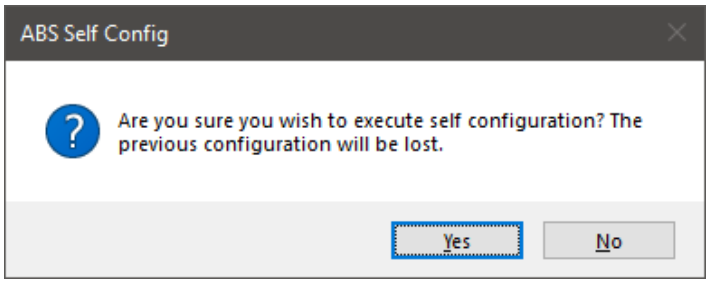
Follow the steps below to perform the **ABS Self Config Test:**

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.

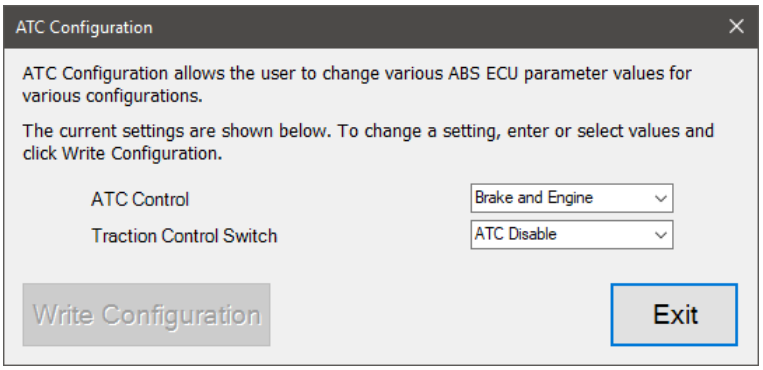
ATC Configuration Test

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.
Follow the steps below to perform the **ATC Configuration Test:**

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 the **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

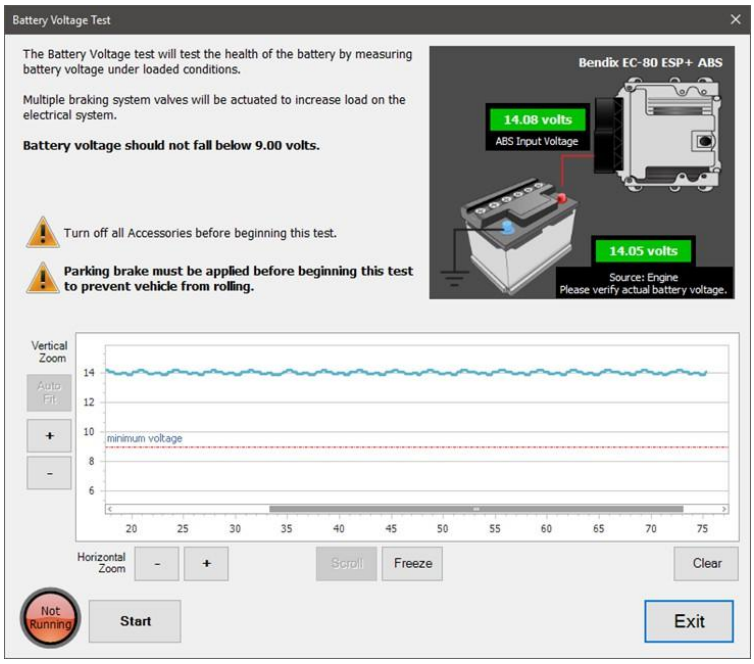
The **Battery Voltage** test is available on:

- ✓ Bendix EC-60 and EC-80 braking systems

This test checks the health of the battery by measuring voltage levels under loaded conditions.

Follow the steps below to perform a **Battery Voltage Test:**

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 the 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 the 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

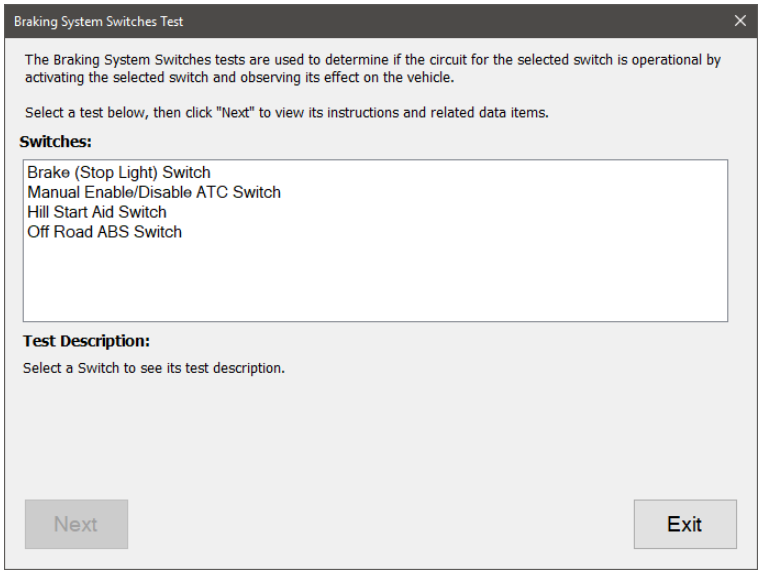
The **Braking System Switches** test is available on:

- ✓ 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.

Follow the steps below to perform the **Braking System Switches Test:**

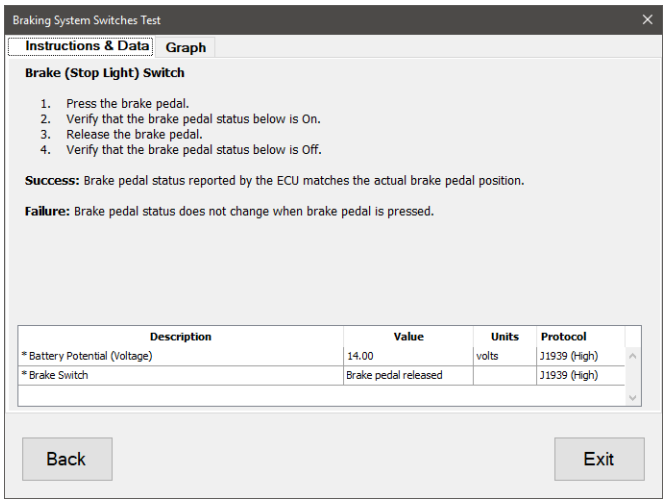
1. Select the **Braking System Switches** test and press Enter or the **Start** button.
2. The test dialog will be displayed.



Braking System Switches Test

NOTE: The specific switches available for selection are dependent on the configuration of the ABS ECU.

3. 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

4. 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.
5. 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

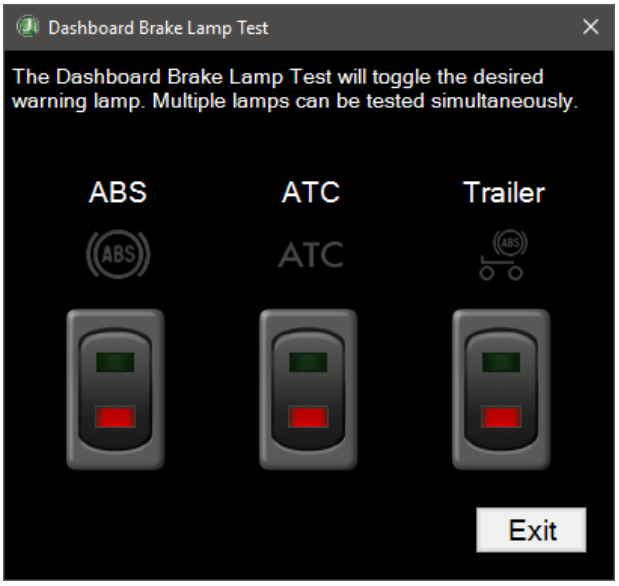
The **Dashboard Brake Lamp** test is available on:

- ✓ 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.

Follow the steps below to perform the **Dashboard Brake Lamp Test:**

1. Select **Dashboard Brake Lamp Test** and press Enter or press the **Start** Button.
2. The **Dashboard Brake Lamp Test** dialog will be displayed.



Dashboard Brake Lamp Test Dialog

NOTE: If the 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.

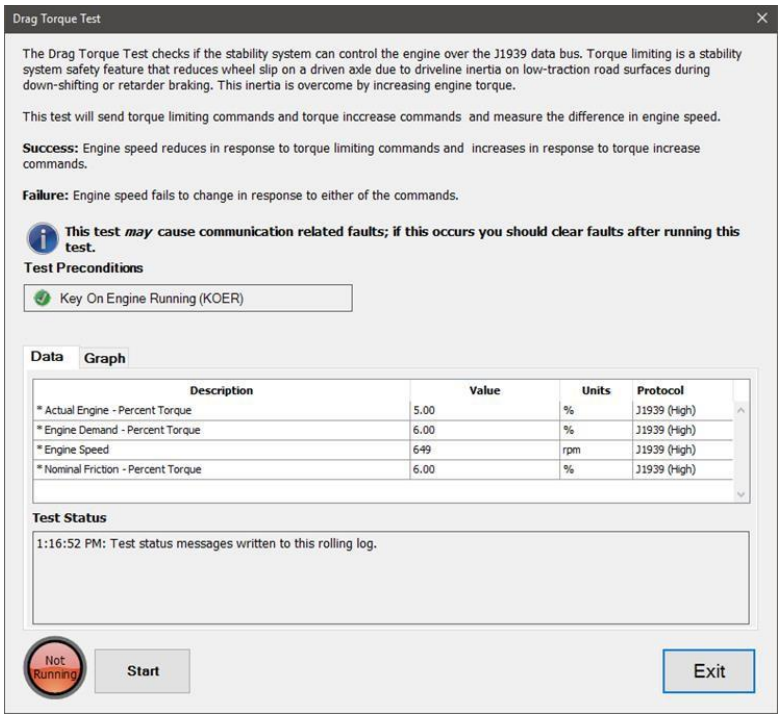
Drag Torque Test

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. Follow the steps below to perform the **Drag Torque Test**:

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

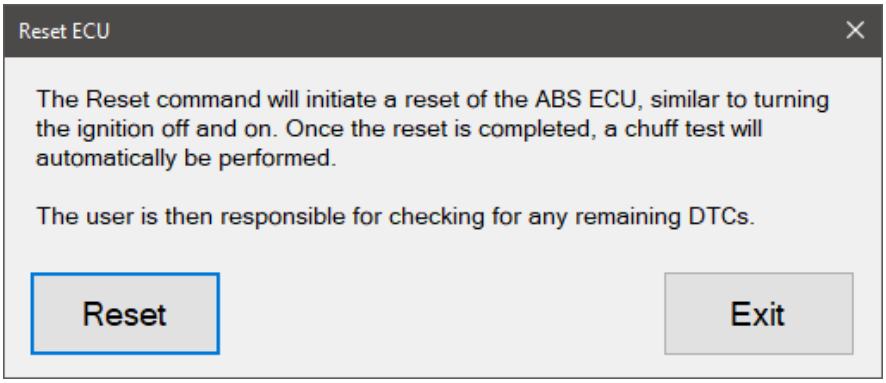
The **ECU Reset** test is available on:

- ✓ EC-60 and EC-80 braking systems

This test resets the brake ECU, like 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.

Follow the steps below to perform the **ECU Reset Test**:

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 Automatic Traction Control (ATC)

The **Enable/Disable ATC** test is available on:

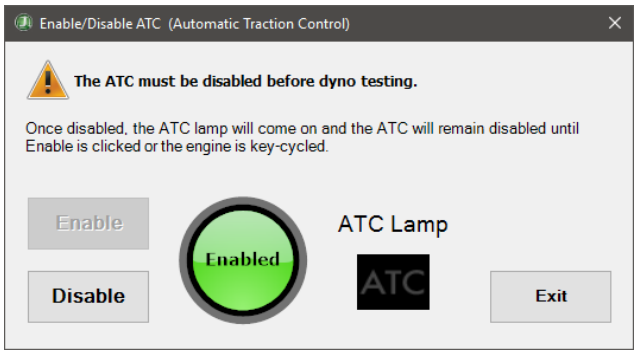
- ✓ Wabco HPB brakes and all pneumatic braking systems where the J1587 communication protocol is available

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 before performing dyno testing.

Follow the steps below to perform the **Enable/Disable ATC Test:**

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

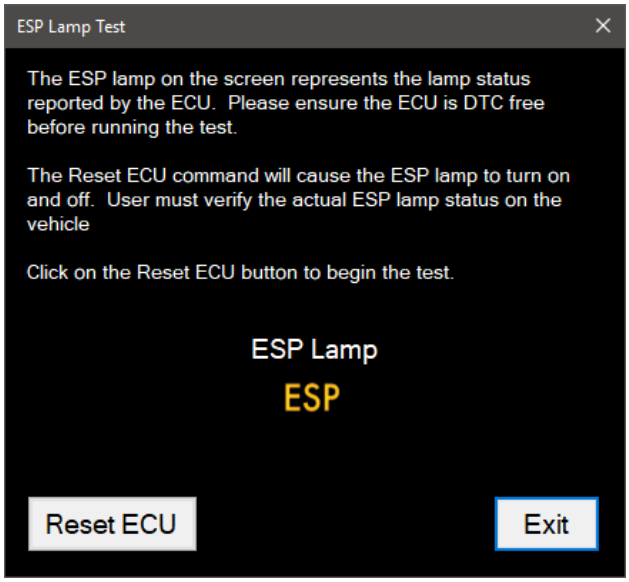
The **ESP Lamp** test is available on:

- ✓ 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. Users must verify that the dashboard ESP lamp changes to match the test commands.

Follow the steps below to perform the **ESP Lamp Test**:

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:

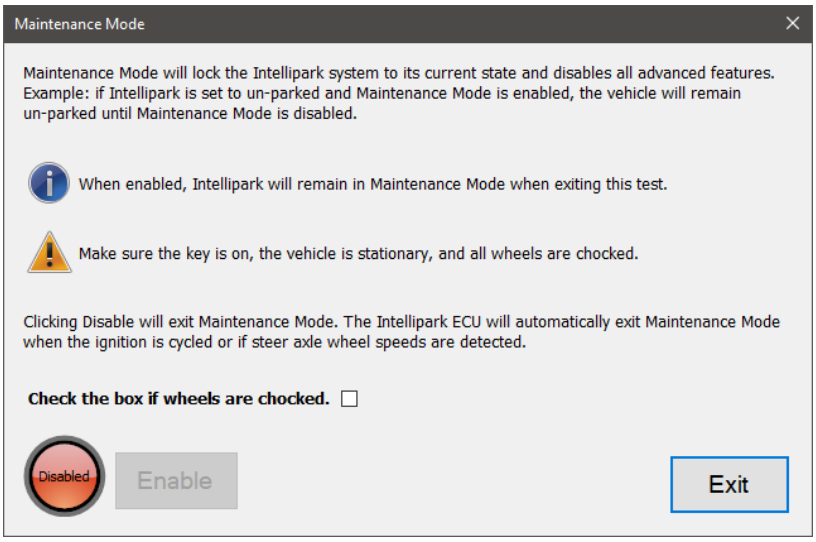
- ✓ Intellipark systems

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.

Follow the steps below to perform the **Maintenance Mode Test:**

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 protected from rolling before enabling maintenance mode.

3. Click the checkbox to confirm that the vehicle's wheels have been choked. 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:

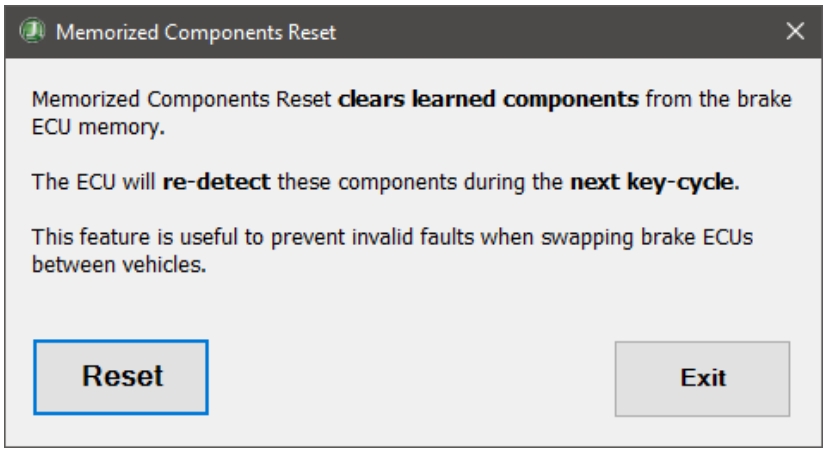
- ✓ All Wabco pneumatic and hydraulic braking systems where the J1587 communication protocol is available

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.

Follow the steps below to perform **Memorized Components Reset**:

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 pop-up message.
6. Select **Exit** to return to the Test Selection window.

Modulator Valve (Chuff) Test

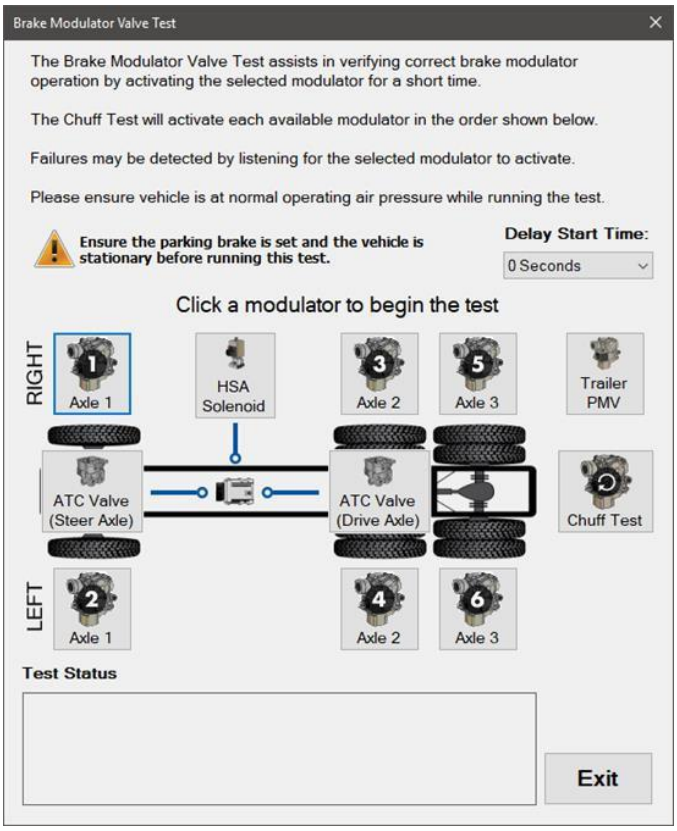
The **Modulator Valve (Chuff)** test is available on:

- ✓ 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.

Follow the steps below to perform the **Modulator Valve (Chuff) 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 are 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 then open 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

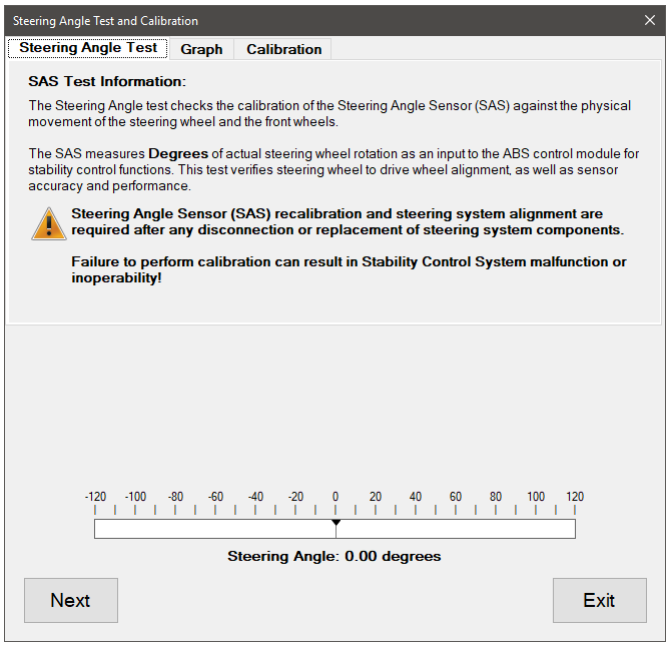
The **Steering Angle Test and Calibration** is available on:

- ✓ 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.

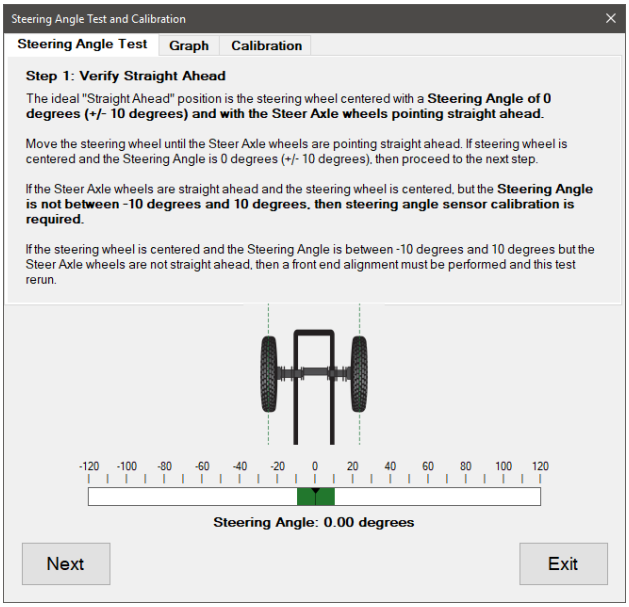
Follow the steps below to perform the **Steering Angle Test and Calibration:**

1. Select the **Steering Angle Test and Calibration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



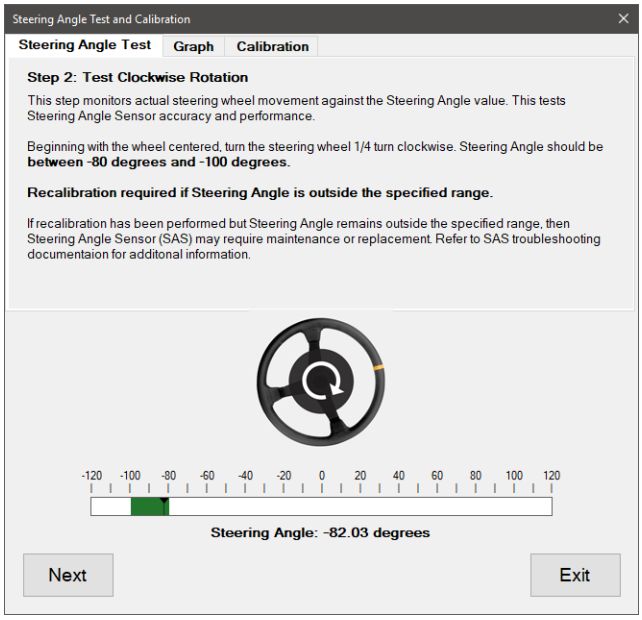
Steering Angle Test and Calibration

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.
6. To begin the **Steering Angle Test**, select the **Next** button. Step 1 of the procedure provides instructions to verify the 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.



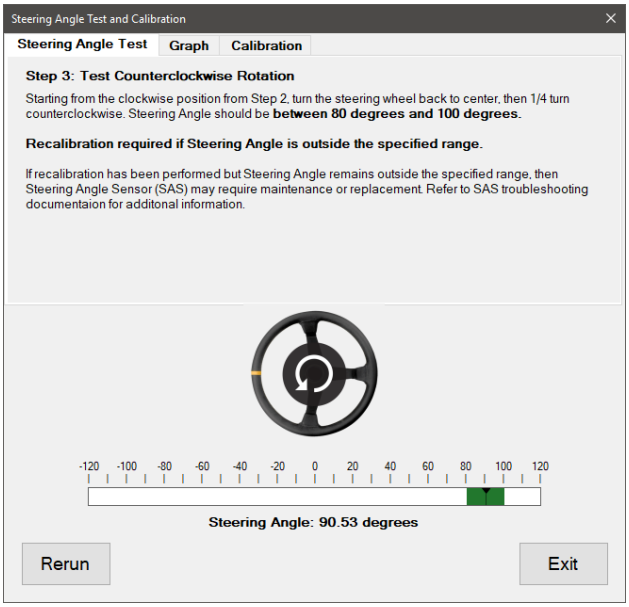
Steering Angle Test Verify Straight Ahead

7. Select the **Next** button to continue.
8. Step 2 requires turning the steering wheel ¼ 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.



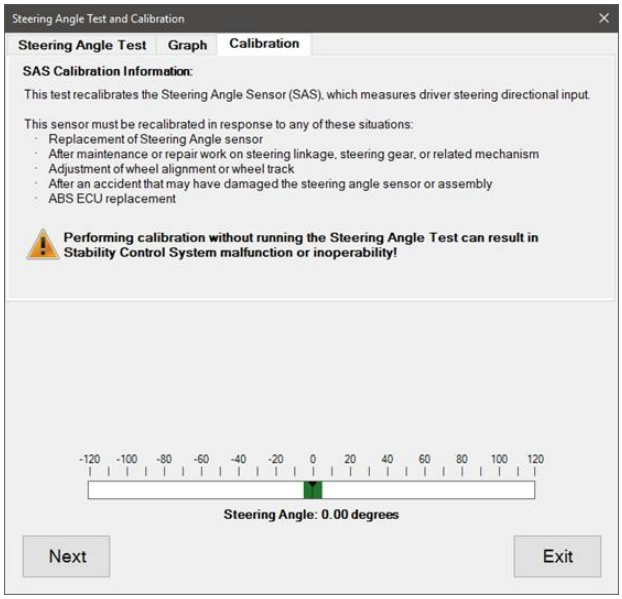
Steering Angle Test Clockwise Rotation

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.



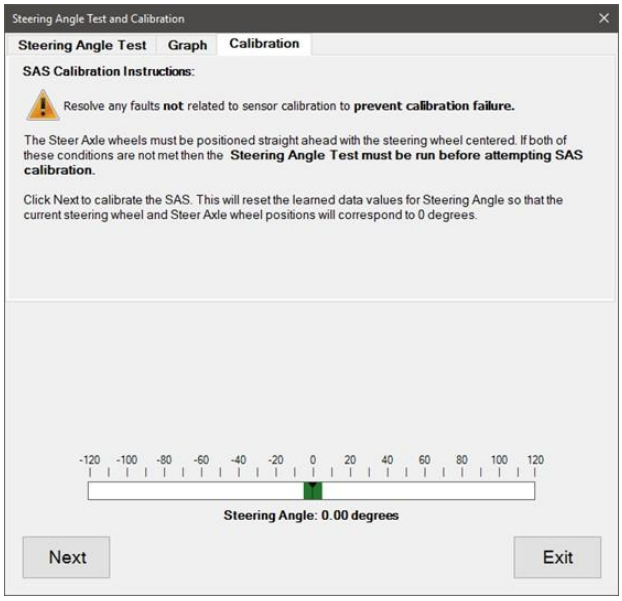
Steering Angle Test Counterclockwise Rotation

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.



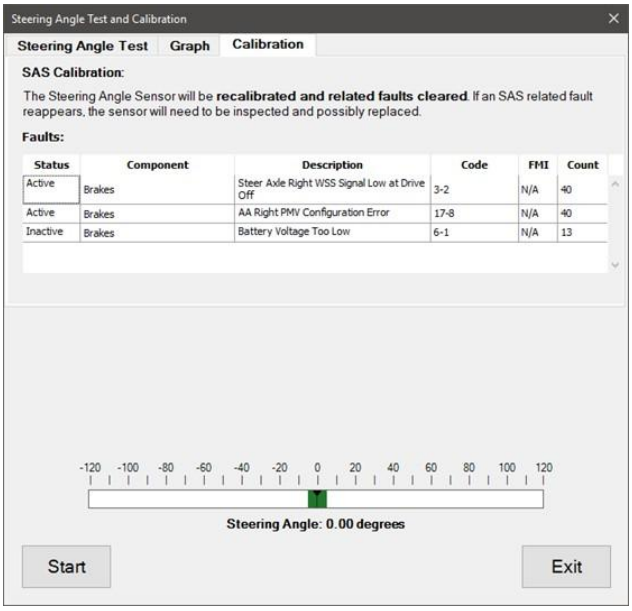
Steering Angle Calibration

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

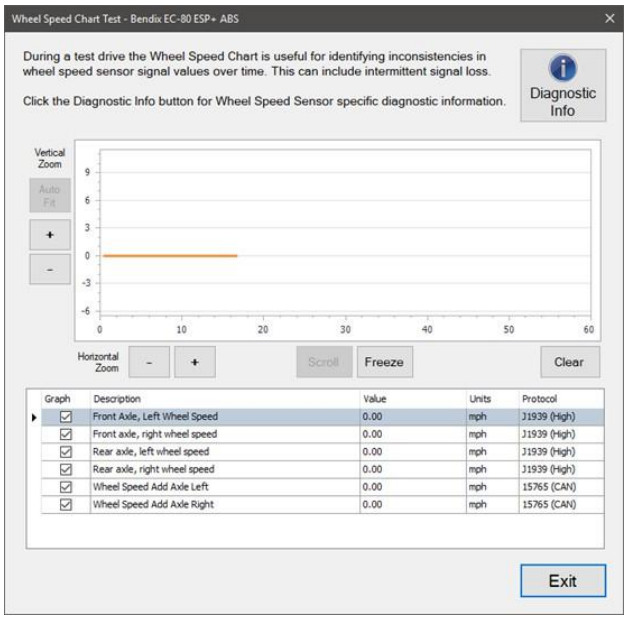
The **Wheel Speed Window Test** is available for:

- ✓ Any tractor and trailer braking system that reports wheel speed data.
- ✓ Caterpillar C-7 truck engines
- ✓ Cummins Tier 3: all QSX
- ✓ Cummins Tier 4: all QSX
- ✓ Cummins EPA 07/10/13: 6.7L ISB

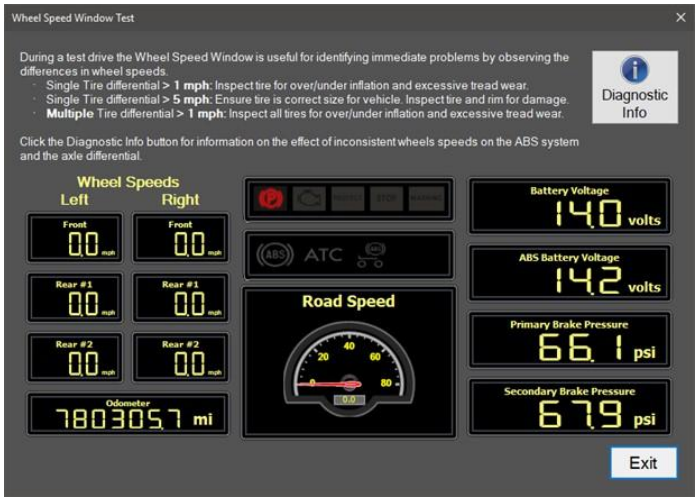
This test can be used to verify and test wheel speed sensors and confirm fault codes before and after a repair or replacement.

Follow the steps below to perform the **Wheel Speed Window Test**:

1. Select **Wheel Speed Chart Test** or the **Wheel Speed Window Test** and press Enter or press the **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 the **Exit** button when ready to exit this test and return to the test selection dialog.

Yaw Rate and Lateral Accel. Test and Calibration

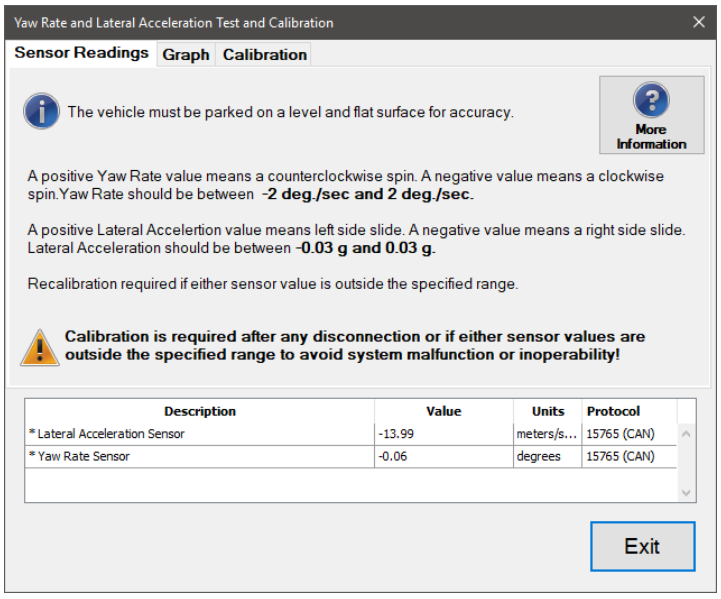
The **Yaw Rate and Lateral Accel. Test and Calibration** is available on:

- ✓ 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.

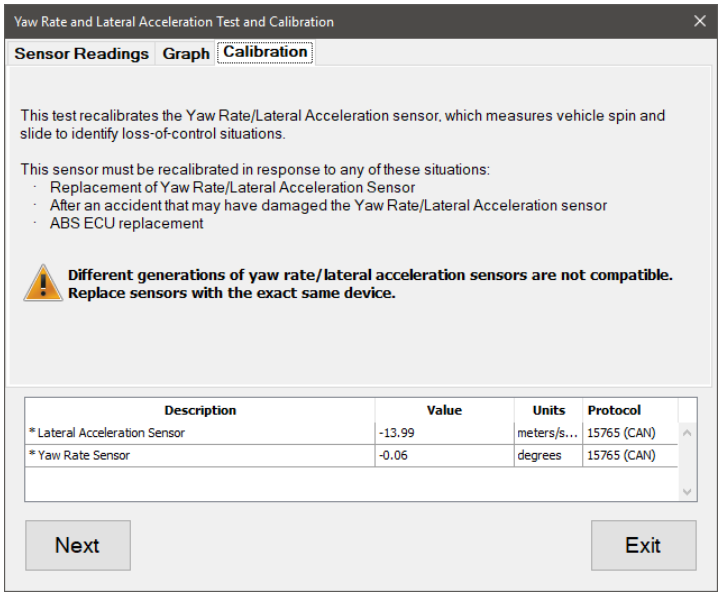
Follow the steps below to perform the **Yaw Rate and Lateral Accel. Test and Calibration:**

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.



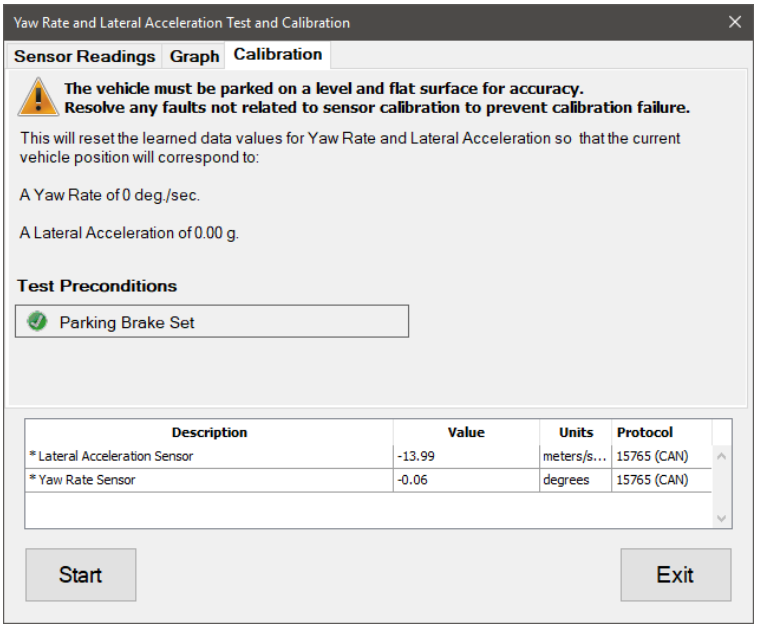
Yaw Rate and Lateral Acceleration Test and Calibration

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.
4. 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.



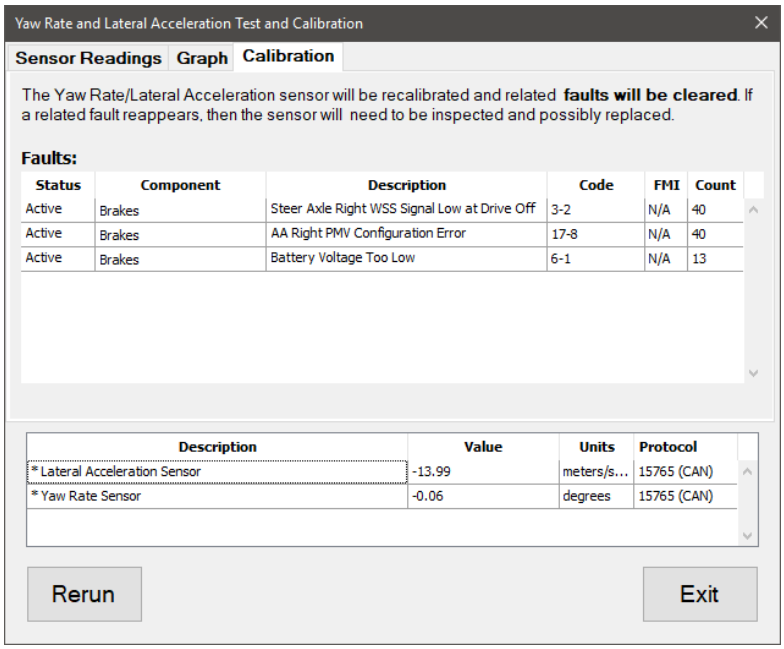
Yaw Rate and Lateral Acceleration Calibration Instructions

5. Click the **Start** button to begin the recalibration.



Yaw Rate and Lateral Acceleration Calibration Preconditions

6. 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

7. If desired, the recalibration can be performed again by clicking the **Rerun** button to return to calibration instructions.
8. 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

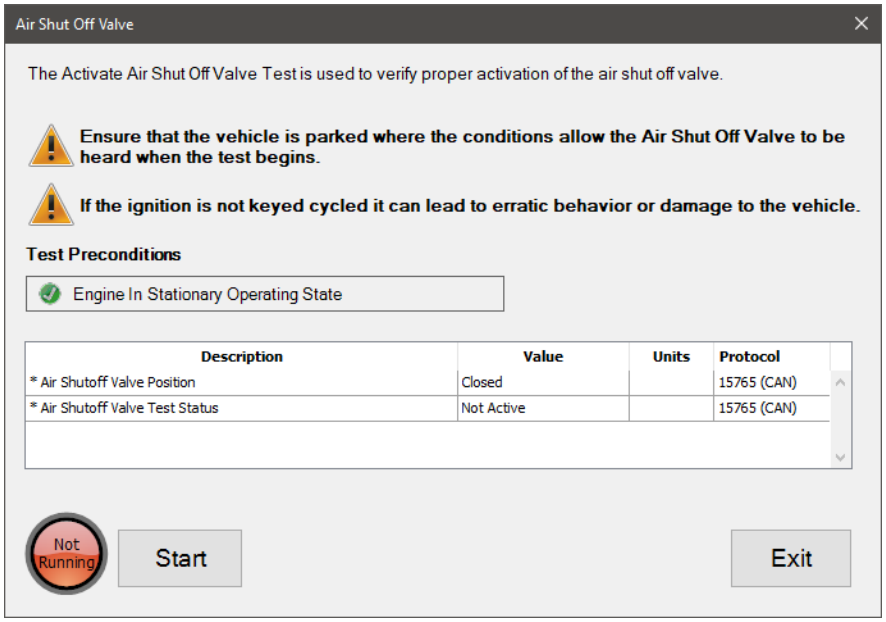
The **Activate Air Shut Off Valve Test** is used to verify proper activation of the air shut-off valve. Ensure the vehicle is parked where the Air Shut Off Valve actuation can be heard.



Failure to cycle the ignition key when prompted can lead to erratic vehicle behavior.

Follow the steps below to perform the **Activate Air Shut Off Valve Test:**

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 to 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

The **Aftertreatment Fuel Enable Actuator Leak** test is supported on:

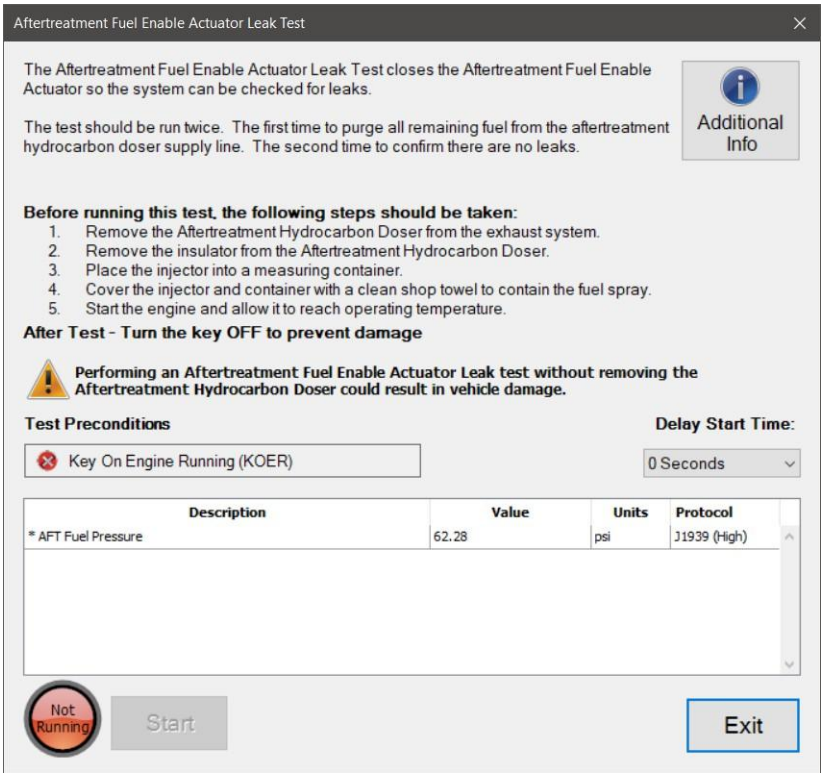
- ✓ International A26 GHG17 engines

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.

Follow the steps below to perform the **Aftertreatment Fuel Enable Actuator Leak Test:**

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

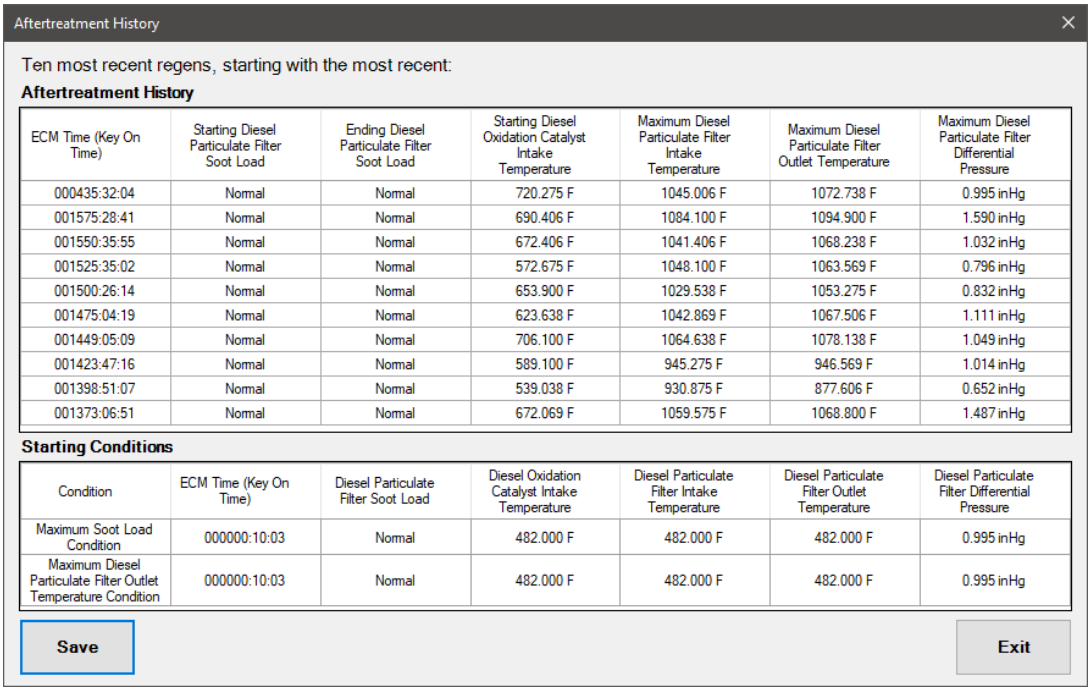
Aftertreatment History is supported on:

- ✓ Cummins EPA 07: 6.7L ISB
- ✓ 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 runs on a particular vehicle.

Follow the steps below to check the **Aftertreatment History:**

1. Select **Aftertreatment History** and press Enter or the **Start** button.
2. The history dialog will be displayed.



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

The **Aftertreatment Hydrocarbon Doser Leak** test is supported on:

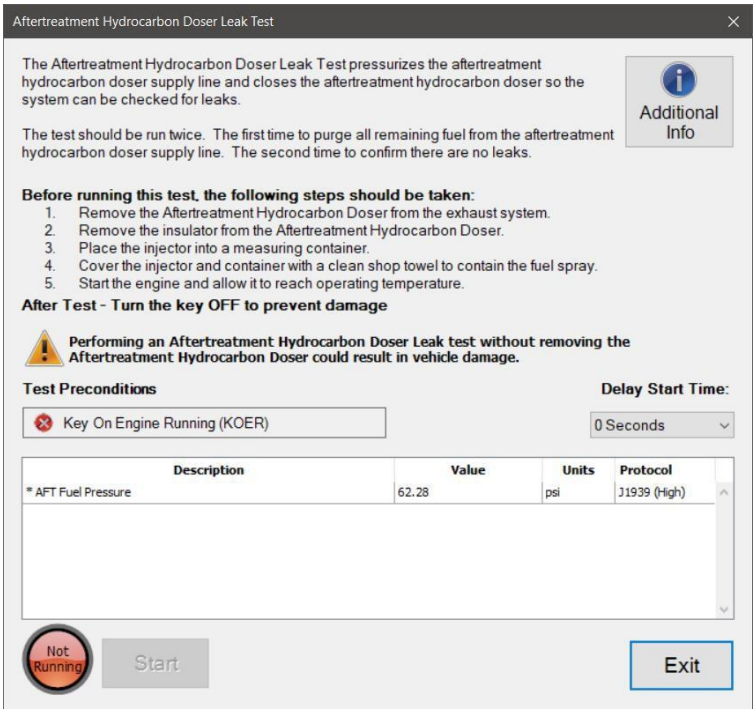
- ✓ International A26 GHG17 engines

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.

Follow the steps below to perform the **Aftertreatment Hydrocarbon Doser Leak Test:**

1. Select **Aftertreatment Hydrocarbon Doser Leak Test** and press Enter or the **Start** button.
2. The **Aftertreatment Hydrocarbon Doser Leak 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 be completed 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

The **Aftertreatment Hydrocarbon Dosing System Test** is supported on:

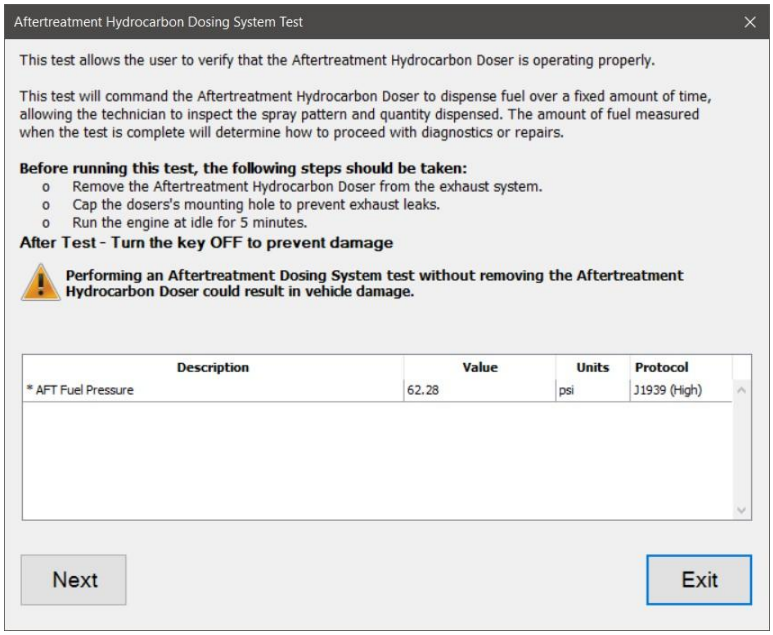
- ✓ International A26 GHG17 engines

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.

Follow the steps below to perform the **Aftertreatment Hydrocarbon Dosing System Test:**

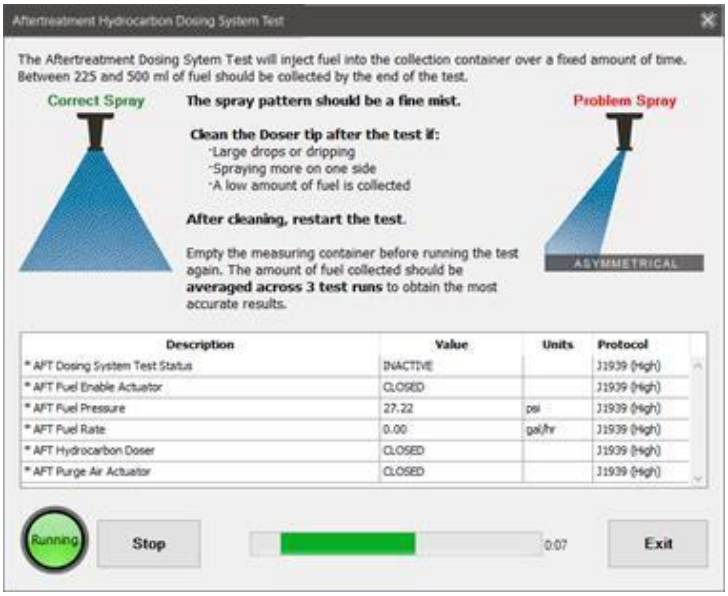
1. Select **Aftertreatment Hydrocarbon Dosing System Test** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Aftertreatment Hydrocarbon Dosing System Test

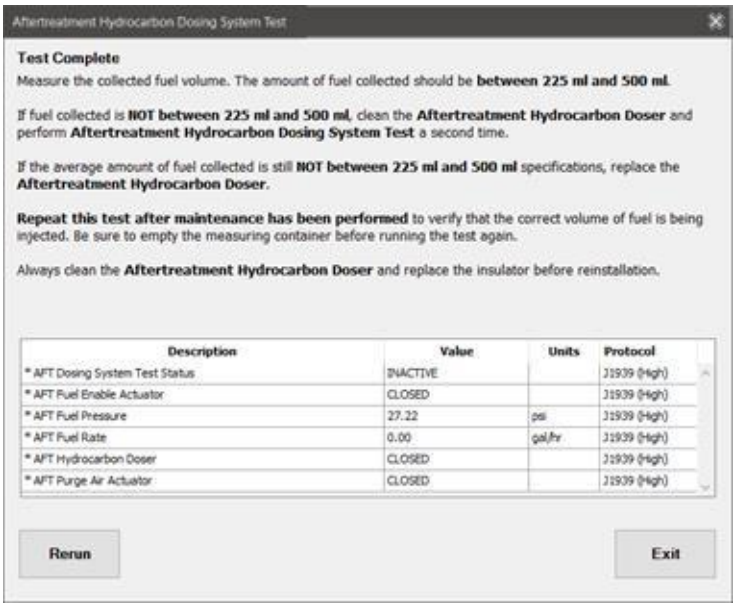
3. Once all instructions have been followed and preconditions have been met, click the **Next** button to proceed.

4. 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.
5. 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

6. When the test is completed, the results information is displayed, including steps to take depending on how much fuel was dispensed.



Aftertreatment Hydrocarbon Dosing System Test Results

7. If desired, you may select the **Rerun** button to rerun the test.

8. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Aftertreatment Injector Activation for Flow Test

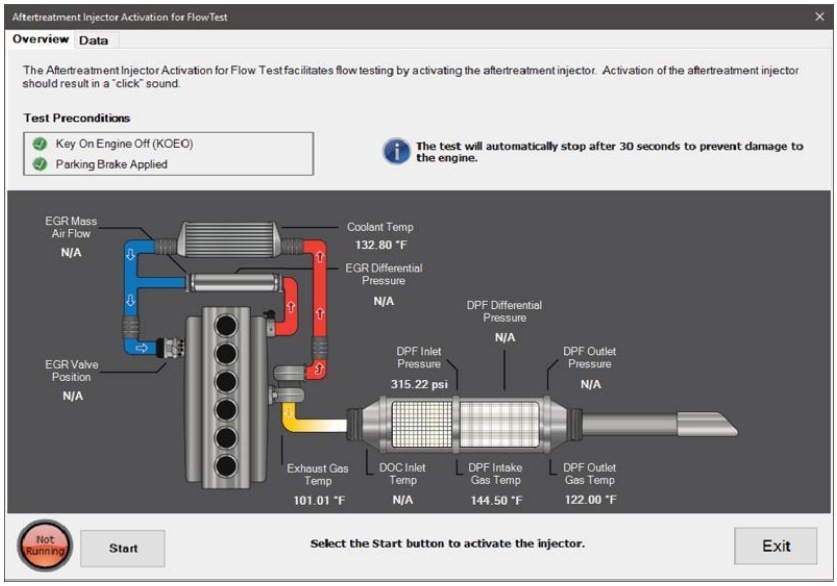
Aftertreatment Injector Activation for Flow Test is supported on:

- ✓ Mack and Volvo EPA 07 engines

The **Aftertreatment Injector Activation for Flow Test** activates the injectors to test flow.

Follow the steps below to perform the **Aftertreatment Injector Activation for Flow Test:**

1. 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)

This test is used to verify that the aftertreatment fuel injector is operating properly by inspecting the nozzle spray and measuring the amount of fuel dispensed.

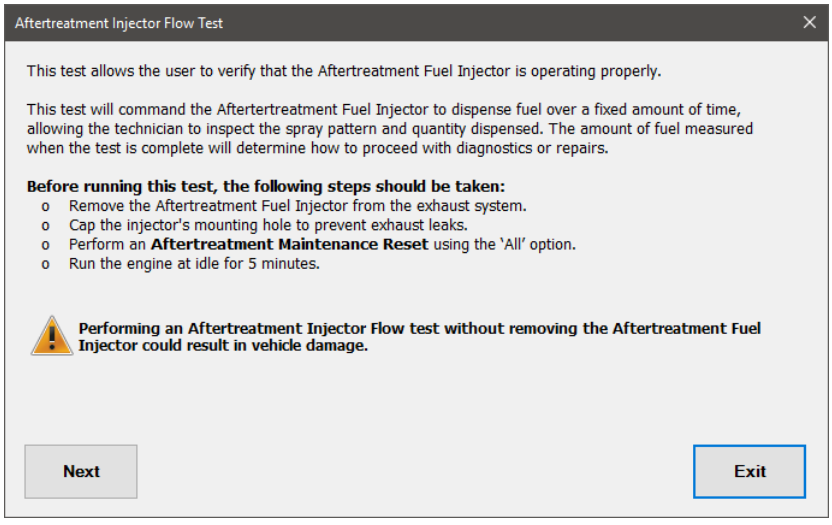
Before running this test, you must:

- Remove the Aftertreatment Fuel Injector from the exhaust system.
- Cap the injector's mounting hole 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.

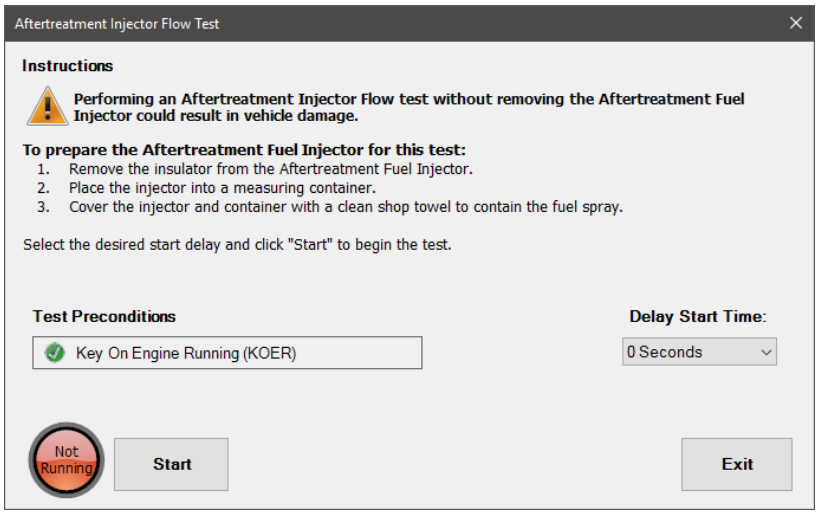
Follow the steps below to perform the **Aftertreatment Injector Flow Test:**

1. Select **Aftertreatment Injector Flow Test** and press Enter or the **Start** button.
2. The test dialog will be displayed.



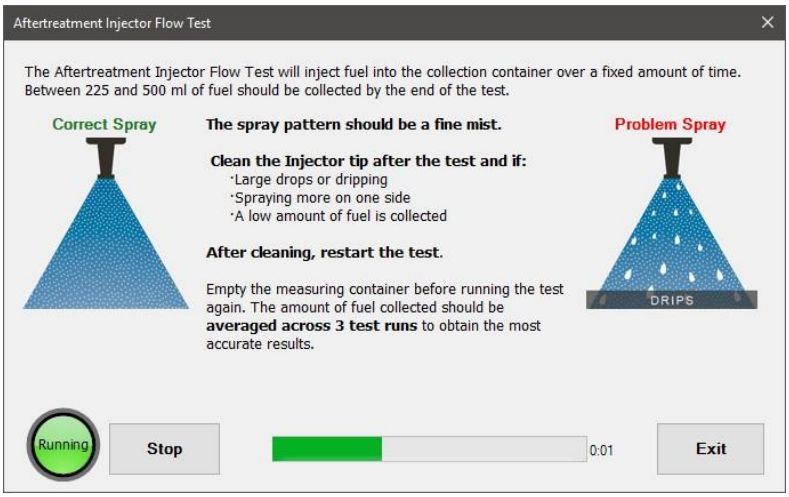
Aftertreatment Injector Flow Test

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, the 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 a 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)

This test is used to check the aftertreatment fuel injection system for leaks by pressurizing the aftertreatment fuel line and deactivating the aftertreatment injector.

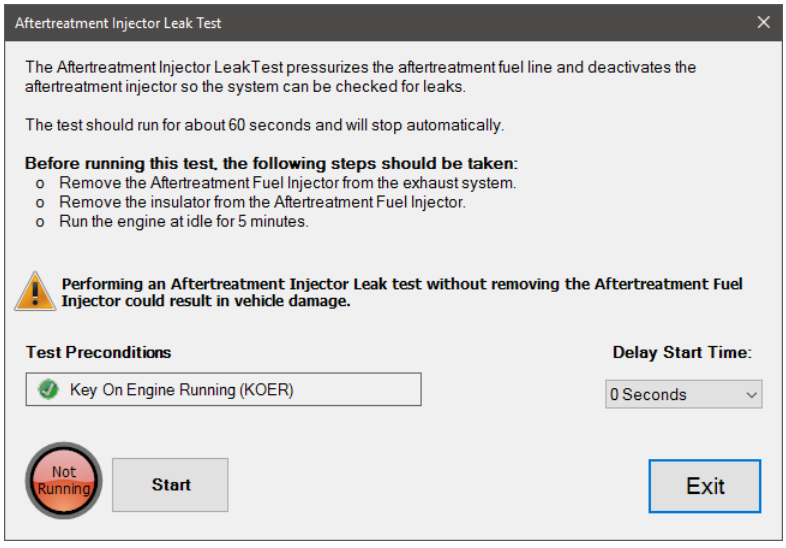
Before running this test, you must:

- 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.

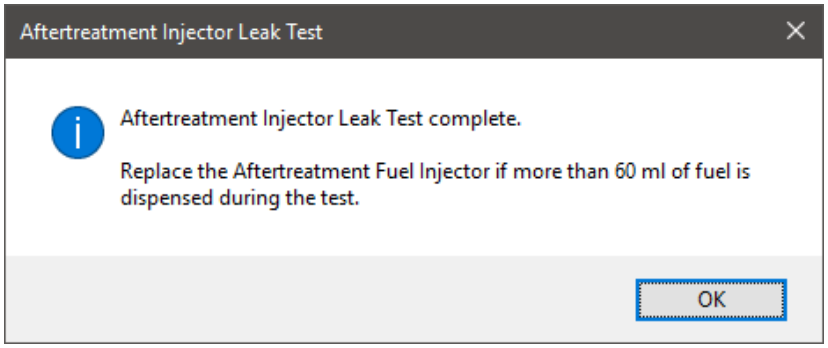
Follow the steps below to perform the **Aftertreatment Injector Leak Test:**

1. Select **Aftertreatment Injector Leak 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 be completed 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

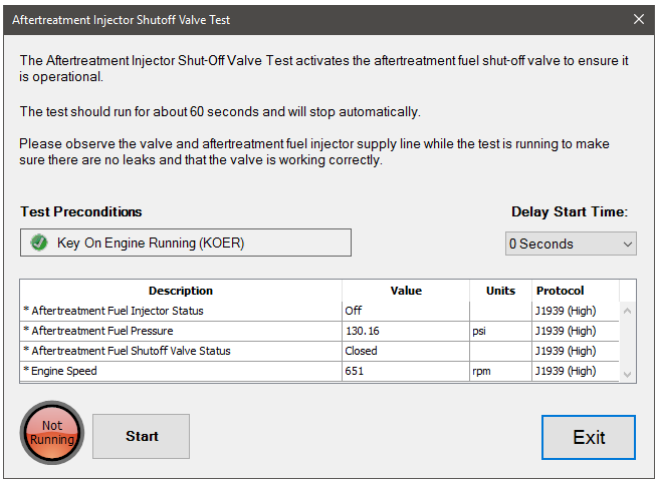
The **Aftertreatment Injector Shutoff Valve Test** is available on:

- ✓ Cummins EPA 07: all ISX (15L)
- ✓ Cummins EPA 10: all ISX (12 and 15L)
- ✓ Cummins EPA 13: all ISX (12 and 15L)

This test is used to verify that the aftertreatment shutoff valve is operating properly.

Follow the steps below to perform the **Aftertreatment Injector Shutoff Valve Test:**

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 be completed 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:

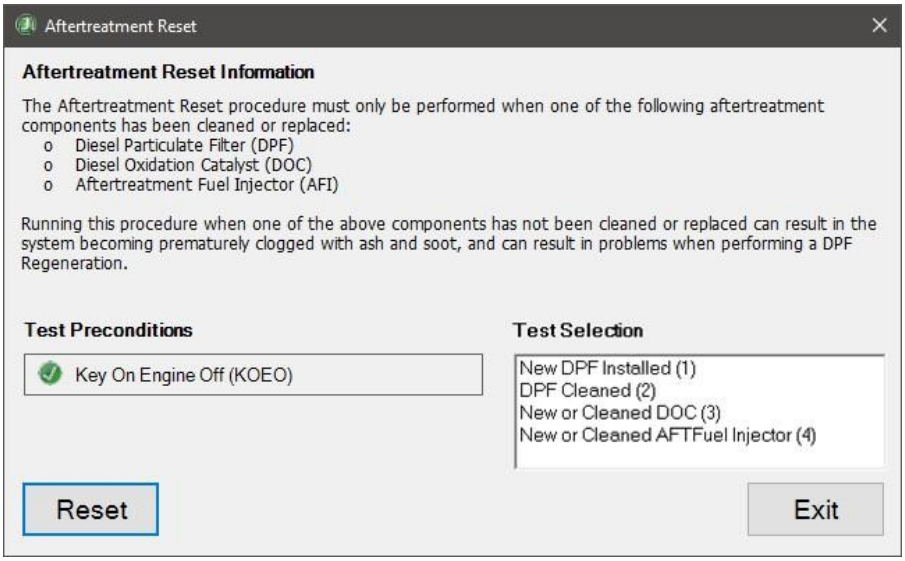
✓ International EPA 07 and EPA 10 Maxxforce 11 and 13 engines

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.

Follow the steps below to perform **Aftertreatment Reset:**

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 in the dialog.
6. Turn off the ignition and select the **Continue** button (previously 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

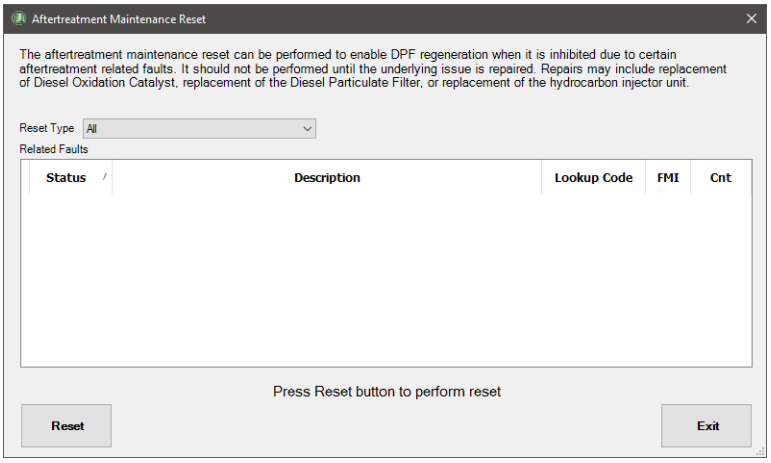
Aftertreatment Maintenance Reset is supported on:

- ✓ 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 DPF, or replacement of the hydrocarbon injector unit.

Follow the steps below to perform **Aftertreatment Maintenance Reset:**

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 in the dialog.
5. Turn off the ignition and select the **OK** button (previously 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

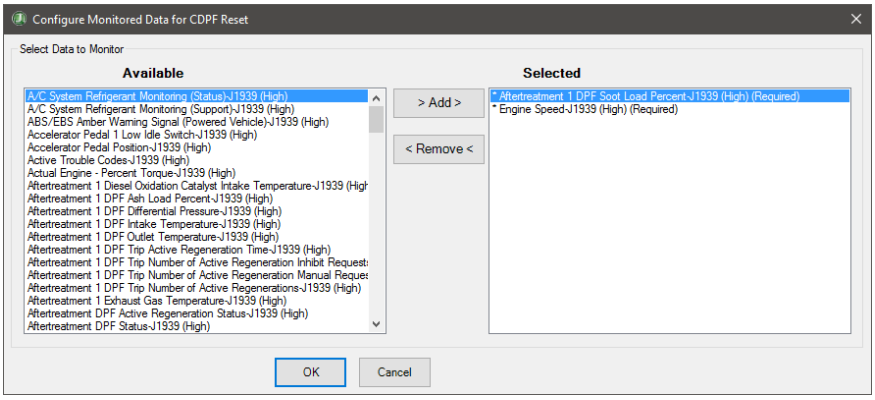
CDPF Reset is supported on:

- ✓ 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.

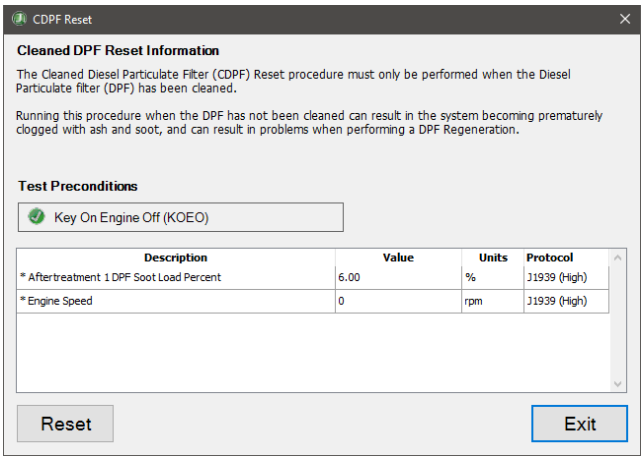
Follow the steps below to perform **CDPF Reset:**

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 the **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 the **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 in the dialog.
8. Turn off the ignition and select the **OK** button (previously 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

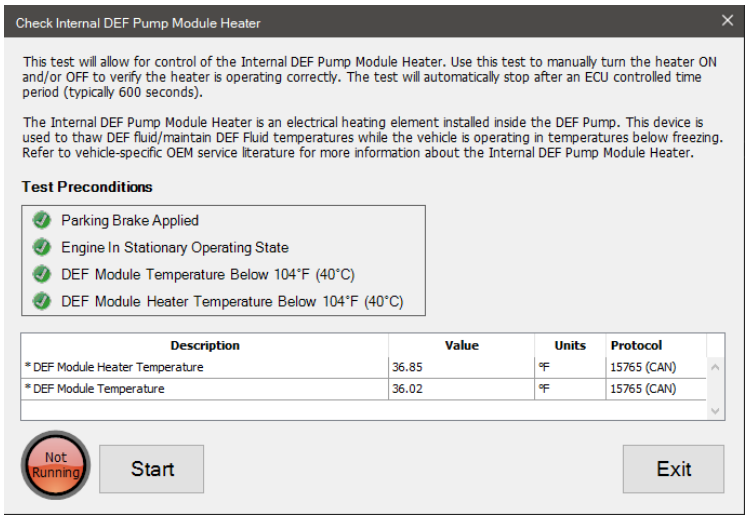
Check Internal DEF Pump Module Heater is supported on:

- ✓ PACCAR EPA 13 all MX engines

The **Check Internal DEF Pump Module Heater** test is used to verify that the heater is operating correctly.

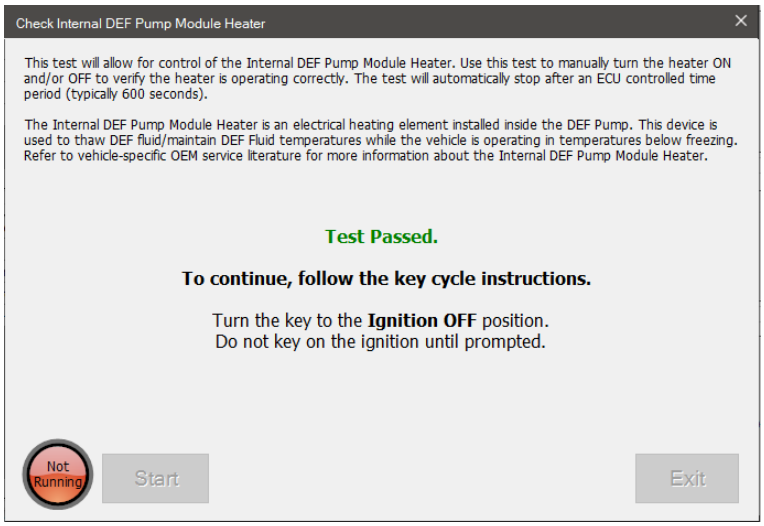
Follow the steps below to **Check Internal DEF Pump Module Heater:**

1. Select **Check Internal DEF Pump Module Heater** and press Enter or the **Start** button.
2. The **Check Internal DEF Pump Module Heater** dialog will be displayed.



Check Internal DEF Pump Module Heater

3. 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

4. When the test has completed, the results and instructions to key off the engine will be displayed.
5. After the engine has been keyed off, a countdown will begin.
6. At the end of the countdown, instructions to key on the engine will be displayed.
7. 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

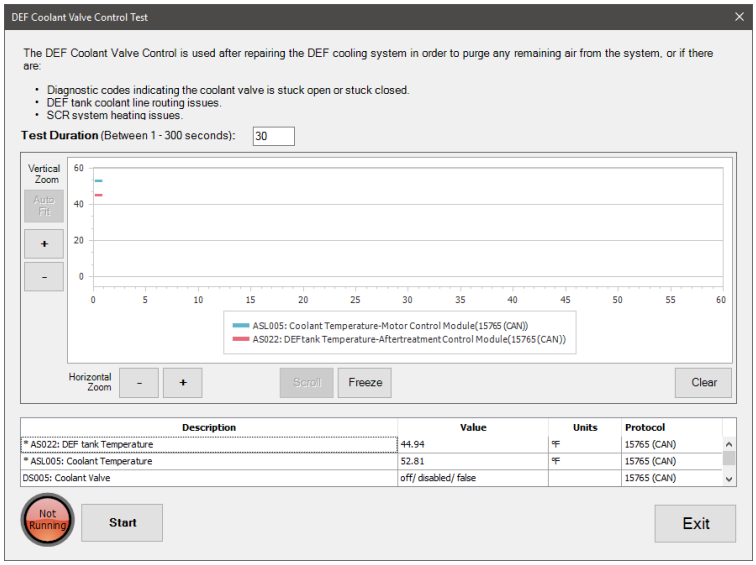
NOTE: This test is only available for Supported ECU Software Versions.

The **DEF Coolant Valve Control Test** is used after repairing the 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 indicate that the coolant valve is stuck open or stuck closed.
- DEF tank coolant line routing issues
- SCR system heating issues

Follow the steps below to perform the **DEF Coolant Valve Control Test:**

1. Select the **DEF Coolant Valve Control Test** and press Enter or the **Start** button.
2. The **DEF Coolant Valve Control Test** dialog will display.



DEF Coolant Valve Control Test

3. Enter the **Test Duration** time between 1 and 300 seconds. It will default to 30 seconds.
4. 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**.

5. A vertical line will be added to the graph indicating when the test was started.
6. When the test is completed, another vertical line will be added to the graph indicating that the test has ended. The **Stop** button will be changed back to a **Start** button, and the lamp to the left will change to "**Not Running**".
7. To finish the test early, press the **Stop** button.
8. To leave this dialog, select the **Exit** button.

DEF Dosing Valve Test

DEF Dosing Valve Test is supported on:

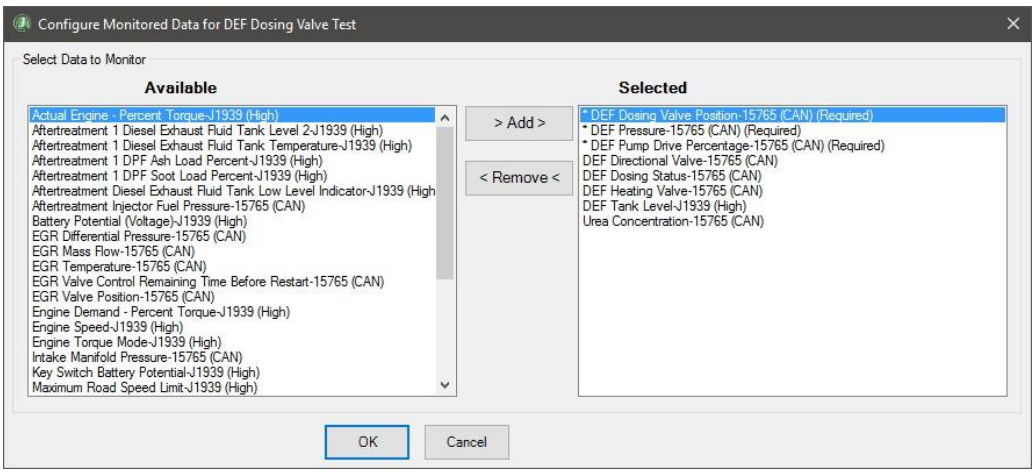
- ✓ Mack and Volvo EPA 13 to GHG17 engines

The **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.

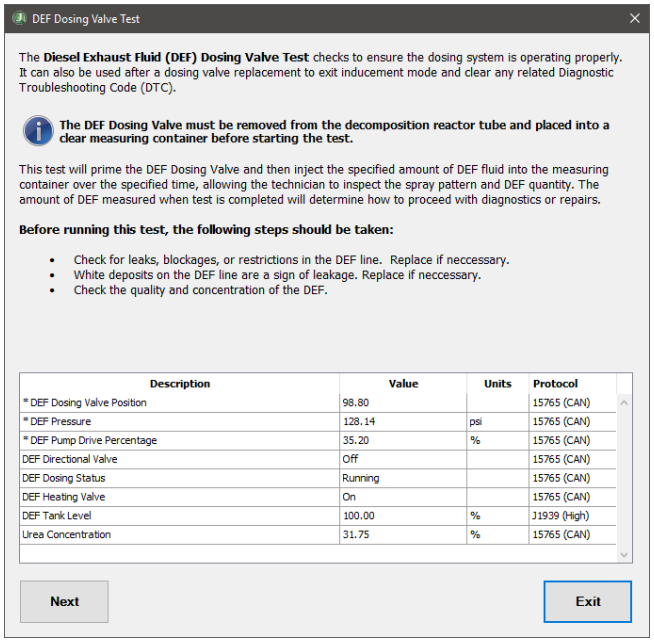
Follow the steps below to perform the **DEF Dosing Valve Test:**

1. Select the **DEF Dosing Valve Test** and press Enter or the **Start** button.
2. The **Configure Monitored Data for DEF Dosing Valve Test** will be displayed.



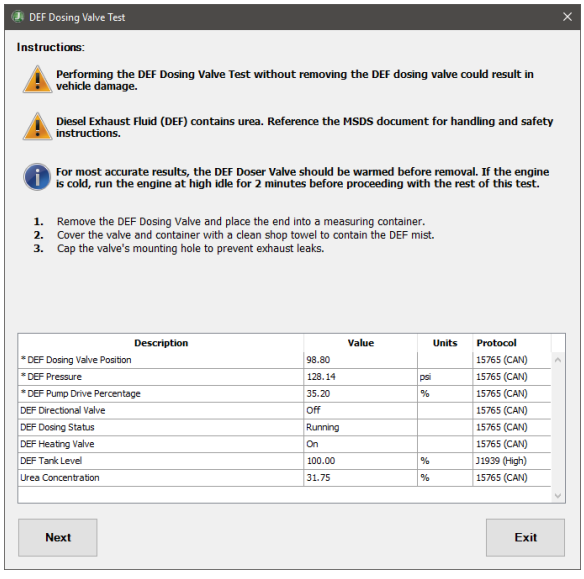
Configure Monitored Data for DEF Dosing Valve Test Dialog

3. Select parameters from the **Available** list and click the **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 **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.



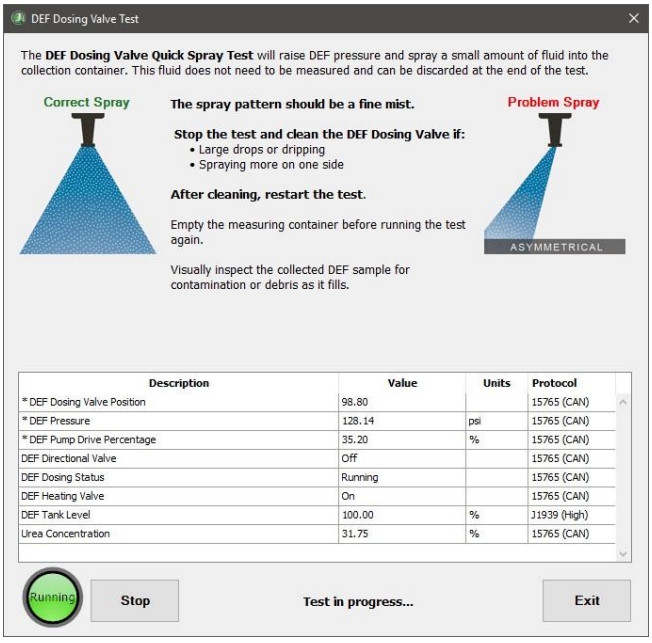
DEF Dosing Valve Test Instructions

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, the 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, follow the 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 07: 6.7L ISB
- ✓ 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
- ✓ 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.

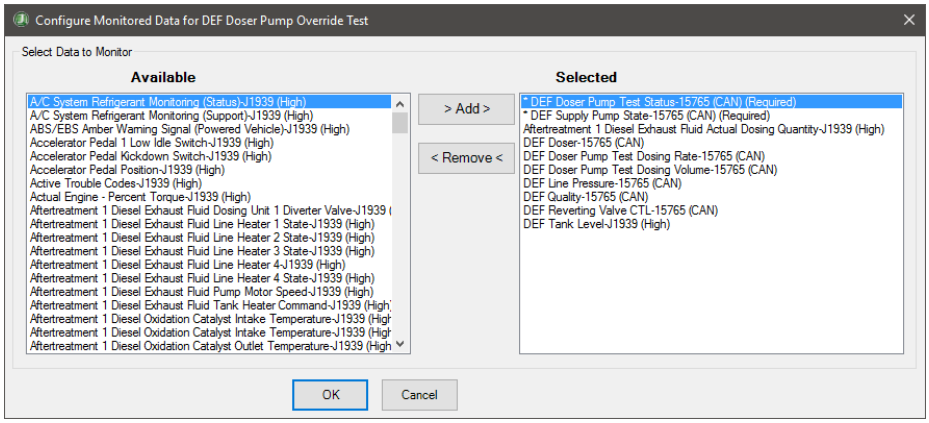
> **NOTE:** The DEF Doser Pump Override Test contains some manufacturer-specific information that will change depending on the make of the vehicle, but the major steps listed below remain the same.

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.

Follow the steps below to perform the **DEF Doser Pump Test:**

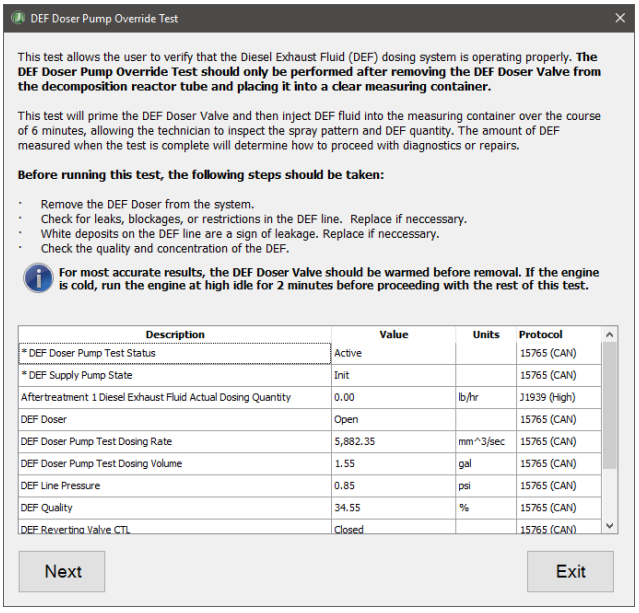
1. Select **DEF Doser Pump Test** and press Enter or the **Start** button.
2. The **Configure Monitored Data for DEF Doser Pump Override Test** dialog will be displayed.

NOTE: Data display and, therefore, configuration of data is not available for Cummins engines.



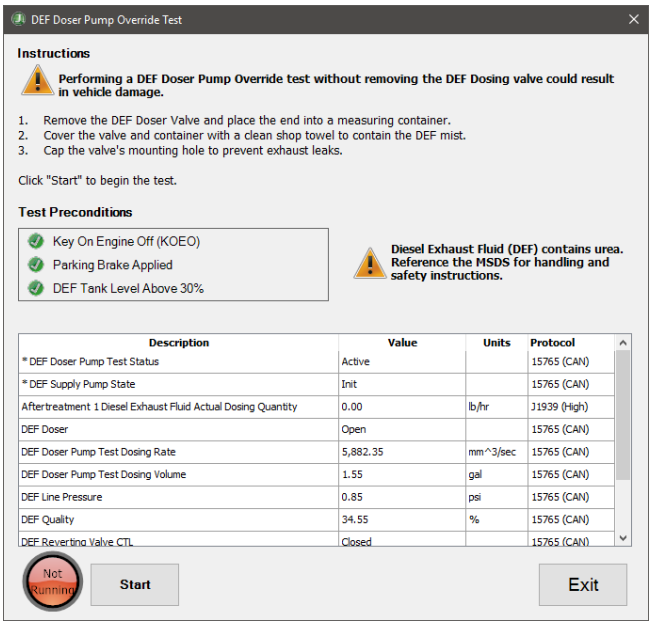
Configure Monitored Data for DEF Doser Pump Override Test Dialog

3. Select parameters from the **Available** list and click the **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 **DEF Doser Pump Override Test** dialog displays important information about steps to take before running the test.



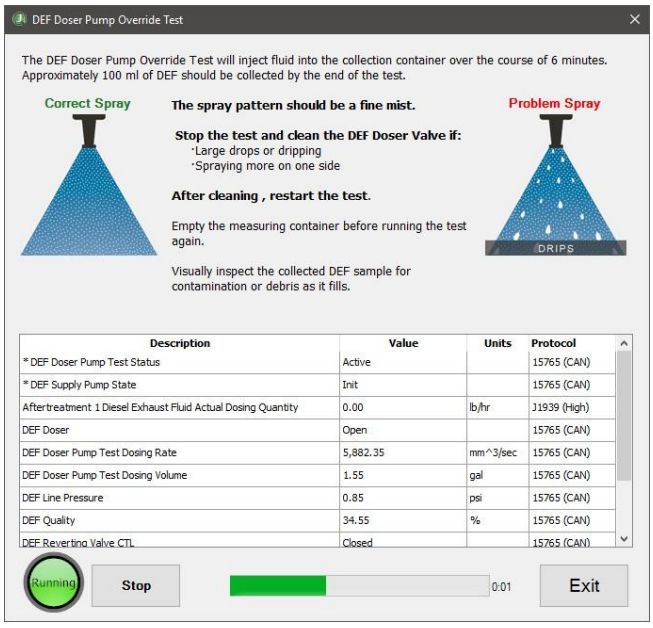
DEF Doser Pump Override Test Main Screen (International)

7. Click the **Next** button for test Instructions and to view the status of **Test Preconditions**.



DEF Doser Pump Override Test Instructions (International)

8. 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, the 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 a 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

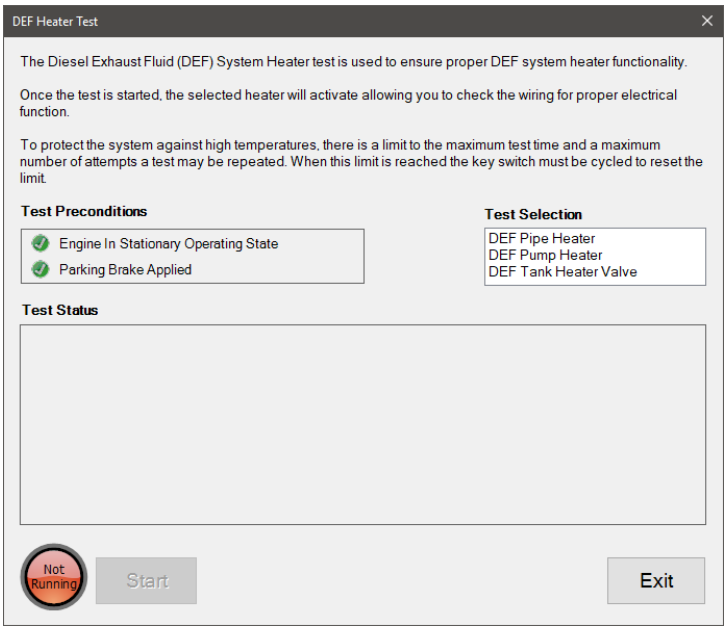
The **DEF Heater Test** is supported on:

- ✓ PACCAR EPA 10 to GHG17 all MX engines.

This test is used to check the functionality of the DEF Heaters available on the vehicle.

Follow the steps below to perform the **DEF Heater Test:**

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

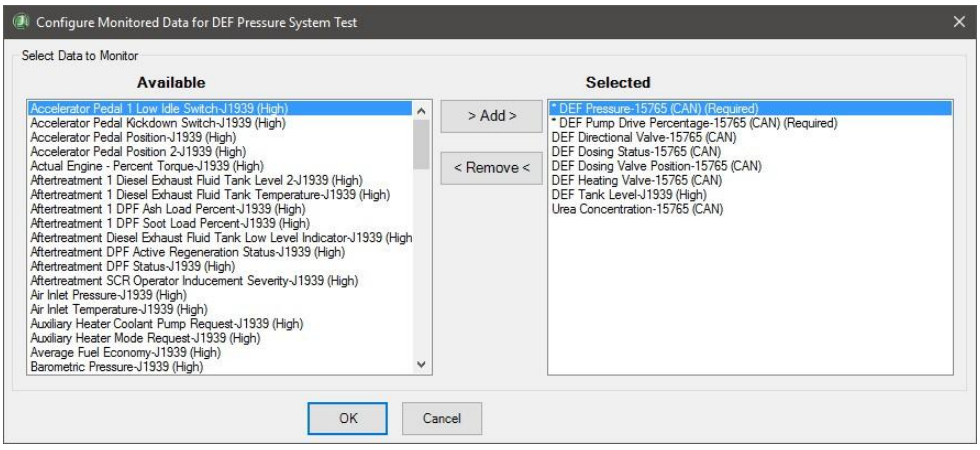
This test checks the system integrity of the DEF system, enabling the discovery of leakage from the pump or hoses. It can be used to check that the repaired, serviced, or replaced dosing system is working correctly.

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.

Follow the steps below to perform the **DEF Pressure System Test:**

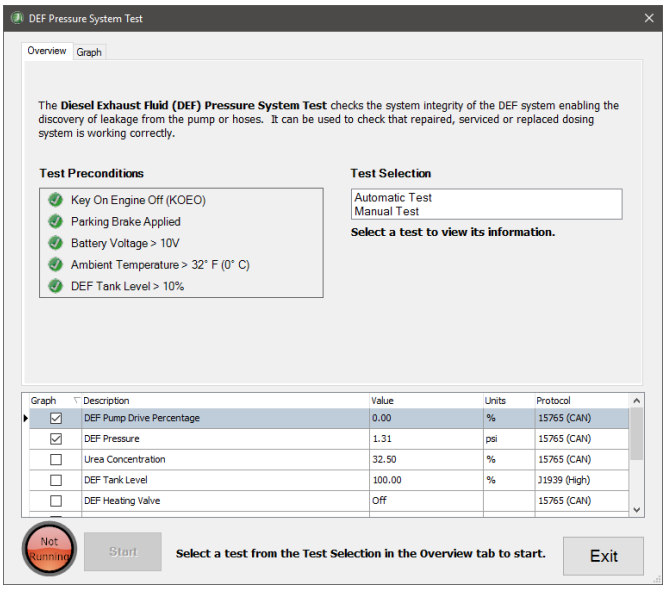
1. Select **DEF Pressure System Test** and press Enter or the **Start** button.
2. The **Configure Monitored Data for DEF Pressure System Test** dialog will be displayed.



Configure Monitored Data for DEF Pressure System Test Dialog

3. Select parameters from the **Available** list and click the **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 the **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

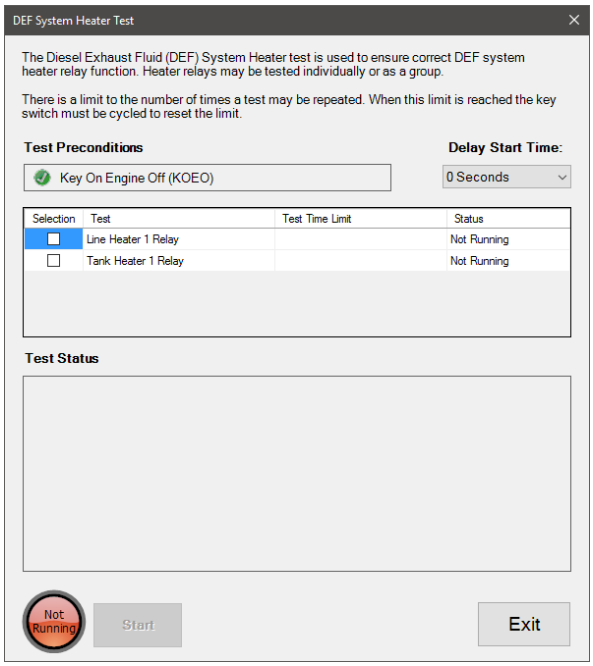
The **DEF System Heater Test** is supported on:

- ✓ 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 **DEF System Heater Test** provides the ability to activate the relays controlling the DEF system heaters to ensure they are working properly.

Follow the steps below to perform the **DEF System Heater Test:**

1. Select **DEF System Heater Test** and press Enter or the **Start** button.
2. The **DEF System Heater Test** dialog displays 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 07: 6.7L ISB
- ✓ 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

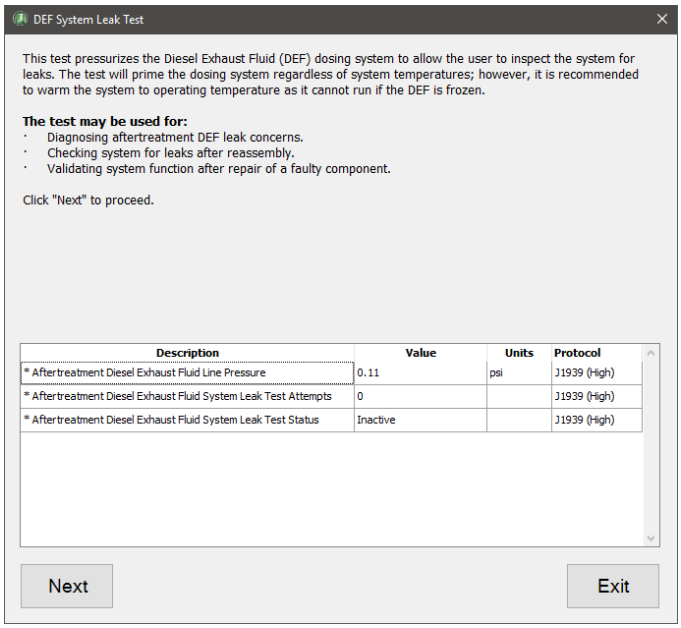
The **DEF System Leak Test** is used to check the system connections, joints, fluid lines, and other components for Diesel Exhaust Fluid (DEF) leaks. It is a mechanical test that will require you to inspect the system while the test is running.

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.

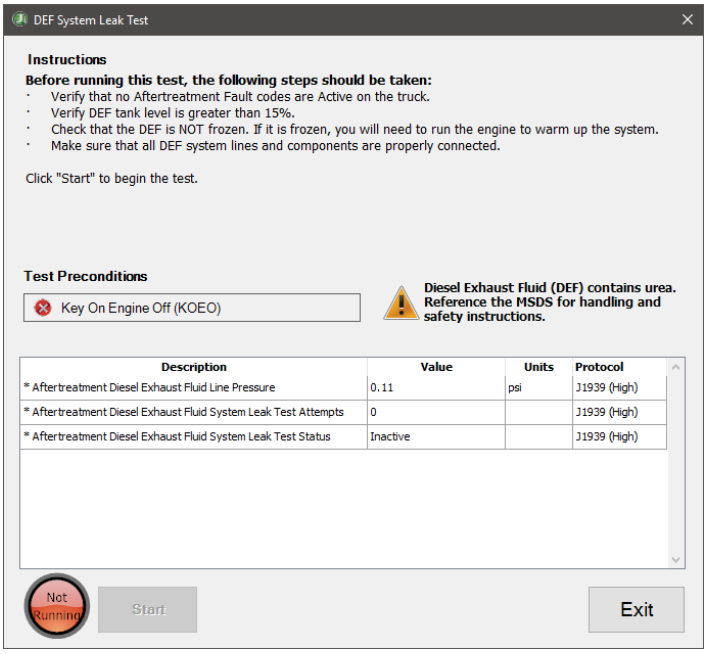
Follow the steps below to perform the **DEF System Leak Test:**

1. Select **DEF System Leak Test** and press Enter or the **Start** button.
2. The **DEF System Leak Test** dialog displays important information about the test.



DEF System Leak Test Dialog

3. Select **Next**.
4. Follow the 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:

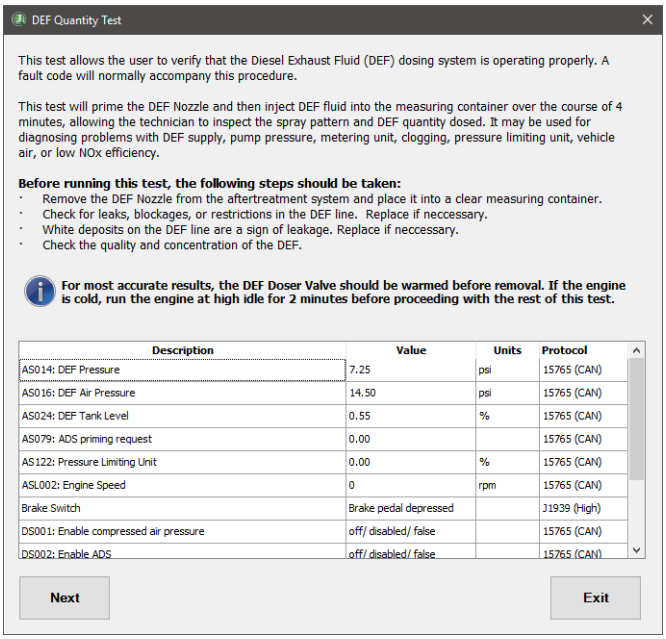
- ✓ Detroit Diesel any supported CPC with ACM02T, ACM21T, or ACM301T

NOTE: This test is only available for Supported ECU Software Versions.

The **DEF Quantity Test** provides the ability to troubleshoot the 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.

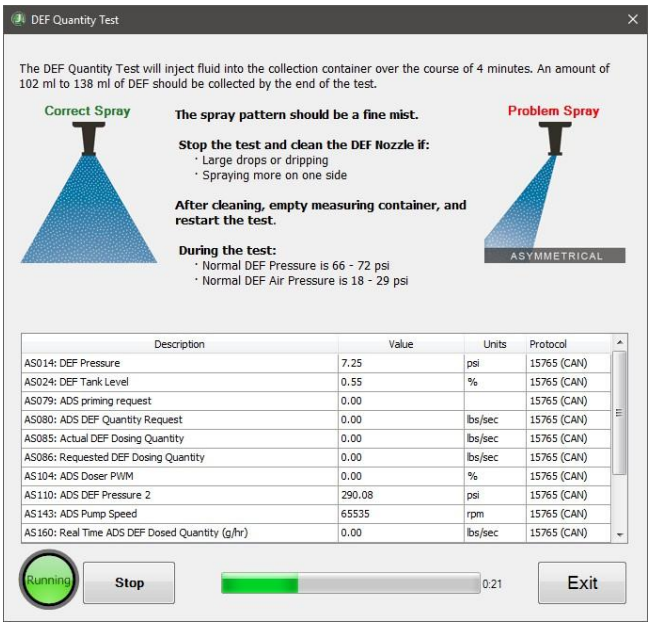
Follow the steps below to perform the **DEF Quantity Test:**

1. Select the **DEF Quantity Test** and press Enter or the **Start** button.
2. The **DEF Quantity Test** dialog displays 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, the 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 DOC or DPF is 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 are present on the vehicle:

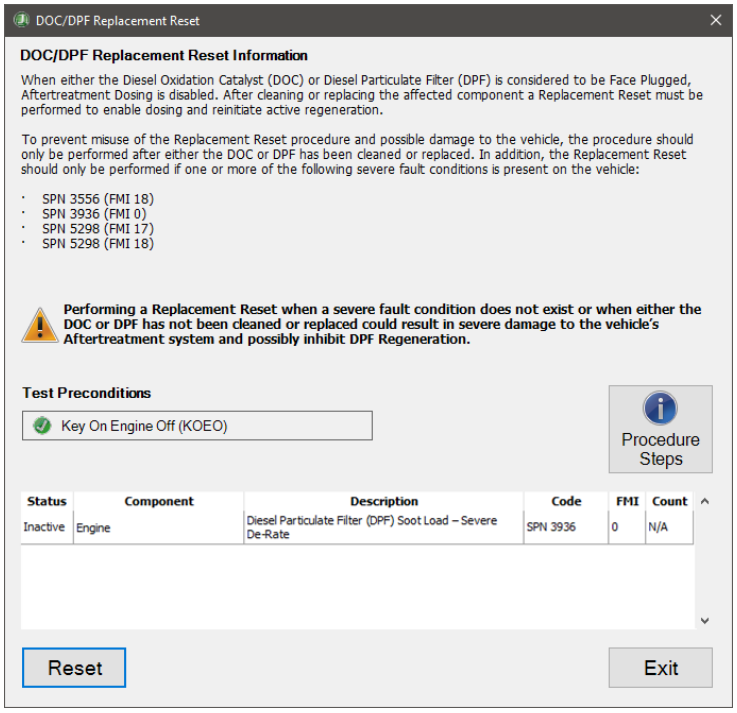
- SPN 3556 – FMI 18 - Aftertreatment Fuel Pressure 2 (AFTFP2) below Warning Pressure
- SPN 3936 – FMI 0 - DPF Soot Load – Severe De-Rate
- SPN 5298 – FMI 17 – Diesel Oxidation Catalyst (DOC) Conversion Efficiency below minimum
- SPN 5298 – FMI 18 – Diesel Oxidation Catalyst (DOC) Conversion Efficiency 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.

Perform the steps below to perform DOC/DPF Replacement Reset:

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 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

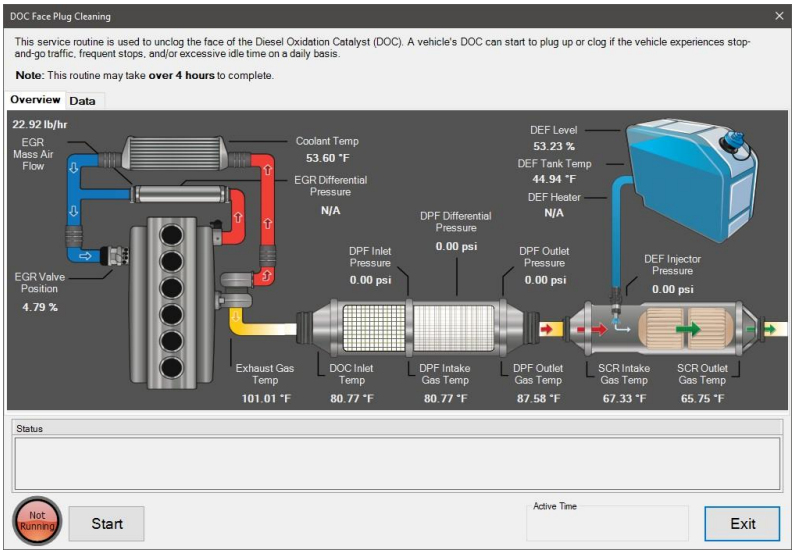
NOTE: This test is only available for Supported ECU Software Versions.

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.

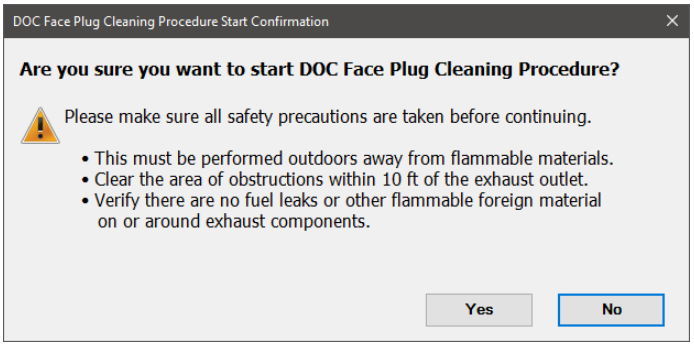
Follow the steps below to perform **DOC Face Plug Cleaning**:

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, the 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 is completed, 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.

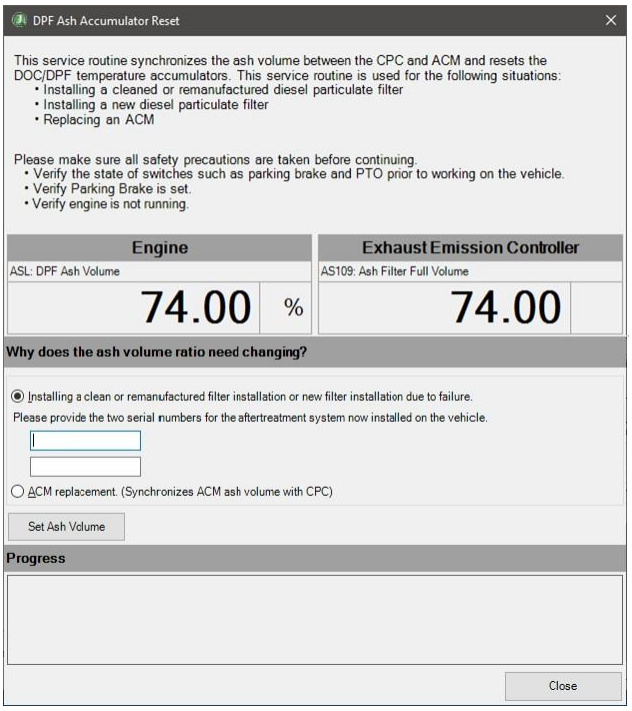
This service routine synchronizes the ash volume between the CPC and ACM and resets the DOC/DPF temperature accumulators.

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

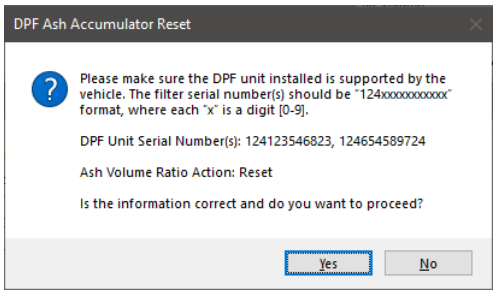
Follow the steps below to perform the **DPF Ash Accumulator Reset**:

1. Select **DPF Ash Accumulator Reset** and press Enter or press **Start** Button.
2. The **DPF Ash Accumulator Reset** dialog will be displayed.



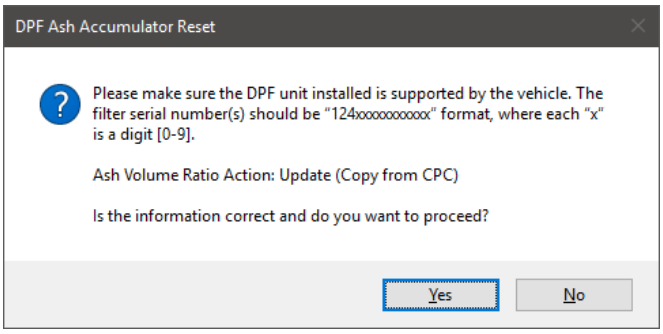
DPF Ash Accumulator Reset Dialog

3. If reset is due to filter changes, select the "**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 the **"*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 temporarily disabled until the procedure completes.
7. After the procedure is completed, 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 the **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
- ✓ Caterpillar C-7 truck engine
- ✓ 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
- ✓ Mack and Volvo EPA 07 to GHG17 engines
- ✓ MBE 900 and 4000 EPA 07 engines
- ✓ PACCAR EPA 10 to GHG17 all MX engines

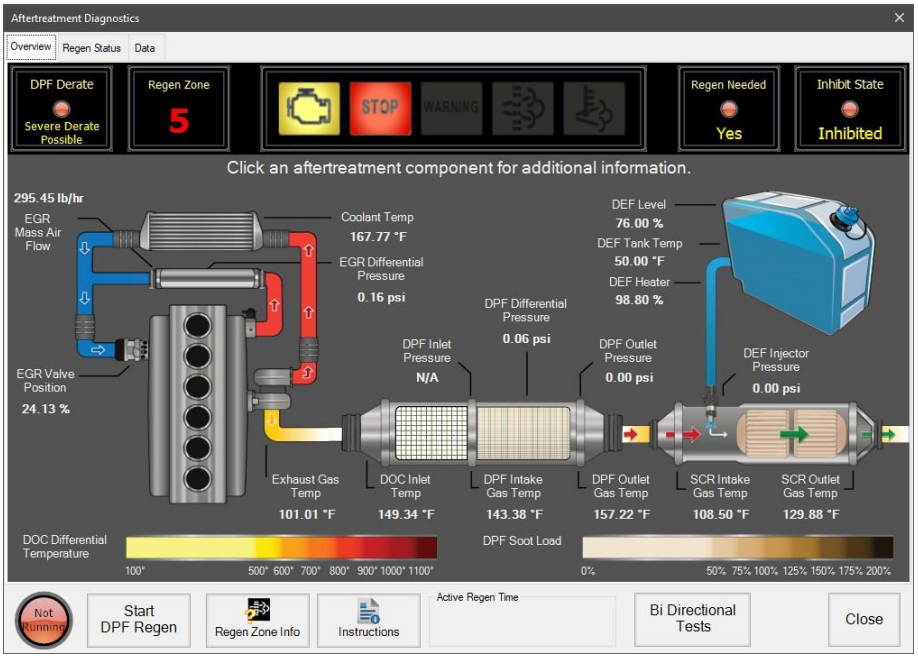
During engine operation, the DPF becomes loaded with soot. Regeneration of the DPF takes place during engine operation to remove the soot. If the soot level becomes greater than what can be removed by the normally occurring regeneration process, then service regeneration may be needed.

Follow the steps below to perform **DPF Service Regen:**

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 a reset on system values based on the components replaced or cleaned.

- Aftertreatment Hydrocarbon Doser (AHD) Adaptive Factor Reset

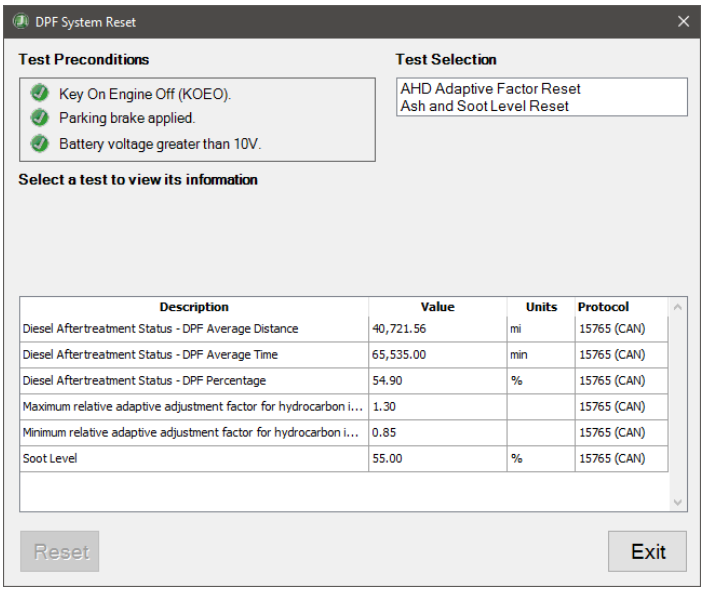
> After cleaning or replacing the AHD, the hydrocarbon dosing control valve adapter factor should be reset.

- Ash and Soot Level Reset

> After cleaning or replacing the DPF, the soot ratio value must be reset.

Follow the steps below to perform a **DPF System 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 in the dialog.
5. Reset operation will be executed. If the reset is 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

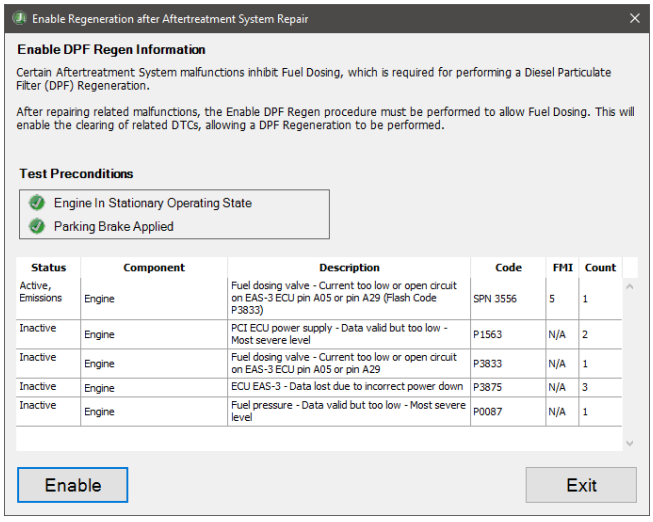
Enable Regeneration after Aftertreatment System Repair is supported on:

- ✓ PACCAR EPA 10 to EPA 13 all MX engines.

Certain Aftertreatment System malfunctions inhibit Fuel Dosing, which is required for performing a 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.

Follow the steps below to **Enable Regeneration after Aftertreatment System Repair:**

1. Select the **Enable Regeneration after Aftertreatment System Repair** and press Enter or click the **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 is completed 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:

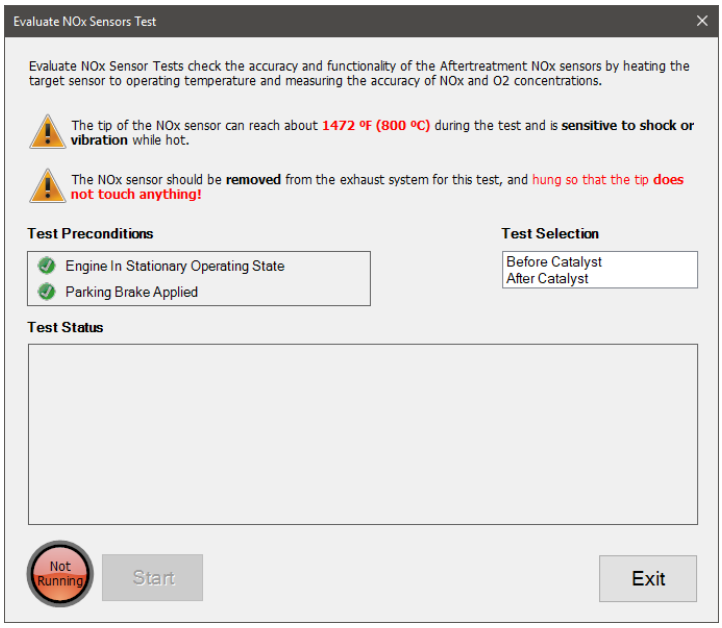
- ✓ PACCAR EPA 13 all MX engines.

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.

Follow the steps below to perform the **Evaluate NOx Sensors Test:**

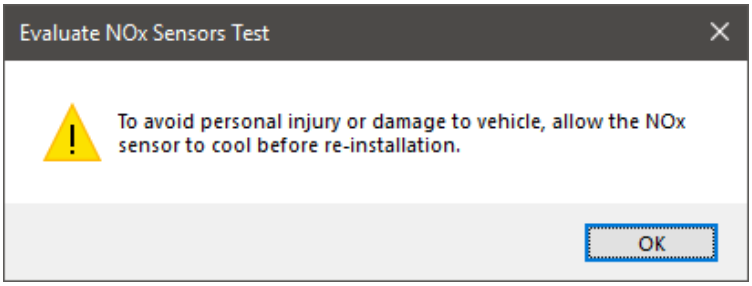
1. Select the **Evaluate NOx Sensors Test** and press Enter or click the **Start** button.
2. The test dialog will be displayed.



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 reinstallation 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:

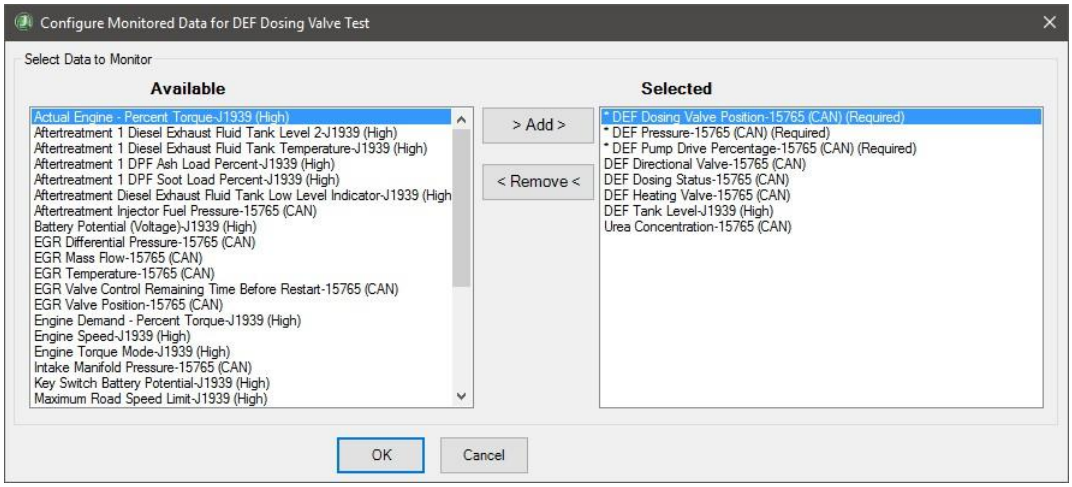
- ✓ Mack and Volvo EPA 10 to GHG17 engines

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.

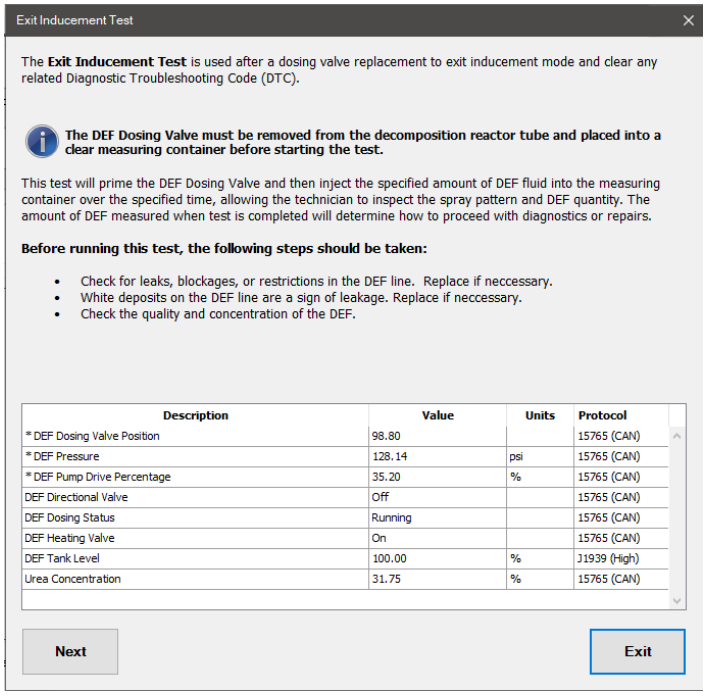
Follow the steps below to perform the **Exit Inducement Test:**

1. Select the **Exit Inducement Test** and press Enter or the **Start** button.
2. The **Configure Monitored Data for Exit Inducement Test** will be displayed.



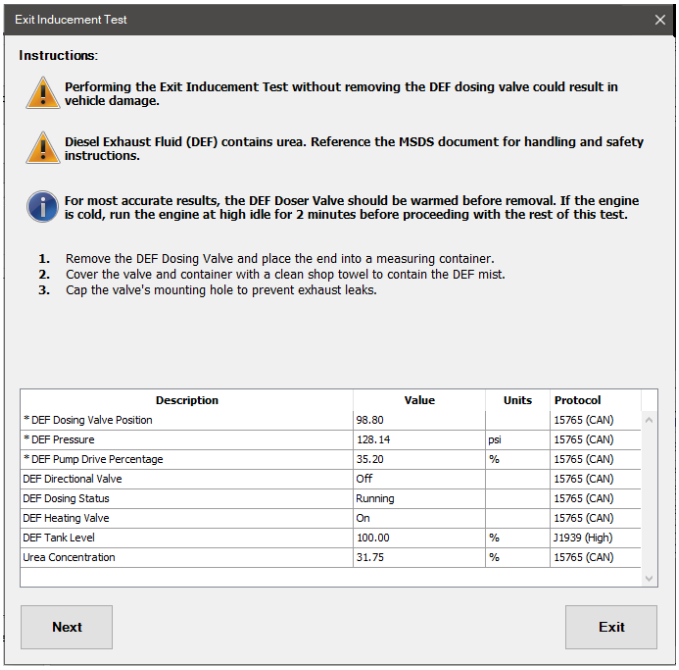
Configure Monitored Data for Exit Inducement Test Dialog

3. Select parameters from the **Available** list and click the **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 important information about steps to take before running the test.



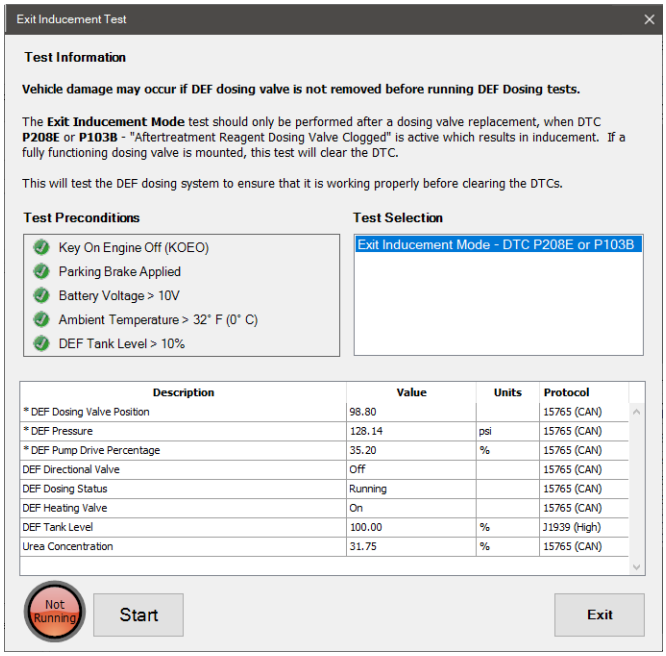
Exit Inducement Test

7. Click the **Next** button for test Instructions.



Exit Inducement Test Instructions

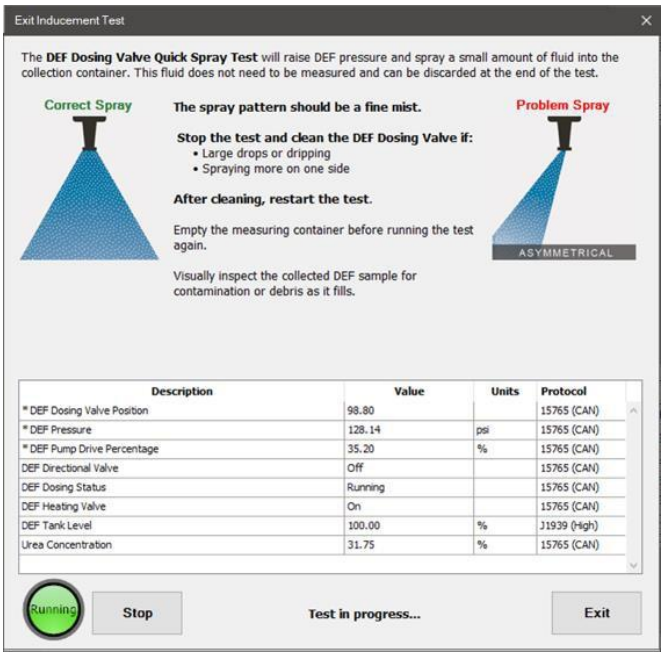
8. Follow instructions concerning removing the DEF Dosing Valve.
9. Click the **Next** button to continue.



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, the 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, follow the 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

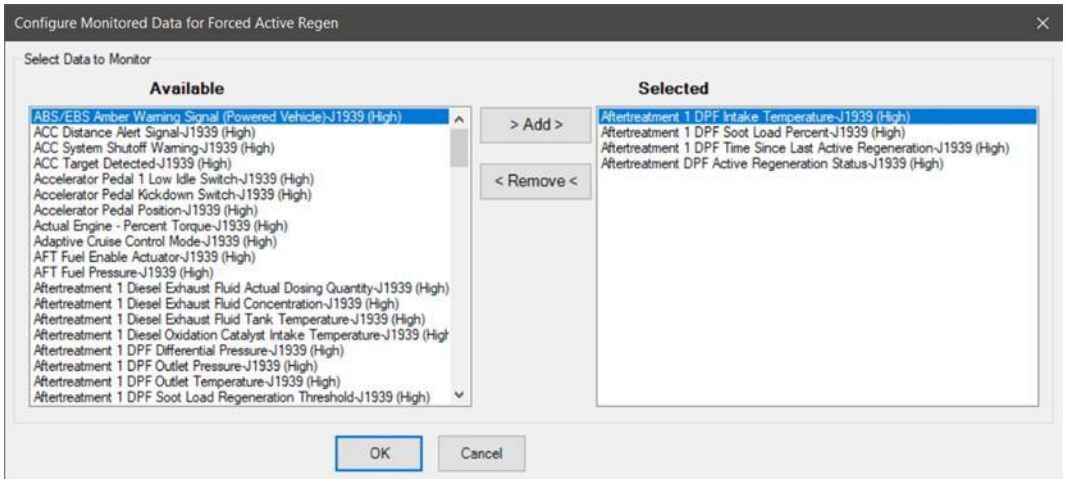
The **Forced Active Regen** test is supported on:

- ✓ 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.

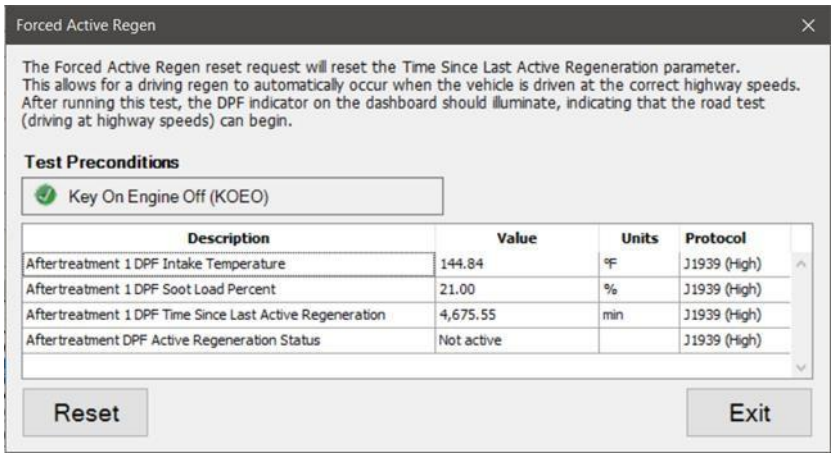
Follow the steps below to perform the **Forced Active Regen t**est**:**

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 the **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 **Hydrocarbon Doser Purge** test is available on:

- ✓ Detroit Diesel any supported CPC with MCM02T or MCM21T

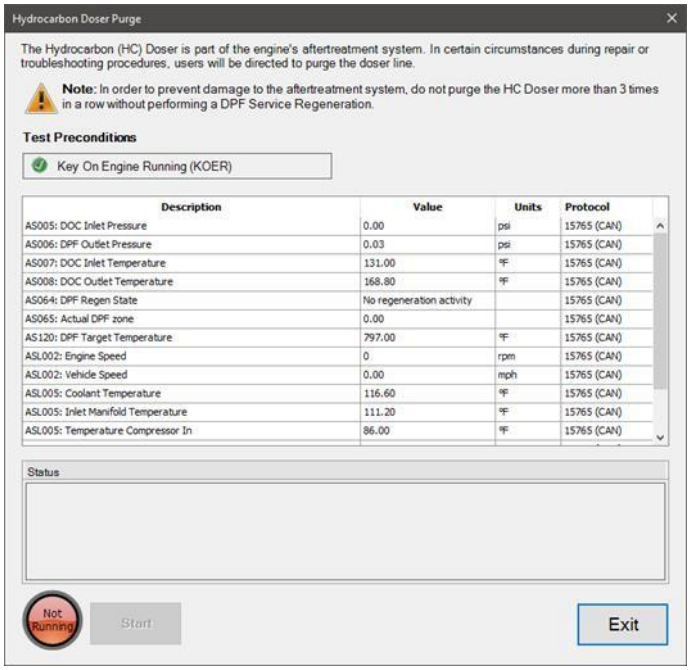
NOTE: This test is only available for Supported ECU Software Versions.

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.

Follow the steps below to perform **Hydrocarbon Doser Purge**:

1. Select the **Hydrocarbon Doser Purge** and press Enter or click the **Start** button.
2. The test dialog will be displayed.



Enable Regeneration after Aftertreatment System Repair

3. Select 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.
6. Once the procedure is completed, the **Stop** button will change back to the **Start** button, and the status will revert to **Not Running**.
7. Click the **Exit** button to return to the test selection dialog.

Hydrocarbon Dosing Control Valve Test

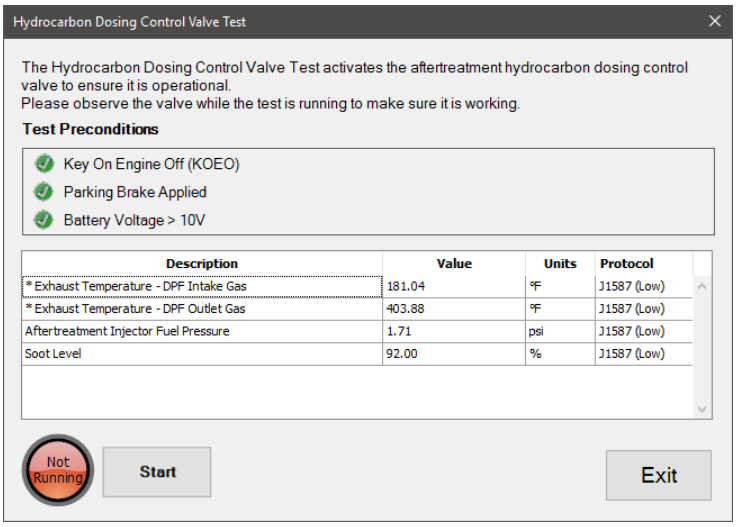
The **Hydrocarbon Dosing Control Valve Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **Hydrocarbon Dosing Control Valve Test:**

1. Select **Hydrocarbon Dosing Control Valve Test** and press Enter or click the **Start** button.
2. The test dialog will be displayed.



Hydrocarbon Dosing Control Valve Test

3. Select the **Start** button to begin the test. The valve will be activated for a maximum of 5 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 5 seconds.
6. 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:

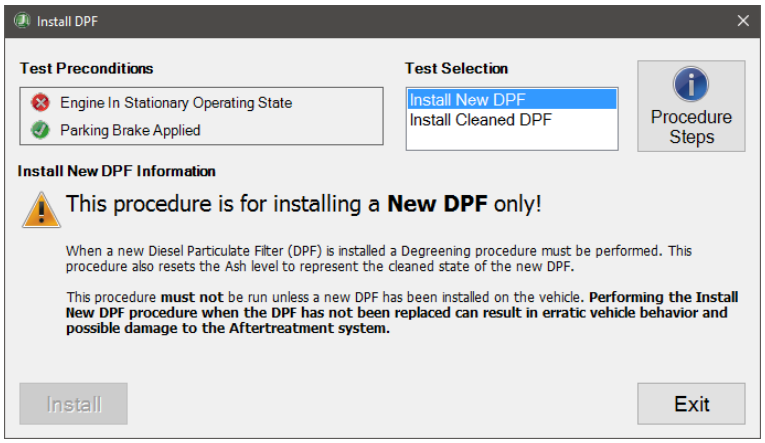
- ✓ PACCAR EPA 10 to EPA 13 all MX engines.

The **Install DPF** test is for installing either a new or a clean DPF. The **Install Cleaned/New DPF** procedure must only be performed after a clean or new DPF has been installed.

This procedure will reset the vehicle's ash level to reflect the status of the DPF.

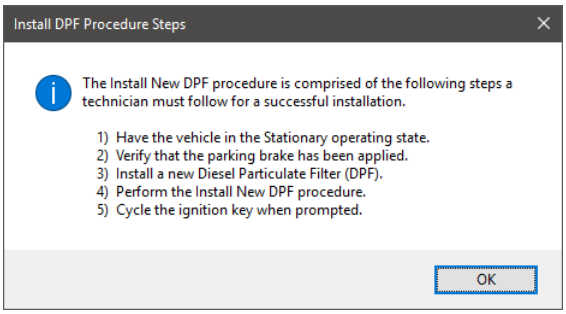
Follow the steps below to **Install a New or Cleaned DPF**:

1. Select **Install DPF** and press Enter or click the **Start** button.
2. 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 the 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 the 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:

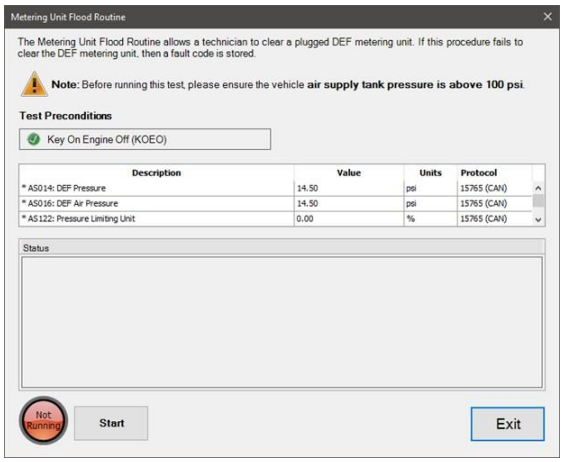
- ✓ Detroit Diesel any supported CPC with MCM02T

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.

Follow the steps below to perform the **Metering Unit Flood Routine:**

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.
5. Once the test is completed, the status area will display the test results.
6. To finish the test at any time, press the **Stop** button.
7. To leave this dialog, select the **Exit** button.

NOx Conversion Monitor Test

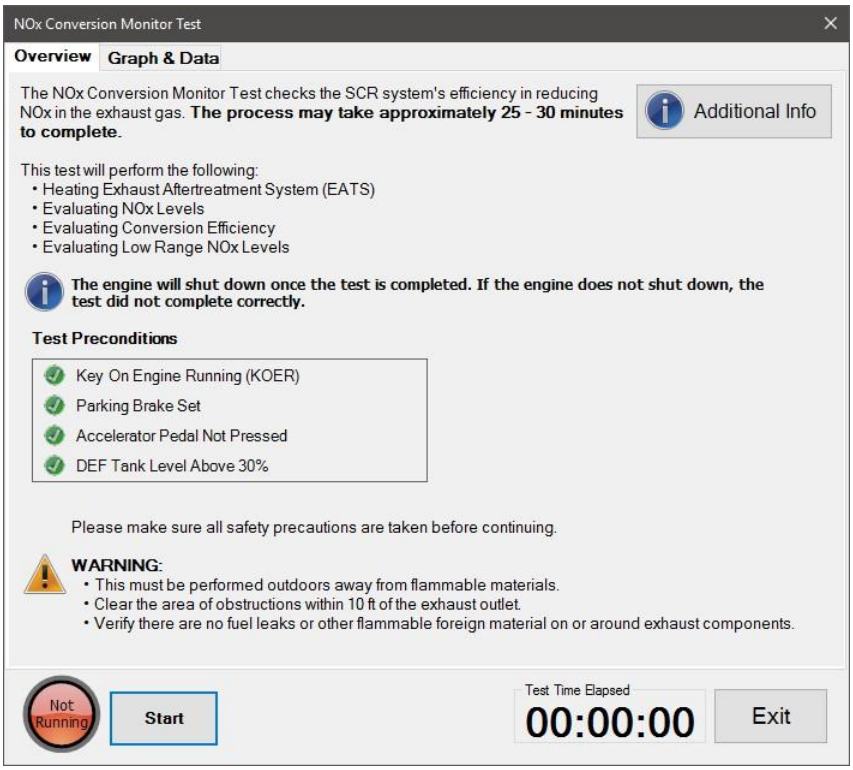
The **NOx Conversion Monitor Test** is supported on:

- ✓ 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.

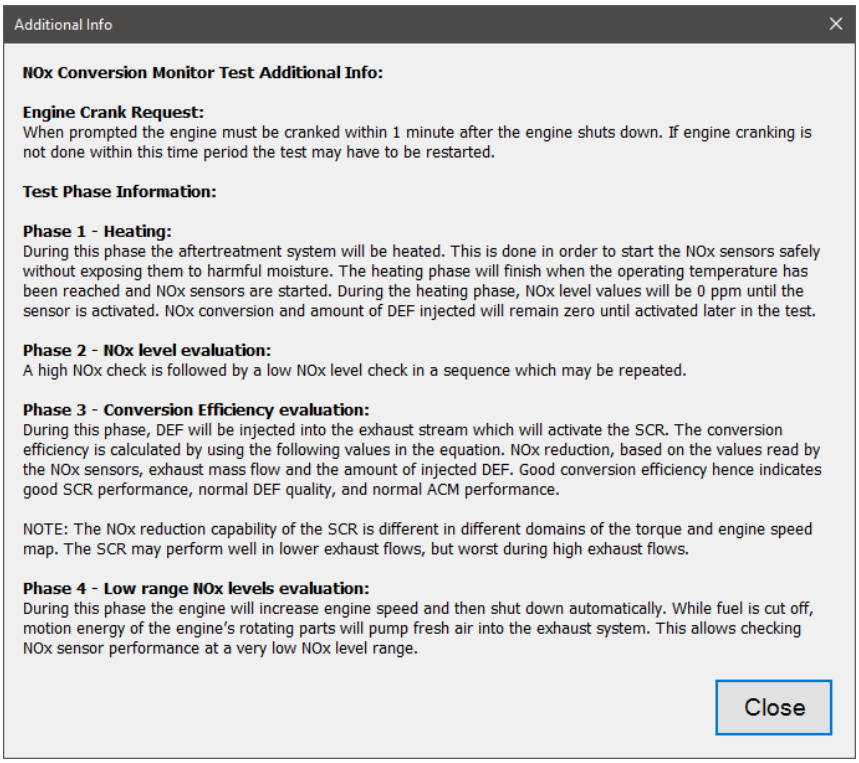
Follow the steps below to perform the **NOx Conversion Monitor Test:**

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.



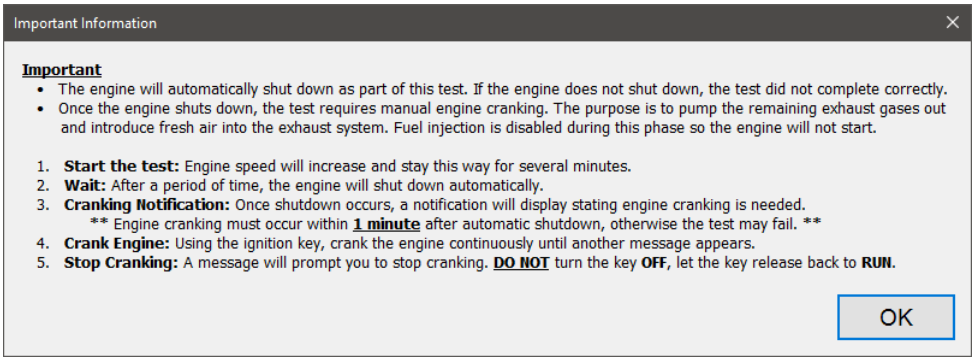
NOx Conversion Monitor Test

3. Select the **Additional Info** button to view additional details concerning this test.



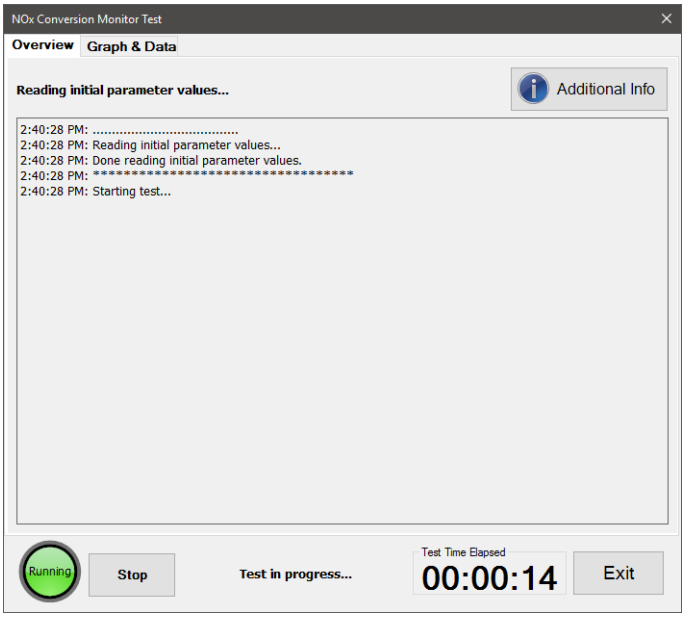
NOx Conversion Monitor Test - Additional Information

4. 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**.
5. 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

6. As the test runs, the status area will show what is occurring and the current state. Once the test is completed, the status area will display the test results.



Conversion Monitor Test – Test Running

7. To finish the test at any time, press the **Stop** button.
8. 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

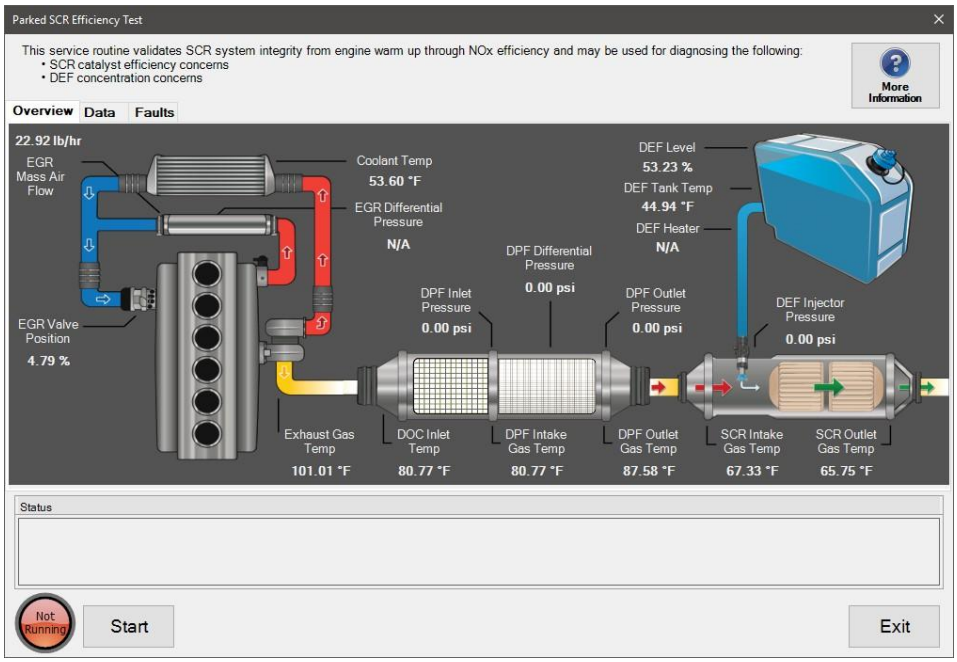
NOTE: This test is only available for Supported ECU Software Versions.

The **Parked SCR Efficiency Test** validates the SCR system's integrity from engine warm-up through NOx efficiency. It may be used for diagnosing SCR catalyst efficiency or DEF concentration concerns.

Follow the steps below to perform the **Parked SCR Efficiency Test:**

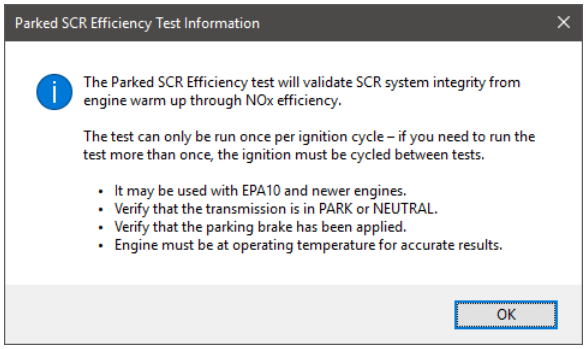
1. Select the **Parked SCR Efficiency Test** and press Enter or select the **Start** button.
2. If not previously shown, the **Aftertreatment Instructions** are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When read, select the **Close** button on the window.

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.



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 before 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 is completed, the status area will display the test results.
9. To finish the 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

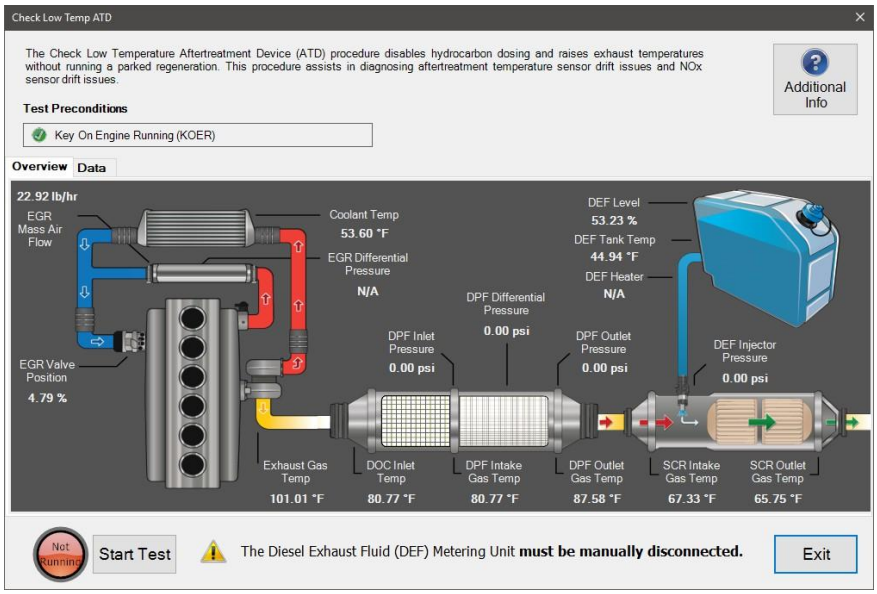
NOTE: This test is only available for Supported ECU Software Versions.

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.

Follow the steps below to perform a **Performance Check Low Temp ATD:**

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 finish 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:

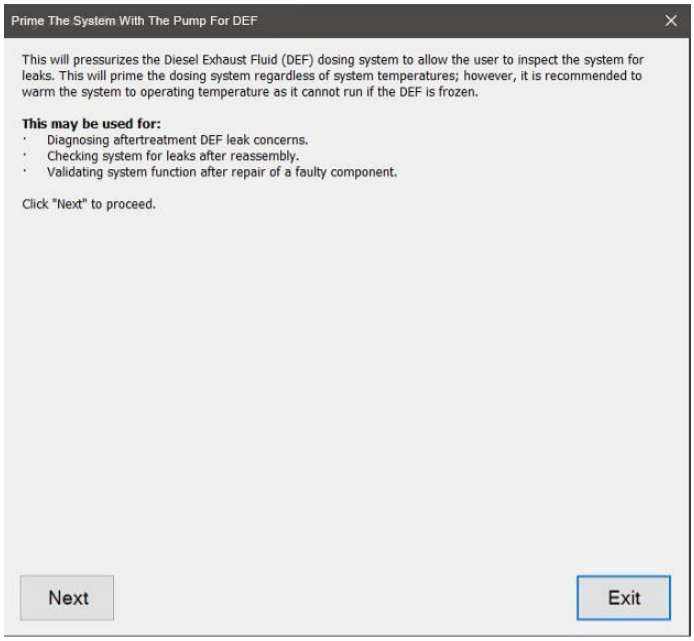
- ✓ PACCAR GHG17 all MX engines

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 the ignition key when prompted can lead to erratic vehicle behavior.

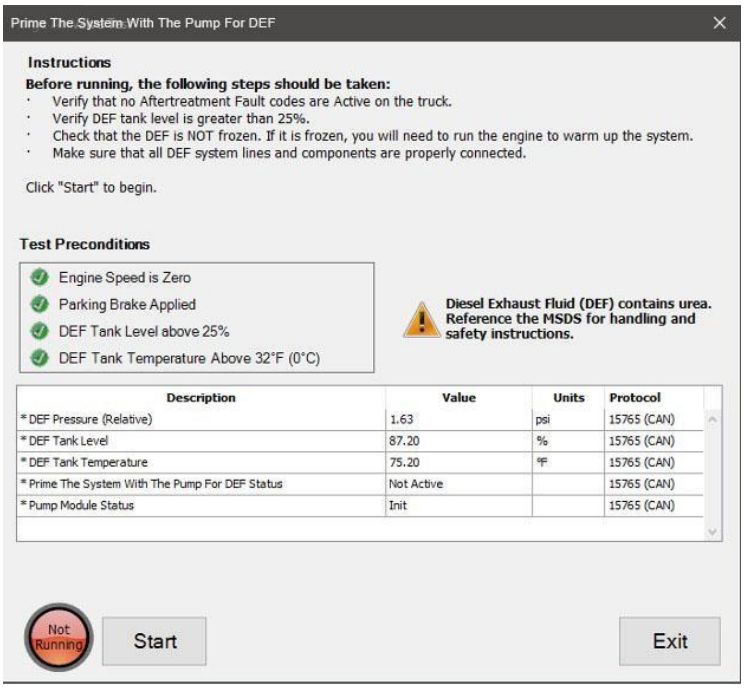
Follow the steps below to **Prime the System with the Pump for DEF**:

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.



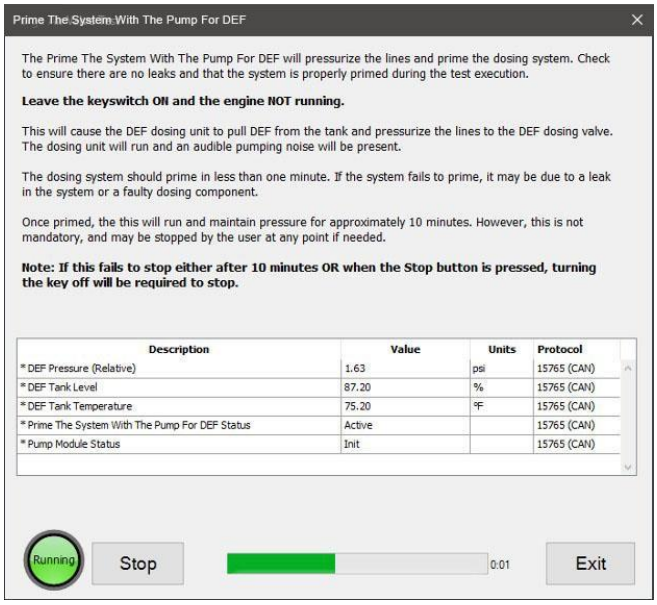
Prime the System with the Pump for DEF Info Page

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

5. Once all instructions have been followed and preconditions are met, select the **Start** button to begin the test.
6. The test screen will display additional information as the test runs.



Prime the System with the Pump for DEF Test Running

7. 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

8. Once the test has been completed, click the **Exit** button to return to the test selection dialog.

Purge Air Valve Test

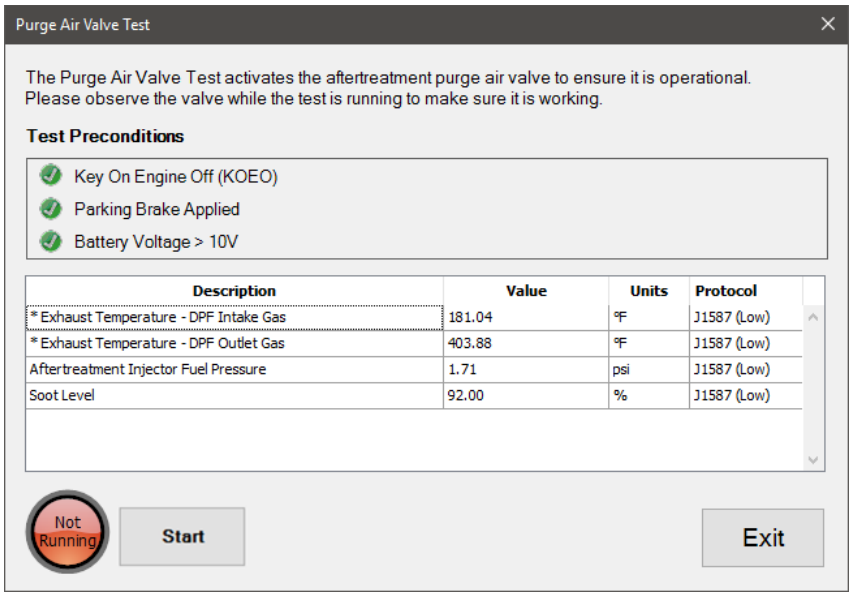
The **Purge Air Valve Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **Purge Air Valve Test:**

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.

Request Driving Regen Test

The **Request Driving Regen Test** is supported on:

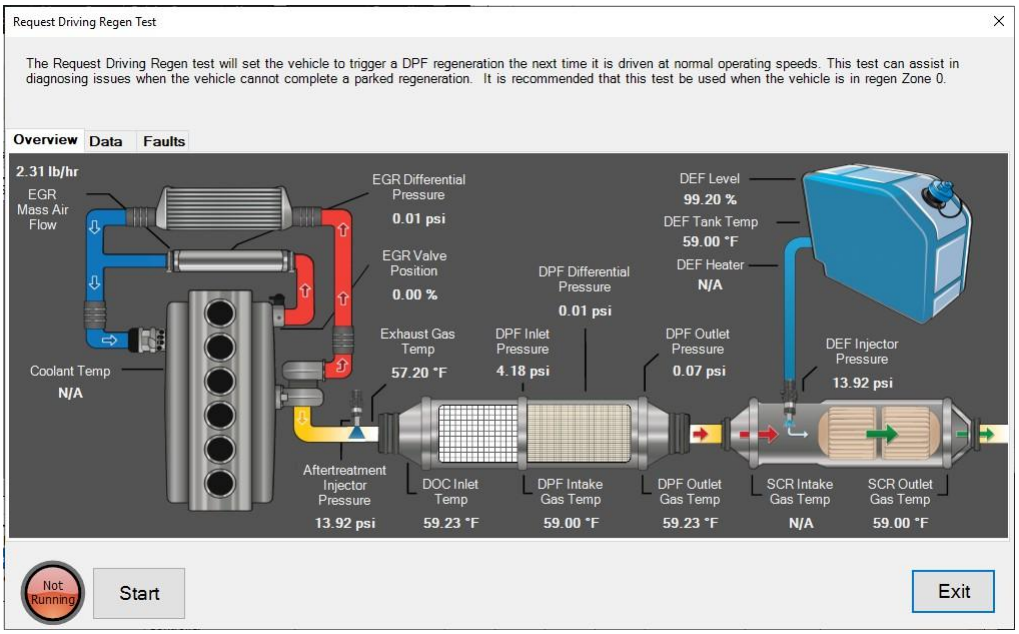
- ✓ Detroit Diesel CPC501T with ACM301T and MCM21T

The **Request Driving Regen Test** attempts to set the vehicle so that a driving regen is forced the next time the vehicle is at normal operating speeds. It is recommended that this test be used when the vehicle is in **Regen Zone 0**.

Follow the steps below to perform the **Request Driving Regen Test**:

1. Select the **Request Driving Regen Test** and press Enter or the **Start** button.
2. If not previously shown, the **Aftertreatment Instructions** are automatically displayed to provide aid in diagnosing issues with aftertreatment systems. When ready, select the **Close** button on the window.

3. The **Request Driving Regen Test** dialog will display.



Request Driving Regen Test

4. Click **Start** to prepare the vehicle for the driving portion of the test. When driven at normal operating speeds, the vehicle will begin active regeneration.
5. The vehicle's data and faults can be viewed from their respective tabs to monitor the vehicle's condition during the driving test.
6. When done, press the **Exit** button to return to the test selection dialog.

Reset the Soot Level

The **Reset the Soot Level** test is supported on:

- ✓ PACCAR EPA 10 to EPA 13 all MX engines

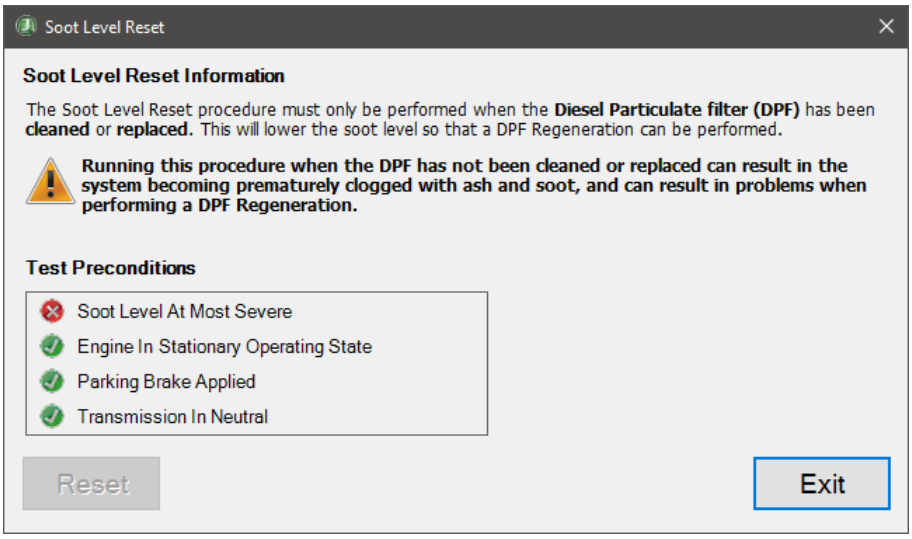
The **Reset the Soot Level** procedure will reset the vehicle's soot level to reflect the status of the DPF (DPF). It must only be performed after the DPF has been cleaned or replaced, or the Soot Level Sensor is found faulty and replaced. This will lower the soot level so that a DPF Regeneration can 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.

Follow the steps below to perform the **Reset the Soot Level** procedure:

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 is completed successfully, then a status message will be displayed at the bottom of the window.
5. Press the **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

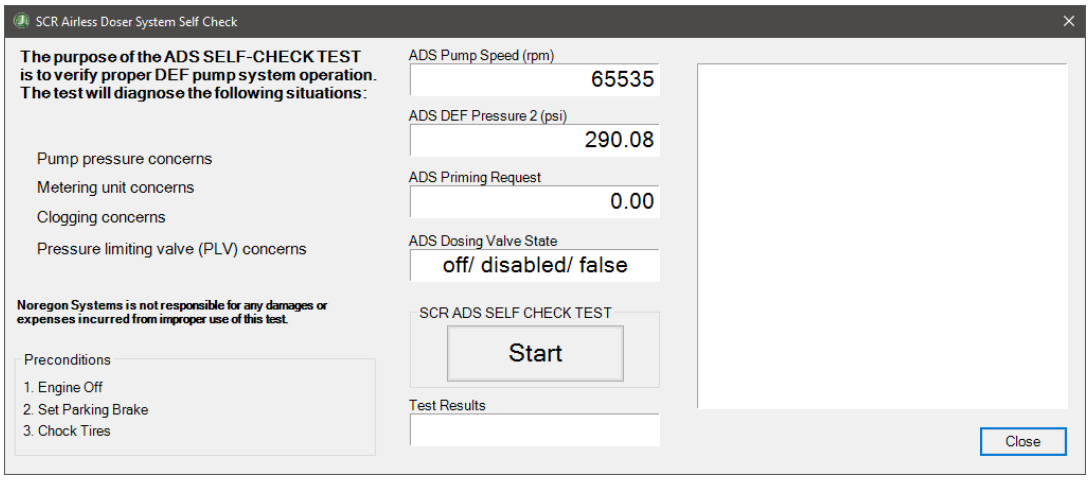
NOTE: This test is only available for Supported ECU Software Versions.

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.

Follow the steps below to perform **SCR Airless Doser System Self Check:**

1. Select **SCR Airless Doser System Self Check** and press Enter, or press the **Start** button.

2. 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

3. 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.
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 on the right. To manually stop the current test, press the **Stop** button.
5. After the test is completed, the **Test Results** box will display the outcome of the test.
6. Press the **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.

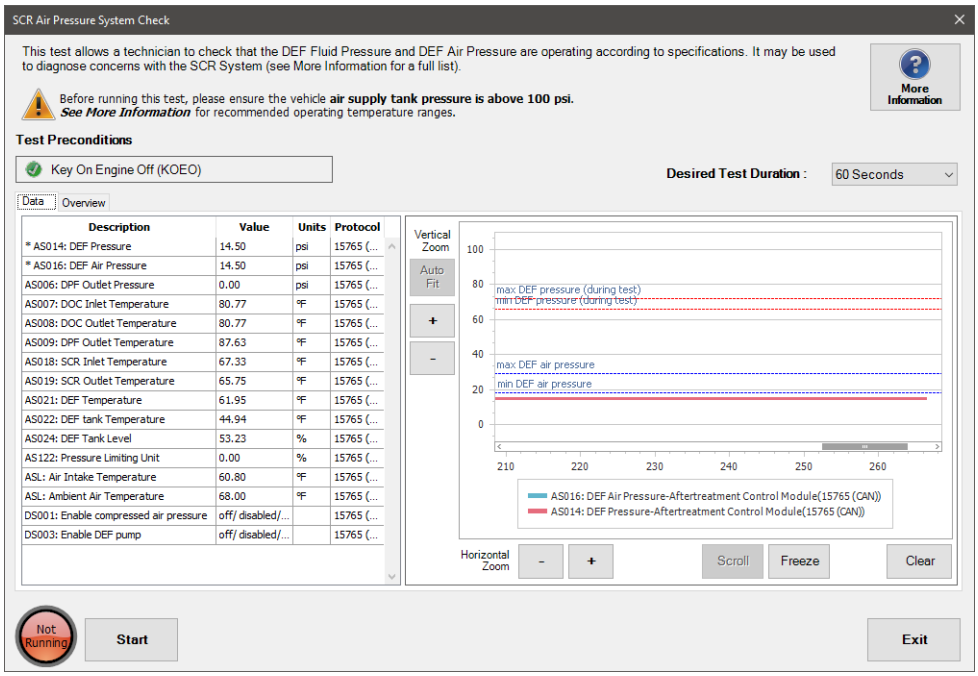
It may also be used for diagnosing the following concerns:

- Pneumatic switching valve

- Pump pressure
- Metering unit
- Nozzle clogging
- Pressure limiting unit
- Vehicle air

Follow the steps below to perform the **SCR Air Pressure System Check**:

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 is completed, another vertical line will be added to the graph indicating that the test has 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 finish the test early, press the **Stop** button.

10. To leave this dialog, select the **Exit** button

SCR Faults Reset

The **SCR Faults Reset** is supported on:

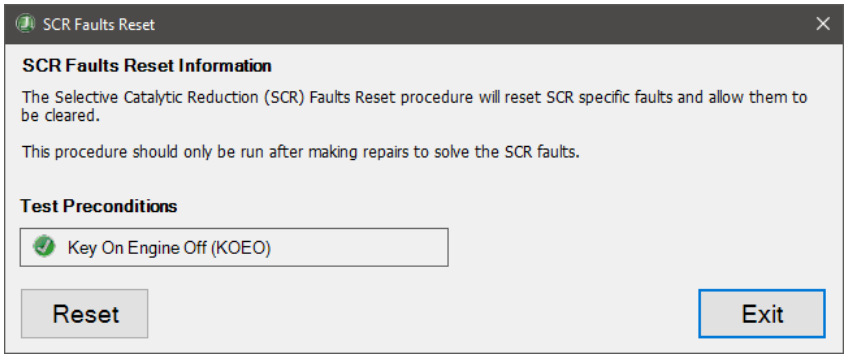
- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

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.

Follow the steps below to perform **SCR Faults Reset:**

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 in the dialog.
4. Turn off the ignition and select the **Continue** button (previously 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:

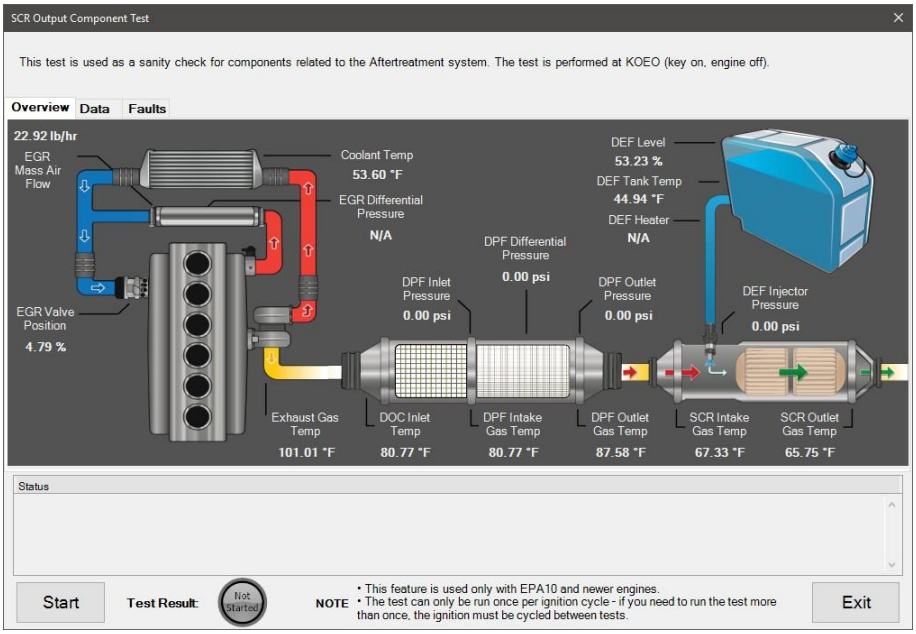
- ✓ Any supported CPC with ACM02T and MCM02T or MCM21T
- ✓ Any supported CPC with ACM21T and MCM02T or MCM21T

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).

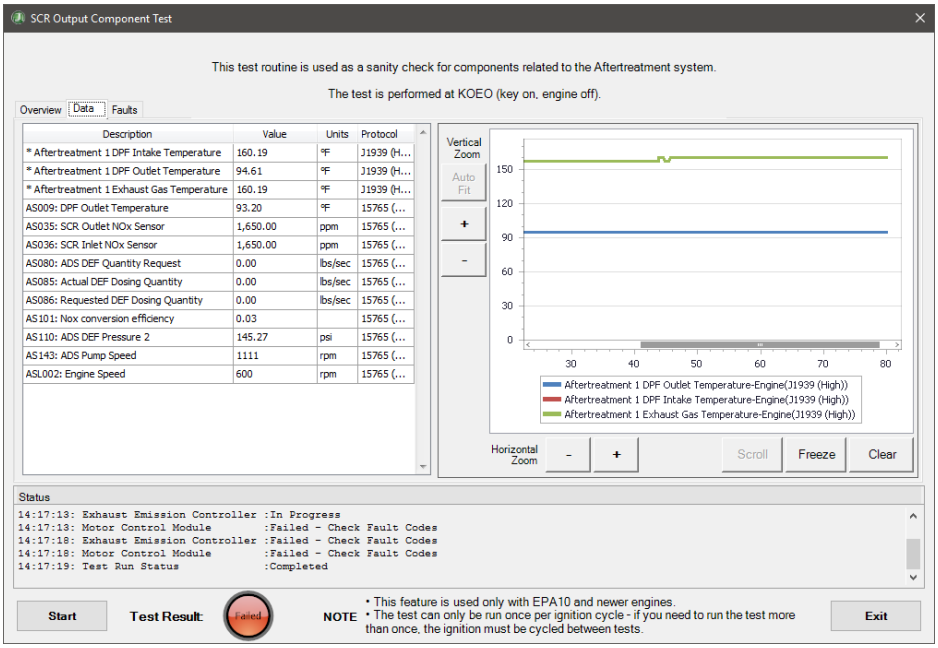
Follow the steps below to perform the **SCR Output Component Test:**

1. Select **SCR Output Component Test** and press Enter, or press **Start** Button.
2. The **SCR Output Component Test** dialog will be displayed.



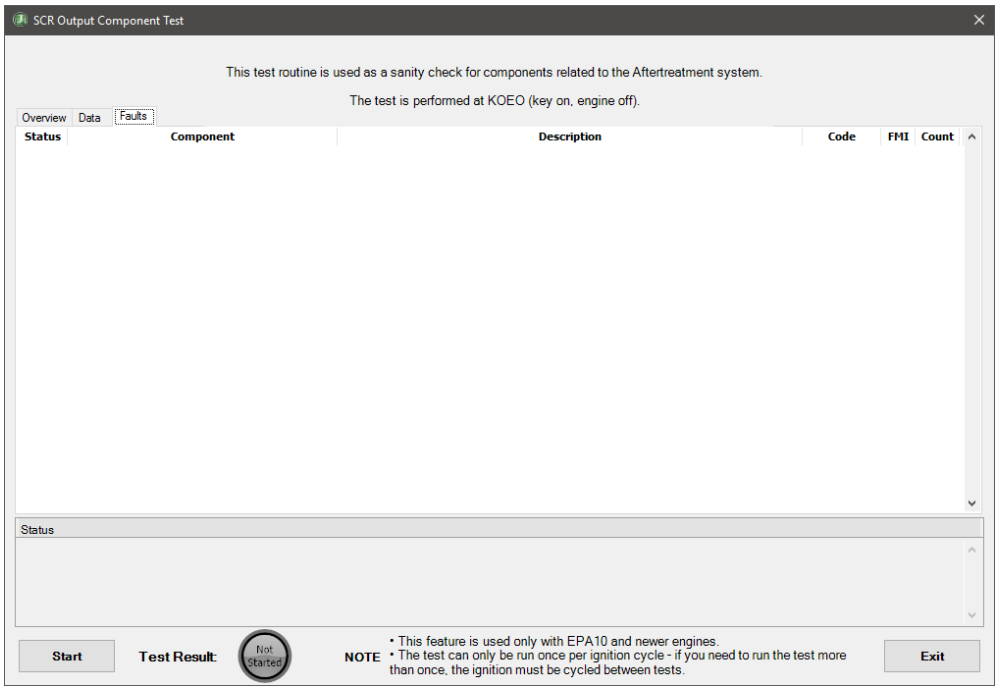
SCR Output Component Test Dialog

3. The **Status** box at 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.
4. 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.



SCR Output Component Test – Data Tab

5. 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

6. Press the **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.

7. 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.
8. 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.
9. Press the **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

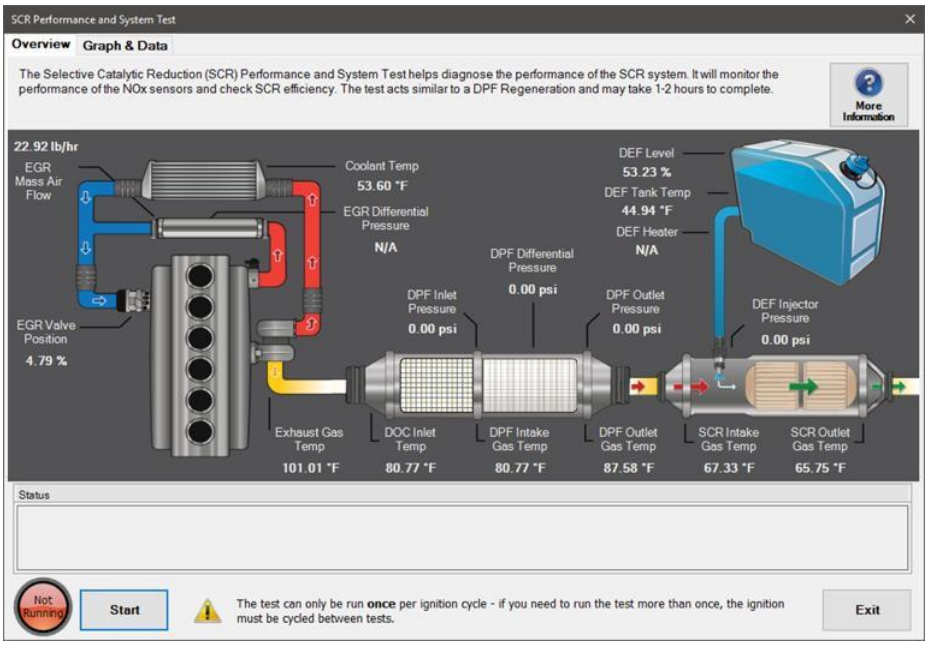
The **Selective Catalytic Reduction (SCR) Performance and System Test** helps diagnose issues with the performance of the SCR system. It monitors the performance of the NOx sensors and checks SCR efficiency.

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.

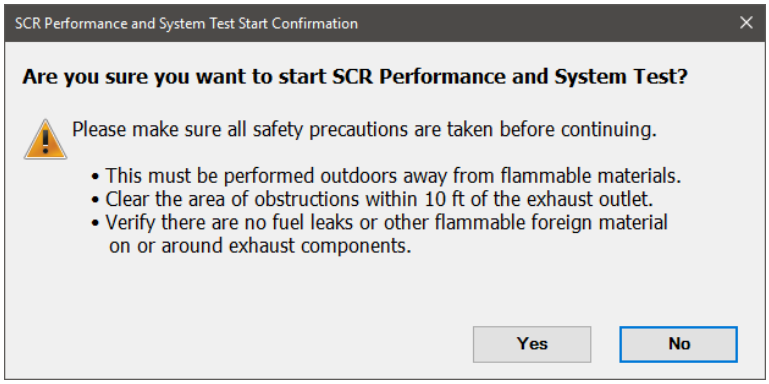
Follow the steps below to perform the **SCR Performance and System Test:**

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. Click the **Exit** button when ready to exit this test and return to the test selection dialog.

SCR Regeneration

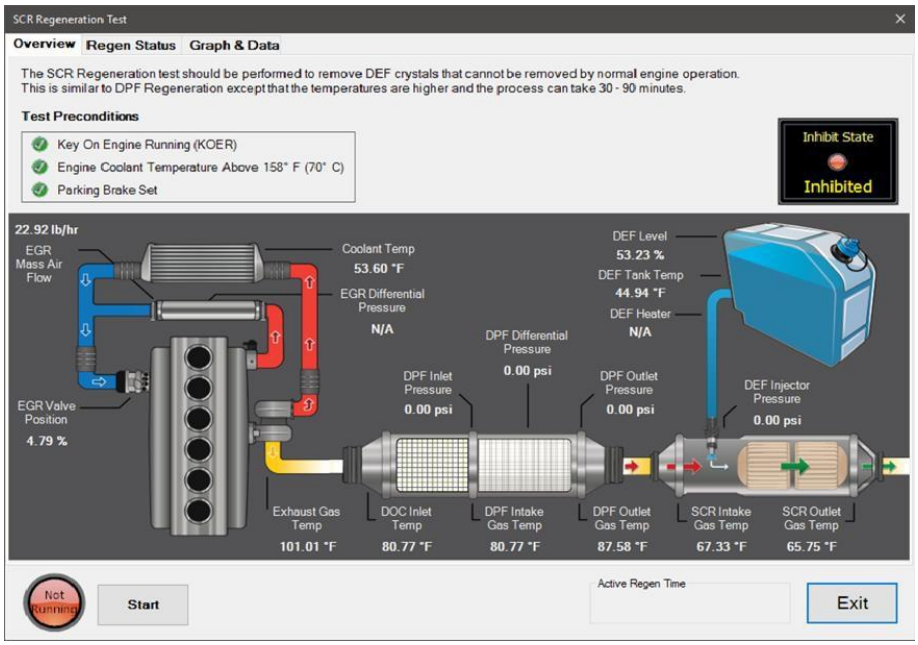
SCR Regeneration is supported on:

- ✓ 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.

Follow the steps below to perform **SCR Regeneration:**

1. Select **SCR Regeneration** and press Enter or press 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 Regeneration** dialog displays.



SCR Regeneration

4. Select the **Regen Status** tab to see the details for the Inhibit and DPF status.
5. Select the **Start** button to begin the SCR Regeneration process.
6. Select the **Graph & Data** tab and 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.
7. Select the **Stop** button at any time to stop the test early.

8. Once the test is completed, press the **Exit** button to return to the test selection dialog.

SCR Replacement Test

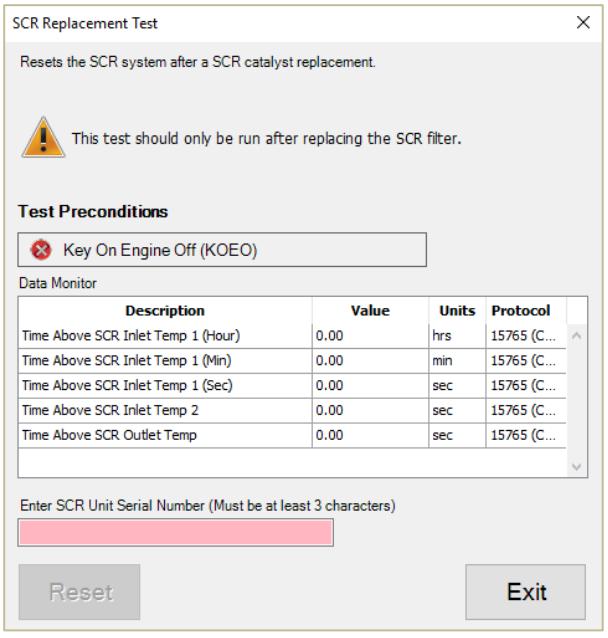
The **SCR Replacement Test** is supported on:

- ✓ Detroit Diesel any supported CPC with ACM301T

The **SCR Replacement Test** will reset the values learned by the SCR system and should be performed after SCR replacement.

Follow the steps below to perform the **SCR Replacement Test:**

1. Select the **SCR Replacement Test** and press Enter or the **Start** button.
2. The **SCR Replacement Test** dialog will display.



SCR Replacement Test

3. The **Reset** button will be enabled when a valid SCR unit serial number is entered in the available text box. Click **Reset** to reset the learned SCR values, which will be relearned during normal vehicle operation.
4. When done, press the **Exit** button to return to the test selection dialog.

Soot Sensor

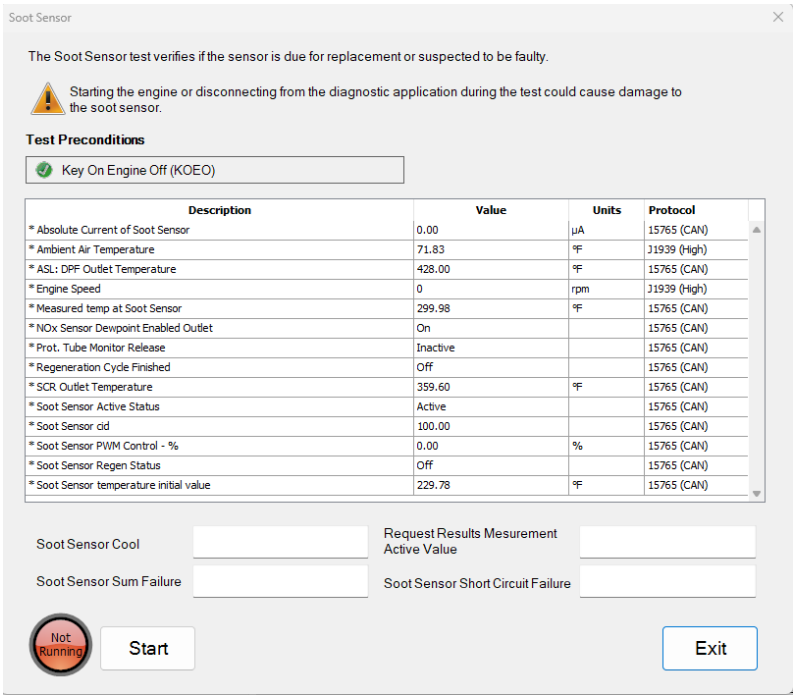
The **Soot Sensor** test is supported on:

- ✓ Detroit Diesel any supported CPC with ACM301T and MCM21T

The **Soot Sensor** test verifies the health of the Soot Sensor and is useful for determining if it is due for replacement or if it is suspected to be faulty.

Follow the steps below to perform the **Soot Sensor** test:

1. Select the **Soot Sensor** test and press Enter or the **Start** button.
2. The **Soot Sensor** test dialog will display.



Soot Sensor

3. Select the **Start** button to begin evaluation of the soot sensor. Sensor data values will be monitored during the test runs, and the status results will be updated to report on the health and performance of the component.

> ⚠ Starting the engine or disconnecting from JPRO® while the test is running could cause damage to the soot sensor.

4. When done, press the **Exit** button to return to the test selection dialog.

Aftertreatment Intake NOx Sensor Test

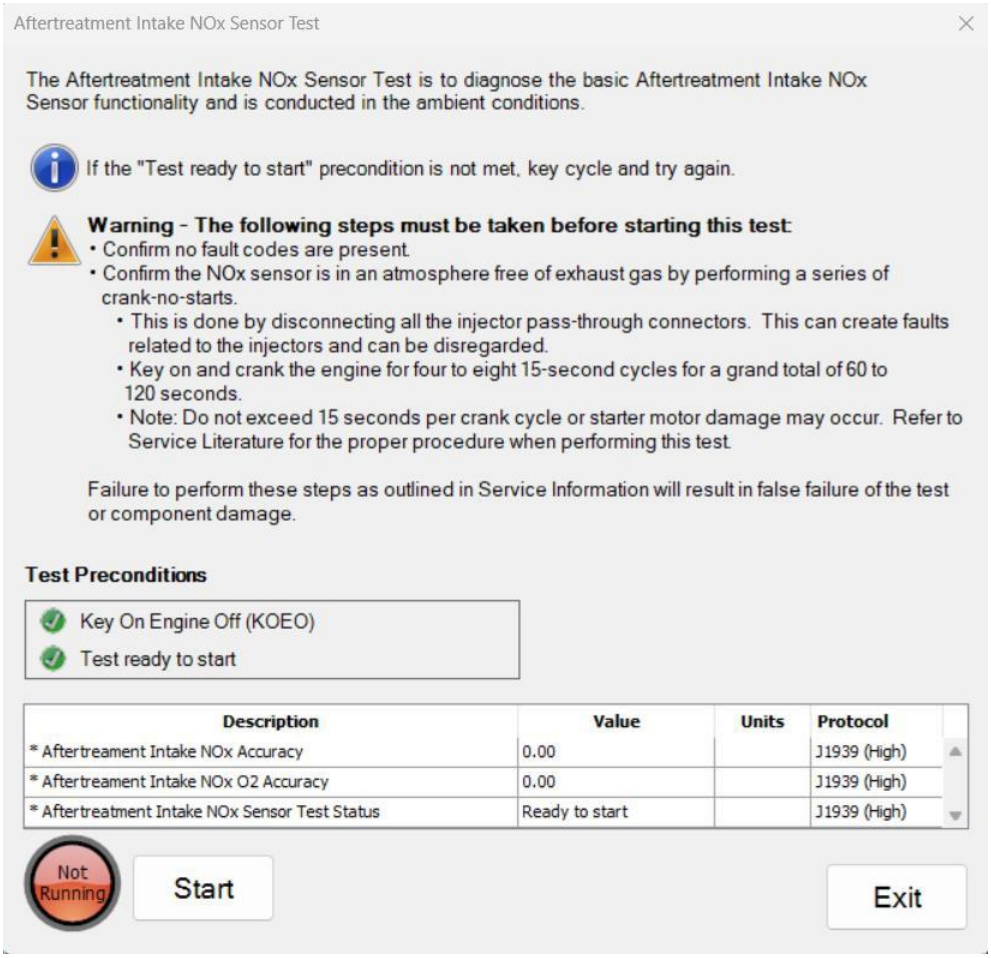
The **Aftertreatment Intake NOx Sensor Test** is supported on:

- ✓ Update when Cummins coverage updates are completed

The **Aftertreatment Intake NOx Sensor Test** is used to diagnose the basic Aftertreatment Intake NOx Sensor functionality and is conducted in ambient conditions.

Follow the steps below to perform the **Aftertreatment Intake NOx Sensor Test**:

1. Select the **Aftertreatment Intake NOx Sensor Test** and press Enter or the **Start** button.
2. The **Aftertreatment Intake NOx Sensor Test** dialog will display.



Aftertreatment Intake NOx Sensor Test

3. Once all warnings have been heeded and preconditions met, click the **Start** button to begin the test.
4. After the test is completed, follow the instructions to turn off the ignition. When the timer expires, key on the engine and click **OK** to complete the test.

5. Click the **Exit** button to return to the test selection dialog.

Aftertreatment Outlet NOx Sensor Test

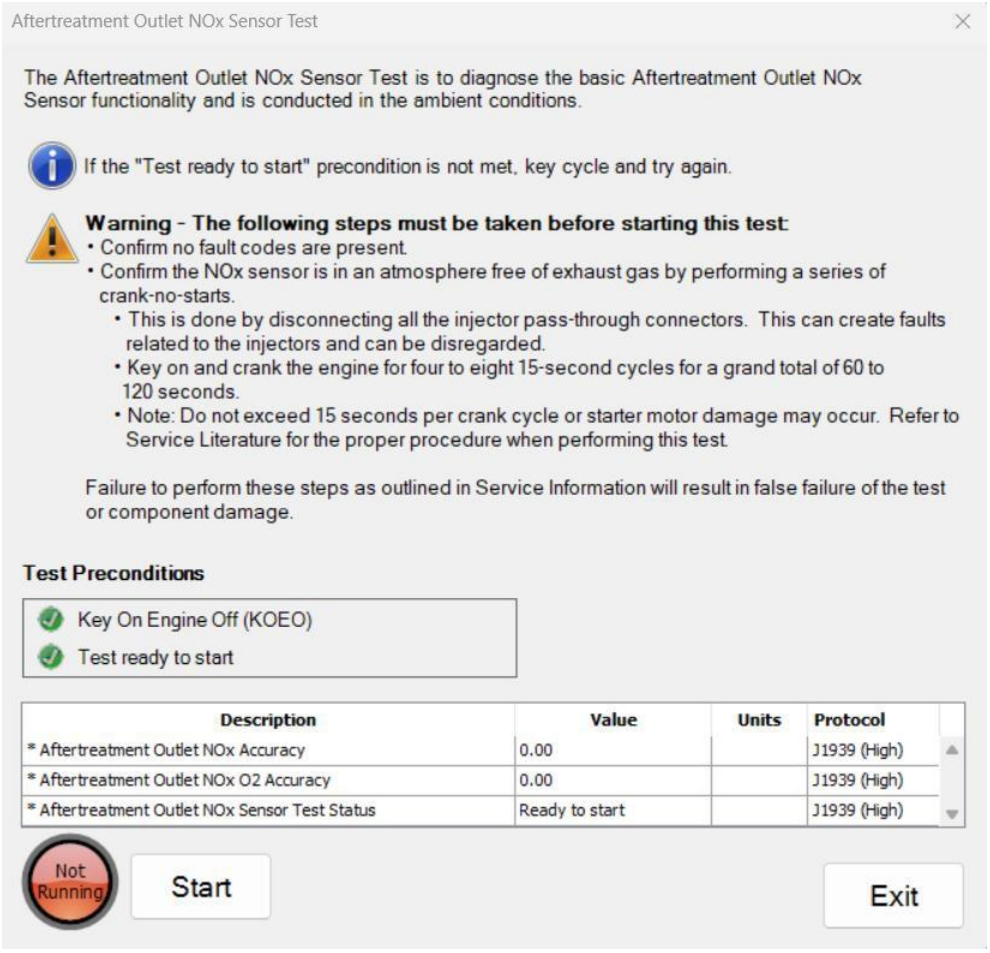
The **Aftertreatment Outlet NOx Sensor Test** is supported on:

- ✓ Update when Cummins coverage updates are completed

The **Aftertreatment Outlet NOx Sensor Test** is used to diagnose the basic Aftertreatment Outlet NOx Sensor functionality and is conducted in ambient conditions.

Follow the steps below to perform the **Aftertreatment Outlet NOx Sensor Test**:

1. Select the **Aftertreatment Outlet NOx Sensor Test** and press Enter or the **Start** button.
2. The **Aftertreatment Outlet NOx Sensor Test** dialog will display.



Aftertreatment Outlet NOx Sensor Test

3. Once all warnings have been heeded and preconditions met, click the **Start** button to begin the test.

4. After the test is completed, follow the instructions to turn off the ignition. When the timer expires, key on the engine and click **OK** to complete the test.
5. Click the **Exit** button to return to the test selection dialog.

Air Treatment Systems

Cartridge Lifetime Prediction Reset Test

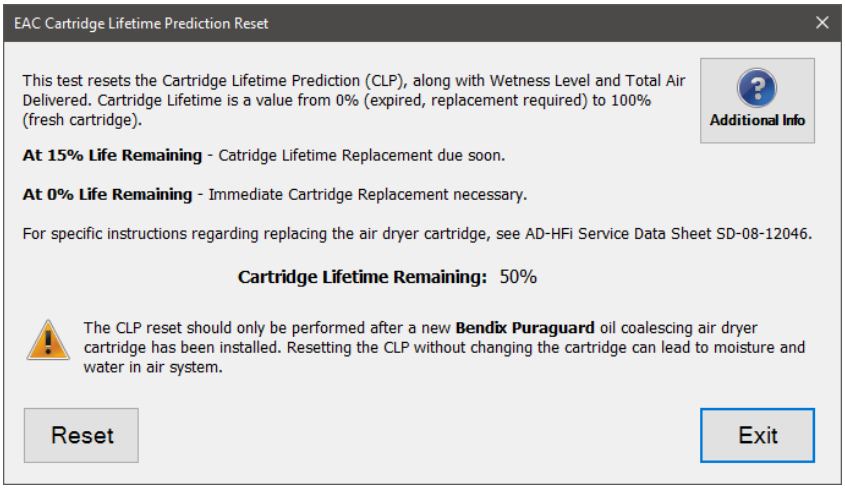
The **Cartridge Lifetime Prediction Reset** test is available on:

- ✓ 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.

Follow the steps below to perform the **Cartridge Lifetime Prediction Reset Test**:

1. Select **EAC Cartridge Lifetime Prediction Reset** test and press Enter or the **Start** button.
2. The **EAC Cartridge Lifetime Prediction Reset** test dialog will be displayed.

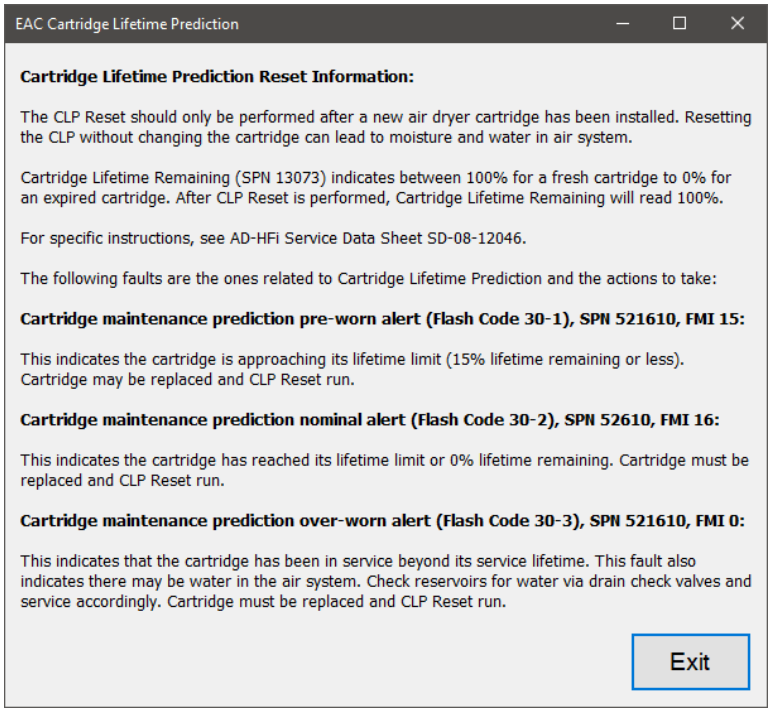


Cartridge Lifetime Prediction Reset Test

NOTE: Reset should only be performed after a new air dryer cartridge has been installed.

3. 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.
5. Click **Exit** to close this screen.



Cartridge Lifetime Prediction Reset Test Additional Info

6. When done, press the **Exit** button to return to the test selection dialog.

Cartridge Reset Test

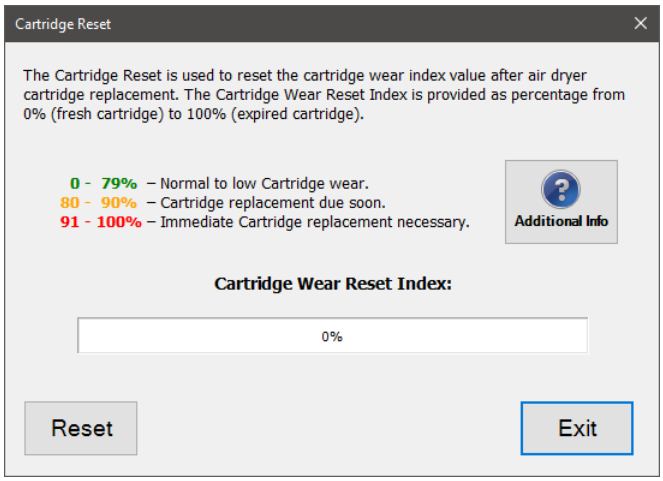
The **Cartridge Reset** test is available on:

- ✓ 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.

Follow the steps below to perform the **Cartridge Reset Test:**

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 be completed by 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

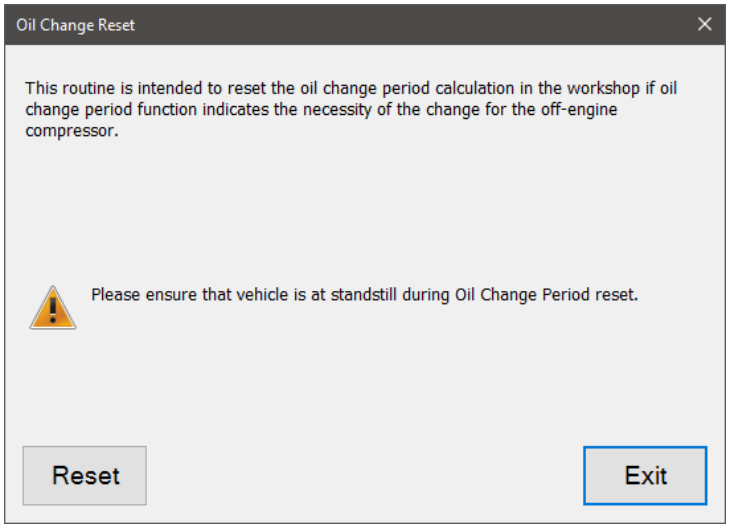
The **Oil Change Reset** test is available on:

- ✓ iAPU

The **Oil Change Reset Test** will reset the oil change period calculation after an oil change has been performed.

Follow the steps below to perform the **Oil Change Reset Test:**

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

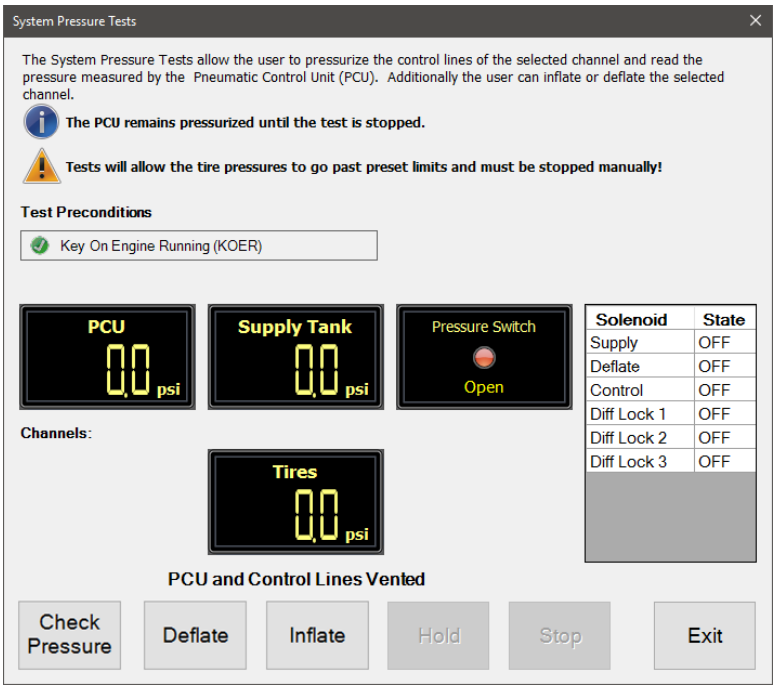
The **CTIS Pressure Test** is supported on:

- ✓ Dana CTIS where J1939 communications are available

The **CTIS Pressure test** allows 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).

Follow the steps below to perform the **CTIS Pressure Test:**

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

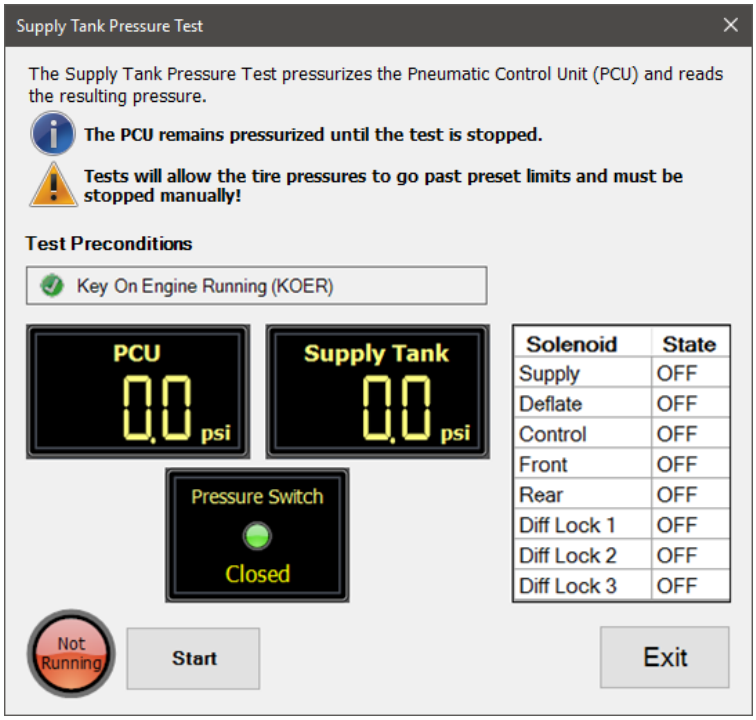
The **CTIS Supply Tank Pressure Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **CTIS Supply Tank Pressure Test:**

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

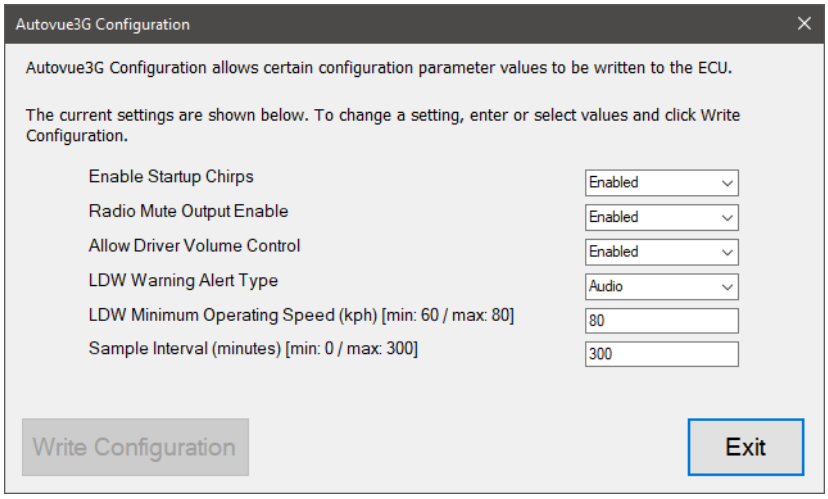
The **AutoVue Configuration** test is available on:

- ✓ Bendix AutoVue® 3G LDW System

This test allows the editing of configuration parameters.

Follow the steps below to perform **AutoVue 3G Configuration:**

1. Select **SDP3 Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



AutoVue Configuration

3. Select a new value in one or more rows of the grid. Click the **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

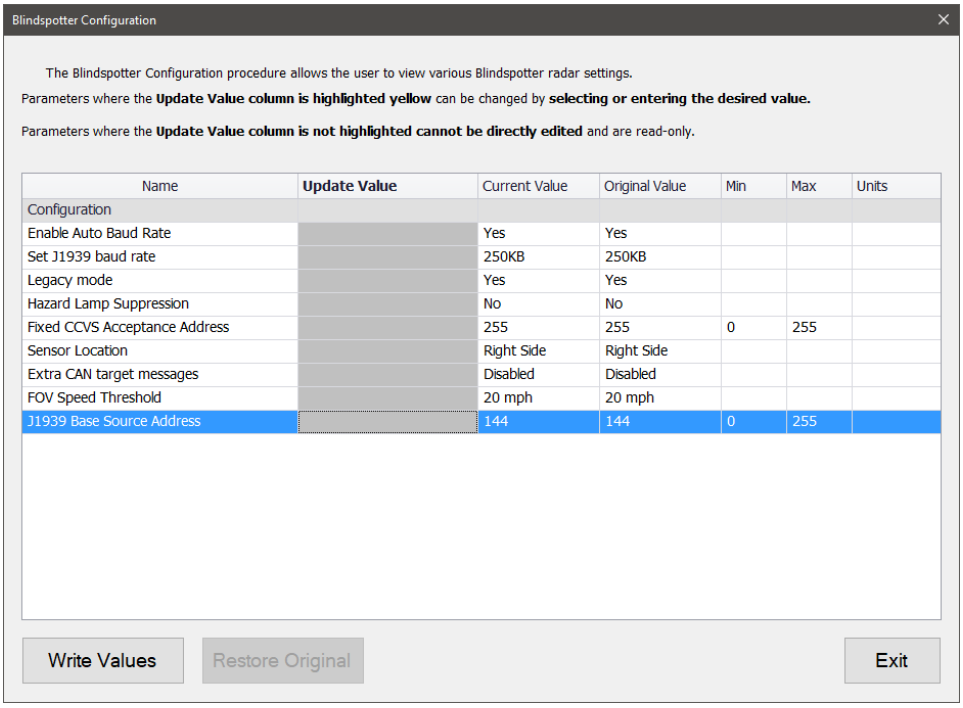
The **Blindspotter Configuration** is available on:

- ✓ Bendix Blindspotter® Radar

This test allows viewing the parameter values for the Blindspotter radar.

Follow the steps below to perform **Blindspotter Configuration:**

1. Select **Blindspotter Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed, showing the current parameter values of the **Blindspotter** radar.



Blindspotter Configuration

3. When done, press the **Exit** button to return to the test selection dialog.

Camera Snapshot Test

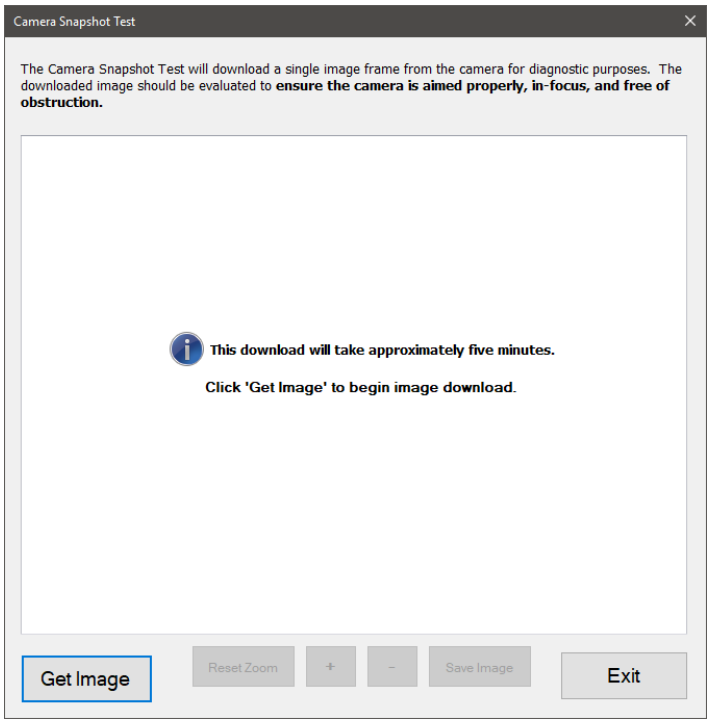
The **Camera Snapshot Test** is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test commands the camera to take a snapshot and download the image for viewing to ensure proper camera alignment, focus, and visibility.

Follow the steps below to perform the **Camera Snapshot Test:**

1. 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

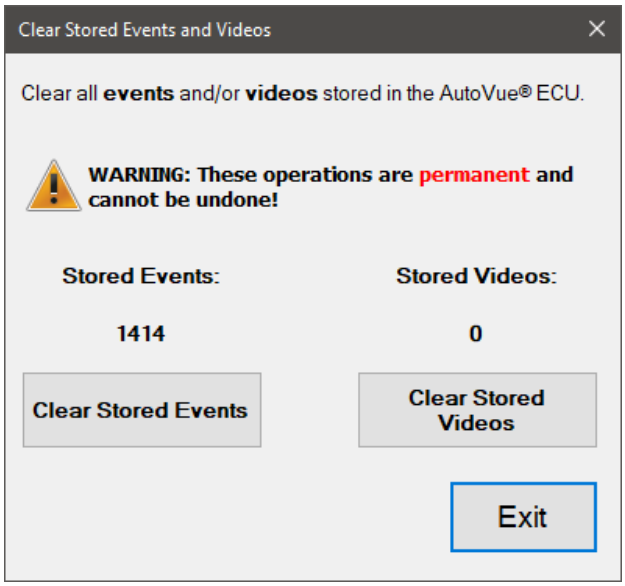
The **Clear Stored Events and Videos** test is available on:

- ✓ 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.

Follow the steps below to **Clear Stored Events and Videos:**

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.

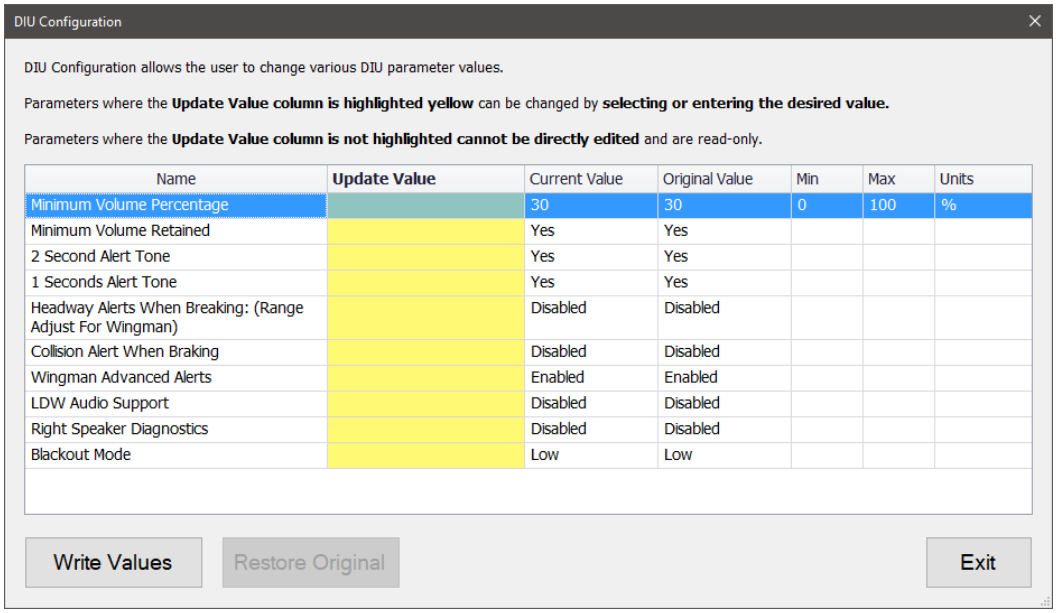
DIU Configuration

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 the **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

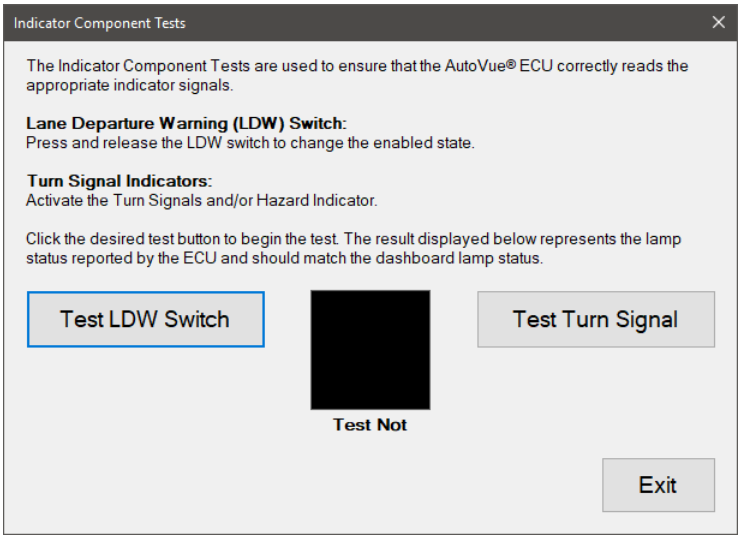
The **Indicator Component Tests** are available on:

- ✓ 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.

Follow the steps below to perform **Indicator Component Tests:**

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 ECU's 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

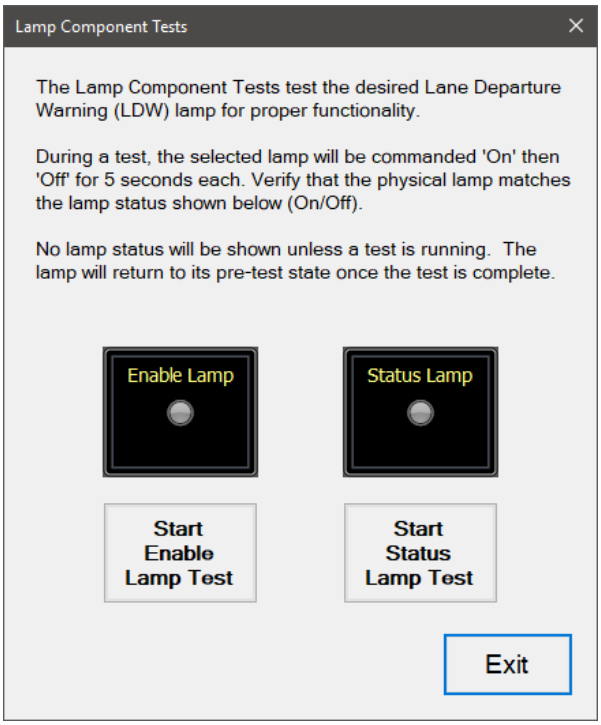
The **Lamp Component Tests** are available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (5G)

The **Lamp Component Test** tests the proper functionality of the Lane Departure Warning Enable/Disable Lamp and the Status Lamp.

Follow the steps below to perform the **Lamp Component Test:**

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

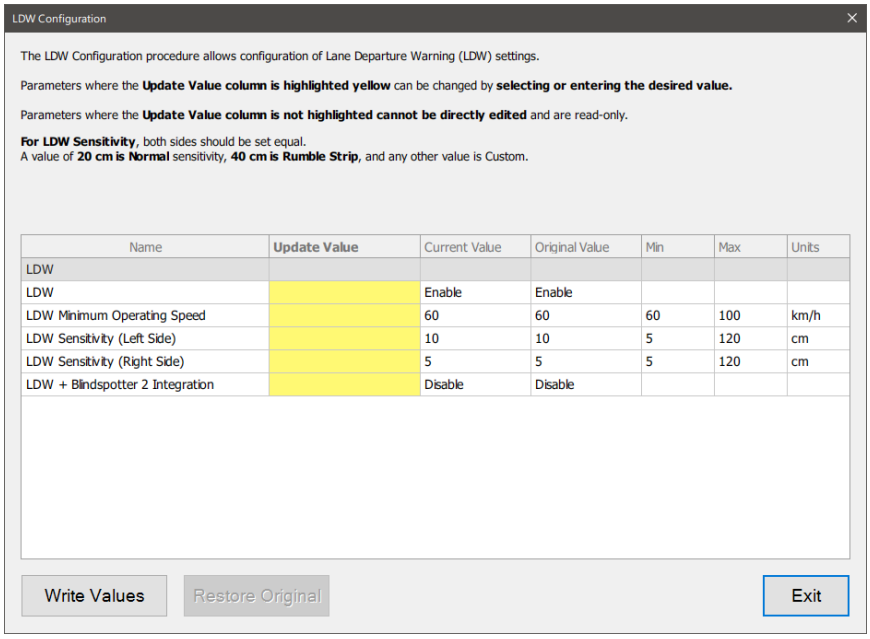
The **Lane Departure Warning (LDW) Configuration** test is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows editing of configuration parameters.

Follow the steps below to perform **LDW Configuration:**

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 the **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

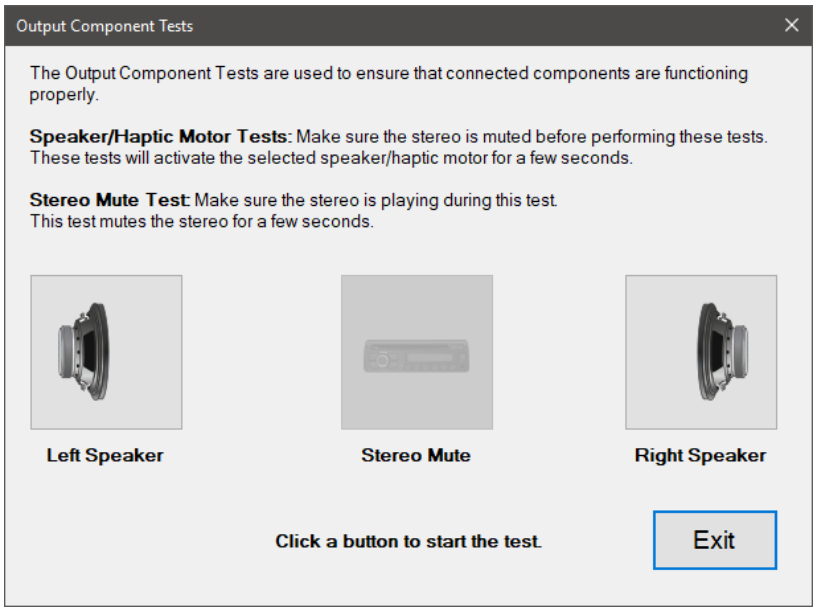
The **Output Component Tests** are available on:

- ✓ Bendix AutoVue® 3G LDW System
- ✓ Bendix SafetyDirect® Web Portal Processor (3G and 5G)

This test checks for the proper functionality of connected alert systems, including Speaker Feedback, Haptic Feedback, and Stereo Mute.

Follow the steps below to perform **Output Component Tests:**

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

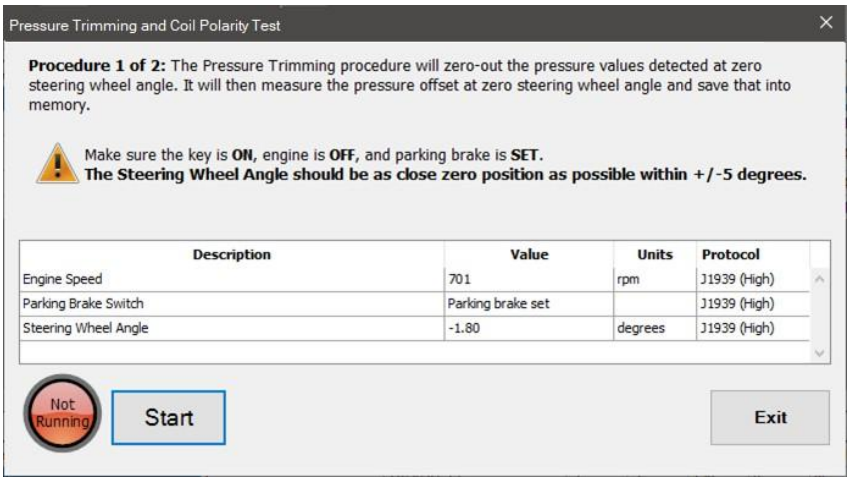
The **Pressure Trimming and Coil Polarity Test** is available on:

- ✓ 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.

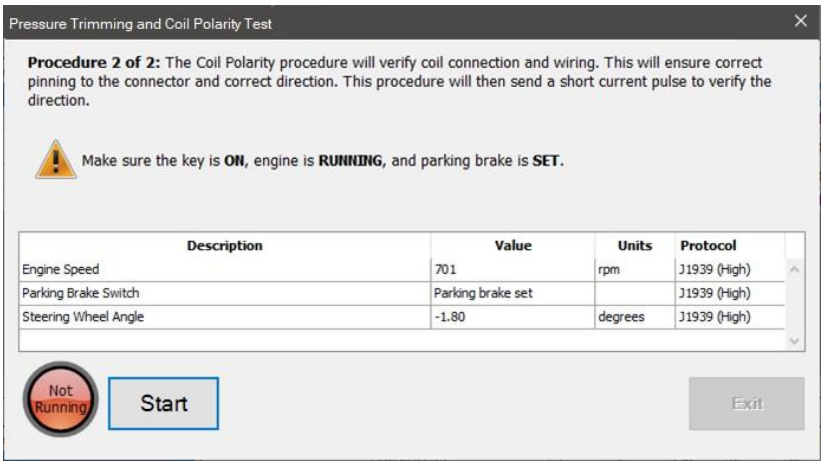
Follow the steps below to perform the **Pressure Trimming and Coil Polarity Test:**

1. Select **Pressure Trimming Test** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Pressure Trimming Test

3. 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.
4. 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

5. When done, press the **Exit** button to return to the test selection dialog.

Radar Alignment

The **Radar Service Alignment** test is available on:

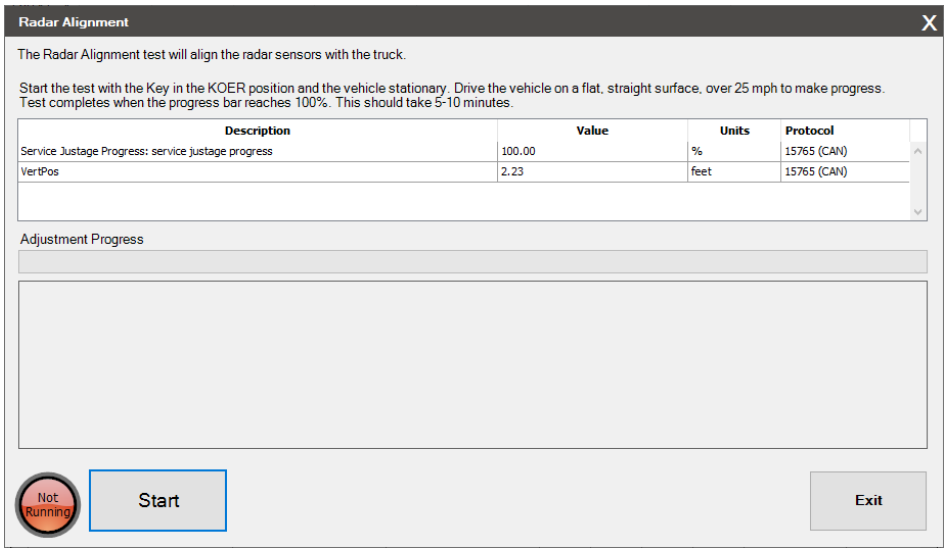
- ✓ Detroit Assurance Radar Frontend 2

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.

Follow the steps below to perform **Radar Service Alignment:**

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

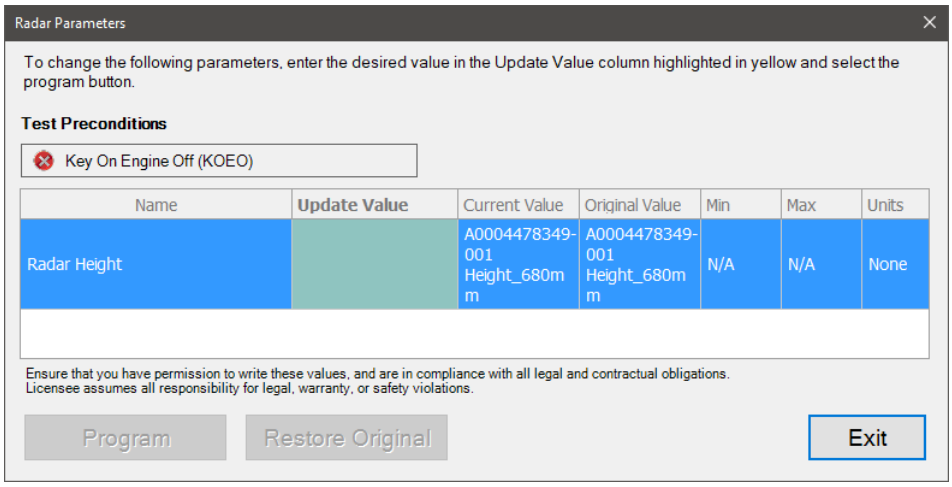
The **Radar Parameters** test is available on:

- ✓ Detroit Assurance Radar Frontend 2

This test allows the editing of radar configuration parameters.

Perform the steps below to perform **Radar Parameters Test:**

1. Select the **Radar Parameters test** and press Enter or the **Start** button.
2. The **Radar Parameters** test dialog will display the current parameter values of the Radar Frontend.



Radar Parameters

3. 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.
4. When done, press the **Exit** button to return to the test selection dialog.

Radar Service Alignment

The **Radar Service Alignment** test is available on:

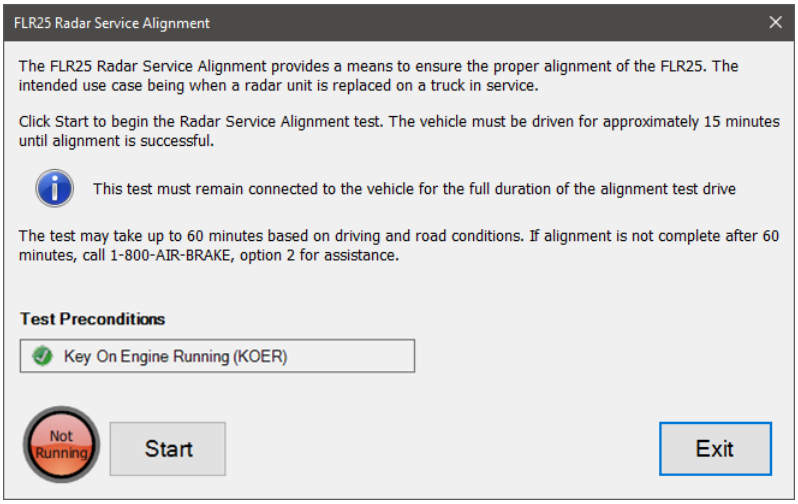
- ✓ Wingman® FLR25™ Radar

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.

Follow the steps below to perform **Radar Service Alignment:**

1. 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 been 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

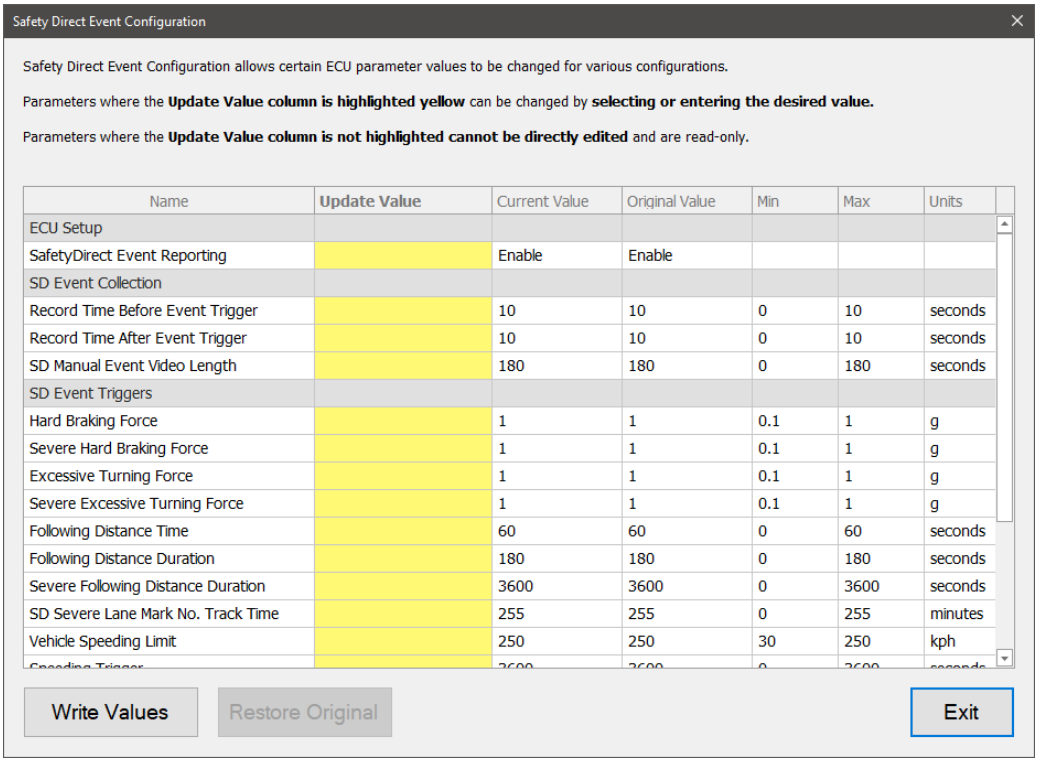
The **Safety Direct Event Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (3G and 5G)

This test allows the user to configure triggers and parameters for safety events.

Follow the steps below to perform **Safety Direct Event Configuration:**

1. Select **Safety Direct Event Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Safety Direct Event Configuration

3. Select a new value in one or more rows of the grid. Click the **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

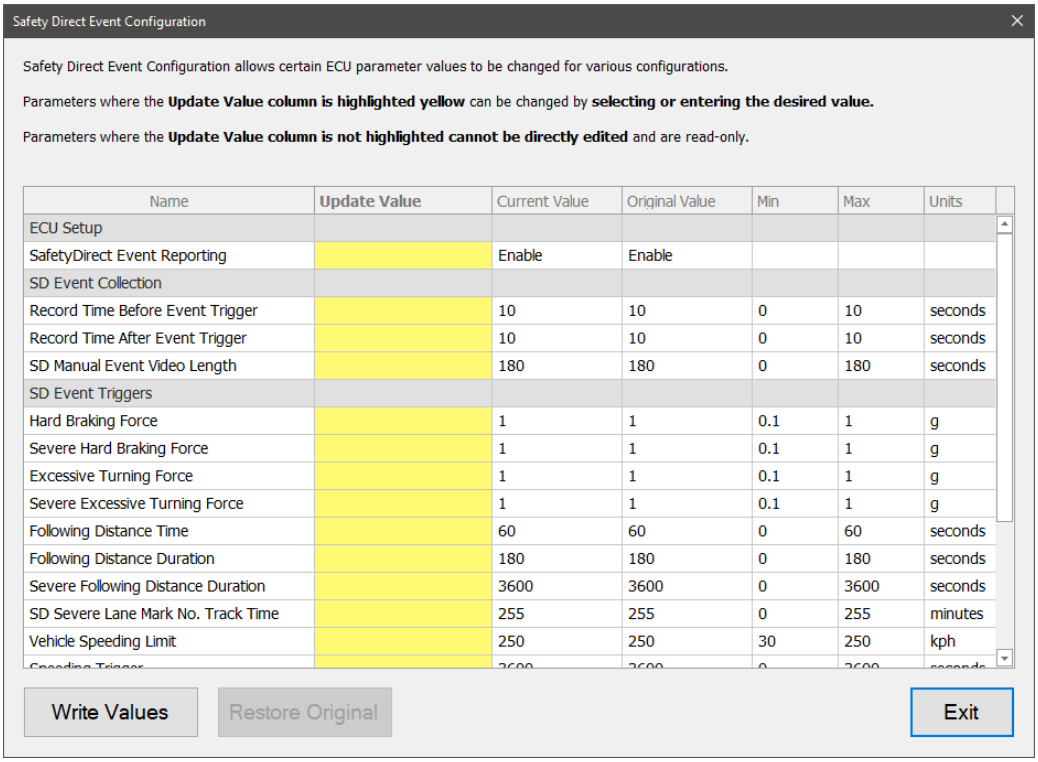
The **Safety Direct Event Selection Configuration** test is available on:

- ✓ 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.

Follow the steps below to perform **Safety Direct Event Selection Configuration:**

1. Select **Safety Direct Event Selection Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Safety Direct Event Configuration

3. Select a new value in one or more rows of the grid. Click the **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

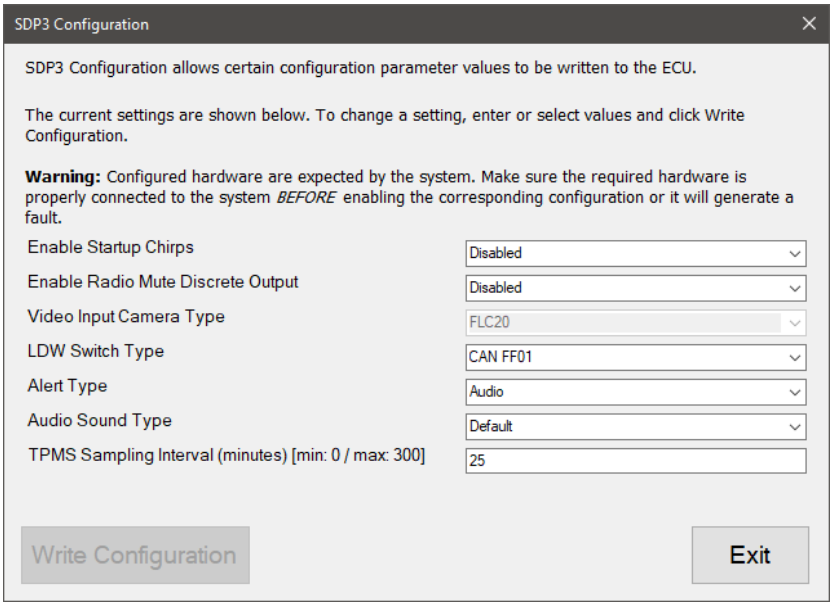
The **SDP3 Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (3G)

This test allows the editing of configuration parameters.

Follow the steps below to perform **SDP3 Configuration:**

1. Select **SDP3 Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



SDP3 Configuration

3. Select a new value in one or more rows of the grid. Click the **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.

SDP5 Configuration

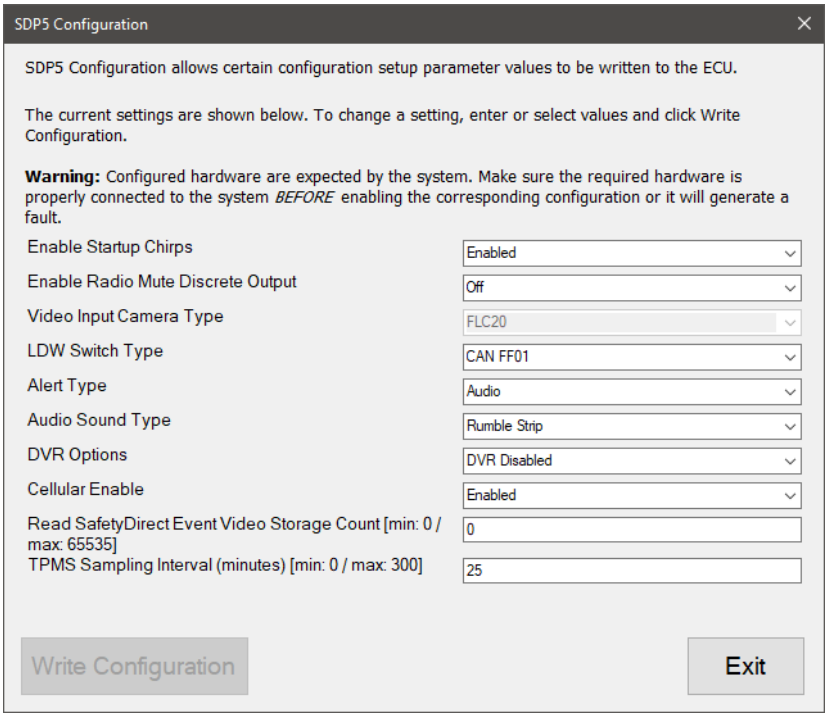
The **SDP5 Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (5G)

This test allows the editing of configuration parameters.

Follow the steps below to perform **SDP5 Configuration:**

1. Select **SDP5 Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



SDP5 Configuration

3. Select a new value in one or more rows of the grid. Click the **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.

SDP 5 System Configuration

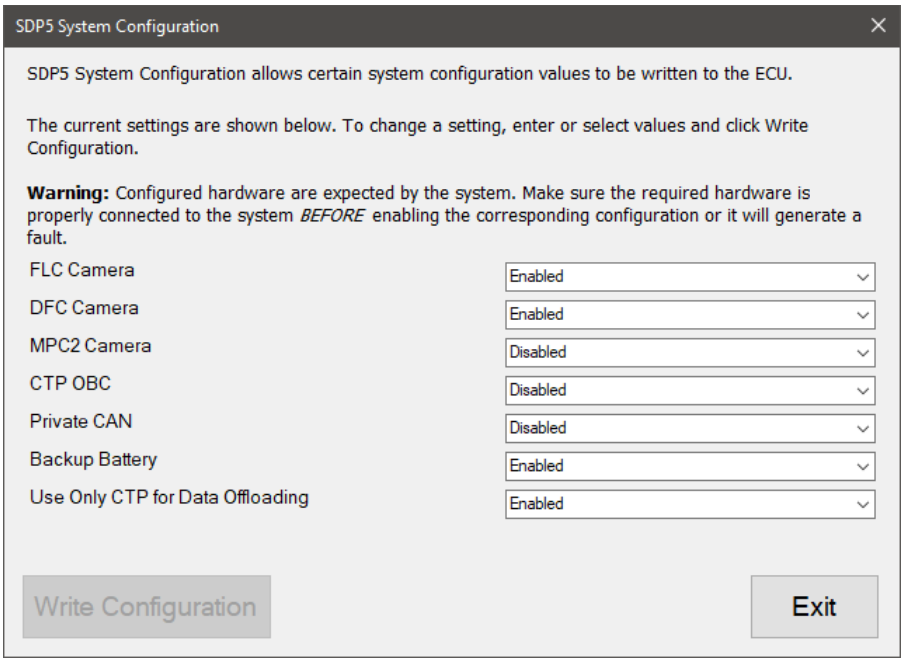
The **SDP5 System Configuration** test is available on:

- ✓ SafetyDirect® Web Portal Processor (5G)

This test allows the editing of system configuration parameters.

Follow the steps below to perform **SDP5 System Configuration:**

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 the **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

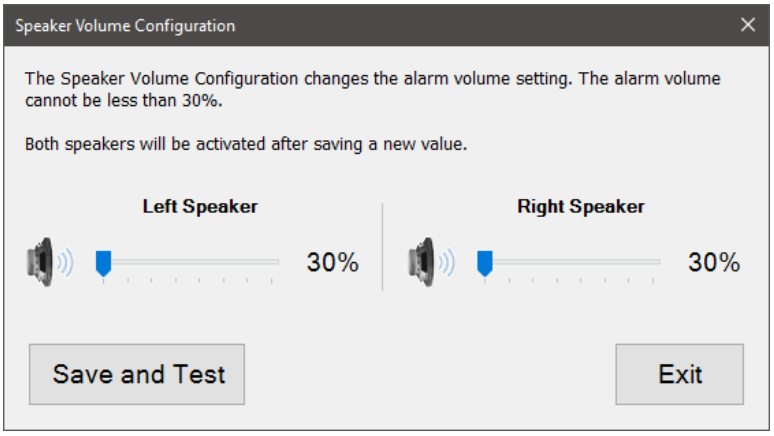
The **Speaker Volume Configuration** test is available on:

- ✓ 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.

Follow the steps below to perform **Speaker Volume Configuration:**

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

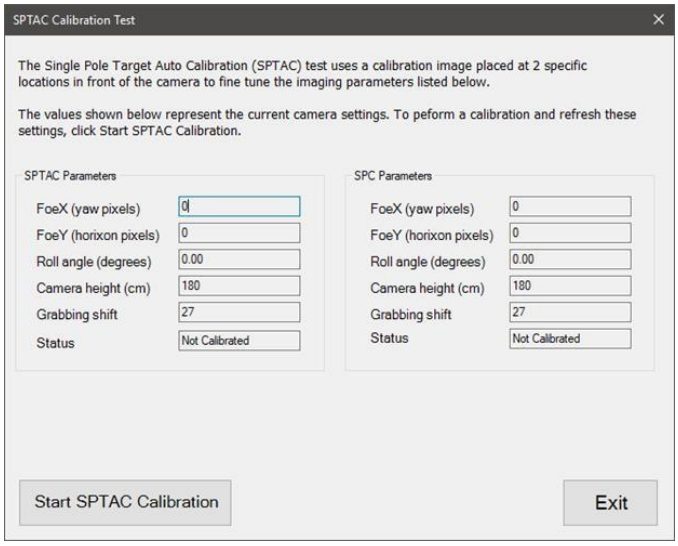
The **SPTAC Calibration Test** is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows calibration of the vehicle-mounted camera by imagining a target placed at 2 specific locations.

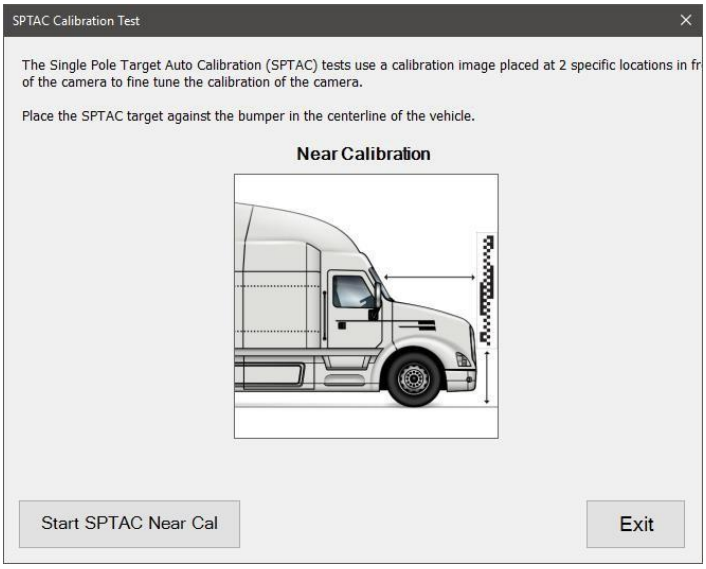
Follow the steps below to perform the **SPTAC Calibration Test:**

1. Select the **SPTAC Calibration Test** and press Enter or the **Start** button.
2. The test dialog will be displayed.



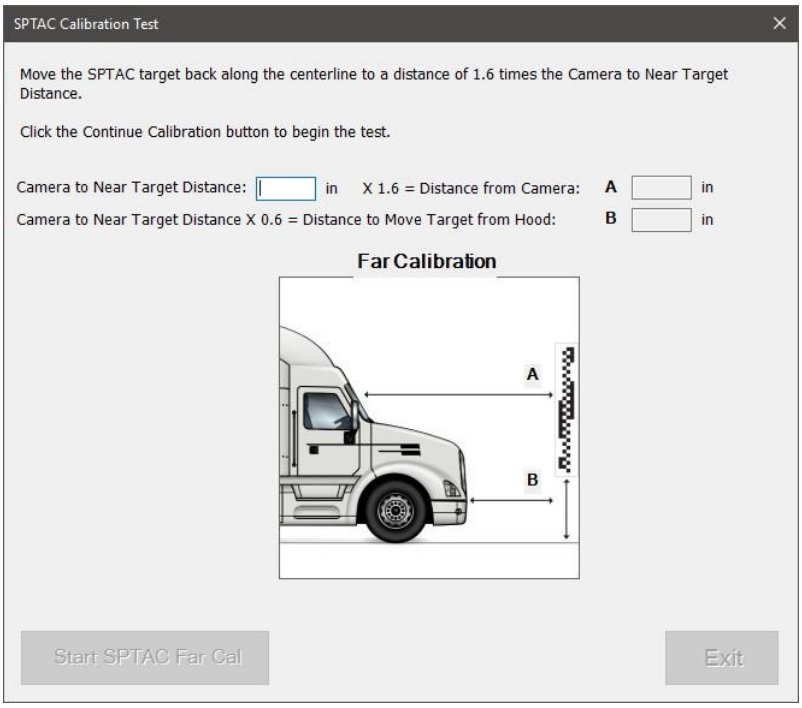
SPTAC Calibration Test Current Settings

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.
5. Once near calibration is 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.
6. 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

7. When done, press the **Exit** button to return to the test selection dialog.

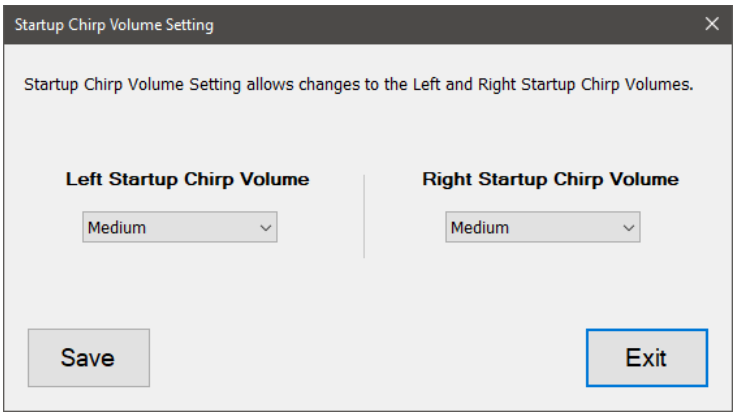
Startup Chirp Volume Setting

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.
Follow the steps below to adjust the Startup Chirp Volume:

1. 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

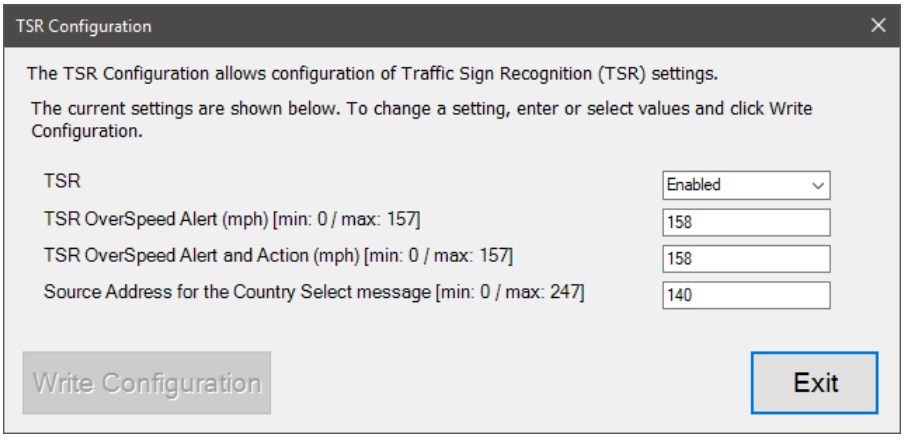
The **Traffic Sign Recognition (TSR) Configuration** test is available on:

- ✓ Bendix AutoVue® FLC20™ Camera

This test allows editing of configuration parameters.

Follow the steps below to perform **TSR Configuration**:

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 the **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

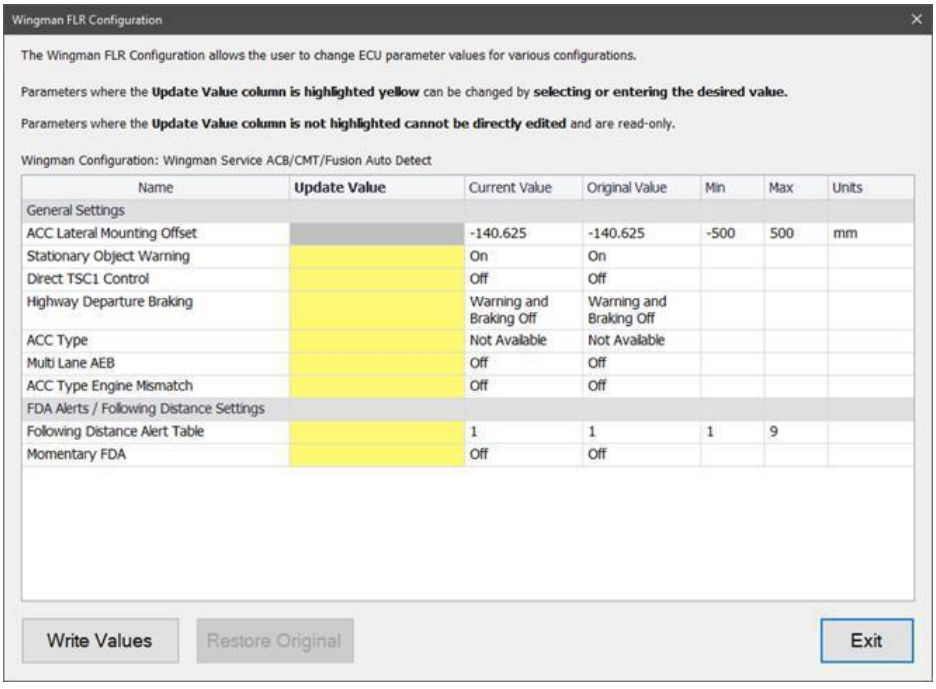
The **Wingman FLR Configuration** test is available on:

- ✓ Bendix Wingman® FLR20™/FLR21™ Radar
- ✓ Bendix Vorad VS500 Radar

This test allows editing of configuration parameters.

Follow the steps below to perform **Wingman FLR Configuration**:

1. Select **Wingman FLR Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Wingman FLR Configuration

3. Select a new value in one or more rows of the grid. Click the **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

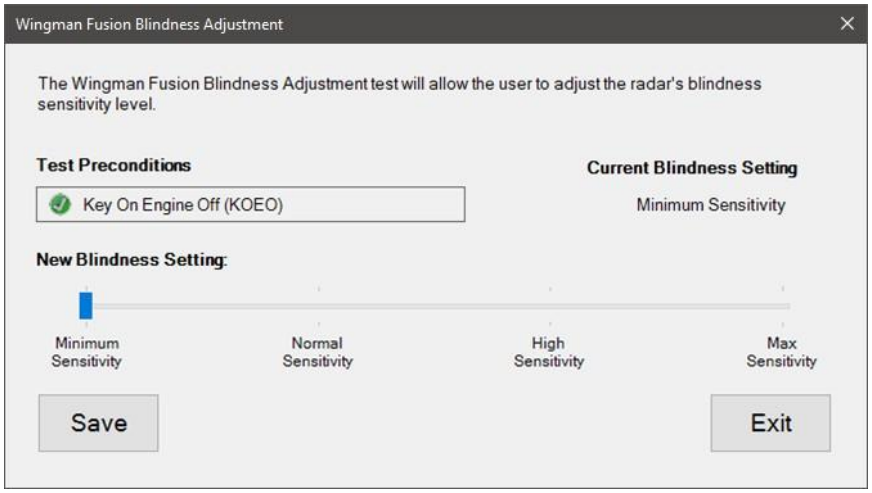
The **Wingman Fusion Blindness Adjustment** test is available on:

- ✓ Bendix Wingman® FLR21™ Radar

This test allows adjustment of the radar's blindness sensitivity level.

Follow the steps below to adjust the wingman fusion blindness**:**

1. Select **Wingman Fusion Blindness Adjustment** and press Enter or 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:

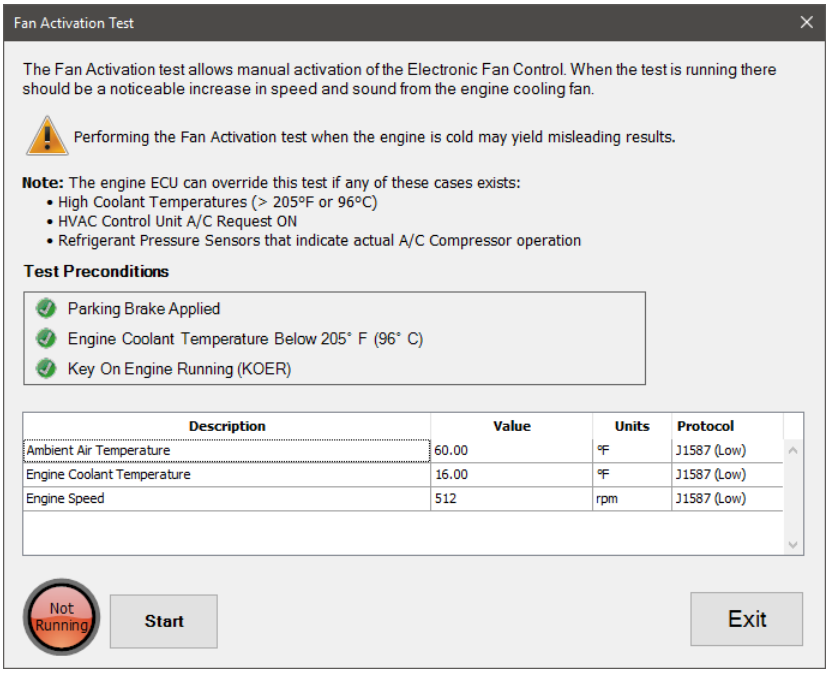
- ✓ Mack and Volvo all EPA 07 to EPA 10 engines

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.

Follow the steps below to perform the **Fan Activation Test**:

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, 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 appear to be running the fan activation test 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

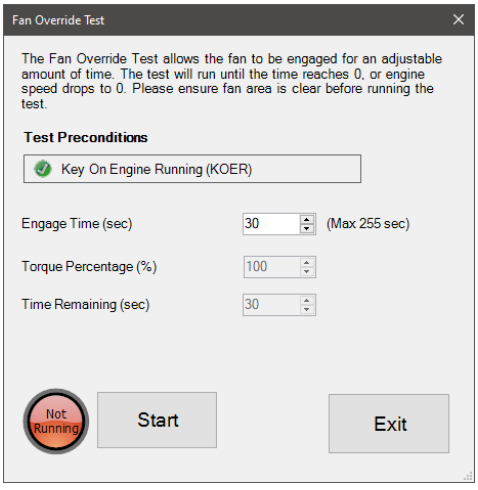
The **Fan Override Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **Fan Override Test**:

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

The **Activate Fuel Dosing Valve** test is supported on:

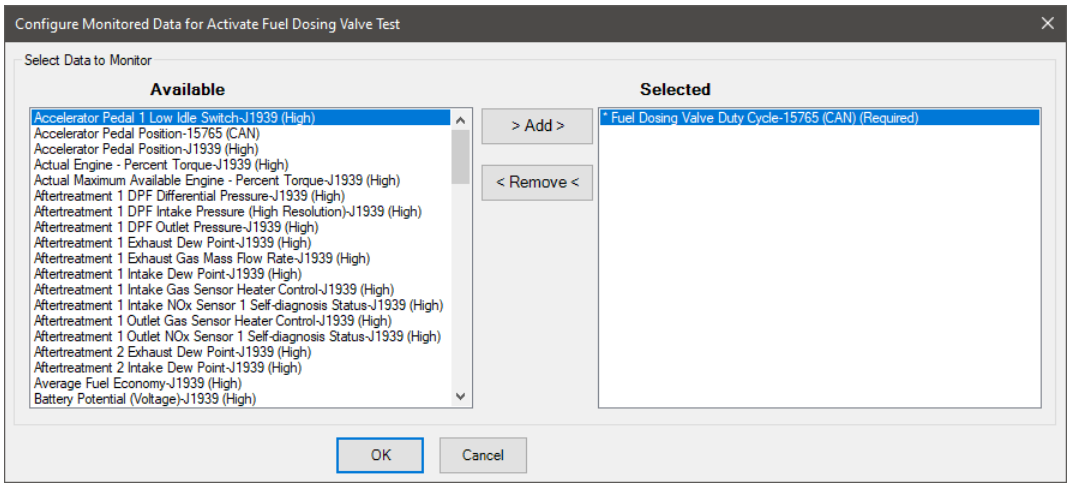
- ✓ PACCAR GHG17 to GHG21 all MX engines

The **Activate Fuel Dosing Valve** test is used to verify fuel dosing valve operation and wiring. Ensure the vehicle is parked where the Fuel Dosing Valve operation can be heard.

Failure to cycle the ignition key when prompted can lead to erratic vehicle behavior.

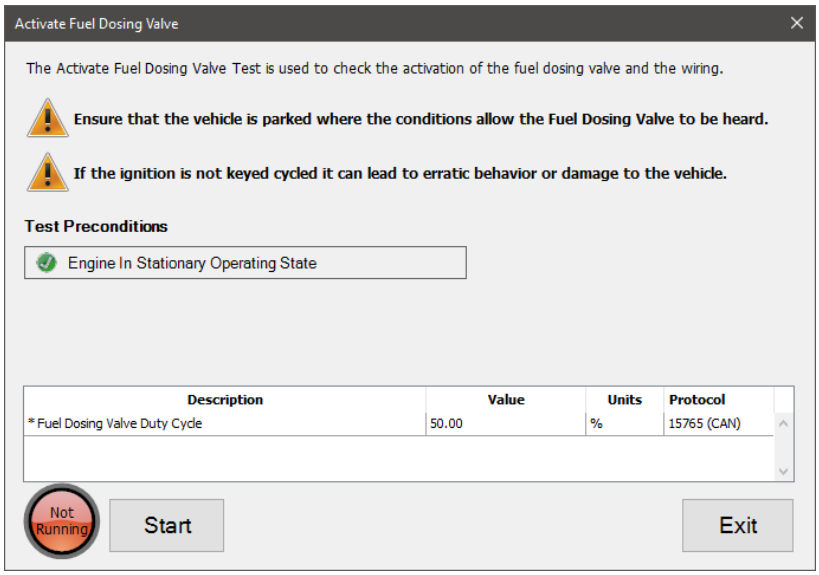
Follow the steps below to perform the **Activate Fuel Dosing Valve Test**:

1. Select the **Active Fuel Dosing Valve** test and press Enter or the **Start** button.
2. The **Configure Monitored Data for Activate Fuel Dosing Valve Test** dialog will be displayed.



Configure Monitored Data for Activate Fuel Dosing Valve Test Dialog

3. 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.
4. When you are done selecting parameters, then press the **OK** button; otherwise, press the **Cancel** button to return to the test selection dialog.
5. The **Active Fuel Dosing Valve** test dialog will display.



Activate Fuel Dosing Valve Test

6. Ensure all preconditions are met, then click the **Start** button to begin the test.
7. 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.
8. When the routine ends, a question dialog will ask if the fuel dosing valve was audible. Click **Yes** if the valve actuation was audible.
9. When prompted, cycle the key off again until instructed to key the ignition back on. The results of the test will be displayed.
10. When the test has been completed, click the **Exit** button to return to the test selection dialog.

Automated Cylinder Performance Test

The **Automated Cylinder Performance Test** is supported on:

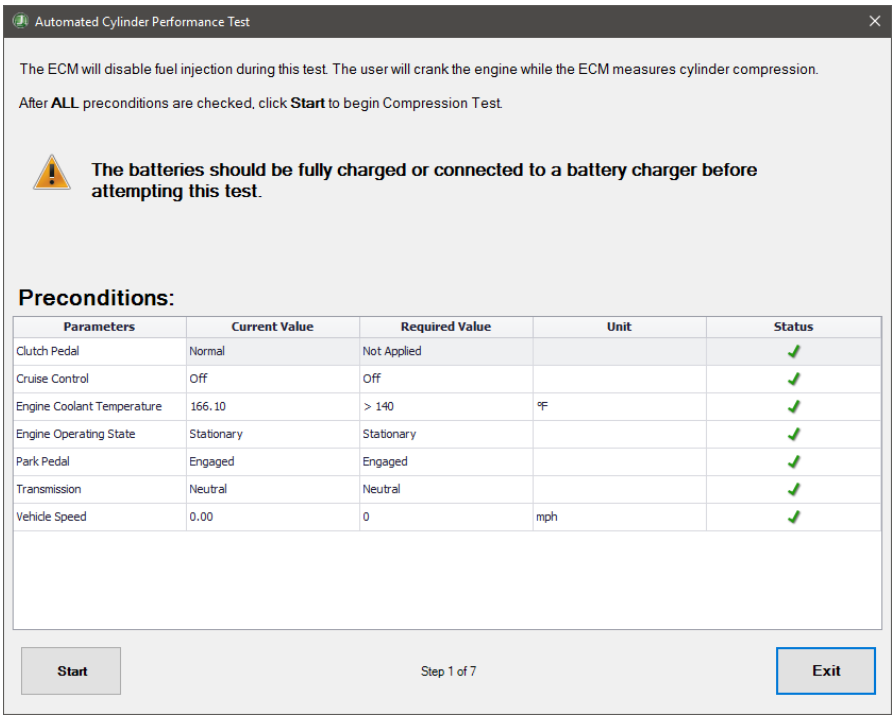
- ✓ PACCAR EPA 10 and EPA 13 all MX engines

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.

Follow the steps below to perform the **Automated Cylinder Performance Test:**

1. Select the **Automated Cylinder Performance Test** and press Enter or the **Start** button.
2. The **Automated Cylinder Performance Test** dialog will display 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 the cranking position until further instructions. After the engine cranking speed stabilizes, the ECM will measure cylinder compression during two complete crankshaft revolutions.

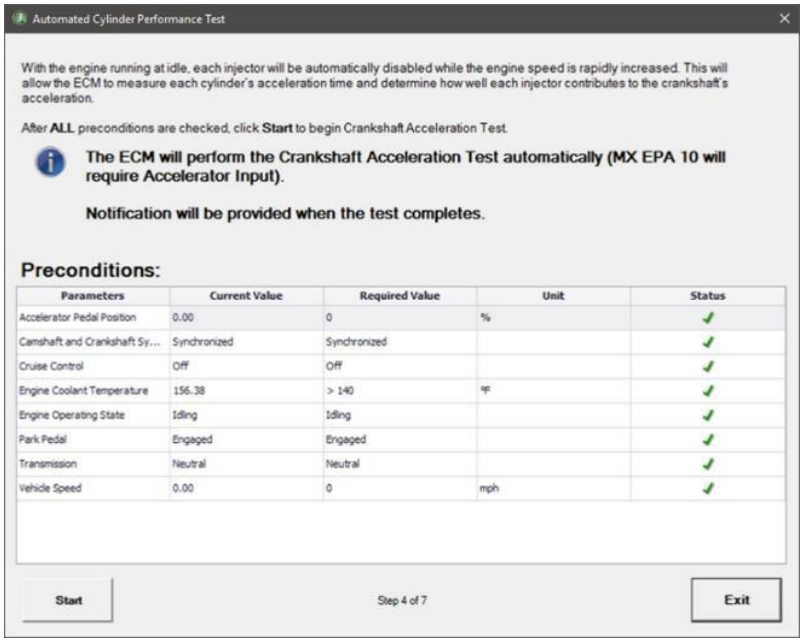


Automated Cylinder Performance Test – Compression Test in Progress

5. Once the compression test procedure is complete, follow the 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 have 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.

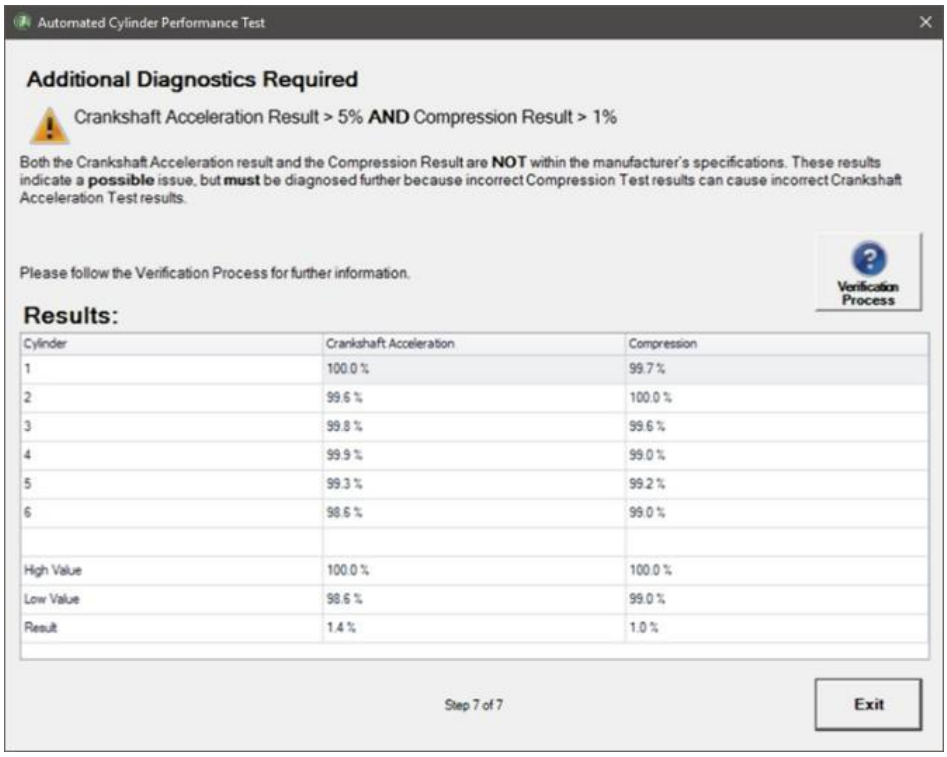


Automated Cylinder Performance Test – Crankshaft Acceleration Test Preconditions

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 have expired.

Failure to perform the Key OFF/ON sequence may cause damage to the vehicle or other unknown effects.

14. 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.



Automated Cylinder Performance Test – Results

Cylinder Compression Test

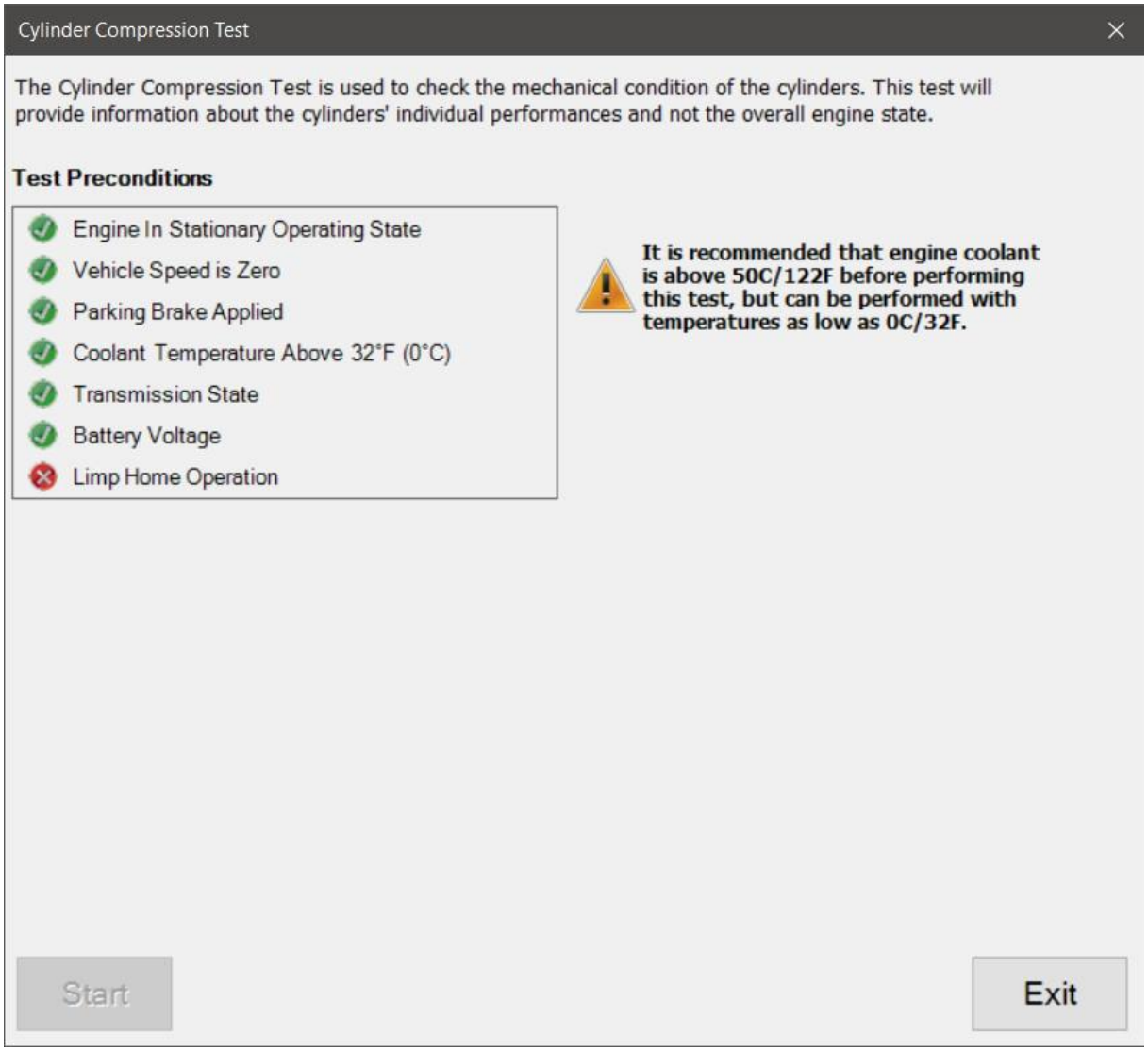
The **Cylinder Compression Test** is supported on:

- ✓ PACCAR GHG17 to GHG21 all MX engines

The **Cylinder Compression Test** evaluates and provides information on the mechanical condition of each cylinder.

Follow the outlined steps to perform the **Cylinder Compression Test**:

1. Select the **Cylinder Compression Test** and press Enter or the **Start** button.
2. 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

The **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 3126B Truck, 3126E Truck, and C-7 truck 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
- ✓ Detroit Diesel any supported CPC with MCM02T or MCM21T

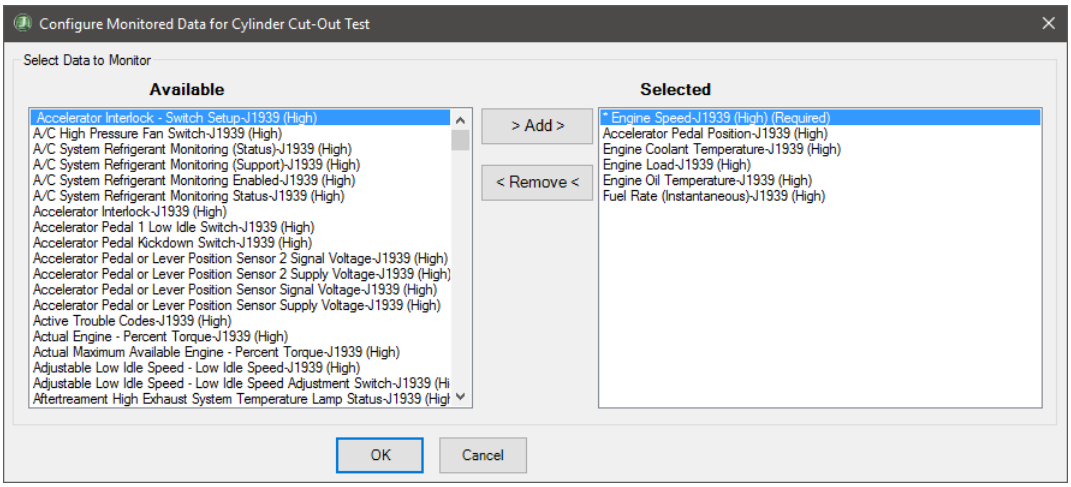
> **NOTE:** For Detroit Diesel, this test is only available for Supported ECU Software Versions.

- ✓ 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
- ✓ 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.

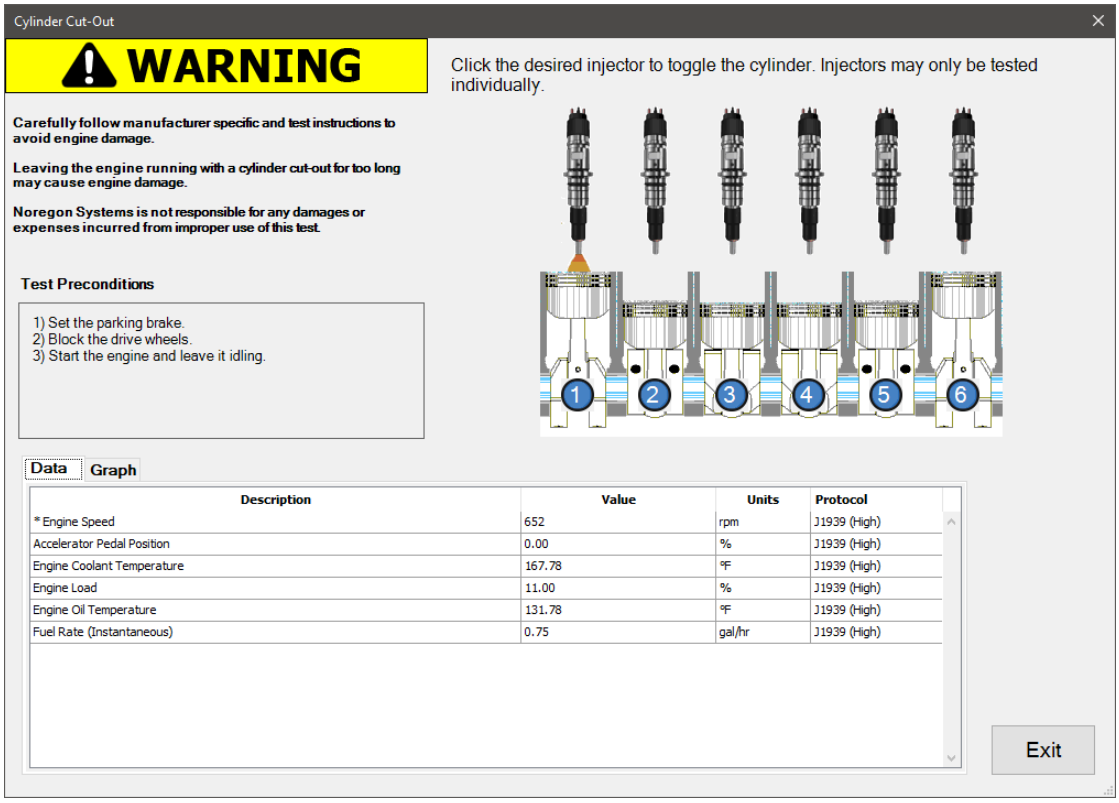
Follow the steps below to perform the **Cylinder Cut-Out Test**:

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 the **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 the **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 the disabling 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 the **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

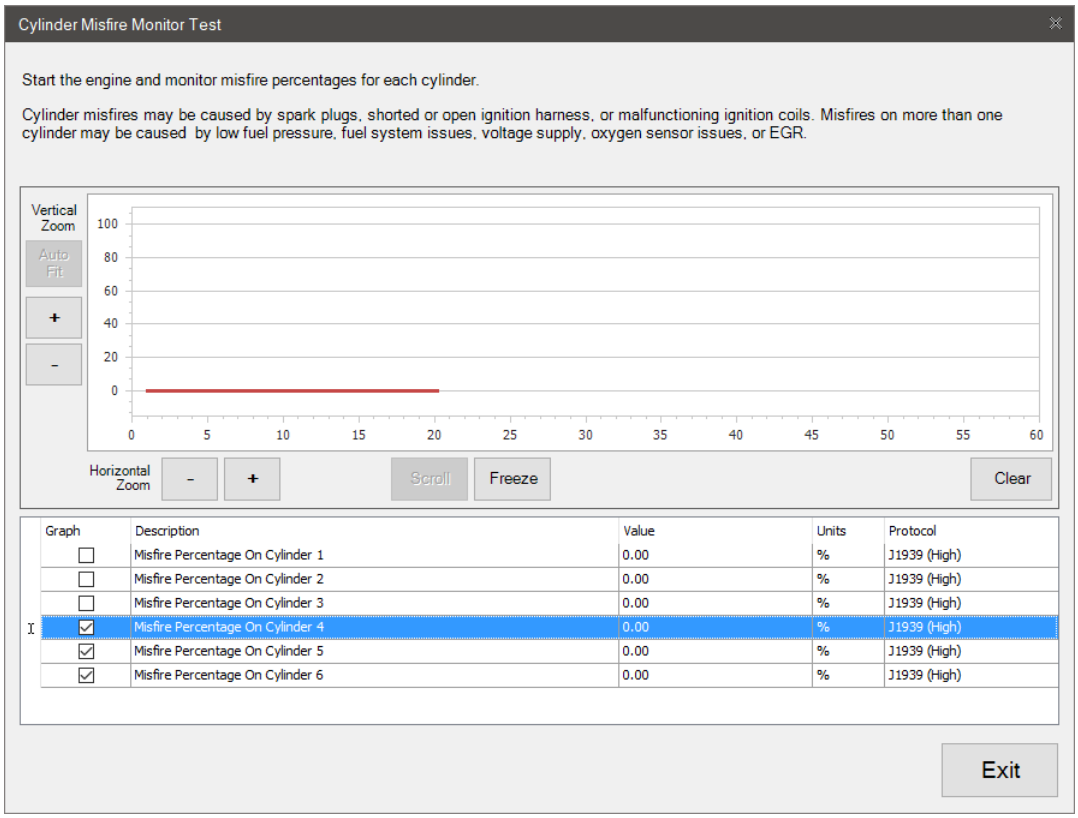
The **Cylinder Misfire Monitor Test** graphs reported misfire percentages while the engine is running.



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.

Follow the steps below to perform the **Cylinder Misfire Monitor Test**:

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:

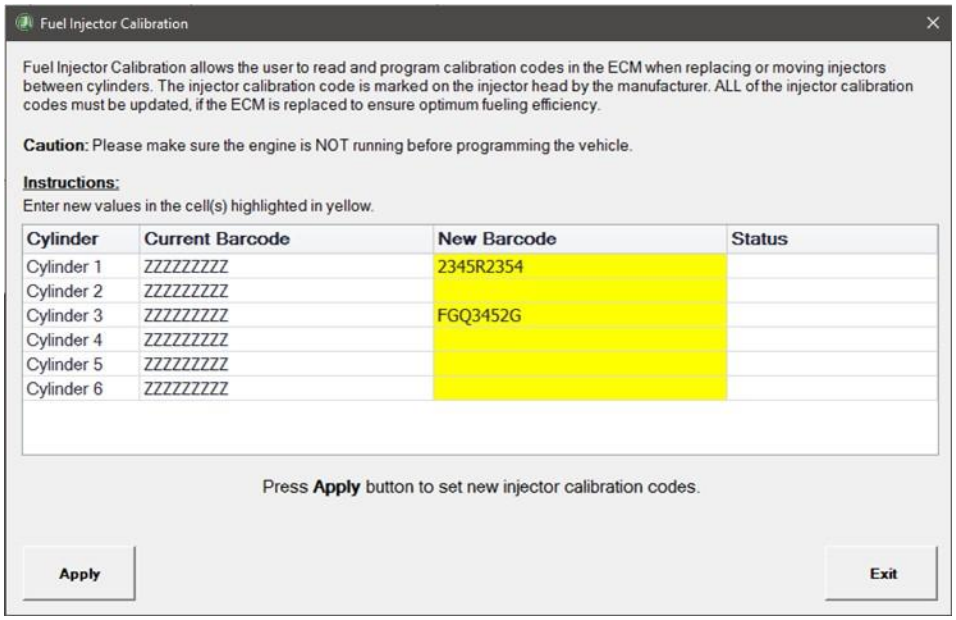
- ✓ Cummins EPA 07: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems
- ✓ Cummins EPA 10: all ISC, ISL, ISX (12L and 15L), and PX-8 with Common Rail Fuel Systems
- ✓ Paccar GHG21 all MX engines

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 injector calibration codes must be updated if the ECM is replaced to ensure optimum fueling efficiency.

Ensure the engine is not running before the test.

Follow the steps below to perform the **Fuel Injector Calibration**:

1. Select **Fuel Injector Calibration** test and press Enter or press the **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

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 have been written. The **Status** column will update to indicate "**Success**" or "**Failure**."

Fuel Injector Performance Test

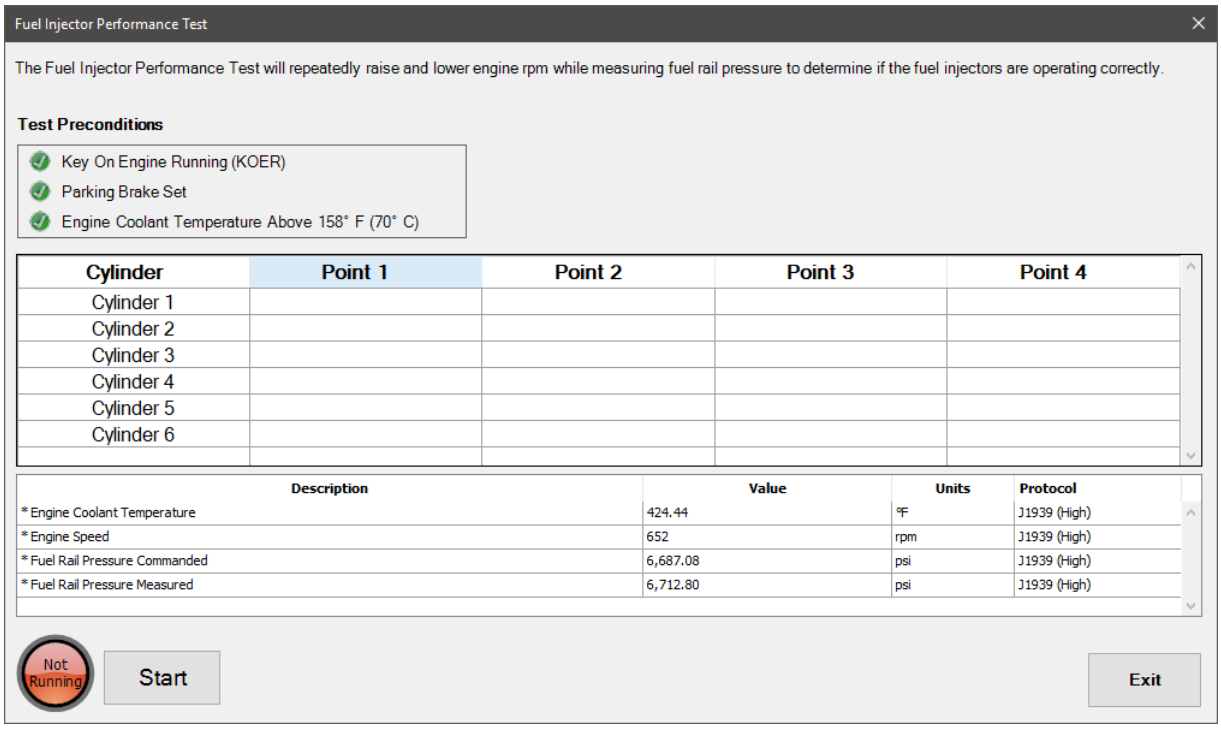
Fuel Injector Performance Test is supported on:

- ✓ 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

The **Fuel Injector Performance Test** will test all cylinders with varying fuel rail pressures to gauge performance.

Follow the steps below to perform the **Fuel Injector Performance Test**:

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.

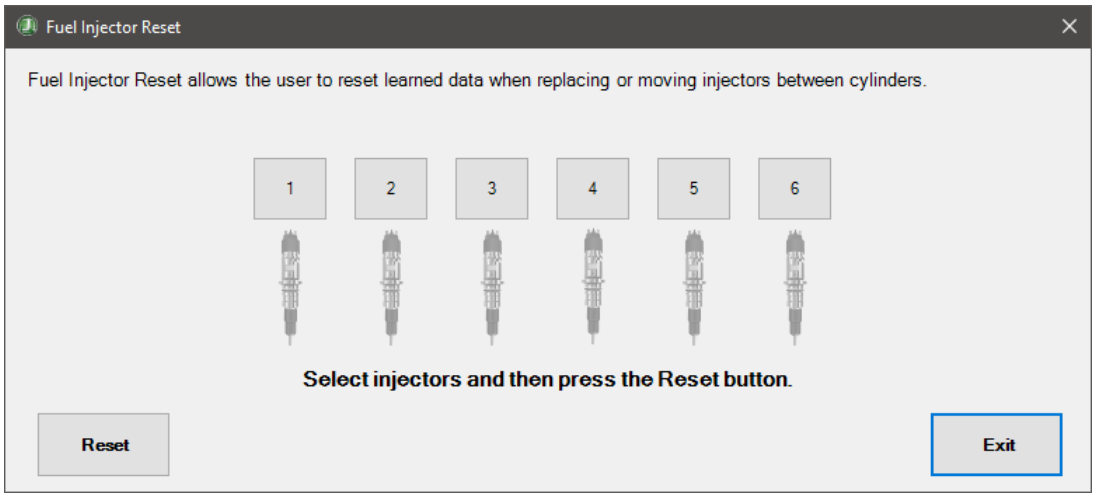
Fuel Injector Reset

Fuel Injector Reset is supported on:

- ✓ Cummins EPA 07: 6.7L ISB
- ✓ Cummins EPA 10: 6.7L ISB
- ✓ 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

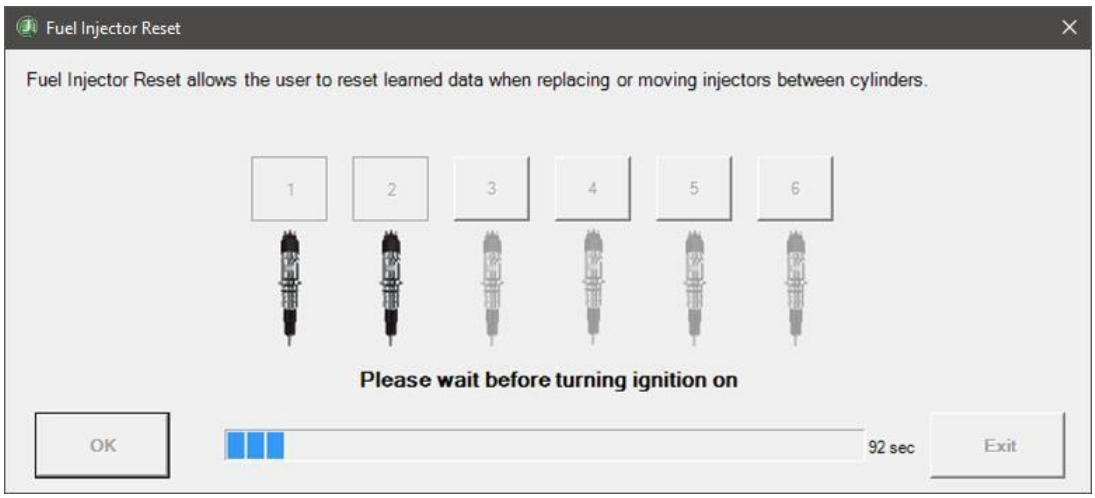
The **Fuel Injector Reset** provides the ability to reset learned data when replacing or moving injectors between cylinders.
Follow the steps below to perform the **Fuel Injector Reset**:

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 be highlighted.
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 Integrity Check Automatic

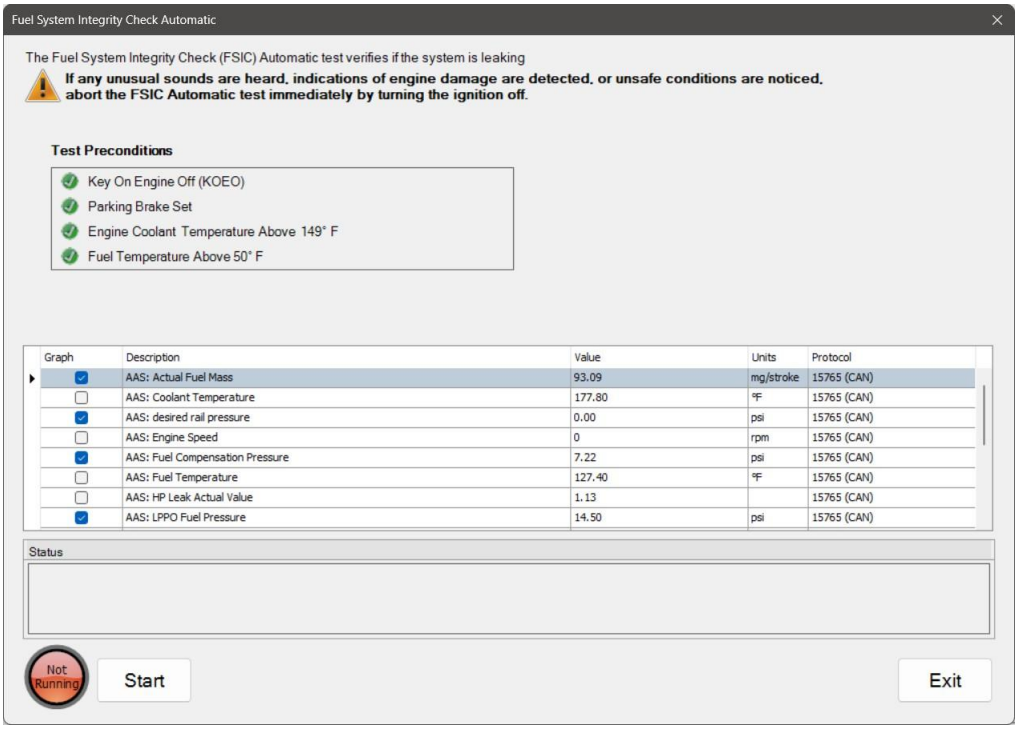
Fuel System Integrity Check Automatic test is supported on:

- ✓ Detroit Diesel CPC501T with ACM301T and MCM21T

The **Fuel System Integrity Check Automatic** test is an automatic process that will attempt to detect any leaks in the fuel system.

Follow the steps below to perform the **Fuel System Integrity Check Automatic** procedure:

1. Select the **Fuel System Integrity Check Automatic** test and press Enter or click the **Start** button.
2. The **Fuel System Integrity Check Automatic** test dialog will display.



Fuel System Integrity Check Automatic

3. Click the **Start** button to begin the test. Key on the engine when instructed, and the automatic test will increase the engine speed over time as the engine is monitored for leaks. Monitored data item values are graphed as the test runs.
4. When instructed, key off the engine. When the countdown completes, key the engine on. The final leak detection values will be read, and the results will be displayed.



Failure to perform the Key OFF/ON sequence may cause damage to the vehicle.

5. When the test has completed, click the Exit button to return to the test selection dialog.

Fuel System Integrity Check Manual

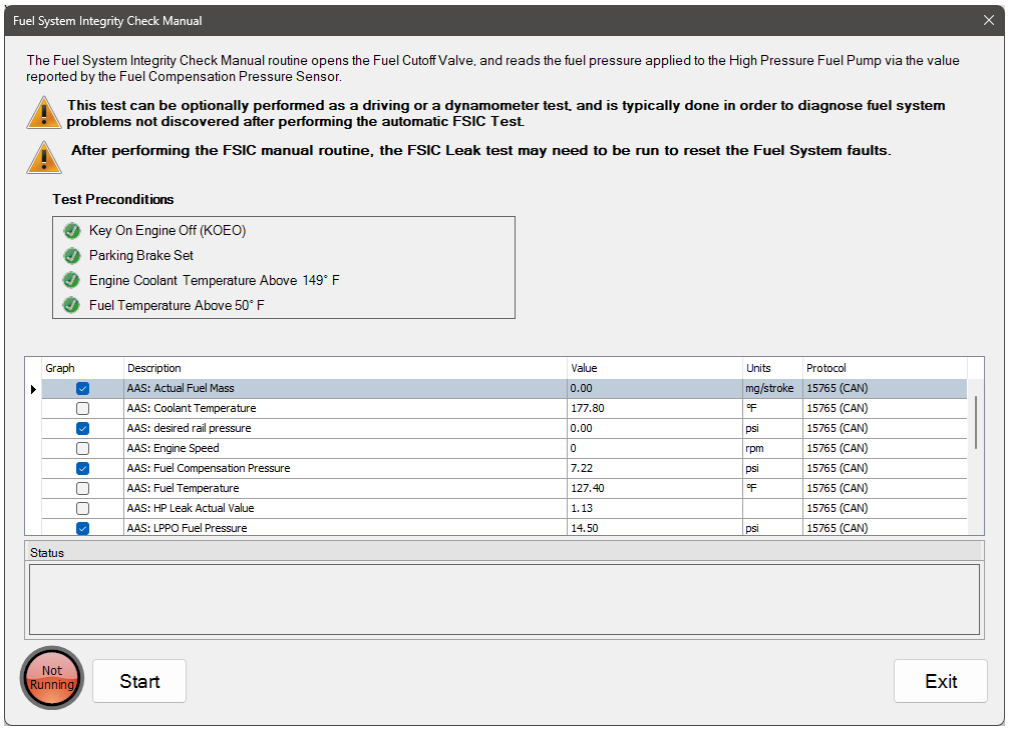
Fuel System Integrity Check Manual test is supported on:

- ✓ Detroit Diesel CPC501T with ACM301T and MCM21T

The Fuel System Integrity Check Manual test is used to verify if there are any leaks in the fuel system. The test will open the Fuel Cutoff valve and monitor fuel pressure applied to the High-Pressure Fuel Pump.

Follow the steps below to perform the **Fuel System Integrity Check Manual** procedure:

1. Select the **Fuel System Integrity Check Manual** test and press Enter or click the **Start** button.
2. The **Fuel System Integrity Check Manual** test dialog will display.



Fuel System Integrity Check Manual

3. Click the **Start** button to begin the test. Key on the engine when instructed. Monitored data item values are graphed as the test runs. The vehicle may be driven while this test runs to assist in detecting leaks. The test will run until the Stop button is clicked.
4. When instructed, key off the engine. When the countdown completes, key the engine on. The final leak detection values will be read and the results displayed.

> Failure to perform the Key OFF/ON sequence may cause damage to the vehicle.

5. When the test has completed, click the **Exit** button to return to the test selection dialog.

Fuel System Integrity Check Leak

Fuel System Integrity Check Leak Test is supported on:

- ✓ Detroit Diesel CPC501T with ACM301T and MCM21T

The **Fuel System Integrity Check Leak Test** allows technicians to identify a leak in the high-pressure fuel system.



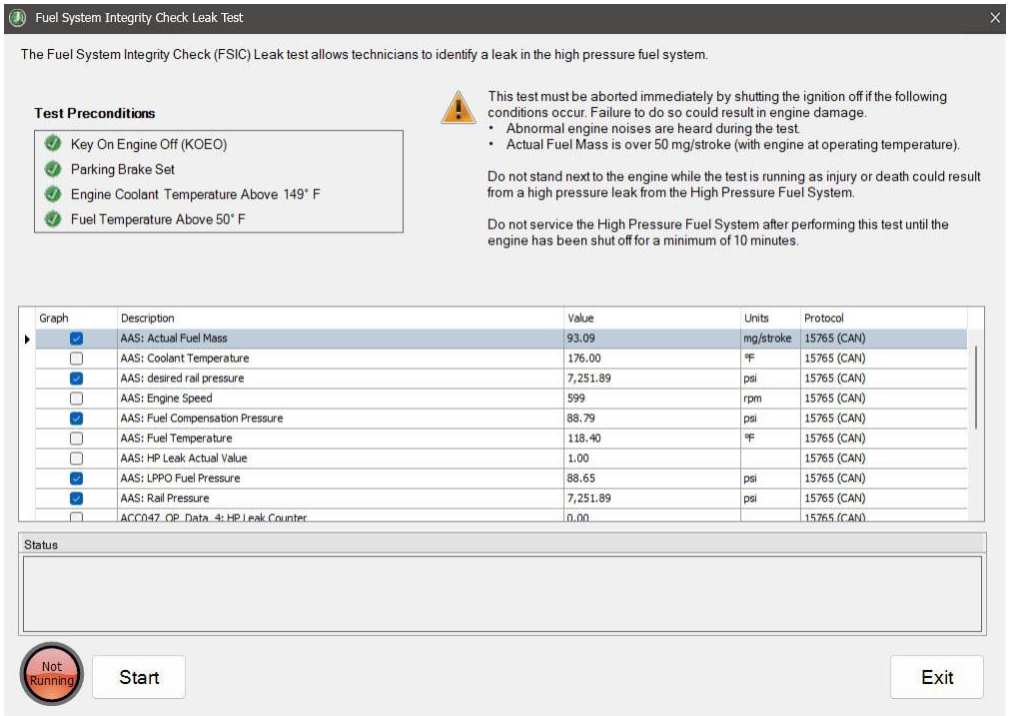
This test must be aborted immediately by shutting the ignition off if the following conditions occur:

- Abnormal engine noises are heard during the test.
- Actual Fuel Mass is over 50 mg/stroke (with engine at operating temperature).

Failure to do so could result in engine damage.

Follow the steps below to perform the **Fuel System Integrity Check Leak** test procedure:

1. Select the **Fuel System Integrity Check Leak Test** and press Enter or click the **Start** button.
2. The **Fuel System Integrity Check Leak Test** dialog will display.



Fuel System Integrity Check Leak

3. Click the **Start** button to begin the test. When prompted, start the engine. Engine speed will increase to pressurize the fuel system. The test will hold the engine at high pressure for one minute to allow for the detection of leaks.
4. When instructed, key off the engine. When the countdown completes, key the engine on. The final leak detection values will be read and the results displayed.



Failure to perform the Key OFF/ON sequence may cause damage to the vehicle.

5. When the test has completed, click the **Exit** button to return to the test selection dialog.

Fuel System Leakage Test

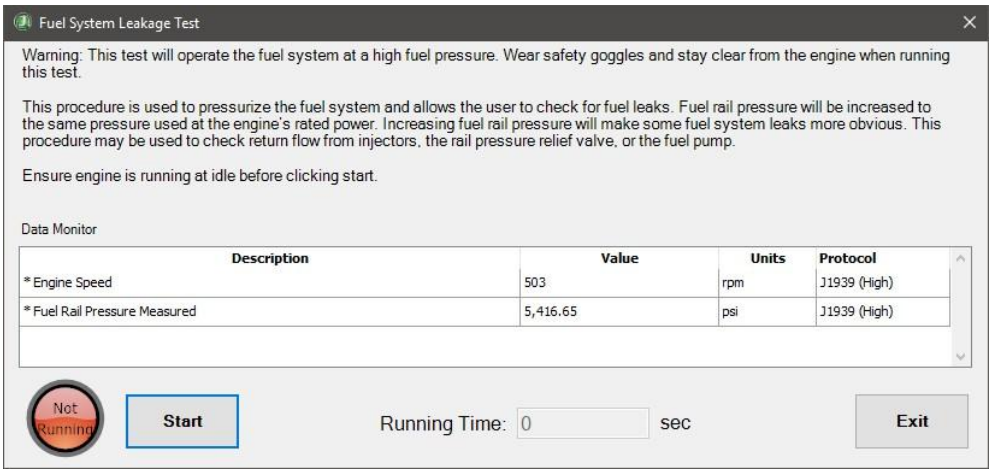
Fuel System Leakage Test is supported on:

- ✓ 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

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.

Follow the steps below to perform the **Fuel System Leakage Test**:

1. Select **Fuel Leakage** and press Enter or press **Start** button.
2. The **Fuel System Leakage Test** dialog will be displayed.

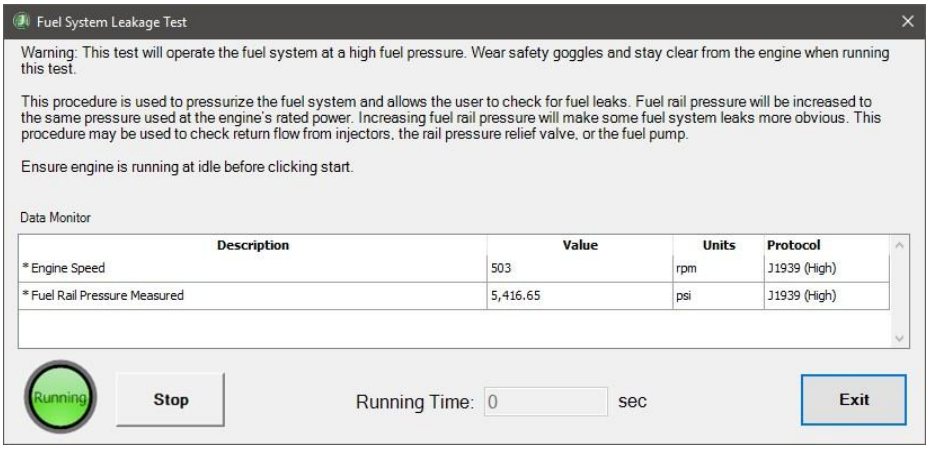


Fuel System Leakage Test

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 of the engine when running this test.

4. The dialog will update the displayed status and start tracking the Running Time. The **Start** button changes to **Stop**.
5. Wait for the status to change to "**Running**", then examine the fuel system for leaks.



Fuel System Leakage Test - Running

6. When done, select the **Stop** button. The engine will return to normal operation.
7. Press **Exit** to return to the test selection dialog.

Fuel Pressure Adaptation Reset

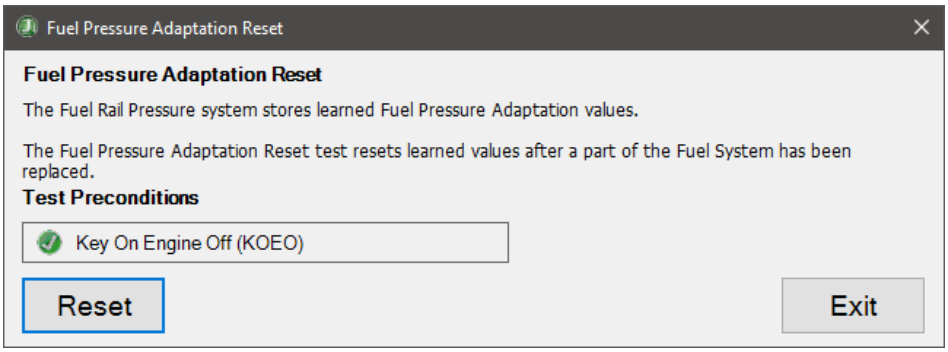
The **Fuel Pressure Adaptation Reset** test is supported on:

- ✓ International EPA 07 Maxxforce 7 engines
- ✓ International EPA 13 Maxxforce 7 engines

The **Fuel Pressure Adaptation Reset** test resets learned values after a part of the Fuel System has been replaced.

Follow the steps below to perform the **Fuel Pressure Adaptation Reset** procedure:

1. Select the **Fuel Pressure Adaptation Reset** and press Enter or press the **Start** button.
2. The **Fuel Pressure Adaptation Reset** dialog will be displayed.



Fuel Pressure Adaptation Reset

3. Ensure the test preconditions are met.
4. Select the **Reset** button.
5. 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

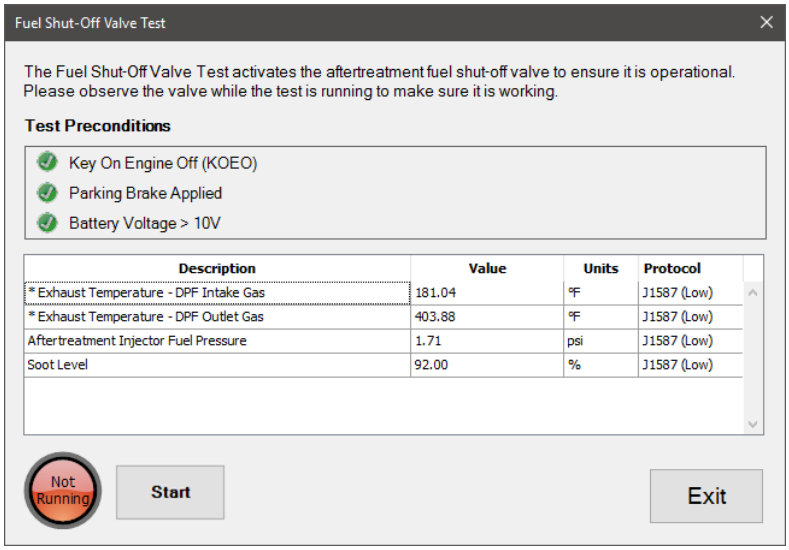
The **Fuel Shut-off Valve Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **Fuel Shut-off Valve Test**:

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, 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

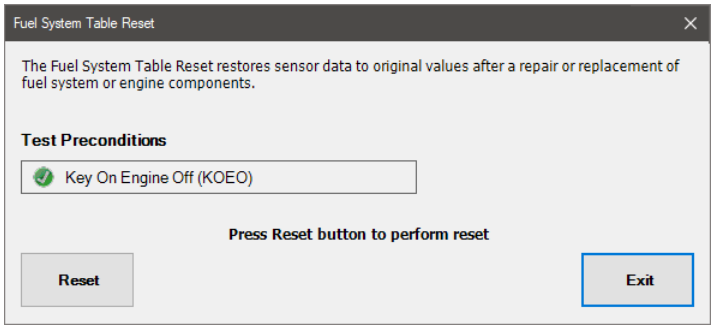
The **Fuel System Table Reset** is available on:

- ✓ Cummins CNG: All ISX 12G and ISX12N engines

This test is used to reset sensor data to original values after repair or replacement of the fuel system or engine components.

Follow the steps below to perform the **Fuel System Table Reset**:

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

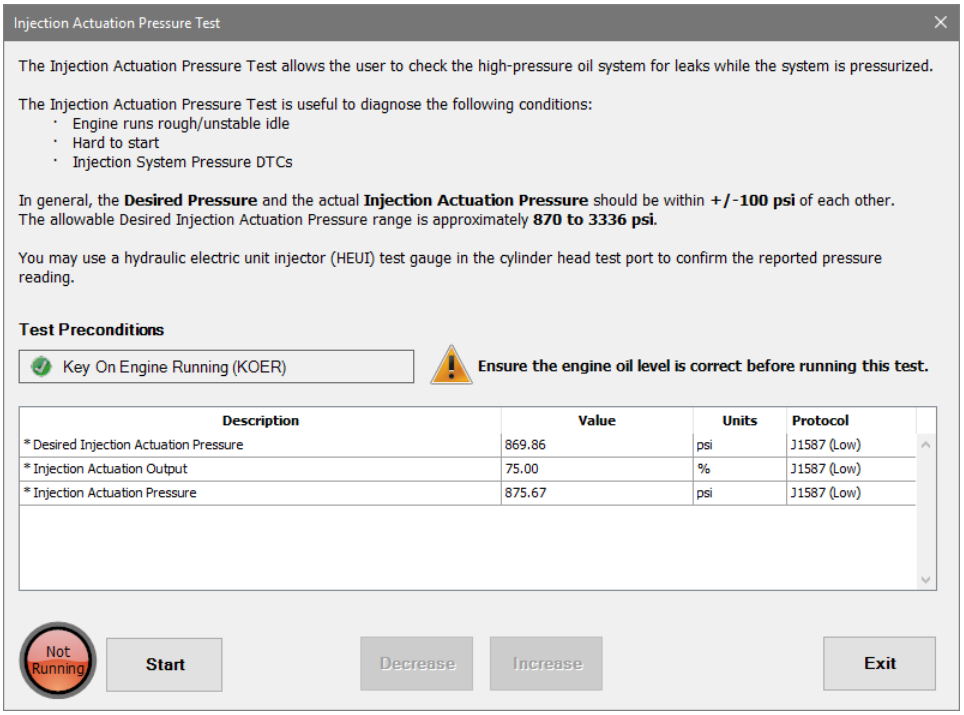
The **Injection Actuator Pressure Test** is available on:

- ✓ Caterpillar 3126 and EPA 04: C7 ACERT engines
- ✓ Caterpillar 3126B truck, 3126E truck, and C-7 truck 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.

Follow the steps below to perform the **Injection Actuation Pressure Test**:

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 actuation pressures will return to normal.
6. Click the **Exit** button to return to the test selection dialog.

Injector Calibration Test

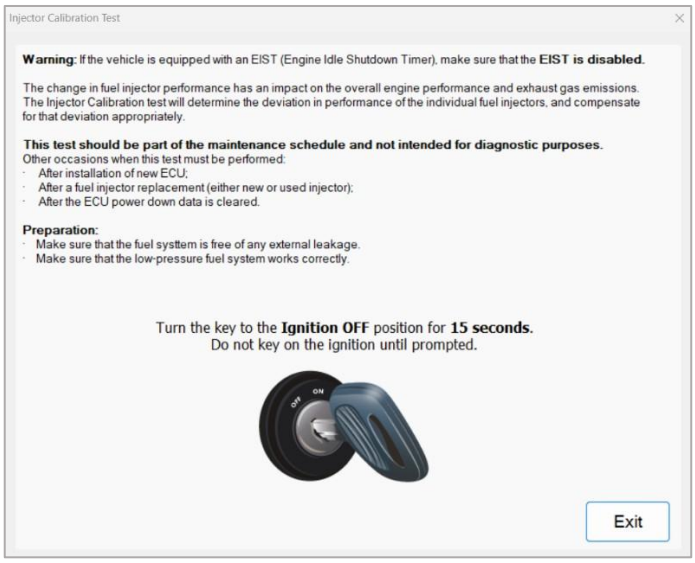
The Injector Calibration Test is supported on:

- ✓ PACCAR GHG21 all MX engines

The **Injector Calibration Test** will determine the deviation in performance of the individual fuel injectors and compensate for that deviation appropriately.

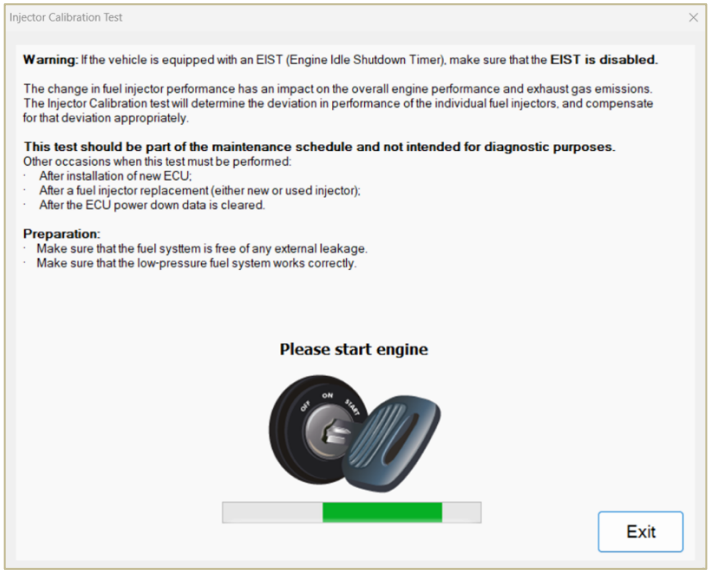
Follow the steps below to perform the **Injector Calibration Test**:

1. Select the **Injector Calibration Test** and press Enter or the **Start** button.
2. The **Injector Calibration Test** dialog will display.



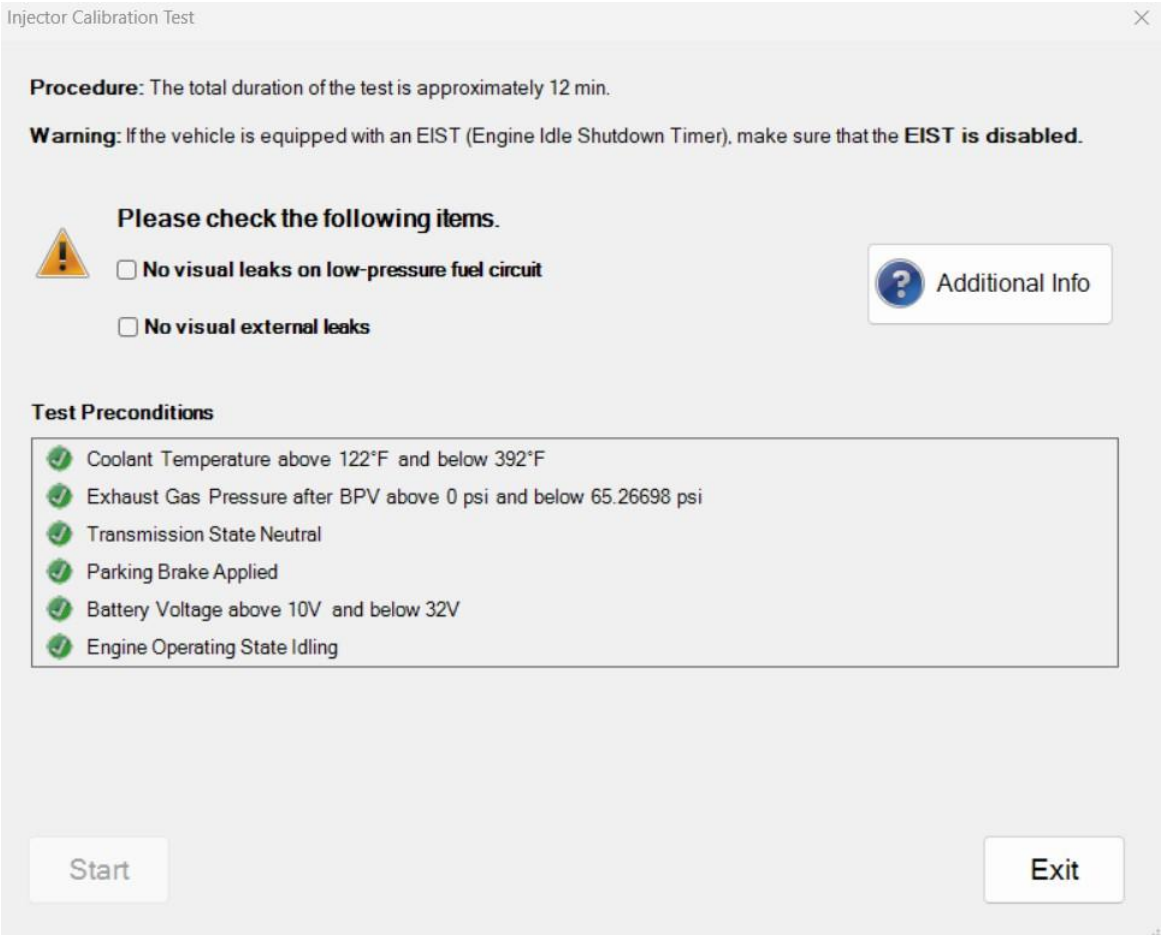
Injector Calibration Test Ignition Off

3. If the engine is running, you will be instructed to turn it off before the test can begin.



Injector Calibration Test Ignition On

4. Key on the engine when instructed, and the **test preconditions and information** dialog will display.



Injector Calibration Test Preconditions

5. Check the warning items to verify that the fuel system is free of leaks, then click **Start** to begin the test. The engine's performance will be monitored, and fuel injectors will be calibrated to compensate for any detected issues.

NOTE: This process will take approximately 12 minutes.

6. Select **Additional Info** to view more information about this test.
7. When instructed, cycle the engine off, then on again to complete the test. Results for each injector will be displayed, along with any actions required, if any.
8. When done, press the **Exit** button to return to the test selection dialog.

Injector Codes

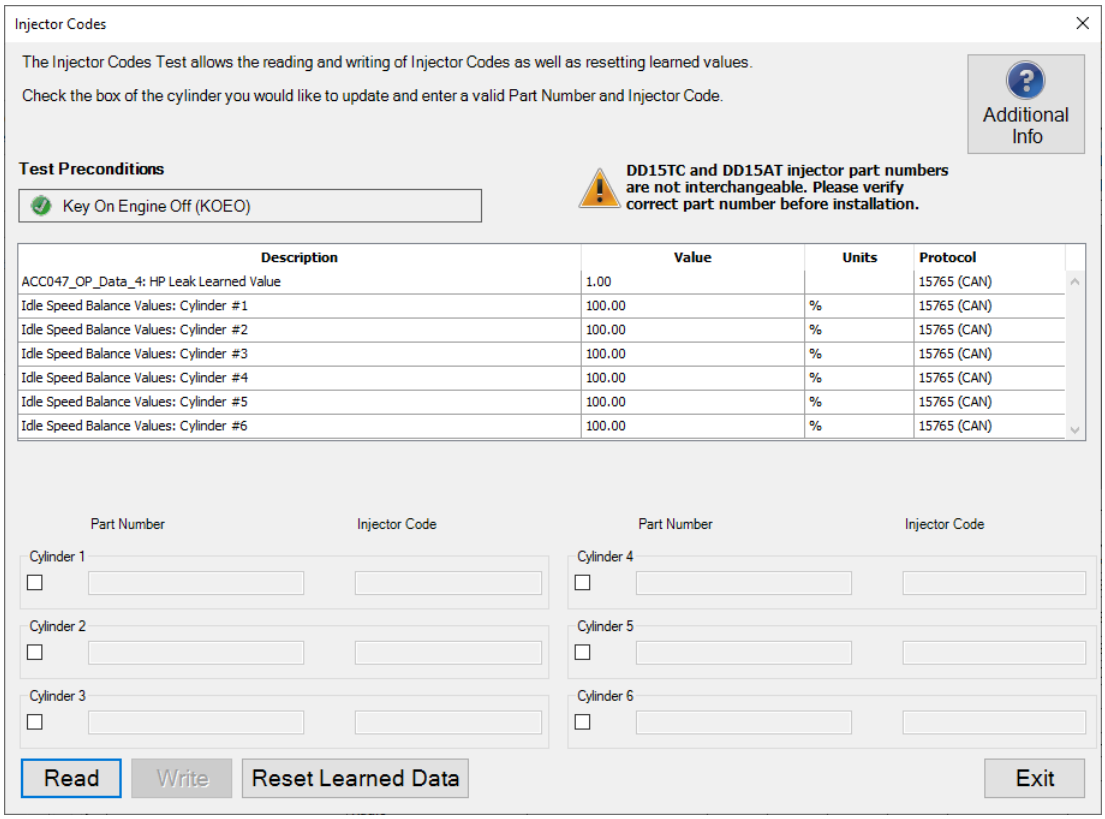
The Injector Codes test is supported on:

- ✓ Detroit Diesel CPC501T with MCM21T

The **Injector Codes** test allows the user to read and write injector code values, as well as reset the HP Leak Learned Value.

Follow the steps below to perform the **Injector Codes** test:

1. Select the **Injector Codes** test and press Enter or the **Start** button.
2. The **Injector Codes** test dialog will display.



Injector Codes

3. Select the **Read** button to read the injector code values from the vehicle.
4. To update any injector code values, enter the Part Number and Injector Code for the cylinders to be updated, then click **Write**.
5. Selecting the **Reset Learned Data** button will reset the HP Leak Learned Value.
6. Select **Additional Info** to view more information about this test.
7. When done, press the **Exit** button to return to the test selection dialog.

Injector Solenoid Test

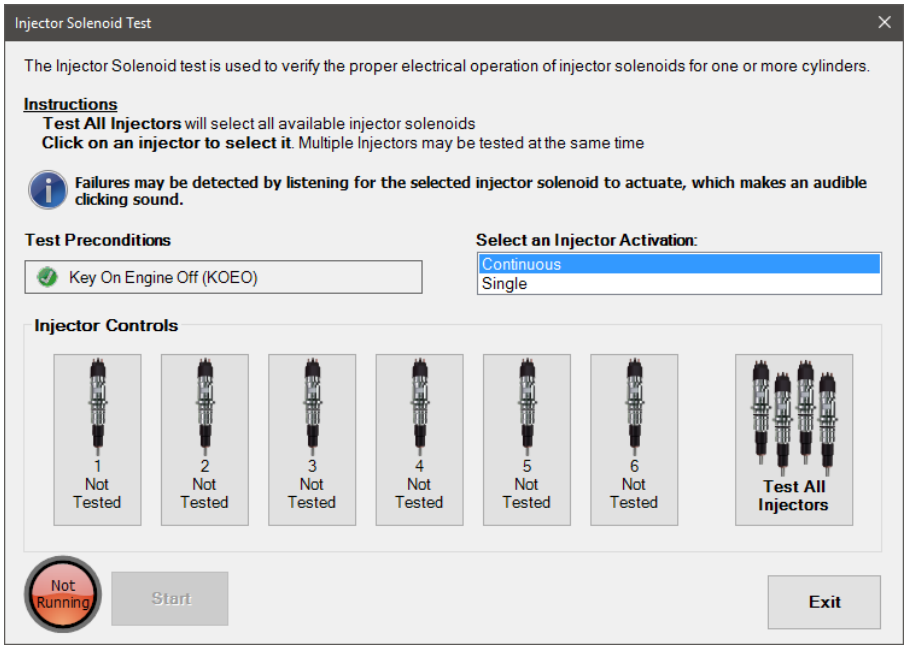
The **Injector Solenoid** test is available on:

- ✓ 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
- ✓ Caterpillar 3126B truck, 3126E truck, and C-7 engines

This test enables users to verify that the selected injector solenoids are operating correctly.

Follow the steps below to perform the **Injector Solenoid Test**:

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, 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

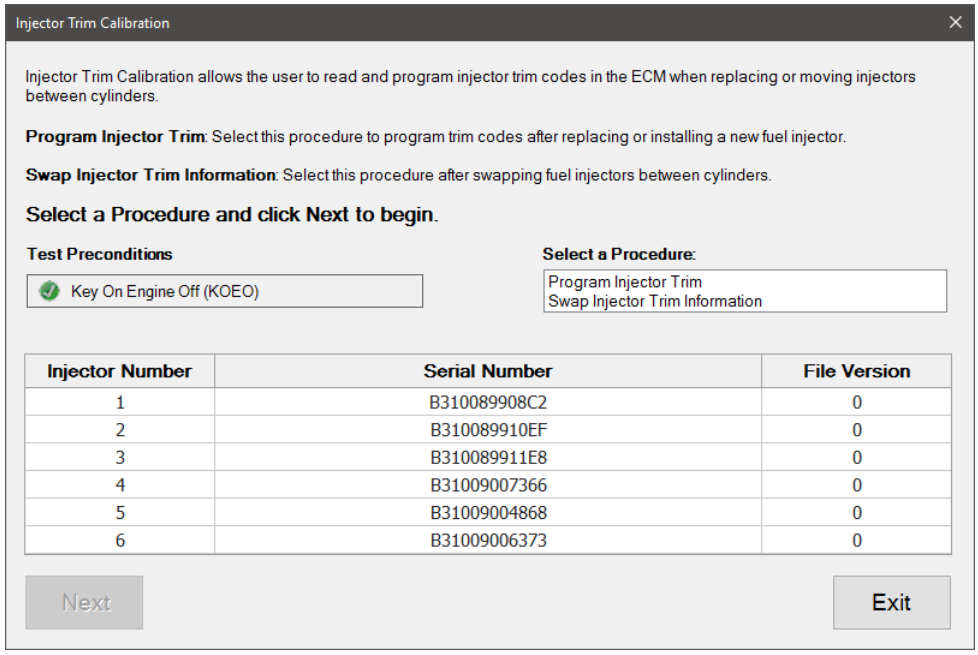
The **Injector Trim Calibration** is available on:

- ✓ 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.

Follow the steps below to perform the **Injector Trim Calibration**:

1. Select the **Injector Trim Calibration** and press Enter or click the **Start** button.
2. The **Injector Trim Calibration** dialog displays.



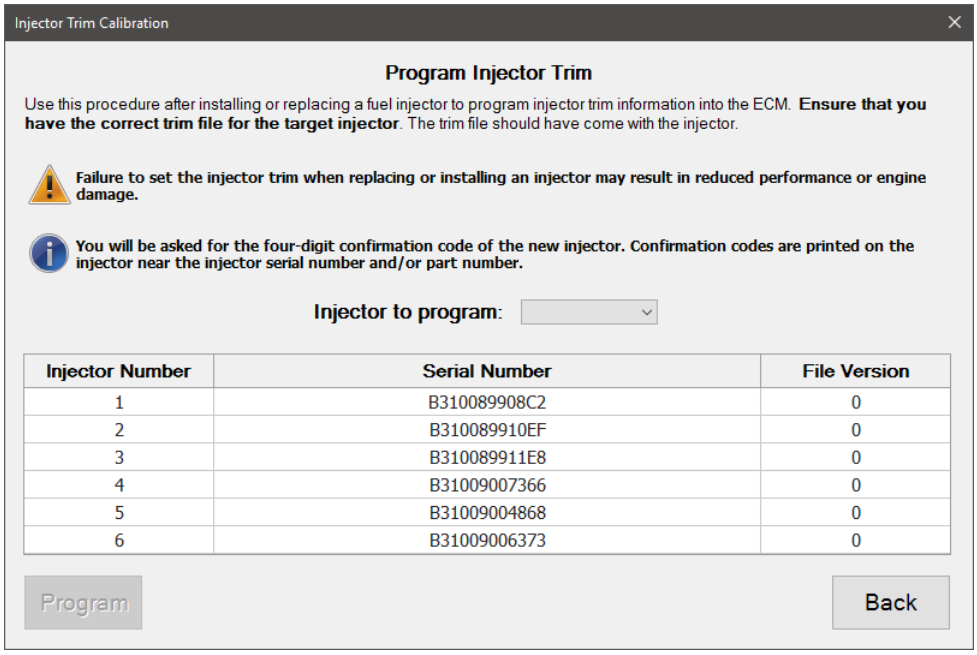
Injector Trim Calibration

3. Select the appropriate procedure: **Program Injector Trim** or **Swap Injector Trim Information** and click the **Next** button.

Program Injector Trim

Follow the steps below to program the injector trim:

1. From the **Injector Trim Calibration** dialog, select the **Program Injector Trim** procedure and click the **Next** button.



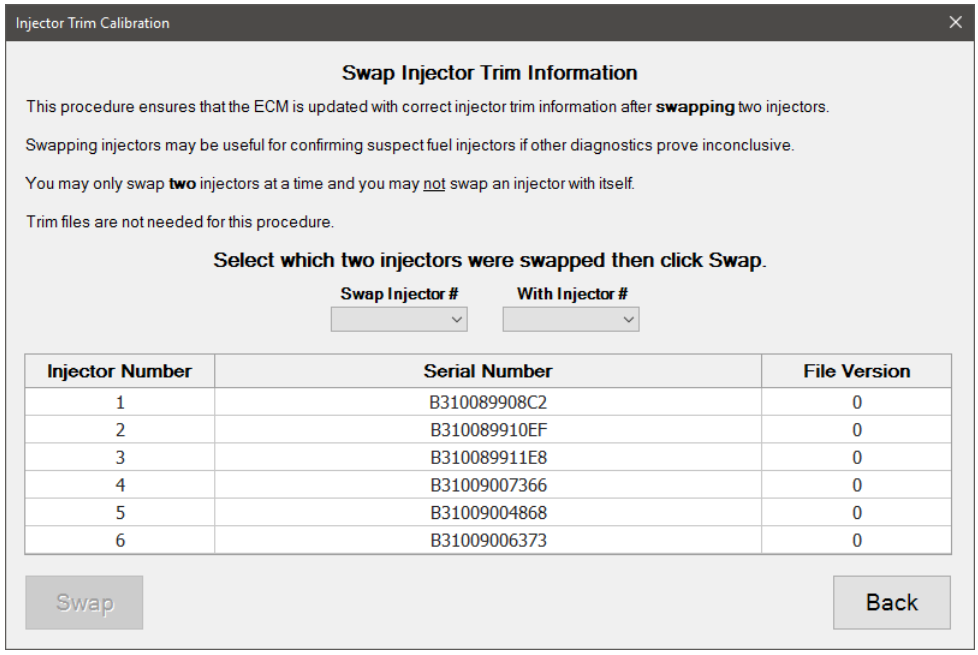
Injector Trim Calibration – Program Injector Trim

2. Select the **Injector to Program** from the drop-down list.
4. Select the **Program** button.
5. In the file dialog, select the Trim File (*.trm) to use to program the injector.
6. 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**.
7. The injector trim information is programmed. The status at the bottom of the window will indicate success or failure, and the injector grid will be updated.

Swap Injector Trim Information

Follow the steps below to swap the injector trim information:

1. From the **Injector Trim Calibration** dialog, select the **Swap Injector Trim** procedure and click the **Next** button.



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. The status at the bottom of the window will indicate success or failure, and the injector grid will be updated.

KOEO Injector Test

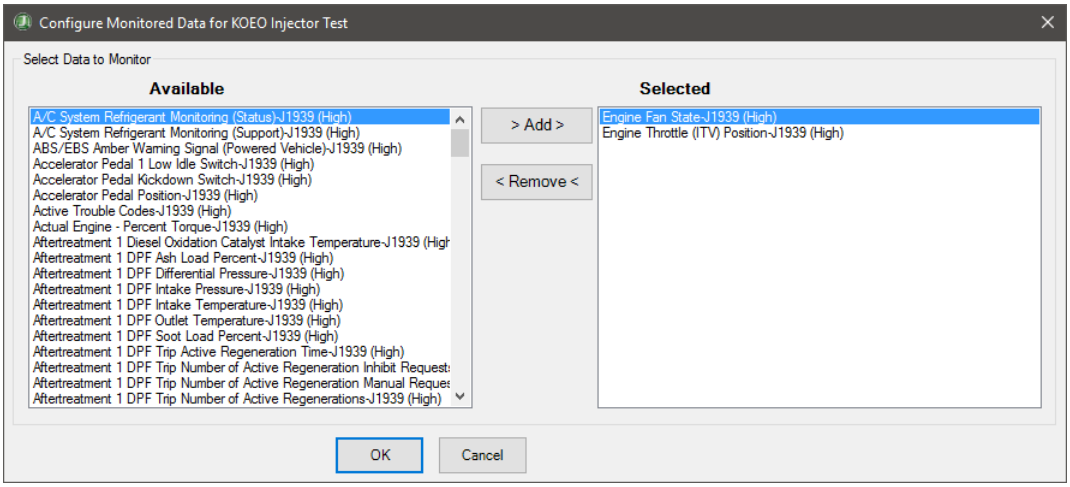
The **Key On Engine Off (KOEO) Injector Test** is supported on:

- ✓ 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.

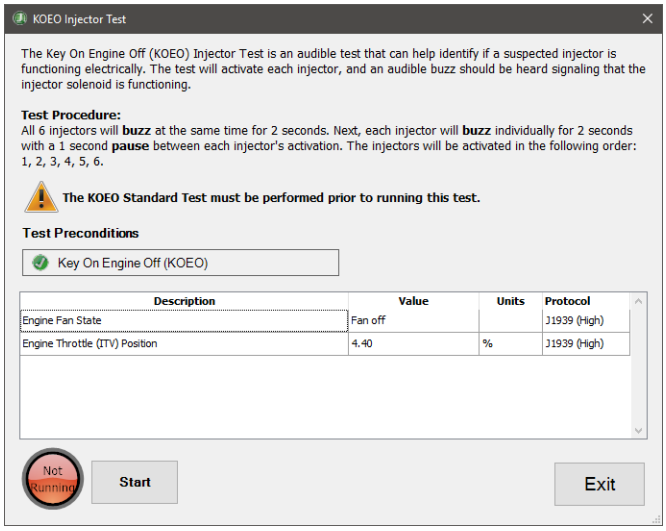
Follow the steps below to perform the **KOEO Injector Test**:

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 the **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 the **OK** button will cause the **KOEO Injector Test** dialog to be displayed.



KOEO Injector Test

7. Ensure that 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:

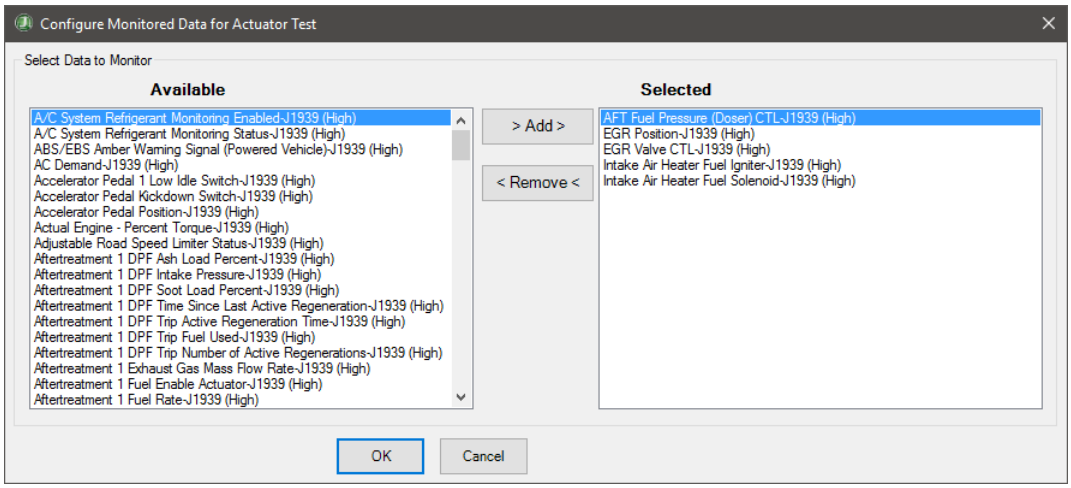
- Aftertreatment (AFT) Fuel Shutoff Valve
  - EPA 10 Maxxforce 11, and 13 engines
  - A26 GHG17 engines
- Aftertreatment (AFT) Fuel Doser
  - EPA 10 Maxxforce 11, and 13 engines
- Aftertreatment (AFT) Purge Air Actuator
  - A26 GHG17 engines
- Diesel Exhaust Fluid (DEF) Line Heaters
  - A26 GHG17 engines
- 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.

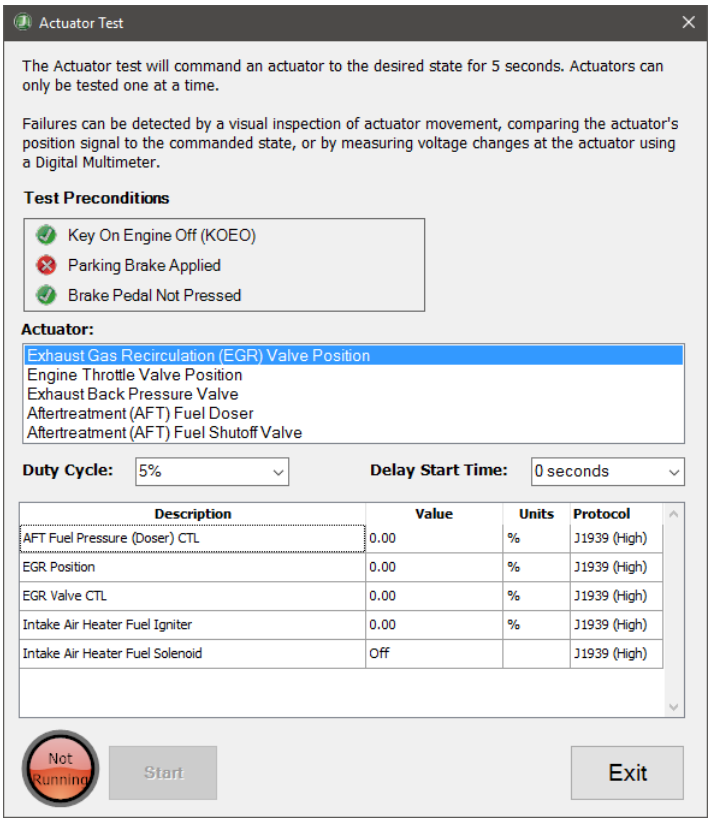
Follow the steps below to perform the **Actuator Tests**:

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 the **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 the **OK** button will cause the **Actuator Test** dialog to be displayed.



Actuator Test

7. Select the desired actuator from the list.
8. Select a value for Duty Cycle and Delay Start Time.
9. 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.
10. When the test is complete, 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

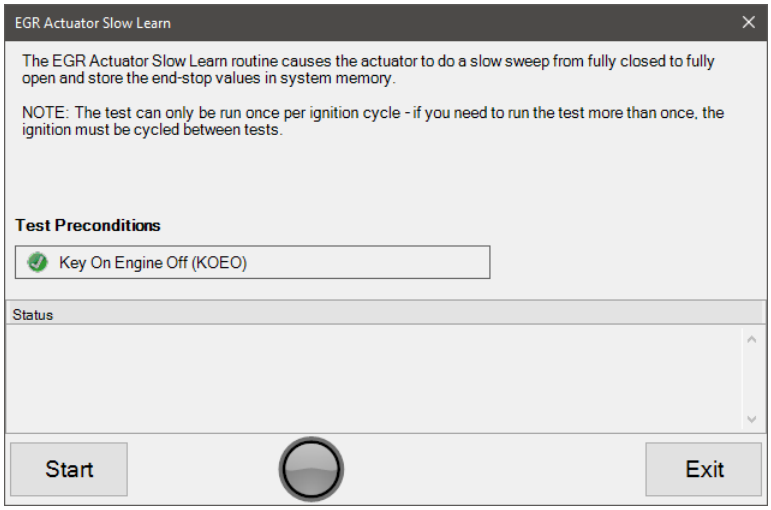
NOTE: This test is only available for Supported ECU Software Versions.

The EGR Actuator Slow Learn routine causes the actuator to do a slow sweep from fully closed to open and store the end-stop values in system memory fully.

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.

Follow the steps below to perform the **EGR Actuator Slow Learn** test:

1. 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

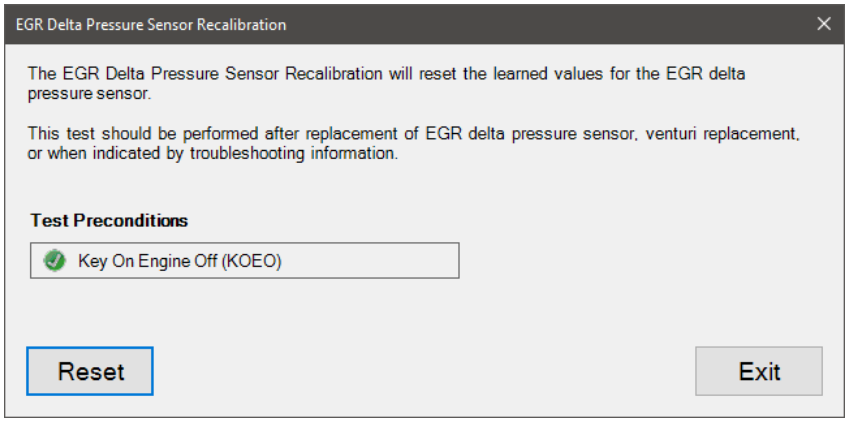
NOTE: This test is only available for Supported ECU Software Versions.

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.

Follow the steps below to perform the **EGR Delta Pressure Sensor Recalibration**:

1. Select the **EGR Delta Pressure Sensor Recalibration** test and press Enter or click the **Start** button.
2. The **EGR Delta Pressure Sensor Recalibration** dialog will be displayed.



EGR Delta Pressure Sensor Recalibration

3. Click the **Reset** button to reset the learned values of the EGR delta pressure sensor.
4. 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:

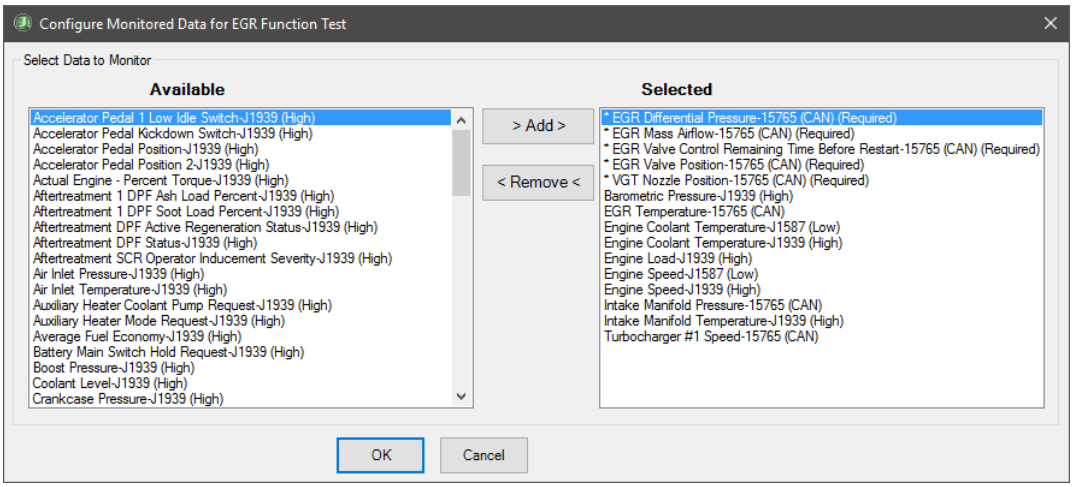
- ✓ Mack and Volvo all EPA 07 to GHG17 engines

The **EGR Function Test** checks the functionality of the EGR valve.

NOTE: This test can only be performed a limited number of times. Once performed, a cool-down period must be completed before the test can be run again.

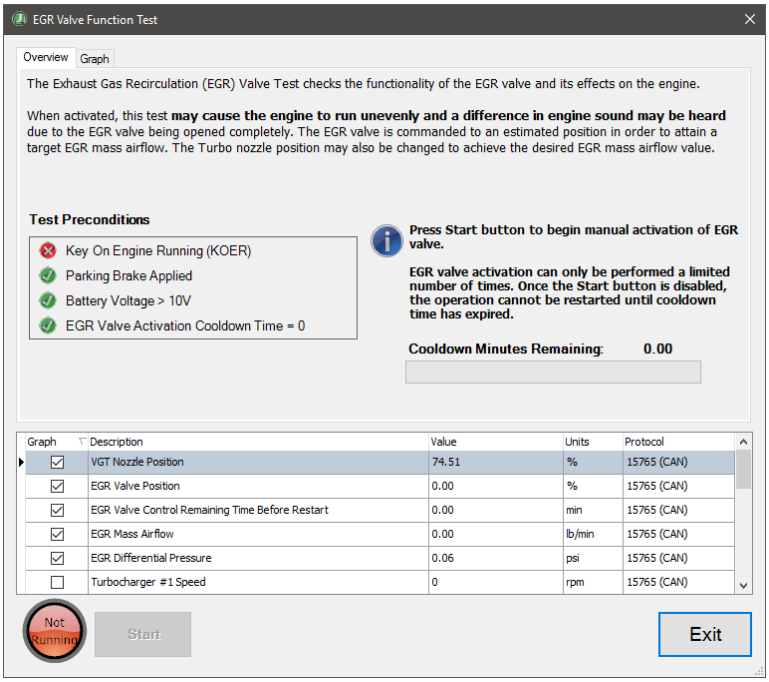
Follow the steps below to perform the **EGR Function Test**:

1. Select **EGR Function Test** and press Enter or click the **Start** button.
2. 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 the **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 the **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 that 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:

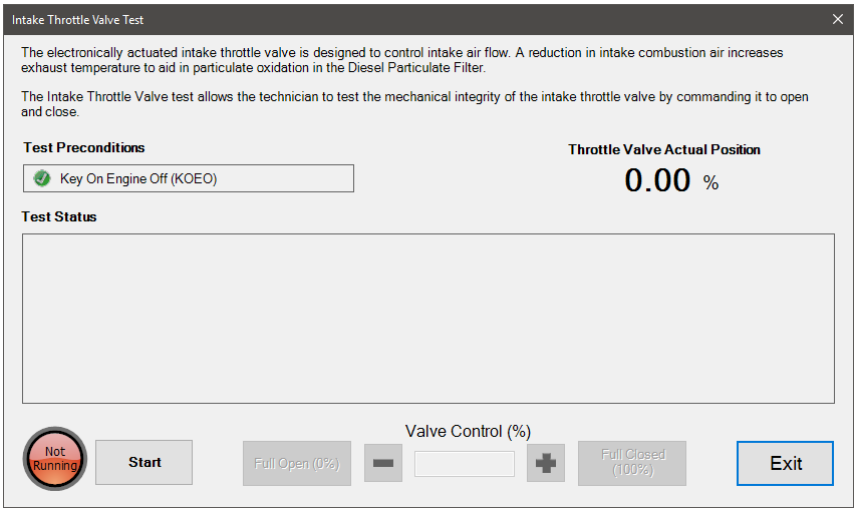
- ✓ Detroit Diesel any supported CPC with MCM02T

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.

Follow the steps below to perform the **Intake Throttle Valve Test**:

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, the 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

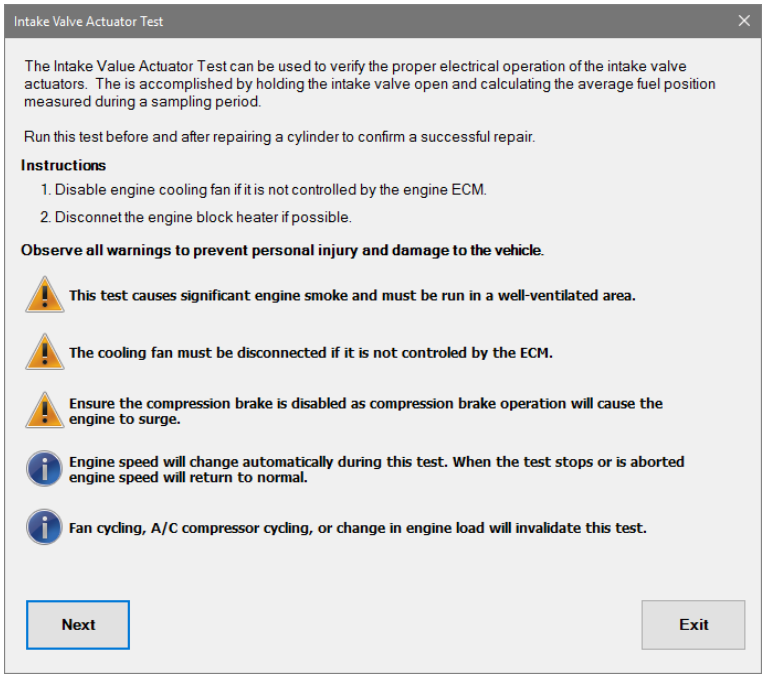
The **Intake Valve Actuator Test** is available on:

- ✓ Caterpillar EPA 04: C13 and C15 ACERT engines
- ✓ Caterpillar EPA 07: C13 and C15 ACERT engines

This test allows the user to verify the proper electrical operation of the intake valve actuators.

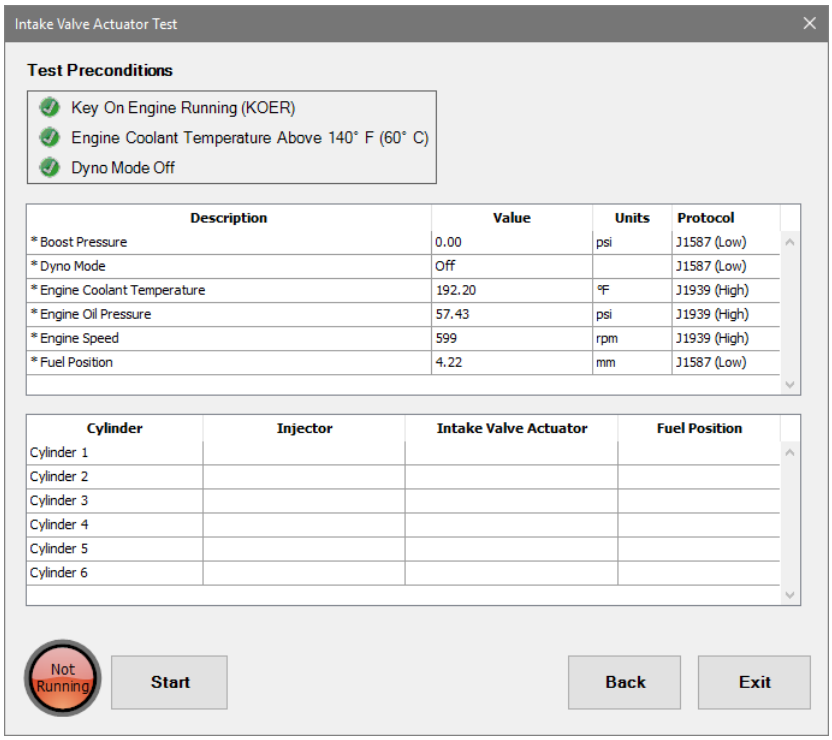
Follow the steps below to perform the **Intake Valve Actuator Test**:

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.



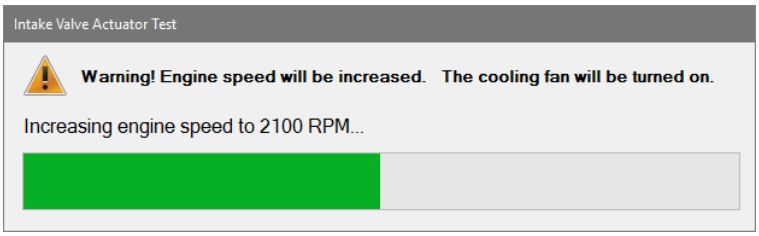
Intake Valve Actuator Test Instructions and Warnings

3. Once instructions have been followed, click the **Next** button.



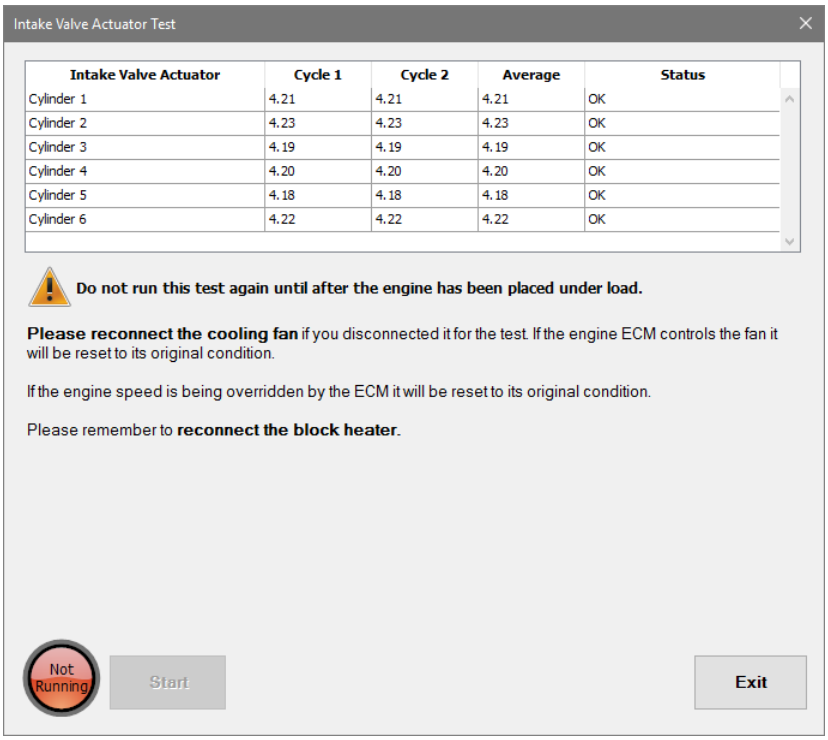
Intake Valve Actuator Test

4. Once all preconditions have been met, click the **Start** button to begin the test.
5. 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.
6. 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 Test Results

8. After reviewing test results, click the **Exit** button to return to the test selection dialog.

Intake Valve Actuator Solenoid Test

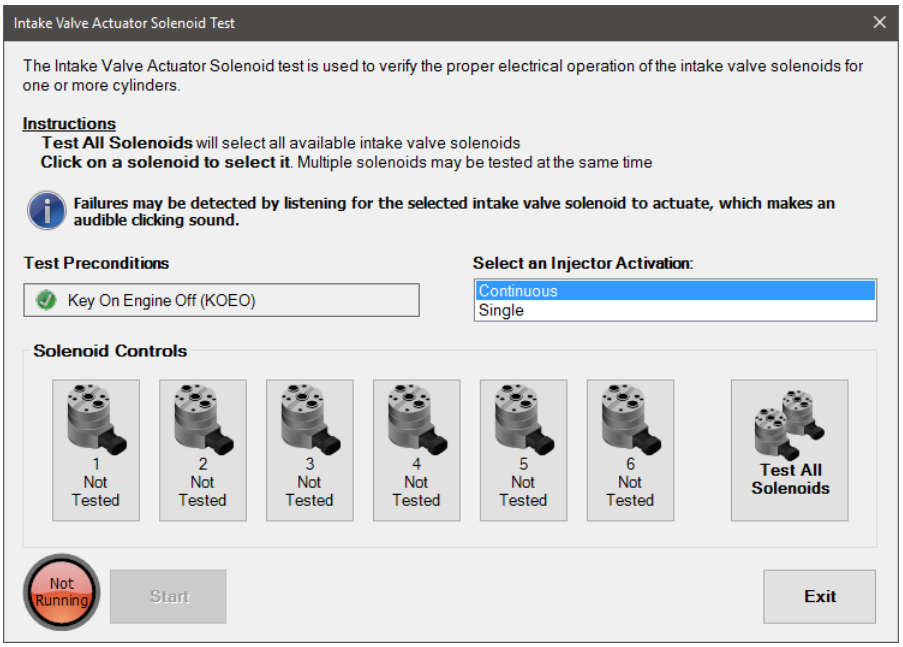
The **Intake Valve Actuator Solenoid Test** is available on:

- ✓ Caterpillar EPA 04: C13 and C15 ACERT engines
- ✓ Caterpillar EPA 07: C13 and C15 ACERT engines

This test allows the user to verify that intake valve actuator solenoids are operating correctly.

Follow the steps below to perform the **Intake Valve Actuator Solenoid Test**:

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: **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, 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:

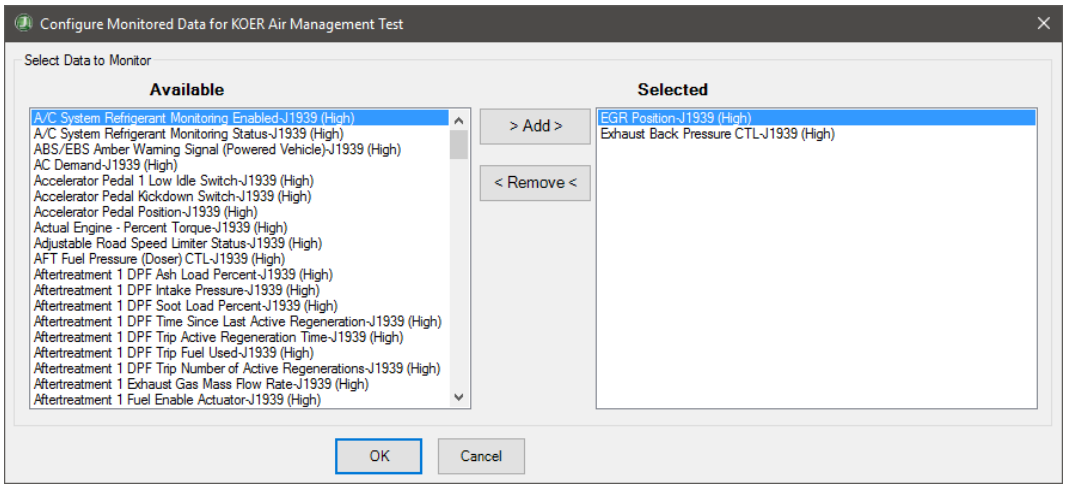
- ✓ International EPA 07 Maxxforce 7, DT, 9, and 10 engines
- ✓ International EPA 10 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 13 Maxxforce 7 engines
- ✓ International N9, N10, 2015 N13, and A26 GHG17 engines

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.

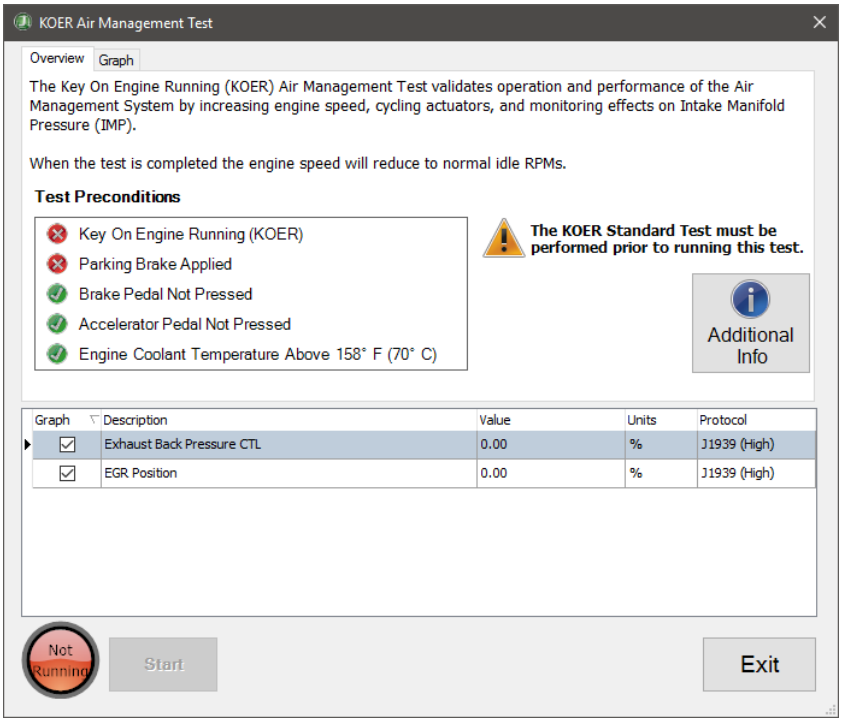
Follow the below steps to perform the **KOER Air Management Test**:

1. Select **KOER Air Management Test** and press Enter or click the **Start** button.
2. The **Configure Monitored Data for KOER Air Management Test** dialog will be displayed.



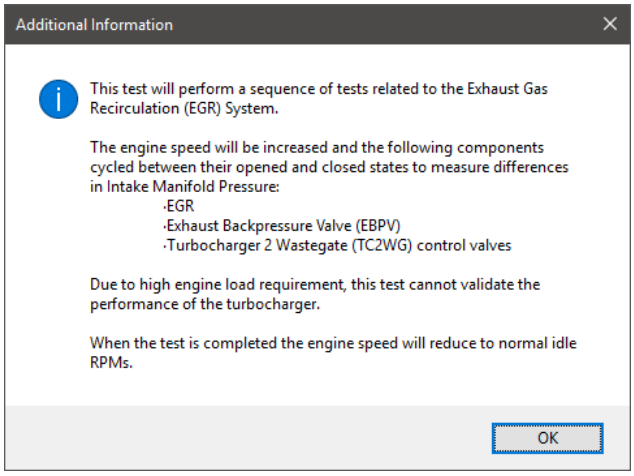
Configure Monitored Data for Cylinder Cut-out Test Dialog

3. Select parameters from the **Available** list and click the **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 the **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 that 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.



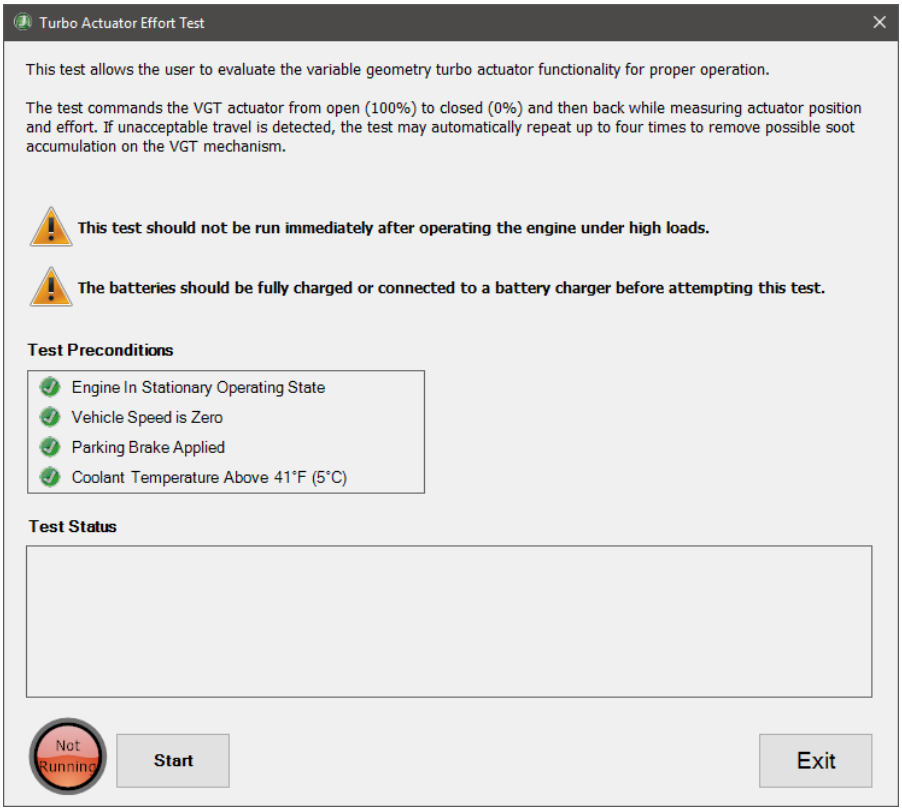
This test should not be run immediately after operating the engine under high loads.



The batteries should be fully charged or connected to a battery charger before attempting this test.

Follow the steps below to perform the **Turbo Actuator Effort Test:**

1. Select the **Turbo Actuator Effort Test** and press Enter or press the **Start** button.
2. The **Turbo Actuator Effort Test** window opens.



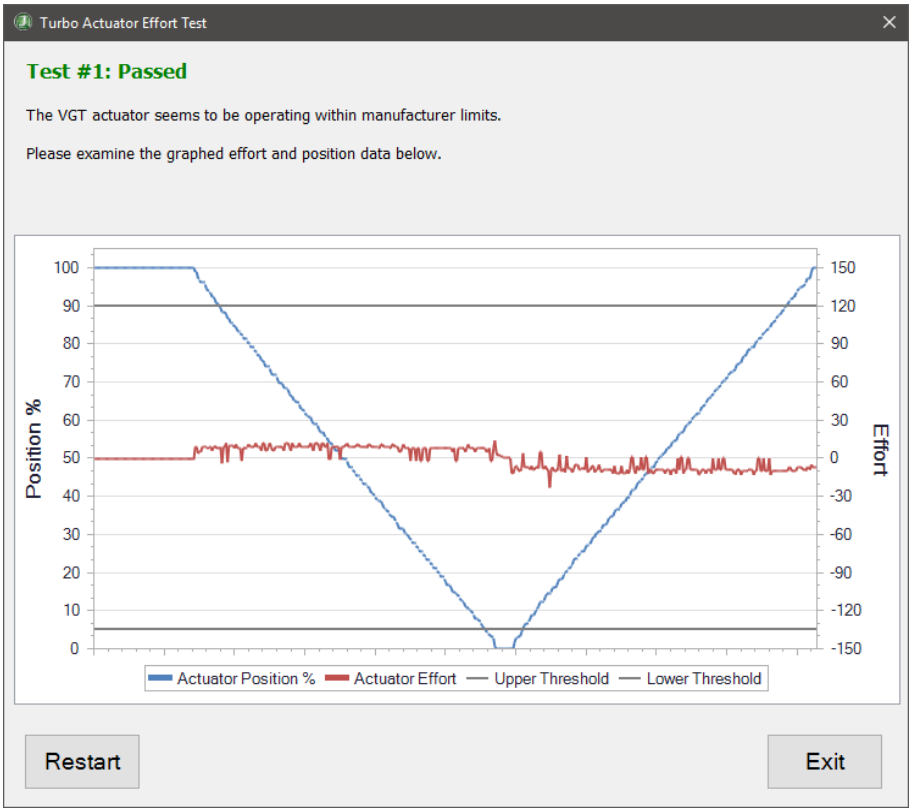
Turbo Actuator Effort Test

3. Ensure that 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.

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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.

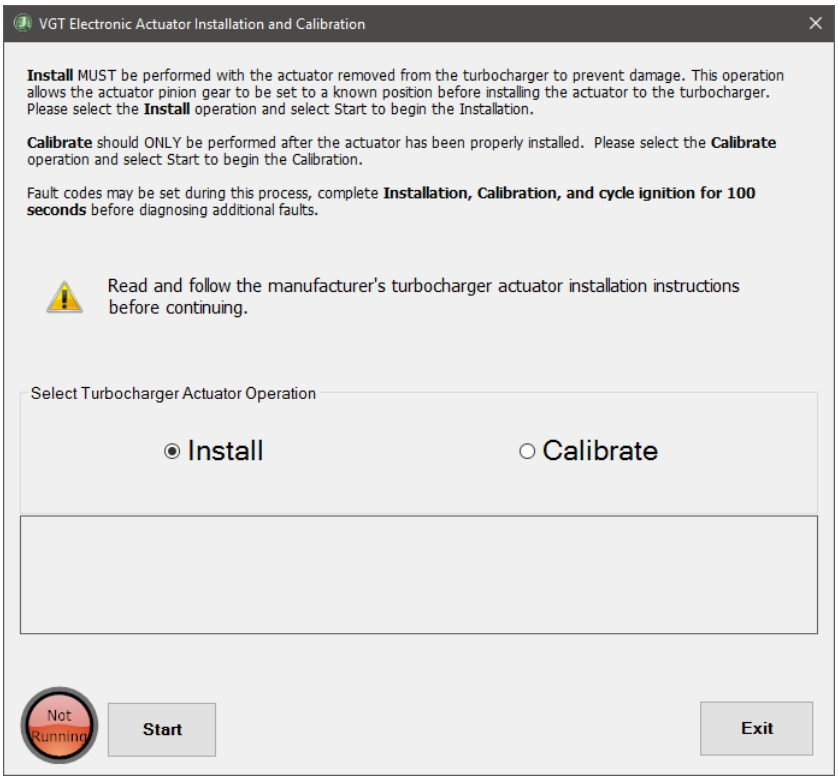
Follow the steps below to perform the **VGT Electronic Actuator Installation and Calibration**:

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 the **Installation** procedure.
4. Perform the **Calibration** procedure.

NOTE: Calibration must be performed after the Installation procedure has successfully completed.

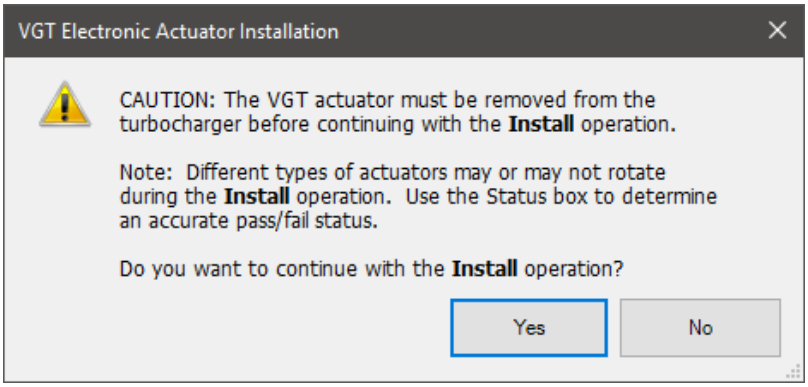
Installation Procedure

Ensure the turbocharger actuator is removed from the turbocharger housing according to the manufacturer's 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, as it is not calibrated to the turbocharger.

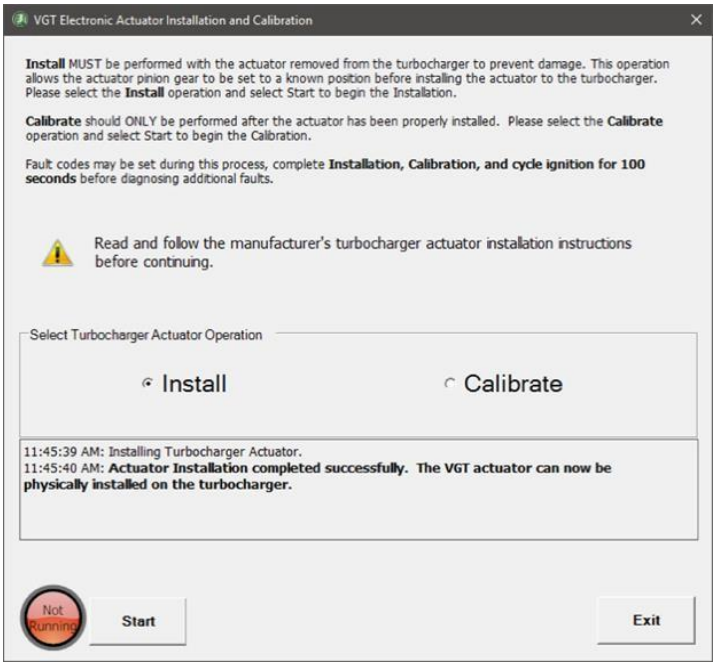
1. From the **VGT Electronic Actuator Installation and Calibration** dialog, select the **Install** option and click **Start**.
2. A confirmation window will display. Ensure all prerequisites are met and select **Yes**.



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 installation procedure completes, the dialog will display the outcome of the installation.

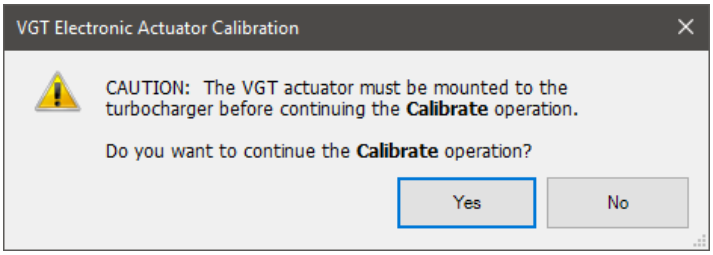


VGT Electronic Actuator Installation Success

Calibration Procedure

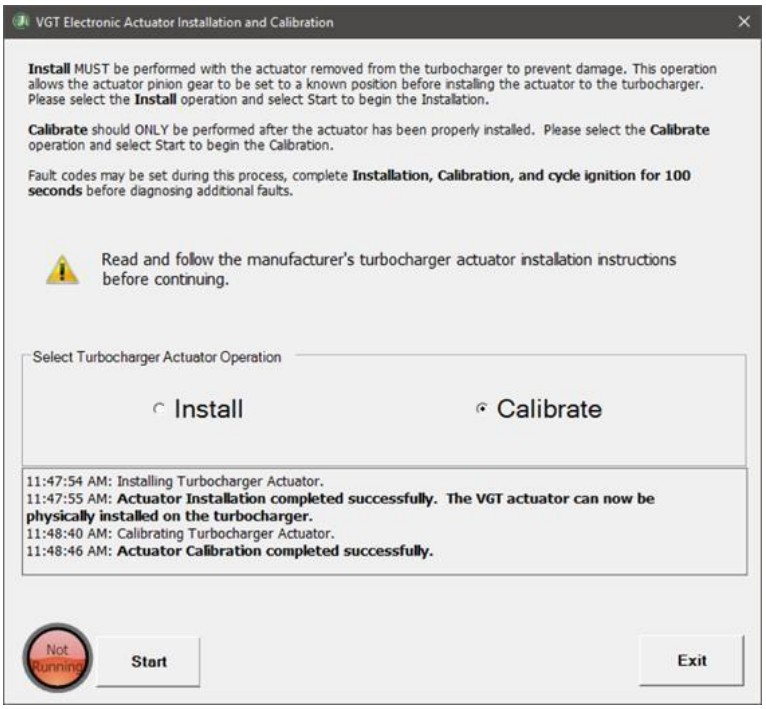
NOTE: Attempting to calibrate the turbocharger prior to completing a successful Installation procedure will result in an error: *VGT actuator Calibration has failed: Actuator Installation must be performed before Calibration.*

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.

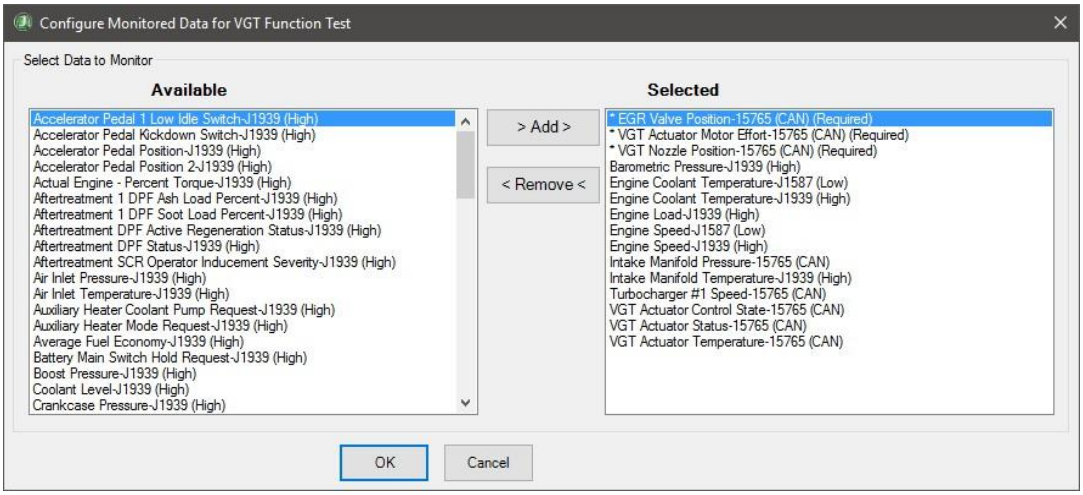
On Mack and Volvo EPA 13 to GHG17 engines, this test consists of two functional test options:

- ✓ **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.

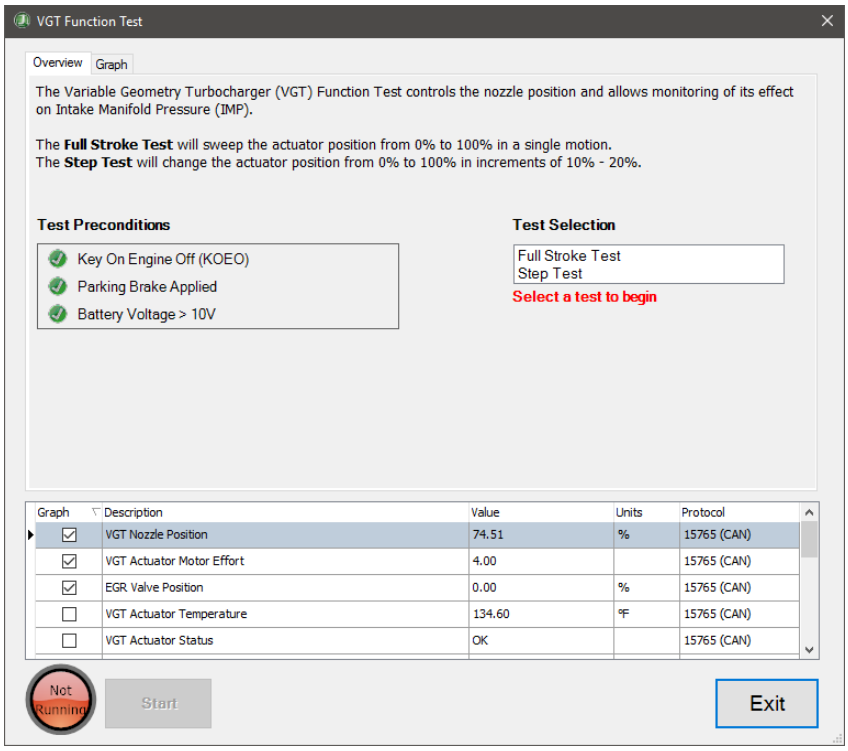
Follow the steps to perform the **VGT Function Test**:

1. Select **VGT Function Test** and press Enter or click the **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 the **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 the **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

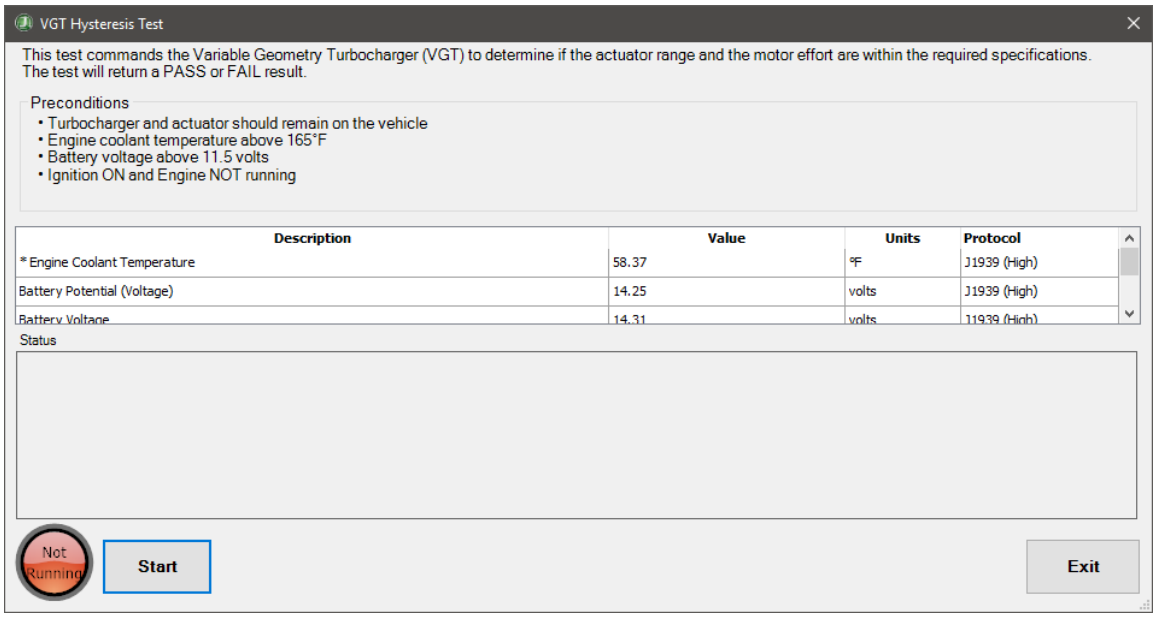
VGT Hysteresis Test is supported on:

- ✓ Cummins EPA 07: 6.7L ISB engine
- ✓ 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

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.

Follow the steps below to perform the **VGT Hysteresis Test:**

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 the **Exit** button when ready to exit this test and return to the test selection dialog.

VGT Monitor Test

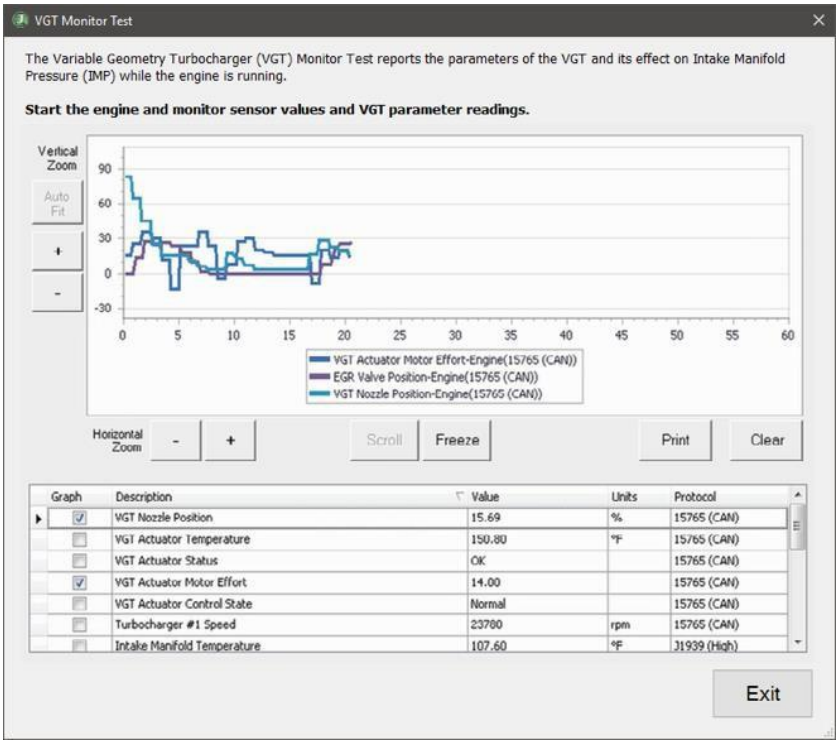
The **Variable Geometry Turbocharger (VGT) Monitor Test** is supported on:

- ✓ 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.

Follow the steps below to perform the **VGT Monitor Test**:

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 the **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 the **OK** button will cause the **VGT Monitor Test** dialog to be displayed.



VGT Monitor Test

7. 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.
8. When finished monitoring VGT data, click the **Exit** button to return to the test selection dialog.

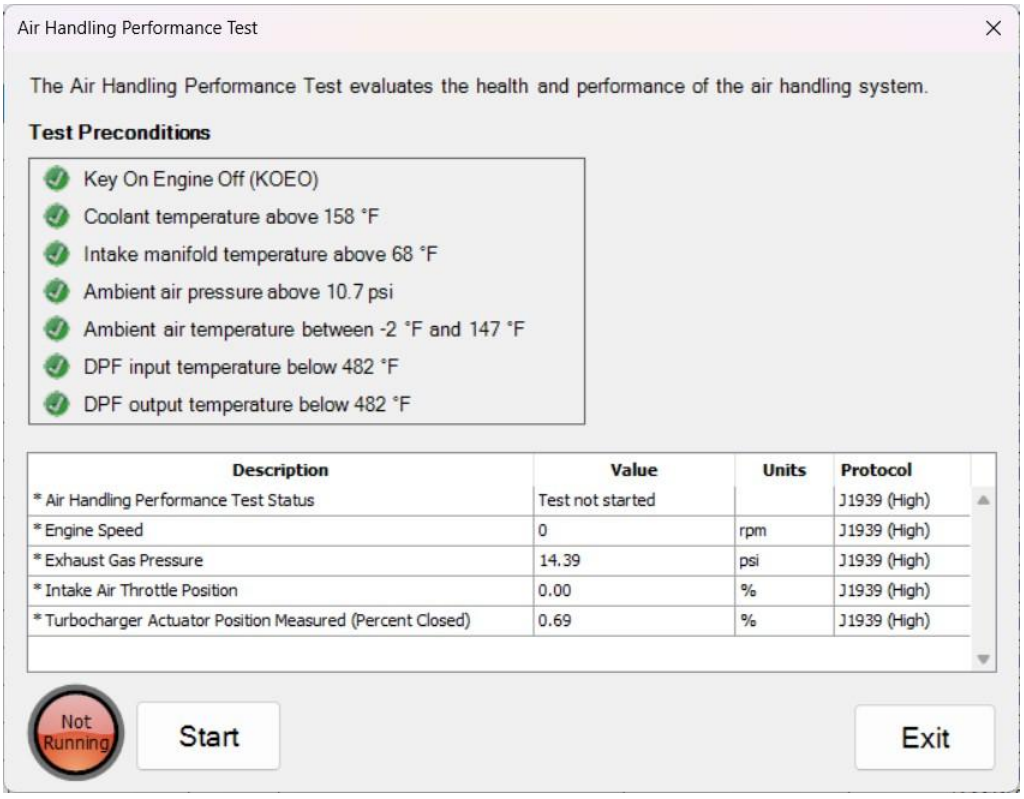
Air Handling Performance Test

The **Air Handling Performance Test** is supported on:

The **Air Handling Performance Test** evaluates the health and performance of the air handling system.

Follow the steps below to perform the Air Handling Performance Test:

1. Select the **Air Handling Performance Test** and press Enter or the **Start** button.
2. The **Air Handling Performance Test** dialog will display.



Air Handling Performance Test Dialog

3. Click **Start** to begin the test. When instructed, key on the engine.
4. A message will display indicating test completion and will include a repair decision if the test has determined one is needed.
5. Click the **Exit** button to return to the test selection dialog.

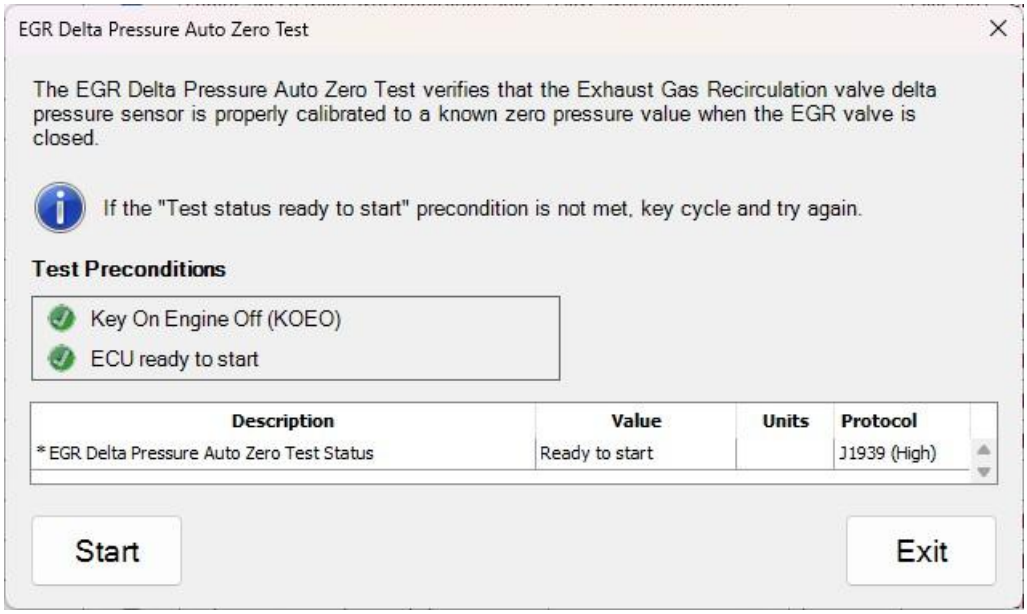
EGR Delta Auto Zero Test

The EGR Delta Pressure Auto Zero Test is supported on:

The EGR Delta Pressure Auto Zero Test verifies that the Exhaust Gas Recirculation valve delta pressure sensor is properly calibrated to a known zero pressure value when the EGR valve is closed.

Follow the steps below to perform the **EGR Delta Pressure Auto Zero Test**:

1. Select the **EGR Delta Pressure Auto Zero Test** and press Enter or the **Start** button.
2. The **EGR Delta Pressure Auto Zero Test** dialog will display.



EGR Delta Pressure Auto Zero Test

3. Click **Start** to begin the test. When the test has completed, a status message will be displayed, and the **ECU ready to start** value will be reset, so the precondition is no longer met.
4. Click the **Exit** button to return to the test selection dialog.

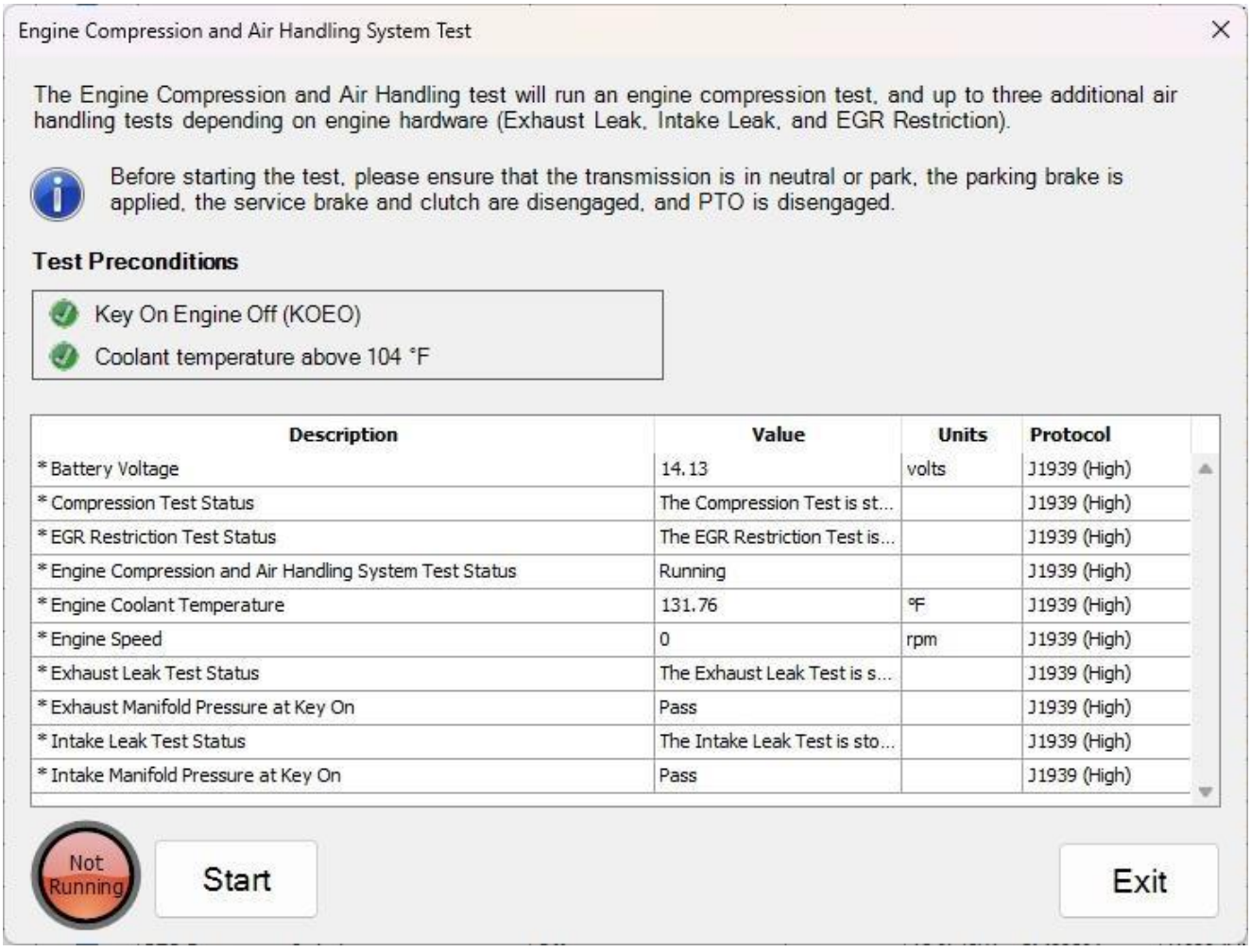
Engine Compression and Air Handling System Test

The **Engine Compression and Air Handling System Test** is supported on:

The **Engine Compression and Air Handling System Test** will run an engine compression test, and up to three additional air handling tests depending on engine hardware (Exhaust Leak, Intake Leak, and EGR Restriction).

Follow the steps below to perform the **Engine Compression and Air Handling System Test**:

1. Select the **Engine Compression and Air Handling System Test** and press Enter or the **Start** button.
2. The **Engine Compression and Air Handling System Test** dialog will display.



Engine Compression and Air Handling System Test Dialog

3. After reviewing the test information and taking any actions necessary for safe operation during the test, click the start button.

4. When instructed, crank the engine until instructed to stop. Failure to crank the engine for the instructed time may result in incorrect results.
5. A message will display indicating test completion.
6. Click the **Exit** button to return to the test selection dialog.

J1939 Datalink Control Test

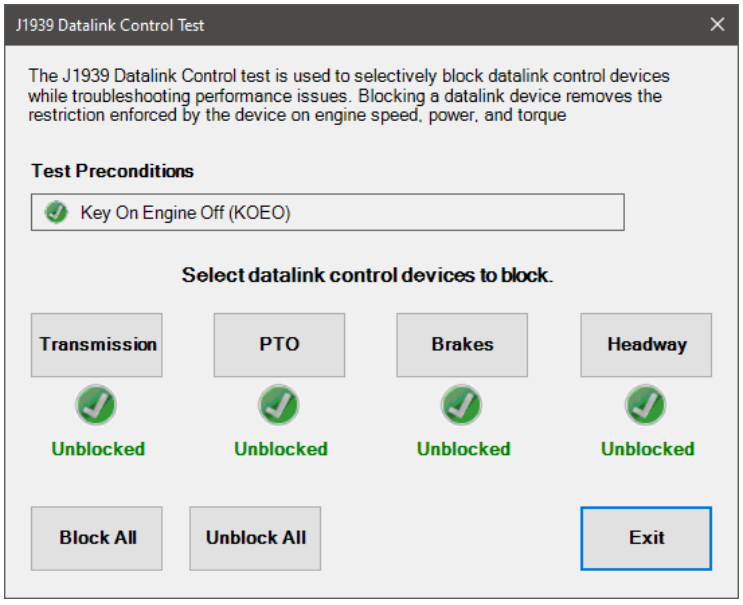
The **J1939 Datalink Control Test** is supported on:

- ✓ 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.

Follow the outlined steps to perform the **J1939 Datalink Control Test**:

1. 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

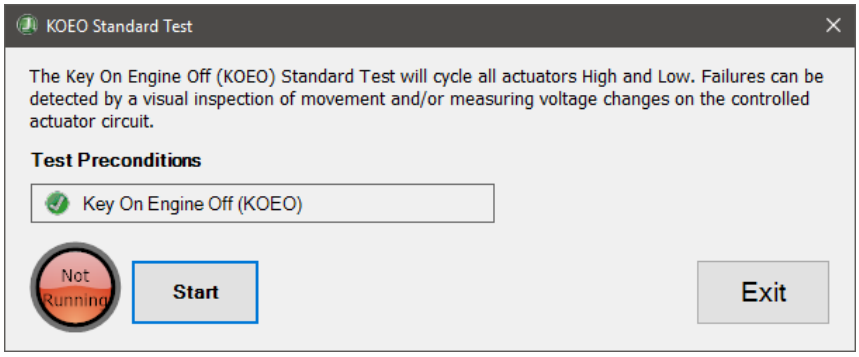
KOEO Standard Test is supported on:

- ✓ 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.

Follow the outlined steps to perform the **KOEO Standard Test:**

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

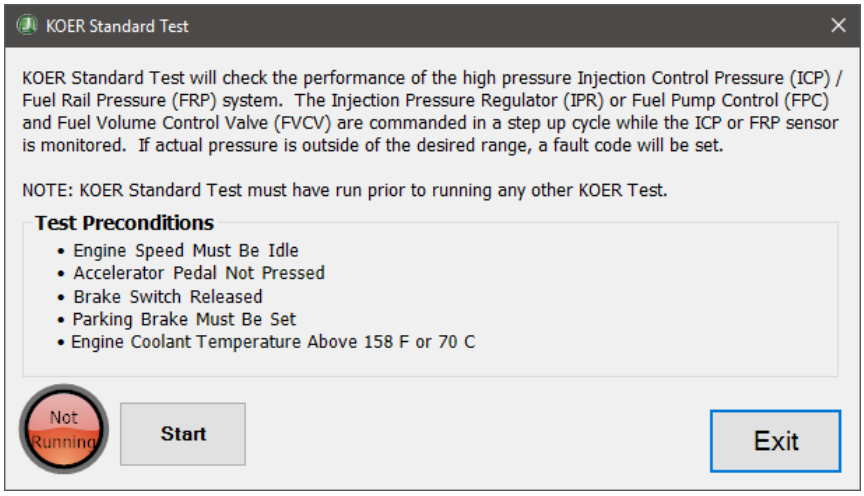
KOER Standard Test is supported on:

- ✓ 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.

Follow the outlined steps to perform the KOER Standard Test:

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.
4. The lamp to the left of the **Start** button will change from "**Not Running**" to "**Running**" and highlight as well.
5. Once the test completes, the lamp will change back to "**Not Running**", and a message will display with the test results.
6. 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:

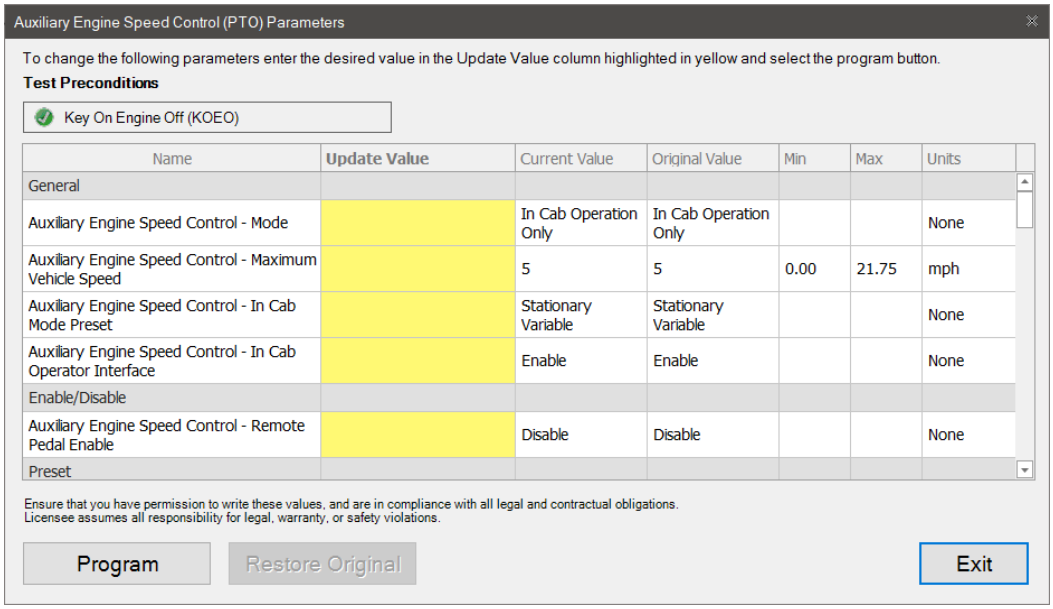
- ✓ International EPA 07 Maxxforce 7, DT, 9, 10, 11, and 13 engines
- ✓ International EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines
- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

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.

Follow the outlined steps to program the **Auxiliary Engine Speed Control (PTO) Parameters**:

1. Select the **Auxiliary Engine Speed Control (PTO) Parameters** and press Enter or click the **Start** button.
2. 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

NOTE: The specific parameters available to the program vary by engine type.

3. Enter a new value in one or more rows of the grid. Click the **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

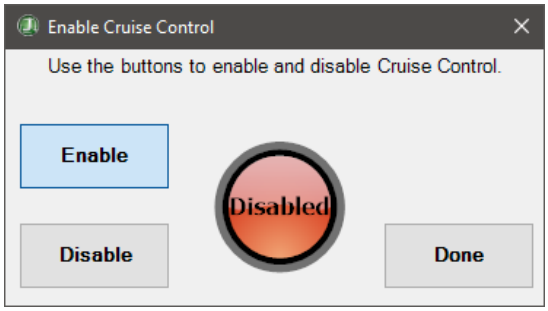
Enable and Disable Cruise Control is supported on:

- ✓ Mack and Volvo EPA 07 to EPA 10 engines

This may be protected by the customer's 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.

Follow the outlined steps to enable or disable the cruise control feature:

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:

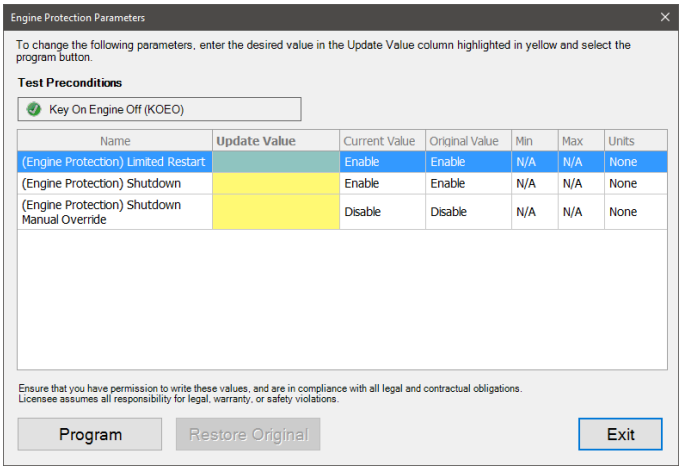
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, 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.

Follow the steps below to program the **Engine Protection Parameters**:

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.



Engine Protection Parameters

3. Enter a new value in one or more rows of the grid. Click the **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:

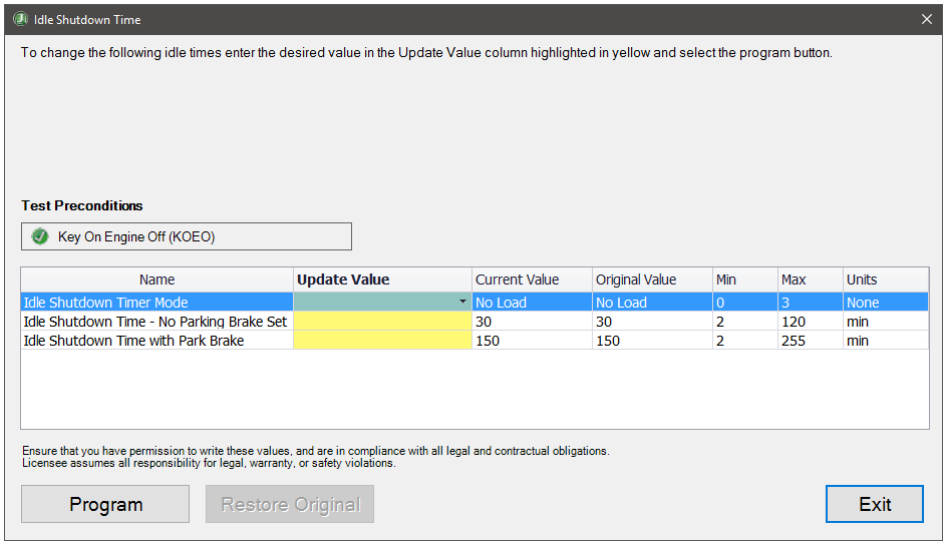
- ✓ Caterpillar 3126, C12, and C18 engines
- ✓ Caterpillar C-15 pre-ACERT engines (before 2004)
- ✓ Caterpillar EPA 04: C7, C9, C13, C15, and C18 ACERT engines
- ✓ Caterpillar EPA 07: C7, C13, and C15 ACERT engines
- ✓ Caterpillar 3126B Truck, 3126E truck, and C-7 truck engines
- ✓ Cummins EPA 07: all 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 EPA 10 engines

Follow the steps below to change the idle shutdown:

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 be slightly different for each manufacturer, but the functionality provided is the same.

3. Enter a new value for **Idle Shutdown**. Click the **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 be 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

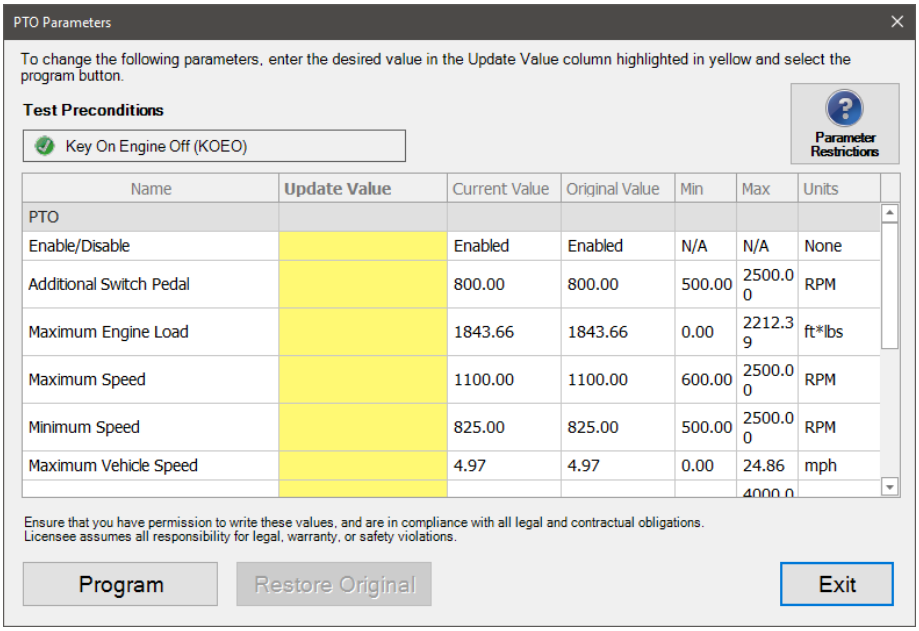
NOTE: For Detroit Diesel, this test is only available for Supported ECU Software Versions.

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.

Follow the steps below to program the **PTO Parameters**:

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.



PTO Parameters

NOTE: The specific parameters available to the 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 the **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 be 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
- ✓ Caterpillar 3126B truck, 3126E truck, and C-7 Truck 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 EPA 10 engines

NOTE: Noregon can remove access to setting road and cruise speed limits. If interested in limiting these capabilities, contact Noregon support (support@noregon.com).

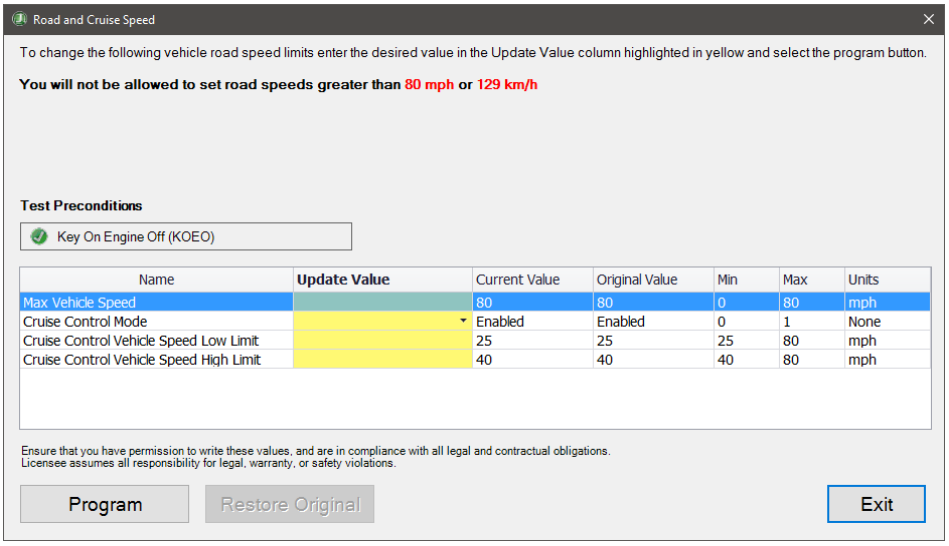
This parameter may be protected by the customer's password setting. If the user has configured the vehicle with a password, then the user will need to have that password to set any of these parameters. Once the password is entered, parameters can be changed on the vehicle until the session is ended by hitting Disconnect.

Follow the steps below to program the **Road & Cruise Speed Limit**:

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.

2. 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 the program vary by manufacturer.

3. Enter 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 be enabled.
4. Click the **Exit** button to return to the **Commanded Tests** dialog.

Trip Information Parameters

Trip Information Parameters are available on:

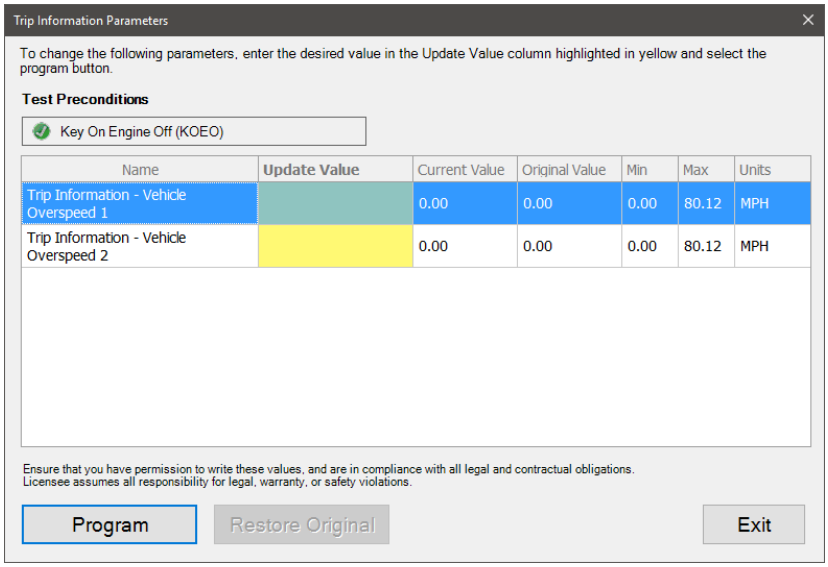
- ✓ Cummins EPA 07: all ISB, ISC, ISL, ISM, ISX, PX-6, and PX-8
- ✓ Cummins EPA 10: all ISB, ISC, ISL, ISX, PX-6, and PX-8
- ✓ Cummins EPA 13: all ISB, ISL, ISX, PX-7, and PX-9
- ✓ Cummins GHG17: all B6.7, L9, X15, PX-7, and PX-9
- ✓ Cummins CNG: all ISX 12G and ISX12N
- ✓ Cummins GHG21: all B6.7, L9, 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.

Follow the steps below to program the **Trip Information Parameters**:

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

3. Enter a new value in one or more rows of the grid. Click the **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 be 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

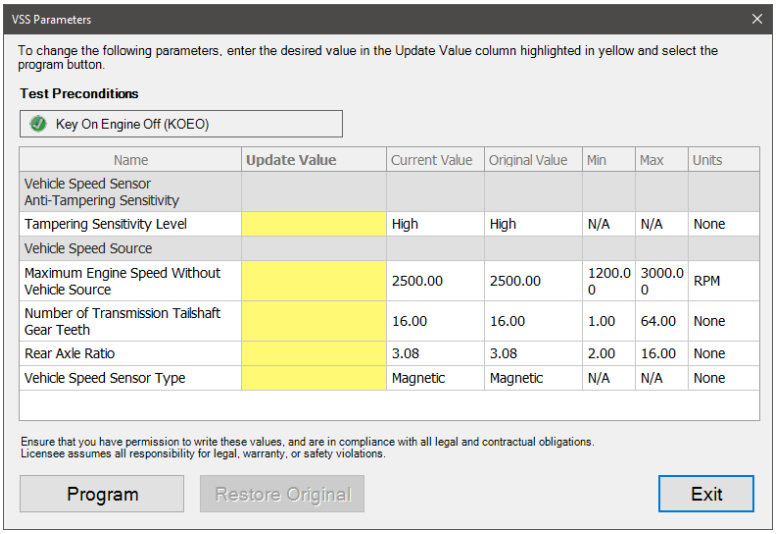
- ✓ International EPA 10 Maxxforce 7, 9, DT, 10, 11, 13, and 15 engines
- ✓ International N9, N10, 2013 N13, 2015 N13, and A26 GHG17 engines

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.

Follow the steps below to program the **VSS Parameters**:

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

NOTE: The specific parameters available to the program vary by manufacturer.

3. Enter a new value in one or more rows of the grid. Click the **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 be 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

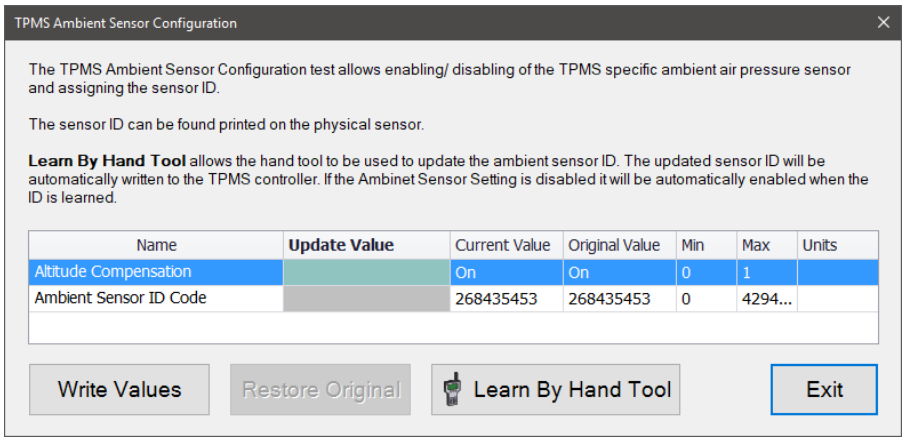
The **TPMS Ambient Sensor Configuration** test is available on:

- ✓ All Bendix SmarTire™ TPMS solutions

This test allows enabling of the TPMS Ambient Sensor and setting the sensor ID.

Follow the steps below to perform the **TPMS Ambient Sensor Configuration**:

1. Select **TPMS Ambient Sensor Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.



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 the **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

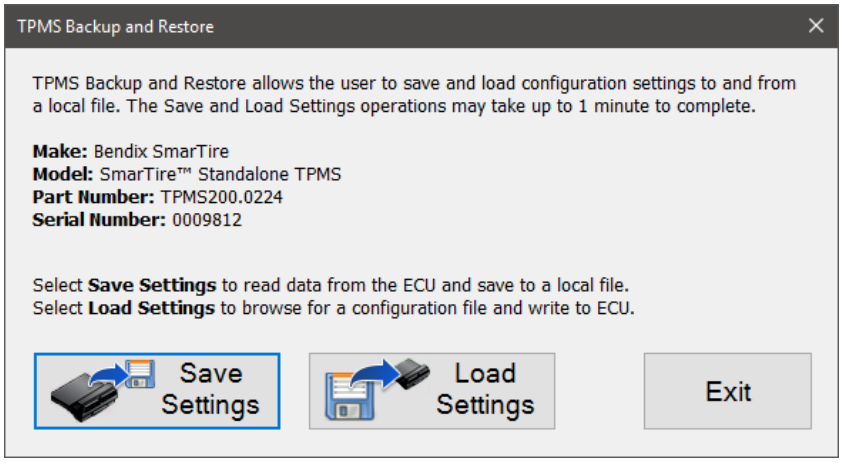
The **TPMS Backup and Restore** is available on:

- ✓ All SmarTire™ TPMS solutions

This test allows configuration settings to be saved to a local file and/or loaded onto a TPMS ECU.

Follow the steps below to perform the **TPMS Backup and Restore** procedure:

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:** See TPMS Backup and Restore Compatibility for compatibility rules.

5. When done, press the **Exit** button to return to the test selection dialog.

TPMS Configuration

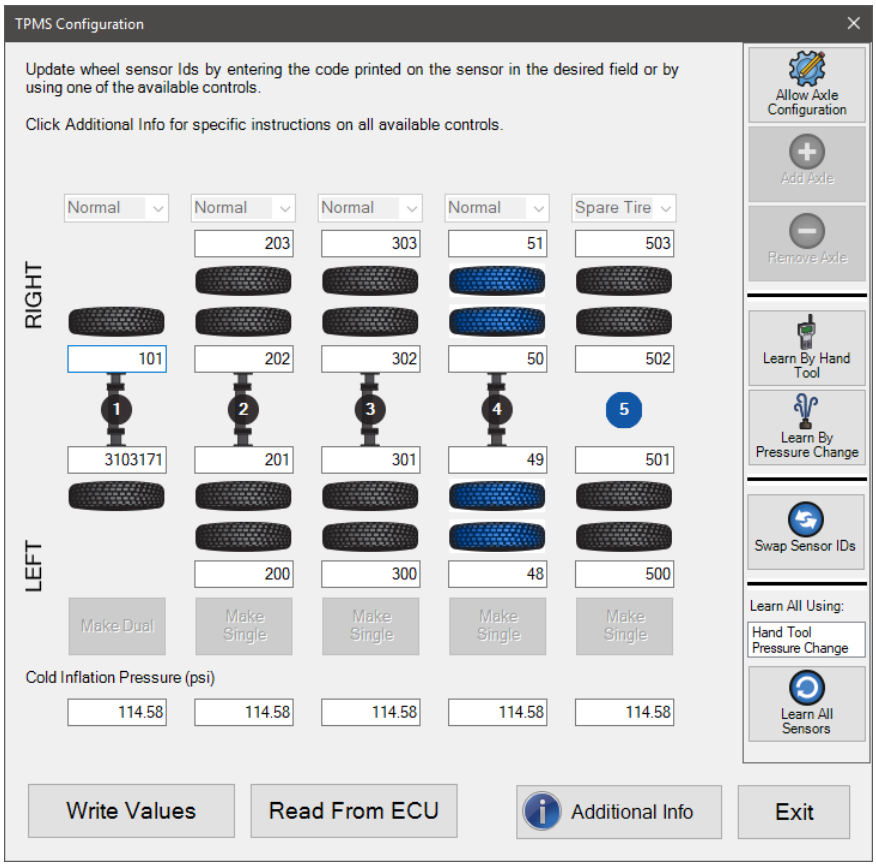
The **TPMS Configuration** test is available on:

- ✓ 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.

Follow the outlined steps to perform the **TPMS Configuration**:

1. Select **TPMS Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed.

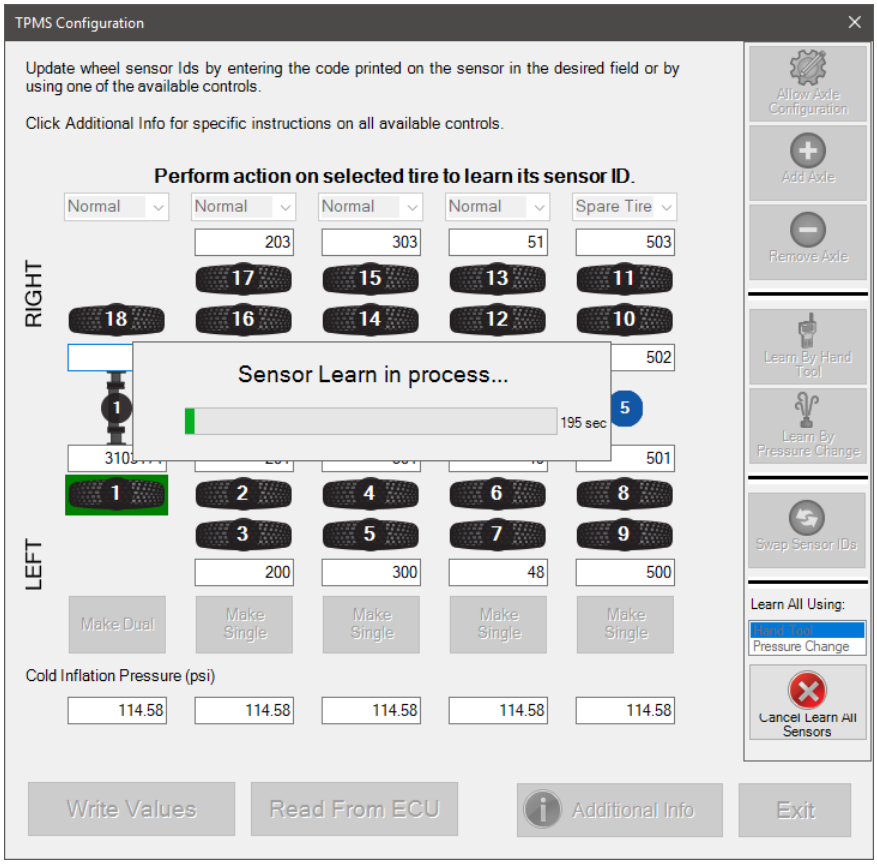


TPMS Configuration

3. 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.
4. Tire Sensor ID can also be relearned by clicking on a tire and using one of the available command buttons.

a. Click the **Learn By Hand Tool** to update the selected tire with the SmarTire™ hand tool. The new sensor ID will be automatically written when it is read by the hand tool.
b. 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.

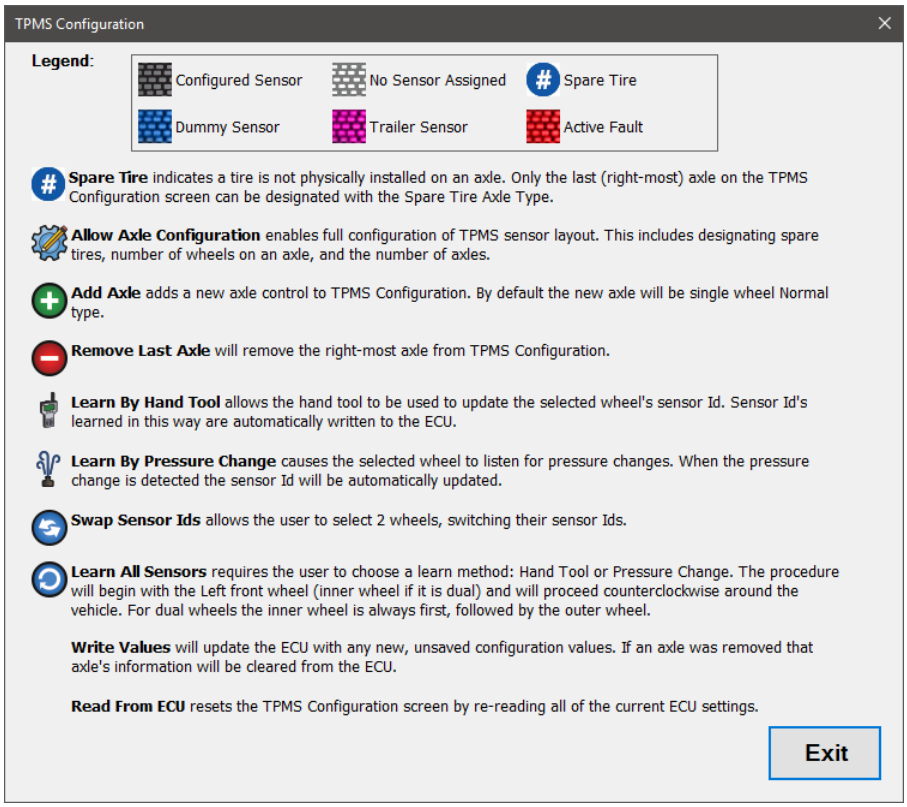
5. Click **Swap Sensor IDs** to move the existing sensor IDs between any 2 selected tires.
6. To relearn all tire sensors, select an available method and click **Learn All Sensors**. All tire sensors will be numbered, the first tire in order will be selected, and a timer will display. When the tire sensor 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 the **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 is 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

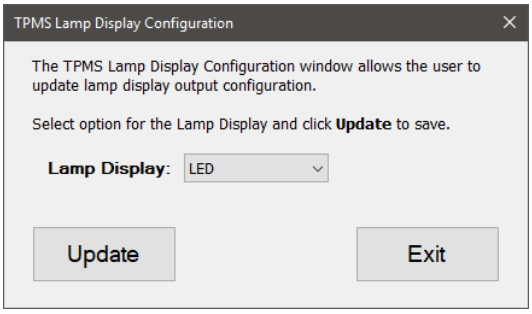
The **TPMS Lamp Display Configuration** test is available on:

- ✓ SmarTire™ Standard and NextGen TPMS solutions

This test allows selection of the TPMS lamp display.

Follow the steps below to perform the **TPMS Configuration**:

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

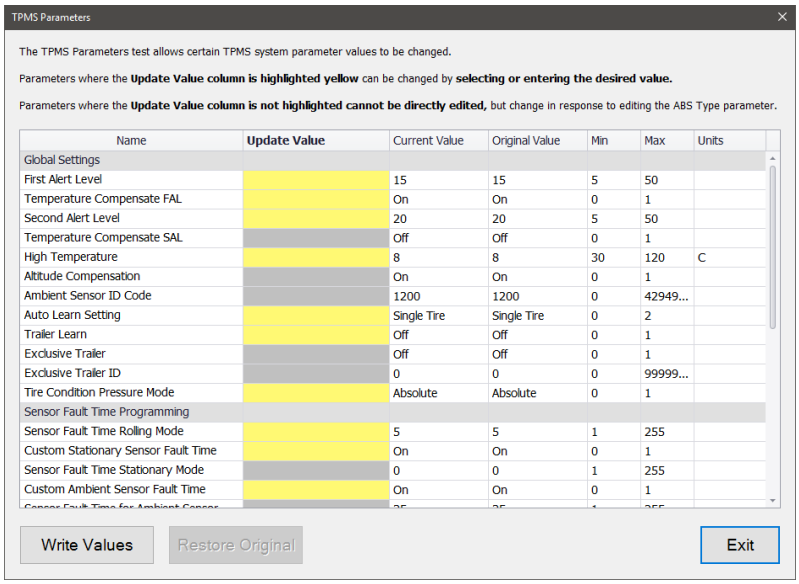
The **TPMS Parameters** test is available on:

- ✓ All Bendix SmarTire™ TPMS solutions

This test allows editing of configuration parameters.

Follow the steps below to program the **TPMS Parameters**:

1. Select **TPMS Parameters** and press Enter or the **Start** button.
2. The test dialog will be displayed.



SDP3 Configuration

3. Select a new value in one or more rows of the grid. Click the **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 be enabled.
4. When done, press the **Exit** button to return to the test selection dialog.

TPMS Scratchpad

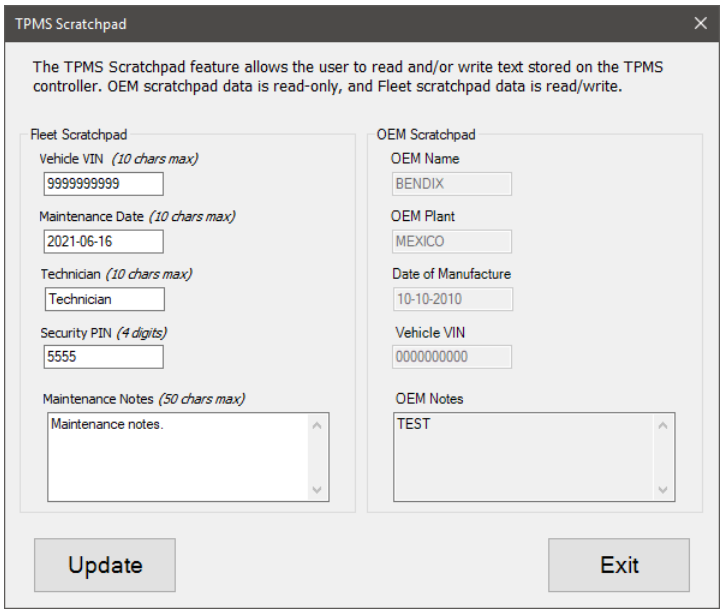
The **TPMS Scratchpad** is available on:

✓ SmarTire™ 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.

Follow the steps below to program the TPMS scratchpad:

1. Select the **TPMS Scratchpad** and press Enter or the **Start** button.
2. The test dialog will be displayed.



TPMS Scratchpad

3. Data read from the TPMS controller is displayed. Fleet scratchpad entries may be updated; any unsaved changes 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

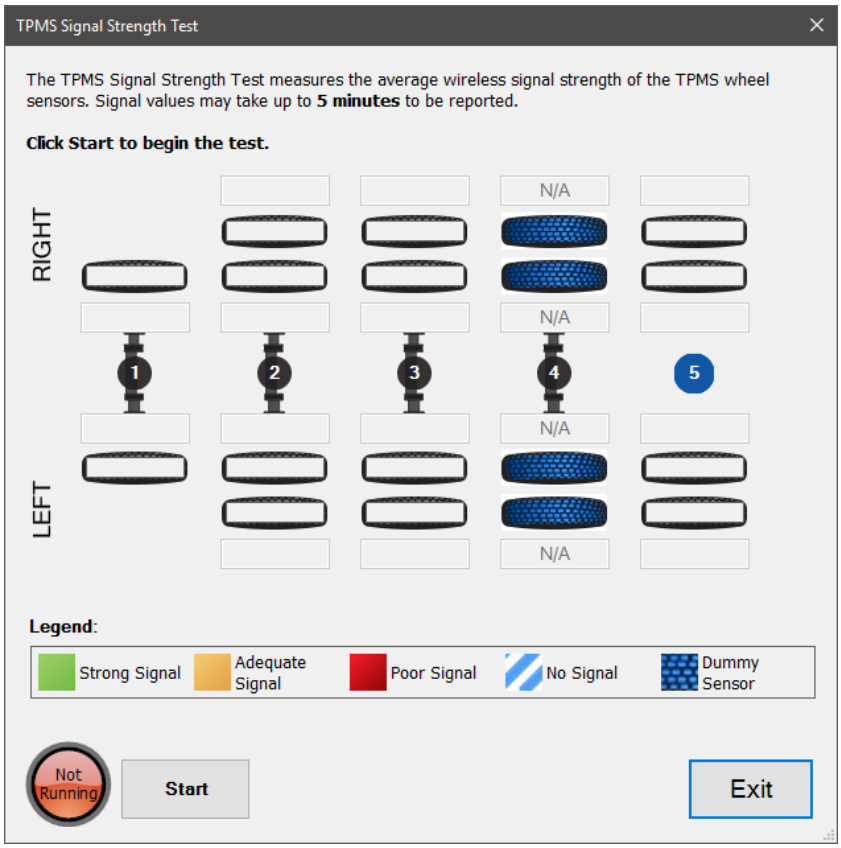
The **TPMS Signal Strength Test** is available on:

- ✓ 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.

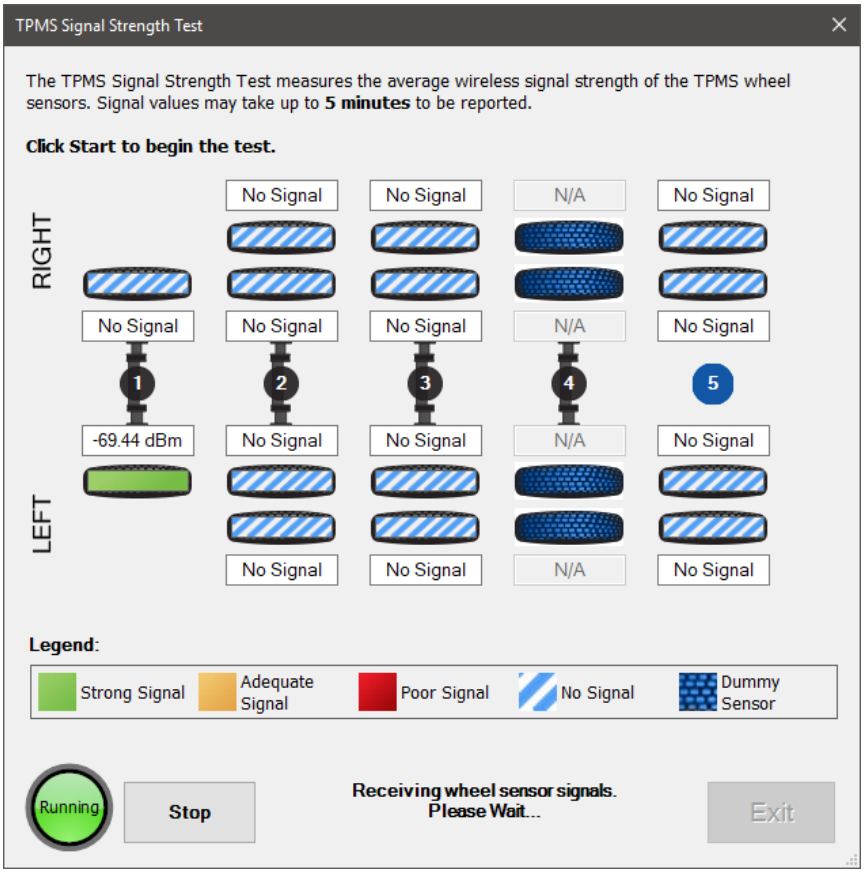
Follow the steps below to perform the **TPMS Signal Strength Test**:

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

3. 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

3. When done, press the **Exit** button to return to the test selection dialog.

TPMS Statistics

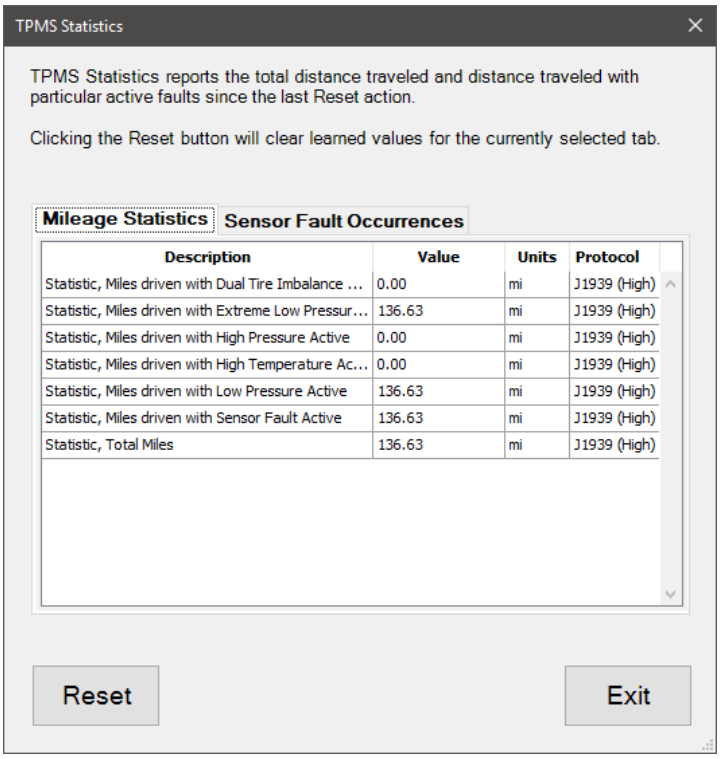
The **TPMS Statistics Test** is available on:

- ✓ 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.

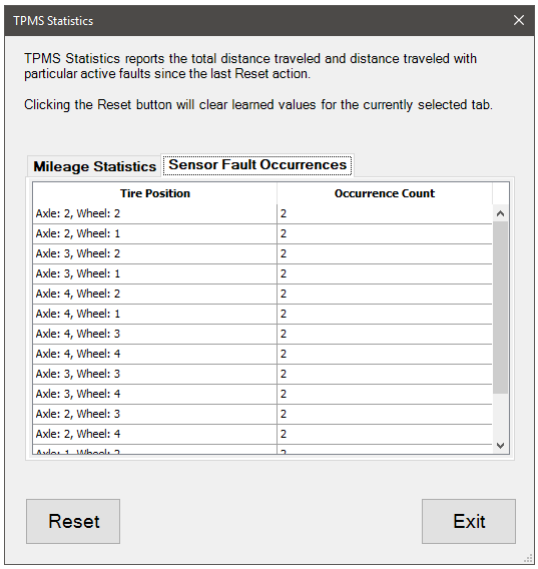
Follow the outlined steps to perform the **TPMS Statistics Test**:

1. Select **TPMS Statistics** and press Enter or the **Start** button.
2. The test dialog will be displayed.



TPMS Mileage Statistics

3. The **Mileage Statistics** tab displays the accumulated distance the vehicle has travelled with different statuses enabled. **Sensor Fault Occurrences** displays the fault occurrence count for all affected axles and tire sensors.
4. Clicking the **Reset** button will display a confirmation message. Click **Yes** to reset the currently selected tab.



TPMS Sensor Fault Occurrences

NOTE: Resetting statistical data is a permanent operation that cannot be undone.

5. When done, press the **Exit** button to return to the test selection dialog.

Trailer Brakes Tests

EOL Test

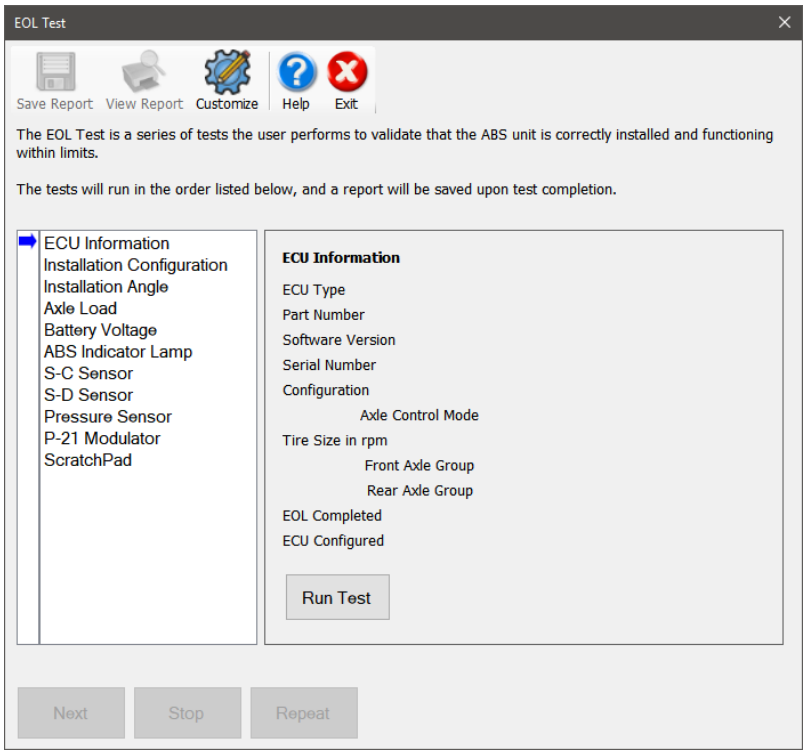
The EOL (End of Line) Test is available on:

- ✓ 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.

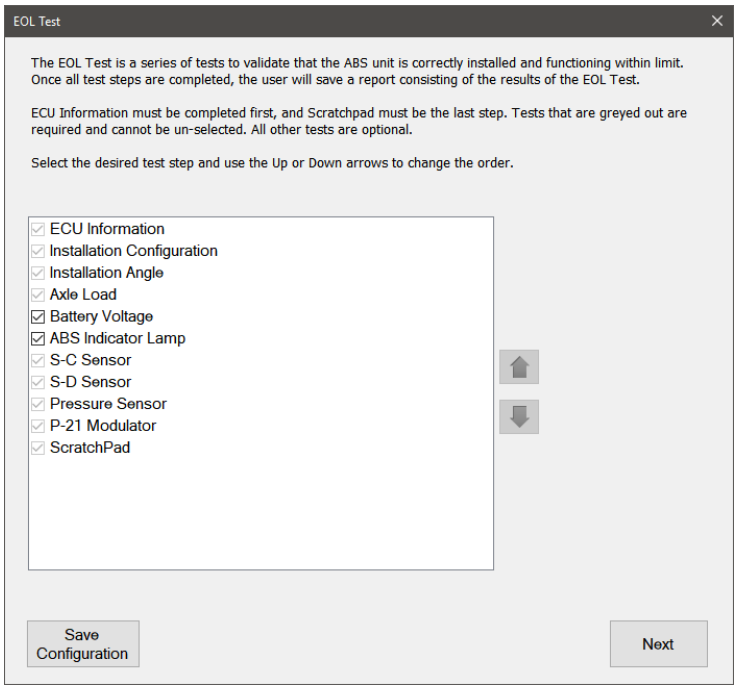
Follow the steps below to perform the **EOL Test**:

1. Select **EOL Test** under **Bendix Diagnostics** on the main form toolbar.
2. 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

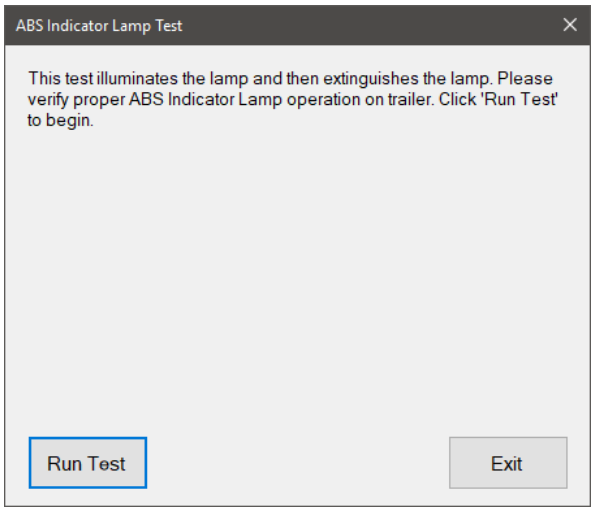
The **ABS Indicator Lamp Test** is available on:

- ✓ 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 the **Bi-Directional test selection**.

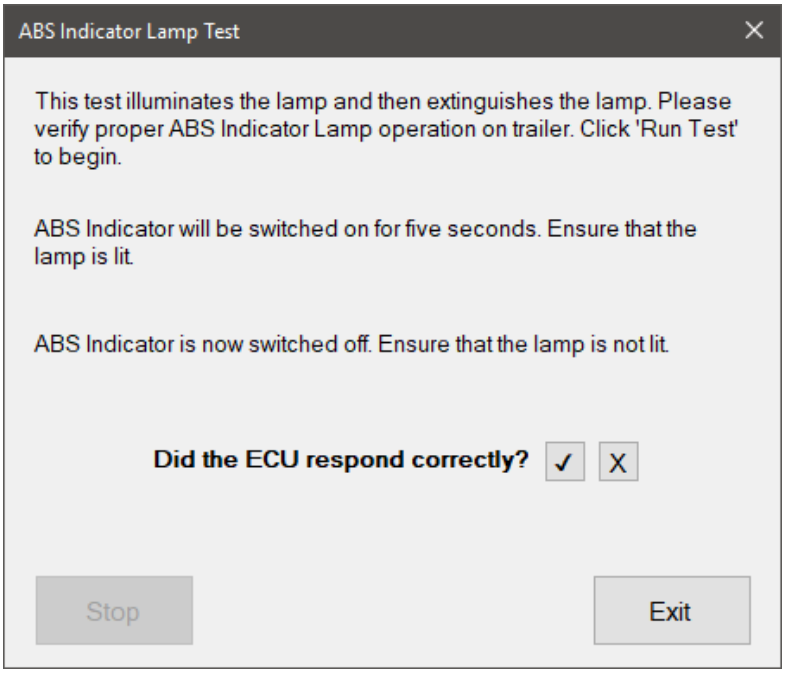
Follow the steps below to perform the **ABS Indicator Lamp Test**:

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 will be enabled. Press 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

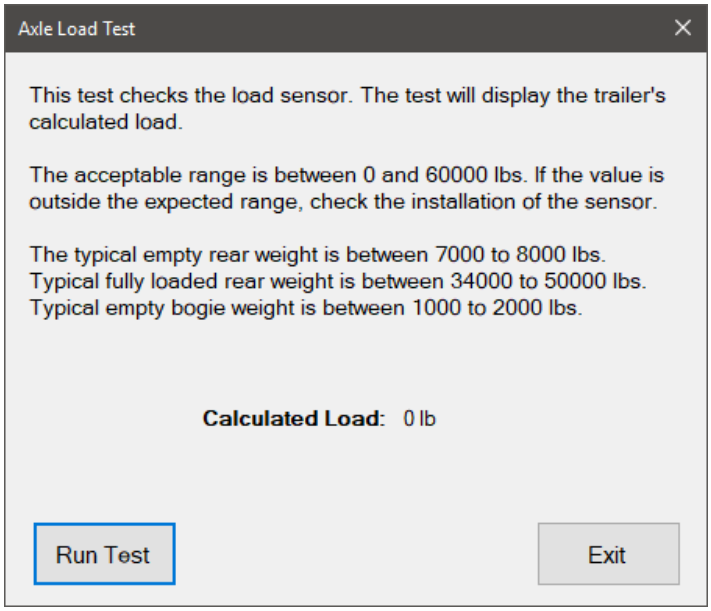
The **Axle Load Test** is available on:

- ✓ 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 the **EOL Test dialog** and in the **Bi-Directional menu**.

Follow the steps below to perform the **Axle Load Test**:

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 will be enabled. Press 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:

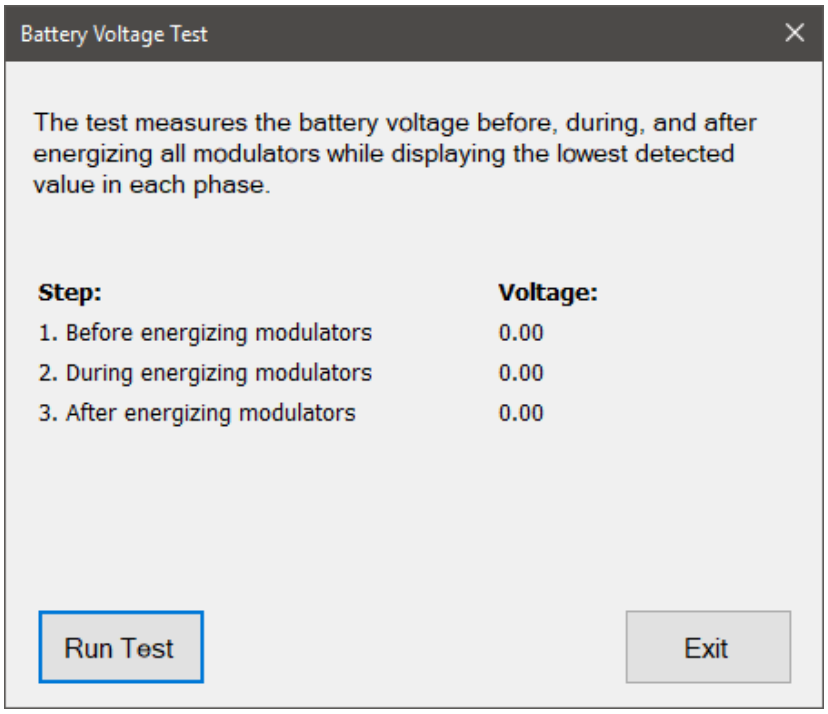
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

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 the **EOL Test dialog** and in the **Bi-Directional menu**.

Follow the steps below to perform the **Battery Voltage Test**:

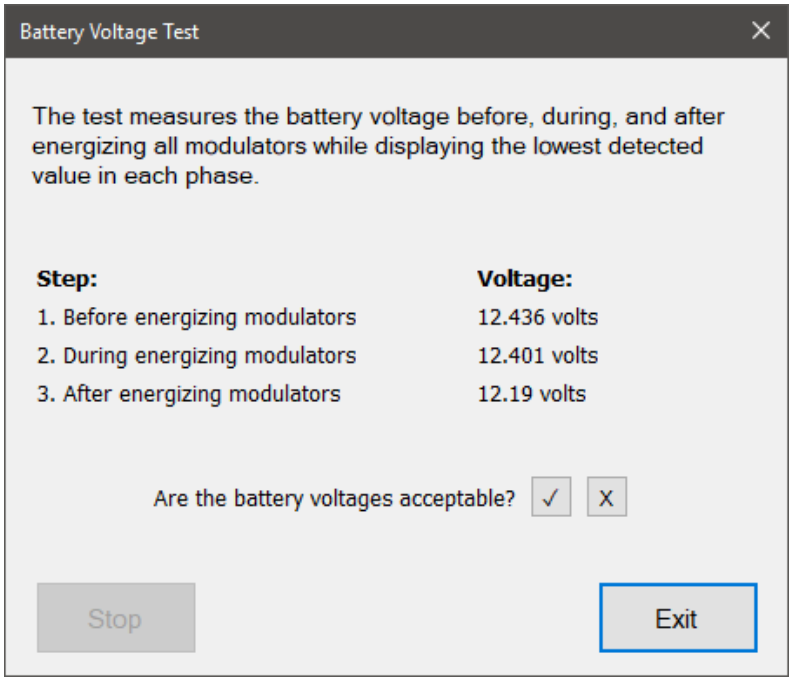
1. Select the **Battery Voltage Test** and press Enter or the **Start** button.

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 will be enabled. Press the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

Chuff Test

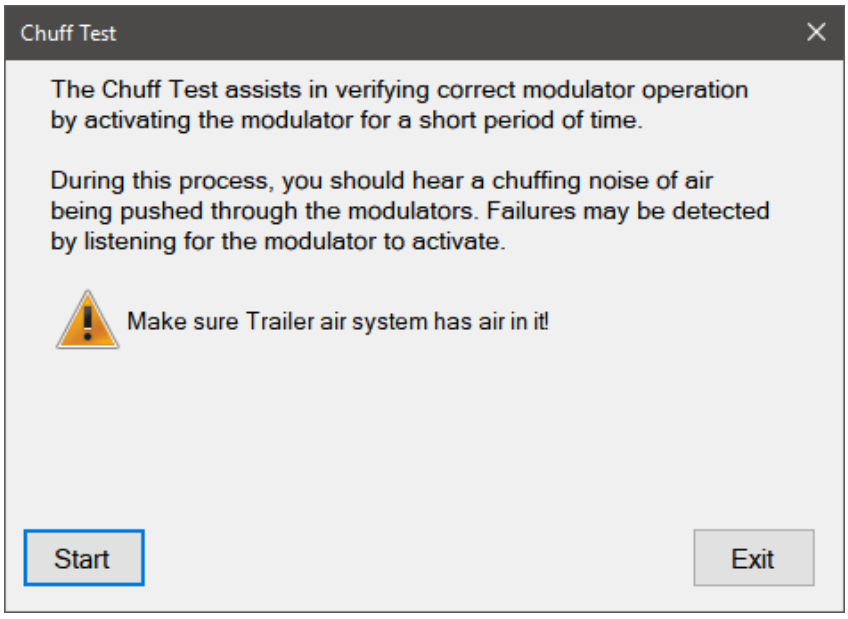
The **Chuff Test** is available on:

- ✓ 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.

Follow the steps below to perform the **Chuff 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

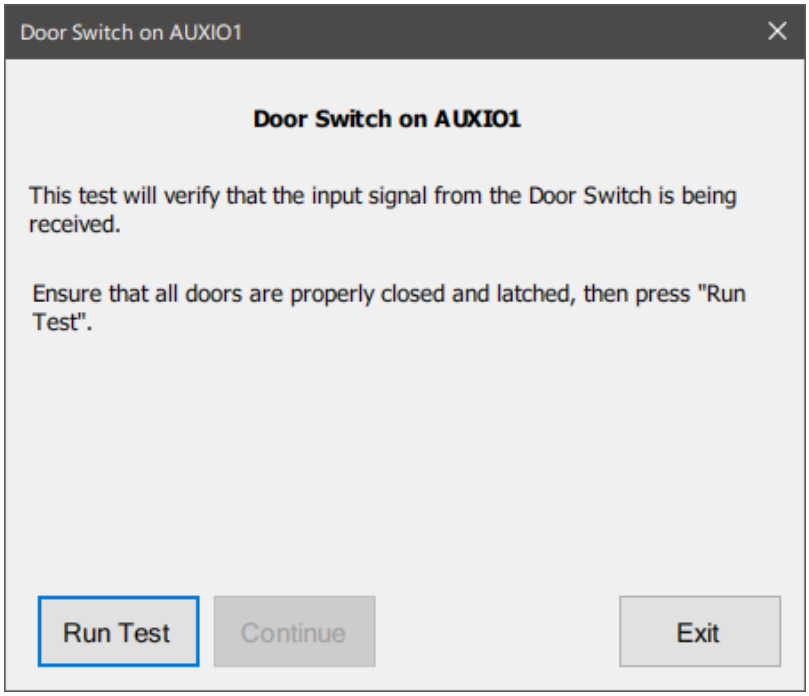
The **Door Switch Status Test** is available on:

- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **Door Switch Status Test** verifies that the input signal from the Door Switch is being received. This test is available both inside the **EOL Test** dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Door Switch Status Test**:

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 will be enabled. Press the **Repeat** button to perform the test again.
5. When done, select the **Exit** button to return to the test selection dialog.

ECU Configuration

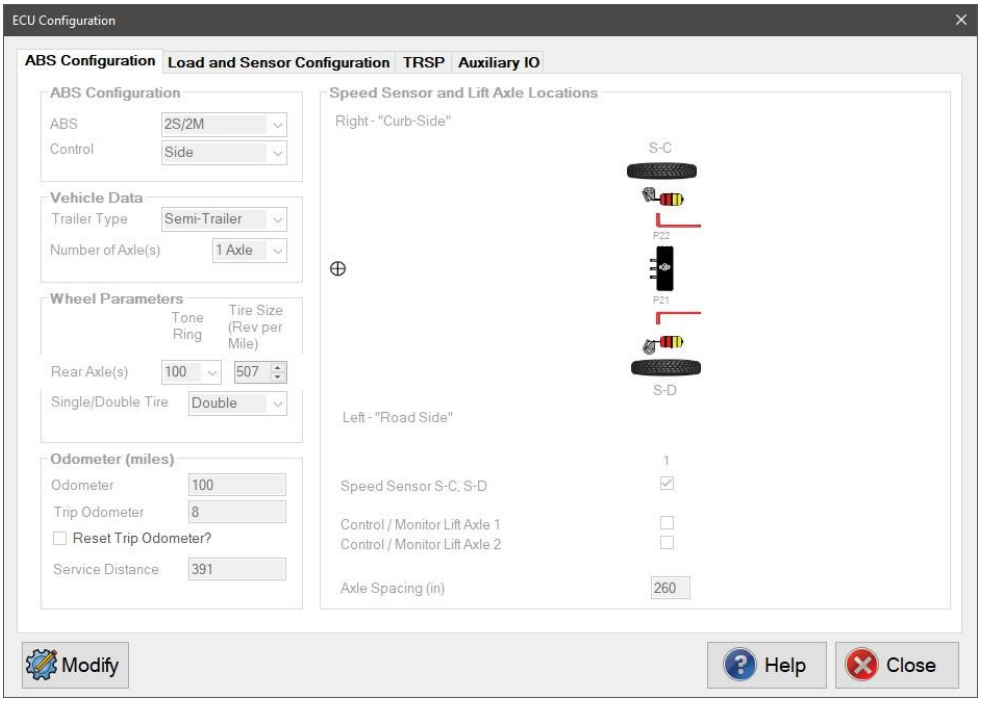
ECU Configuration is available on:

- ✓ TABS-6™ Multi-Channel Trailer ABS

ECU Configuration allows technicians to set parameters and configurations of the ECU.

Follow the steps below to perform the **ECU Configuration**:

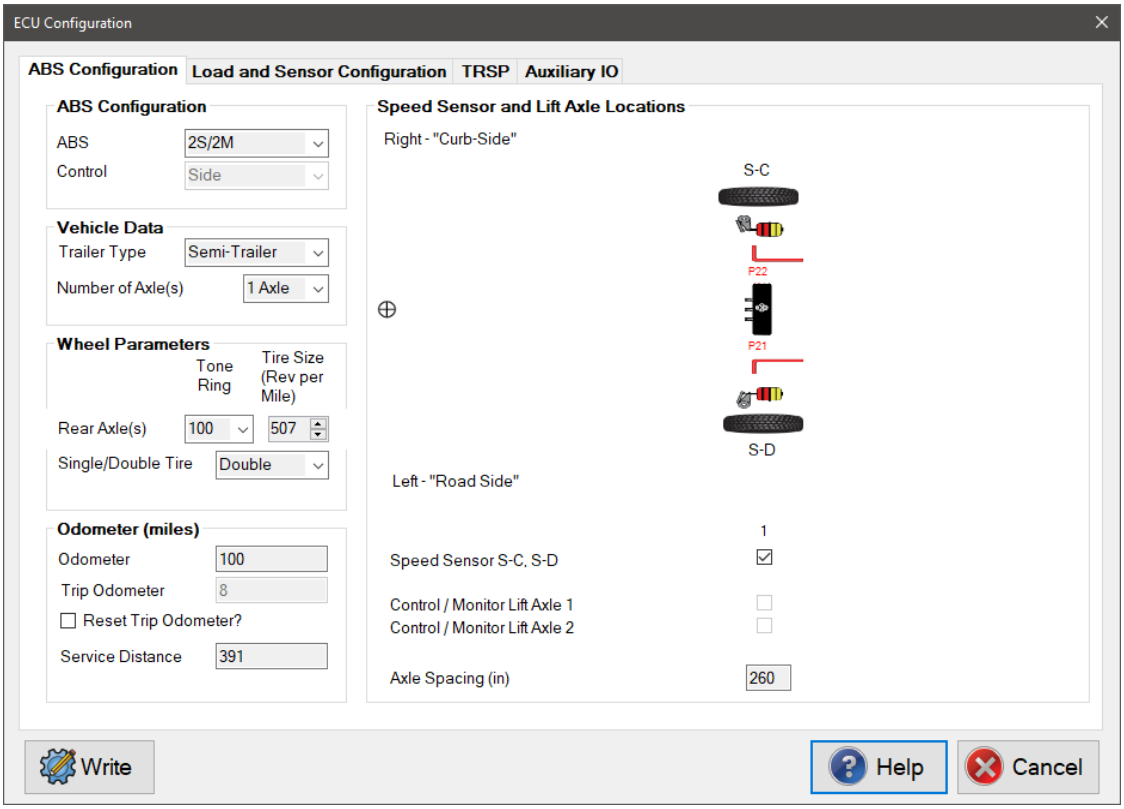
1. Select **ECU Configuration** and press Enter or the **Start** button.
2. The test dialog will be displayed, showing the current ECU settings.
3. Clicking the **Help** button will open this **User Guide** document.



ECU Configuration

4. Clicking the **Modify** button allows ECU configurations and parameters to be changed.
5. The **ABS Configuration** tab allows changing the ECU type, number of axles supported, tire parameters, and odometer information.

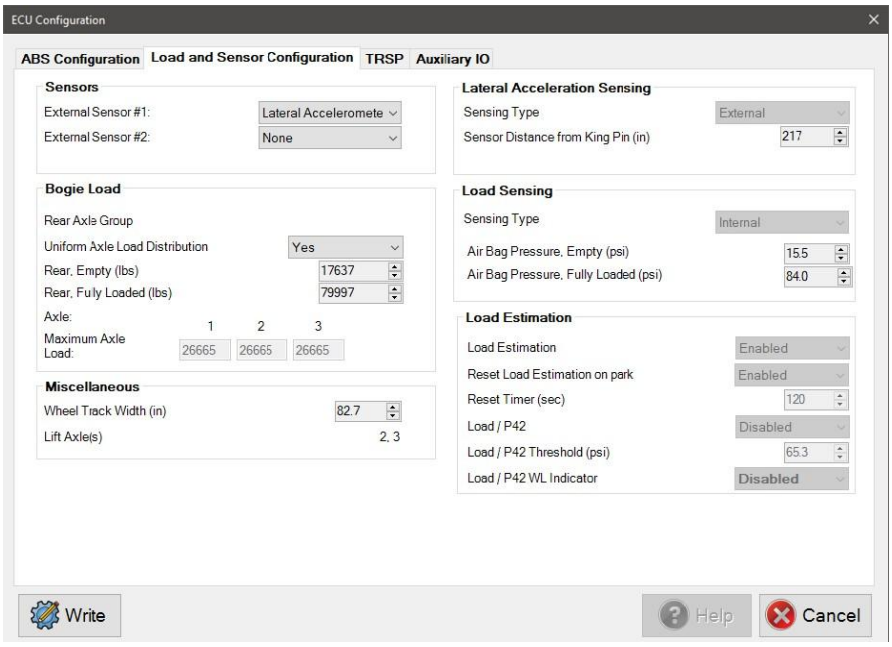
6. The configuration diagram will update to reflect the current settings. Related parameters like sensor location, lift location, and axle spacing may be defined.



Modify ABS Configuration

7. The **Load and Sensor Configuration tab** allows users to change sensor settings, load of the Bogie, and width of the wheel track.
8. 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.
9. 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.

10. 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.

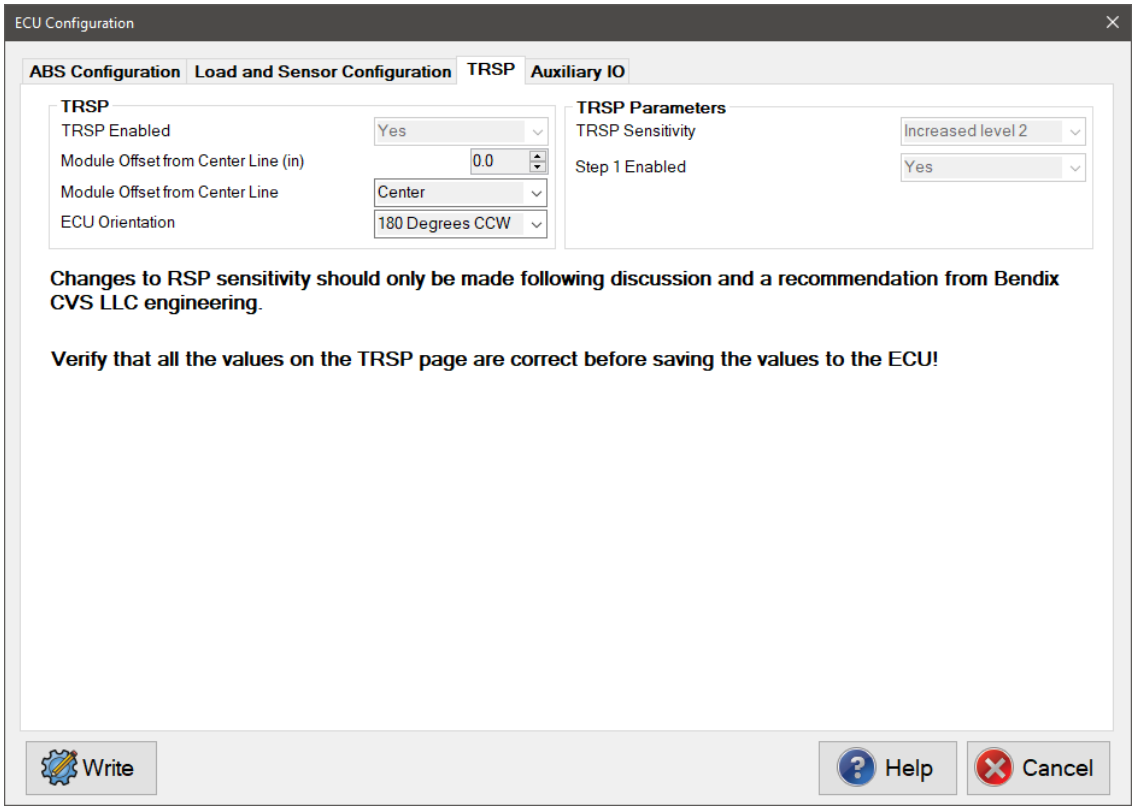


Modify Load and Sensor Configuration

11. 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.

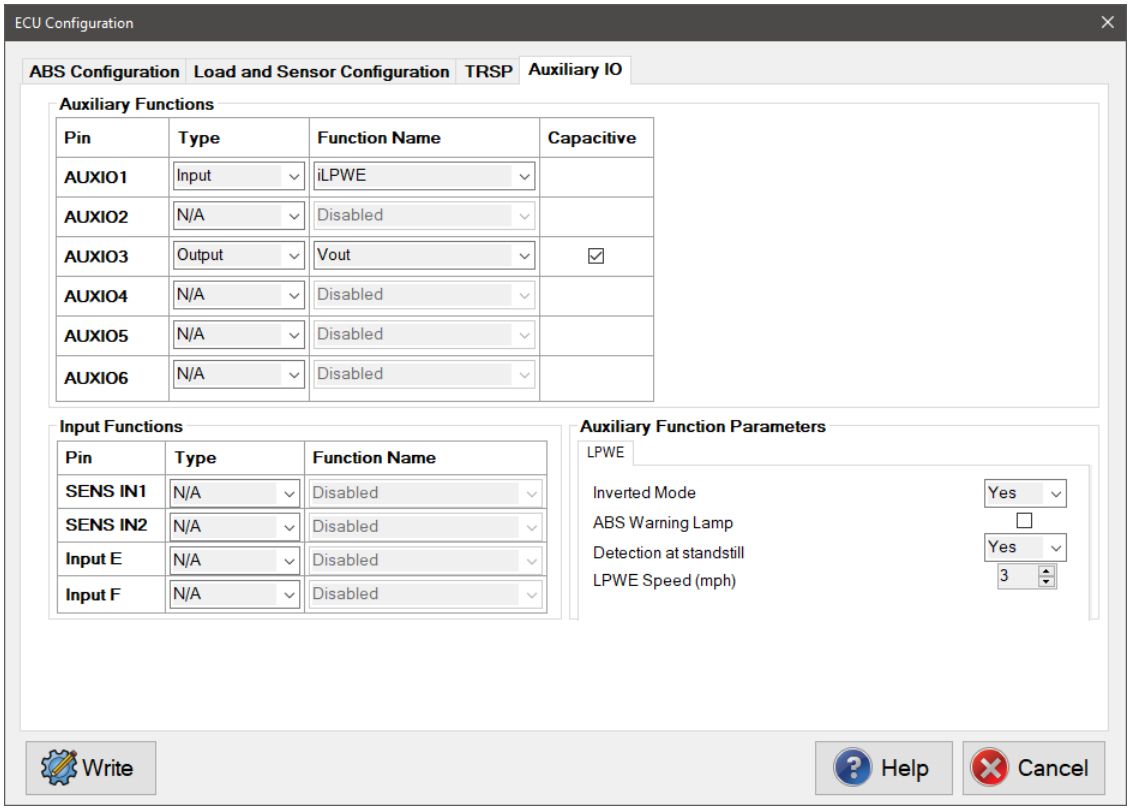


Modify Trailer Rollover Stability (TRSP)

12. 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.

13. The Input functions section allows "**Input**" functions to be assigned to specific pins.
14. 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

15. 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 the configuration is complete, a success status pop-up is displayed.
16. When done, select the **Exit** button to return to the main form.

ECU Information Test

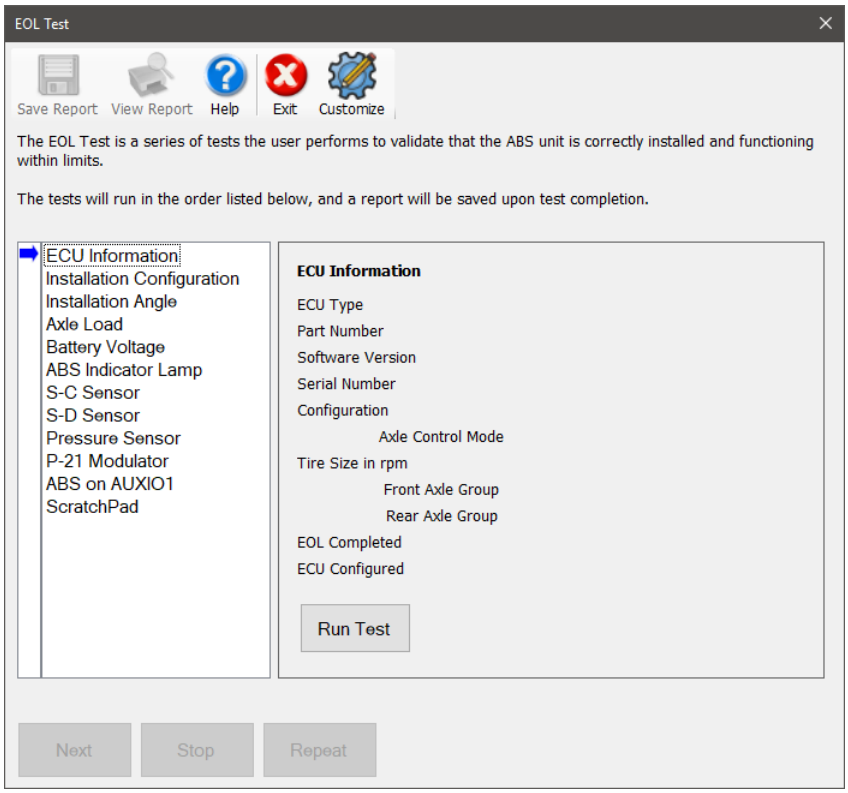
The **ECU Information Test** is available on:

- ✓ 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 the **EOL Test** dialog and does not appear in the **Bi-Directional test selection**.

Follow the steps below to perform the **ECU Information Test**:

1. Select **EOL Test** on the main form toolbar.
2. Select the tests to be run 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 will be enabled. Press 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 the user to confirm that the output functions assigned to an Input/Output (I/O) pin are functioning properly. Multiple I/O functions 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.

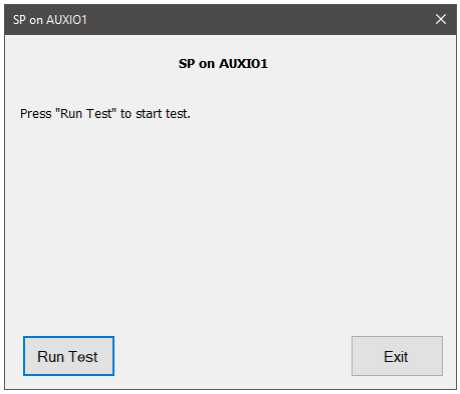
Supported I/O functions:

- ✓ 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 the EOL Test dialog, and in the Bi-Directional menu.

Follow the steps below to perform the **General Output Test**:

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

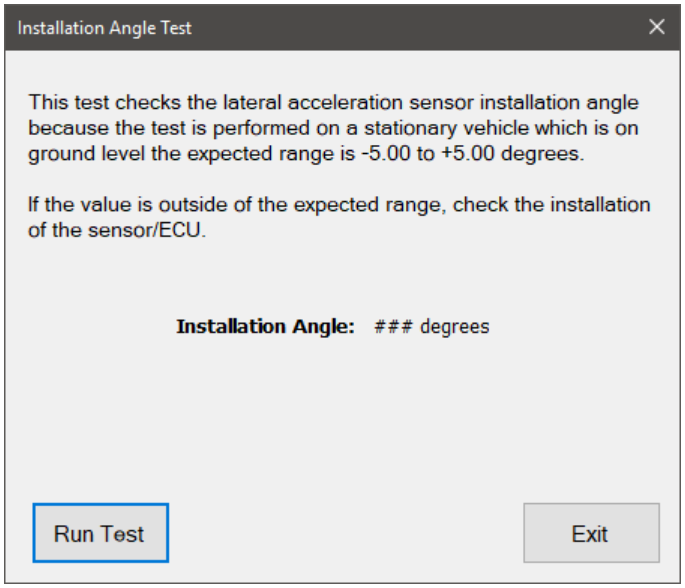
The **Installation Angle Test** is available on:

- ✓ 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 the EOL Test dialog and cannot be selected in the Bi-Directional menu.

Follow the steps below to perform the **Installation Angle Test**:

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 will be 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

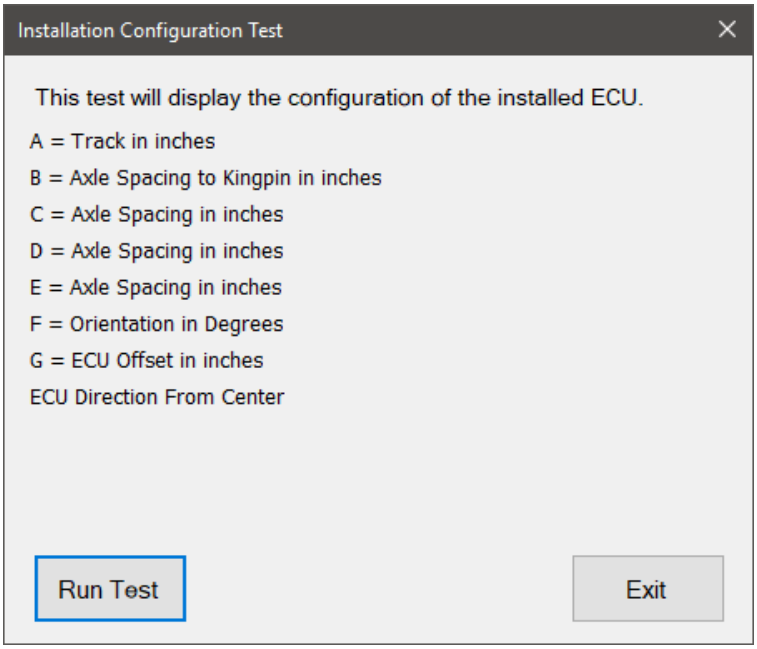
The **Installation Configuration Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Installation Configuration Test**:

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 will be enabled. Press 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:

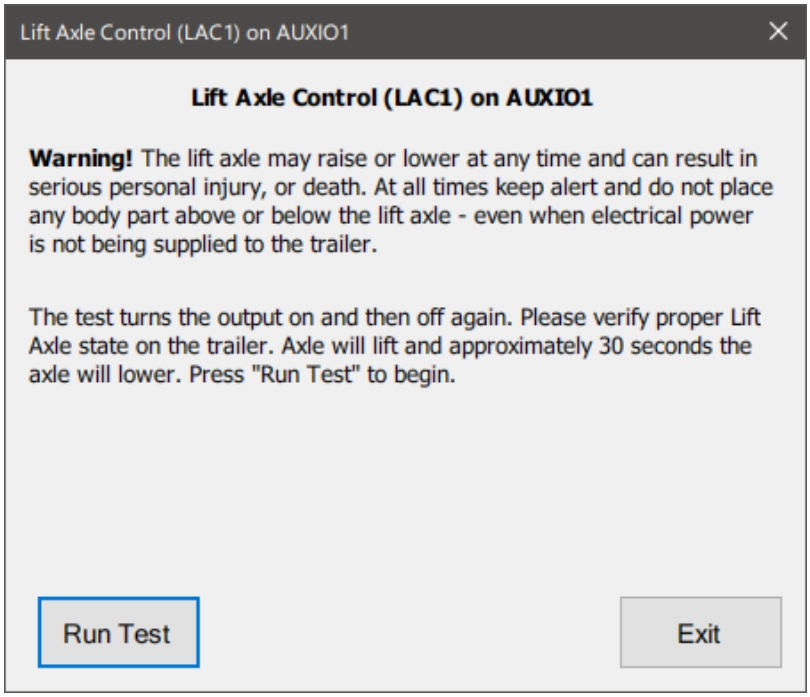
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Lift Axle Control Test**:

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 will become 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:

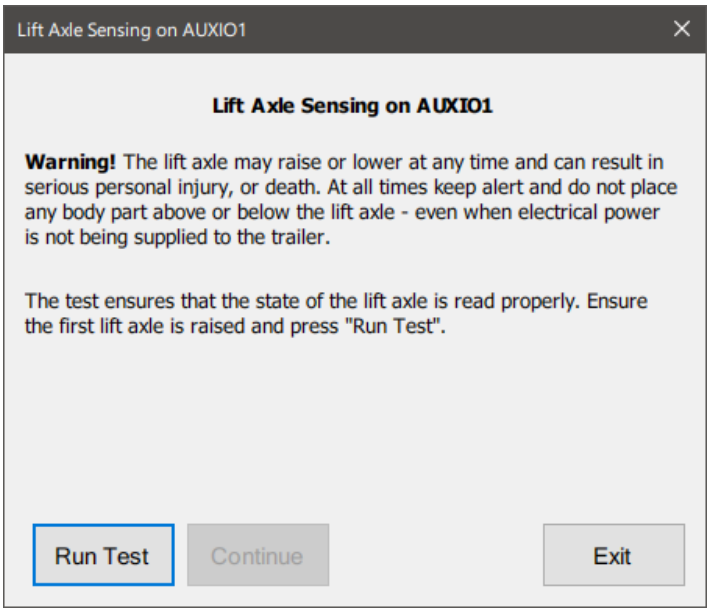
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Lift Axle Sensing Test**:

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 will become 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

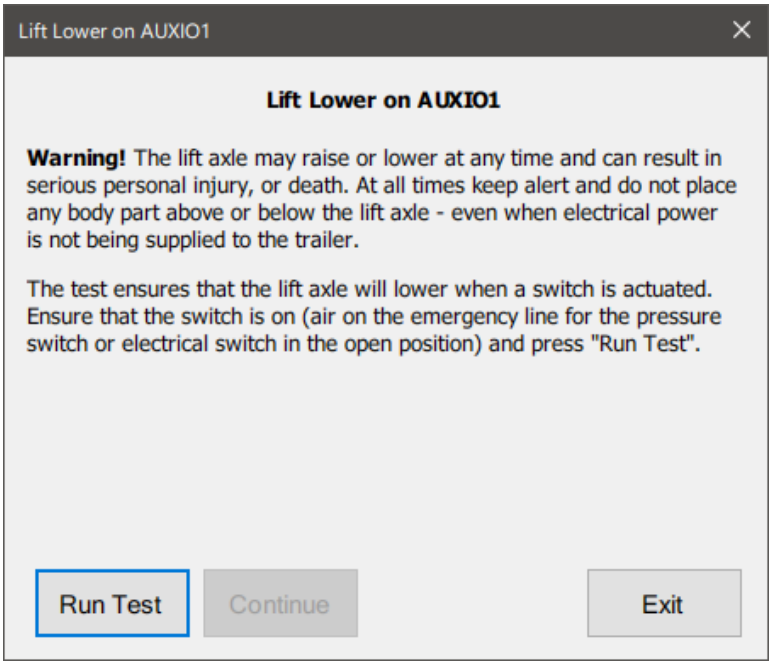
The **Lift Lower Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Lift Lower Test**:

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 the 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 will become 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

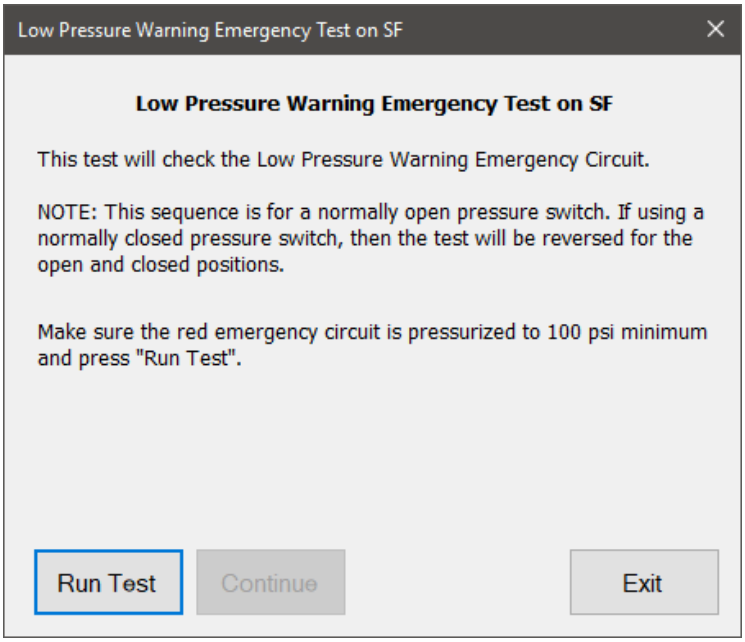
The **Low Pressure Warning Emergency Test** is available on:

- ✓ 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 the **EOL Test dialog** and in the **Bi-Directional menu**.

Follow the steps below to perform the **Low-Pressure Warning Emergency Test**:

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 will become 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

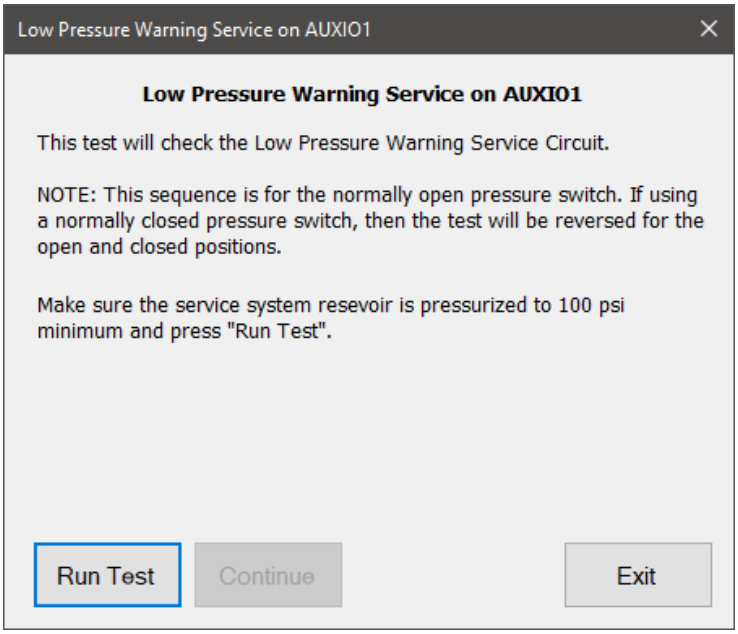
The **Low Pressure Warning Service Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Low Pressure Warning Service Test**:

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 the 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 will become 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

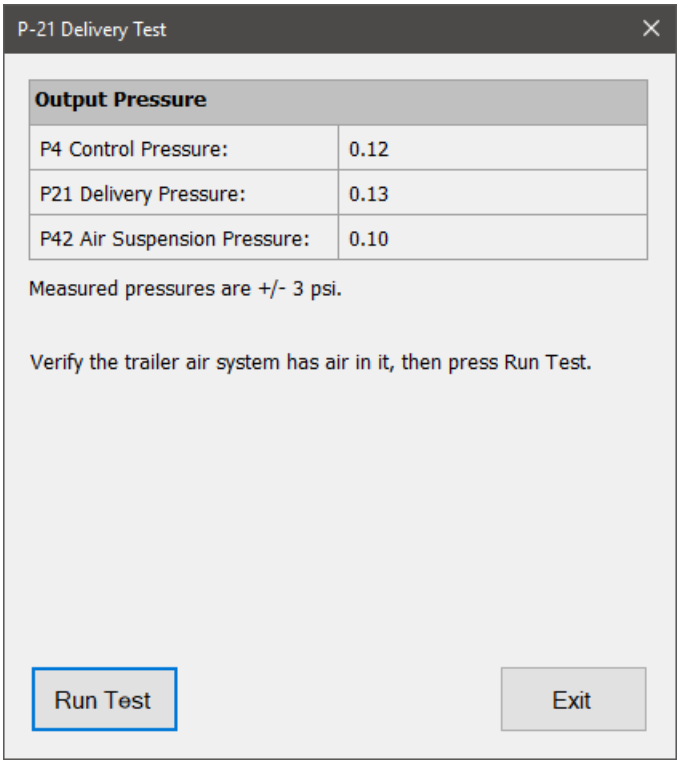
The **P-21 Delivery Test** is available on:

- ✓ 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.

Follow the steps below to perform the **P-21 Delivery Test**:

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

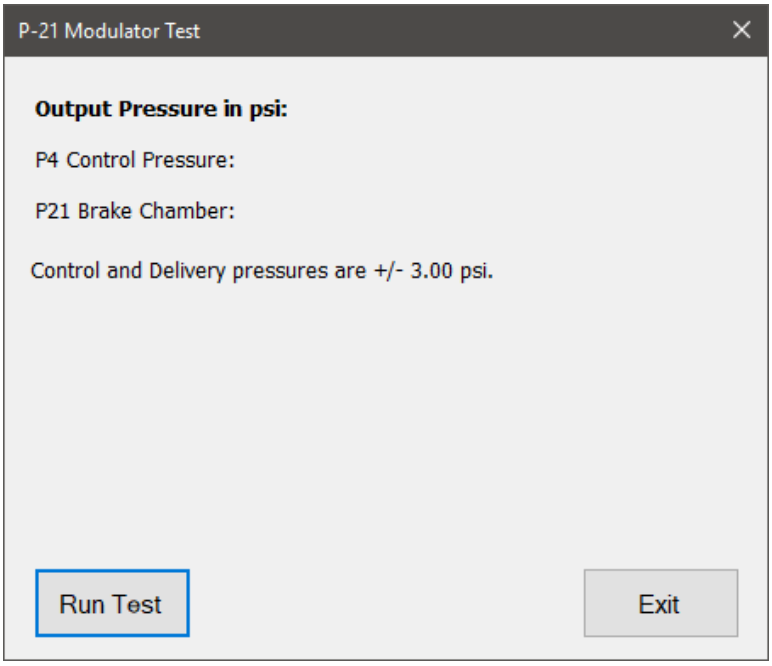
The **P-21 Modulator Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **P-21 Modulator Test**:

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, and apply 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 will become enabled. Press 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

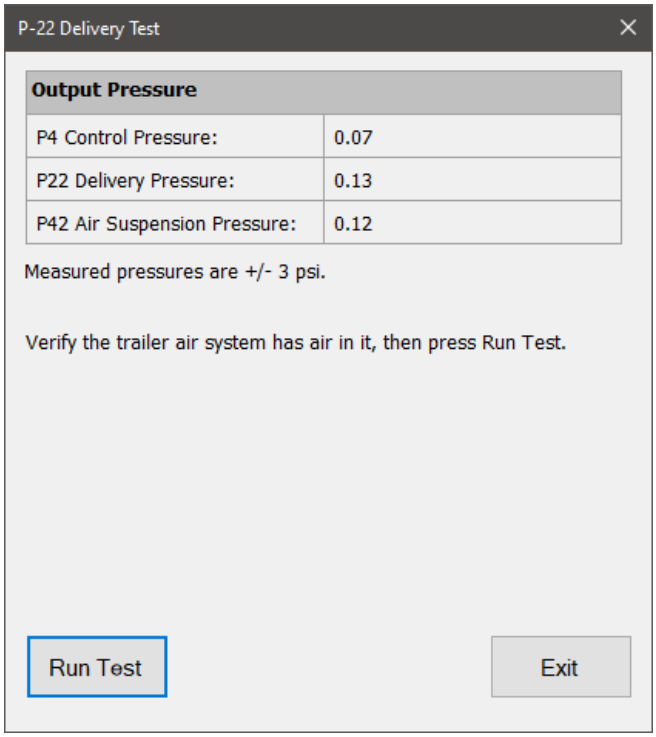
The **P-22 Delivery Test** is available on:

- ✓ 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.

Follow the steps below to perform the **P-22 Delivery Test**:

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

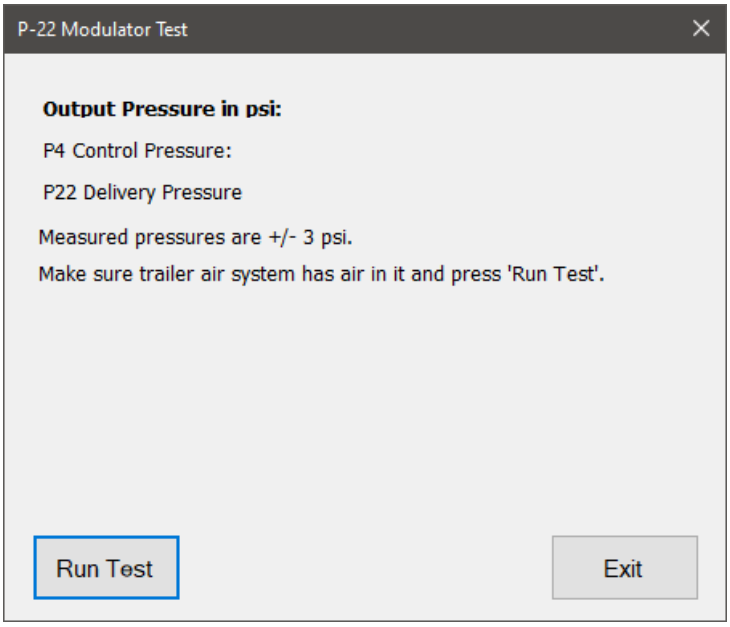
The **P-22 Modulator Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **P-22 Modulator Test**:

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, and apply 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 will become 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

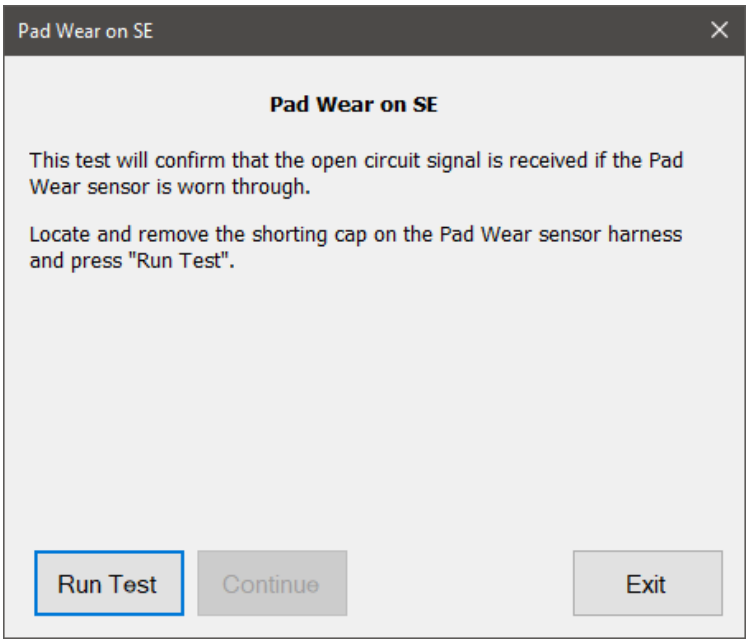
The **Pad Wear Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Pad Wear Test**:

1. Select **Pad Wear Test** and press Enter or the **Start** button.
2. The **Pad Wear** screen will appear.



Pad Wear Test

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 will become 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

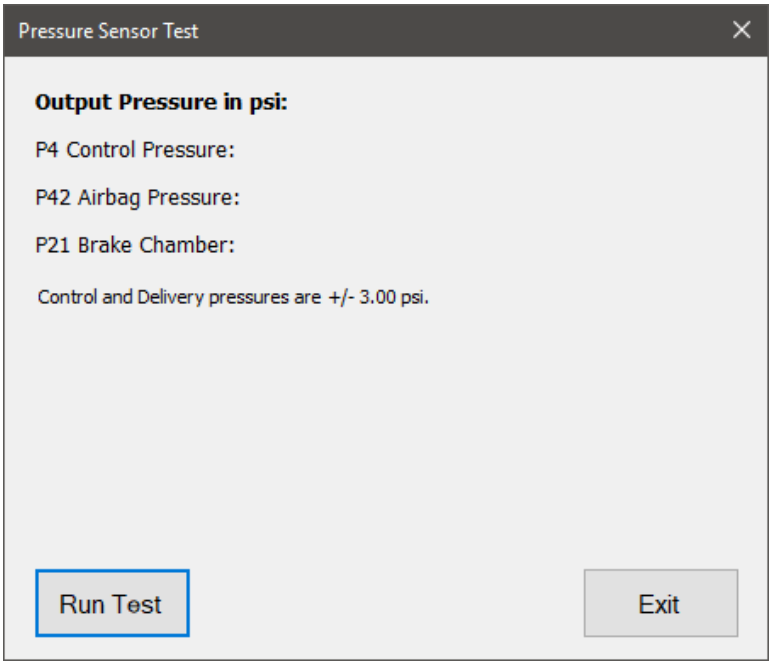
The **Pressure Sensor Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Pressure Sensor Test**:

1. Select **Pressure Sensor Test** and press Enter or the **Start** button.
2. The **Pressure Sensor Test** 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 will become 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:

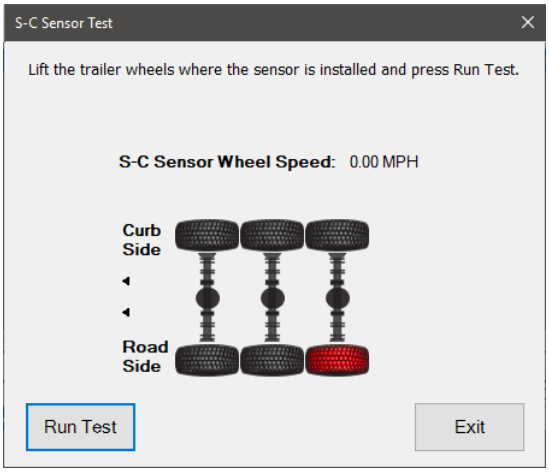
- ✓ TABS-6™ Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The **S-C and S-D Tests** verify that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside the EOL Test dialog and in the Bi-Directional menu.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

Follow the steps below to perform the **S-C** or **S-D Sensor Test**:

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 will be 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

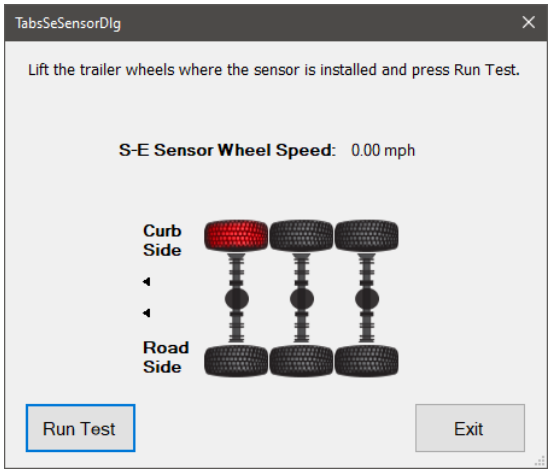
NOTE: Supports 4 sensor configuration only.

The **S-E and S-F Tests** verify that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside the EOL Test dialog and in the Bi-Directional menu.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

Follow the steps below to perform the **S-E** or **S-F Sensor Test**:

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 will become enabled. Press the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

Scratchpad Test

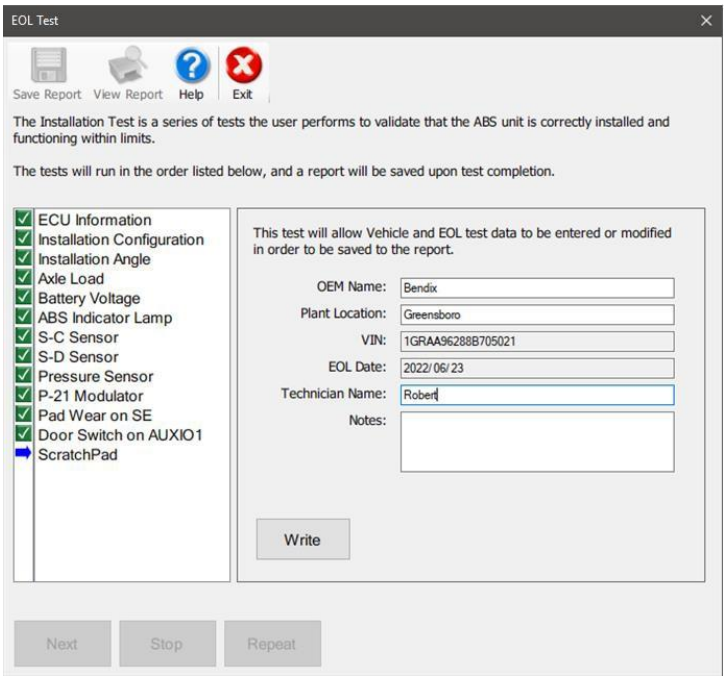
The **Scratchpad Test** is available on:

- ✓ 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 the **EOL Test dialog** and cannot be selected in the **Bi-Directional menu**.

Follow the steps below to perform the **Scratchpad Test**:

1. Select **EOL Test** on the main form toolbar.
2. Select the tests to be run 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 be enabled, as well as the **Save Report** and **View Report** buttons at the top of the **EOL Test** form.

Tire Inflation System Test

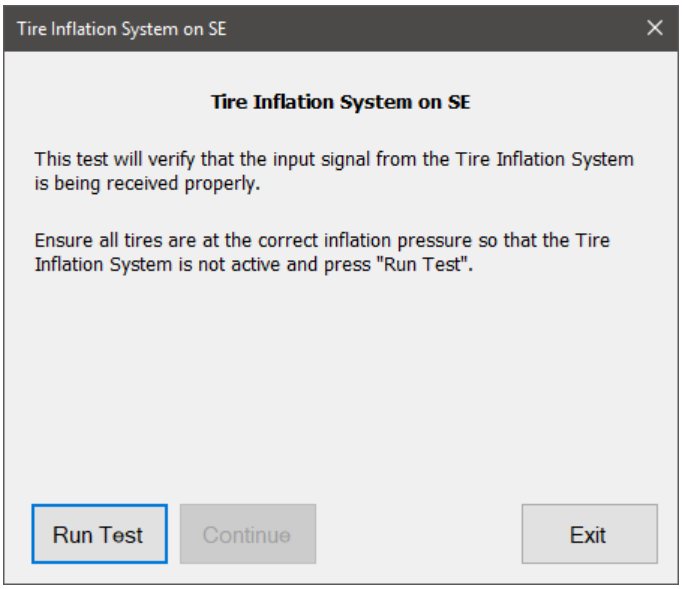
The **Tire Inflation System Test** is available on:

- ✓ 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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Tire Inflation System Test**:

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 will become 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:

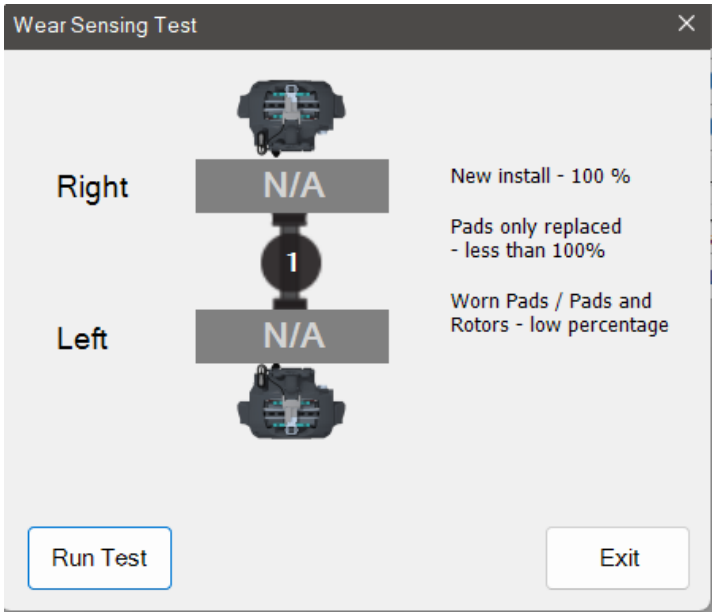
- ✓ TABS-6™ Multi-Channel Trailer ABS with a minimum software version of TCWG.730.88

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 the EOL Test dialog and in the Bi-Directional menu.

Follow the steps below to perform the **Wear Sensing Test**:

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 will be enabled. Press the **Repeat** button to perform the test again.
4. When done, select the **Exit** button to return to the test selection dialog.

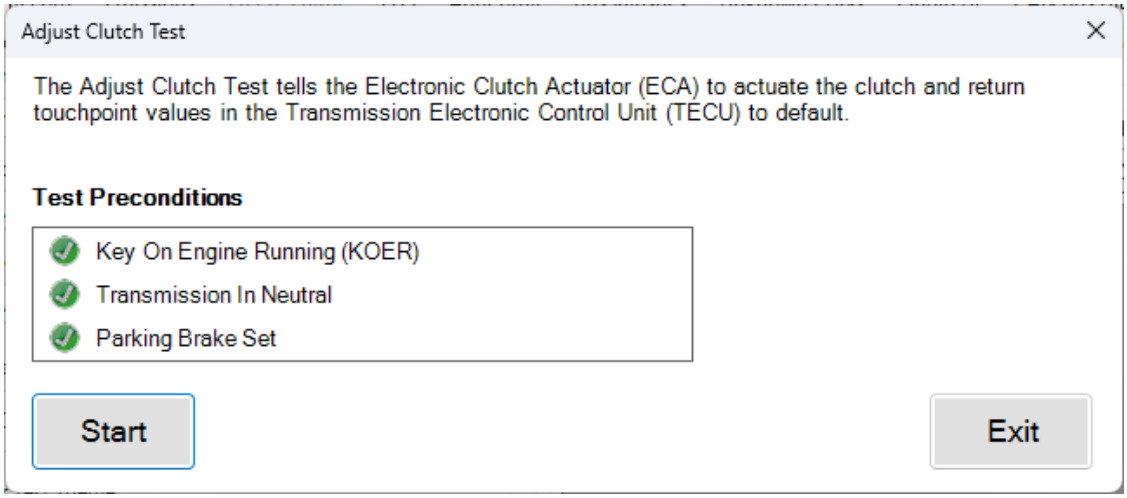
Transmission Tests

Adjust Clutch Test

The **Adjust Clutch Test** is supported on:

- ✓ Eaton UltraShift PLUS transmissions

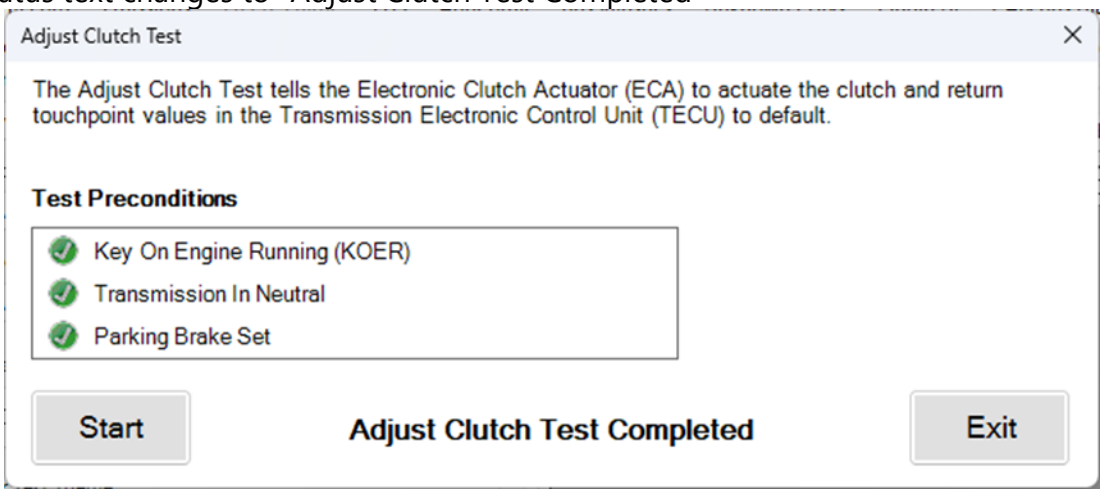
1. User launches Adjust Clutch Test



2. User clicks the "Start" button

3. The clutch adjustment completes.

   e. Status text changes to "Adjust Clutch Test Completed"



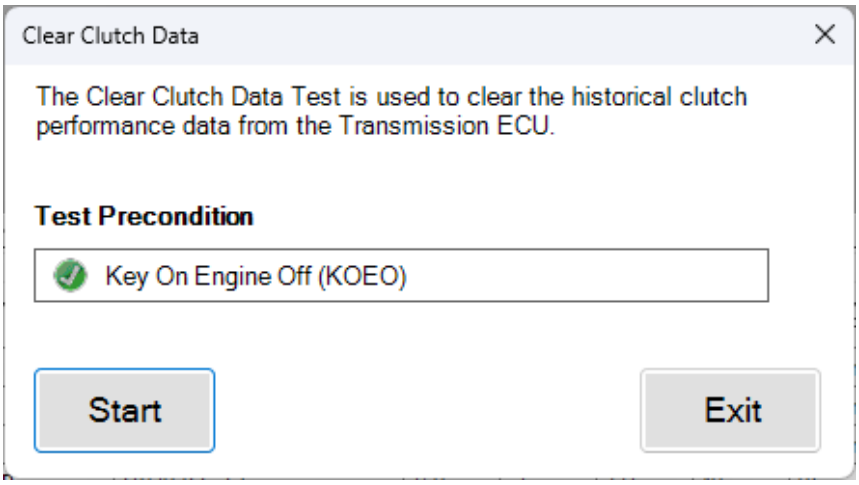
4. User clicks Exit button and dialog closes.

Clear Clutch Data

The **Adjust Clutch Test** is supported on:

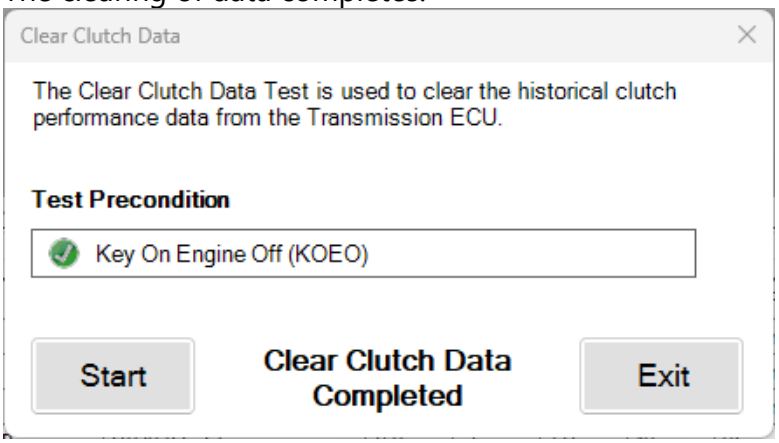
- ✓ Eaton UltraShift PLUS transmissions

1. User launches Clear Clutch Data Test



2. User clicks the "Start" button

3. The clearing of data completes.



4. User clicks Exit button and dialog closes.

Move Clutch to Service Position

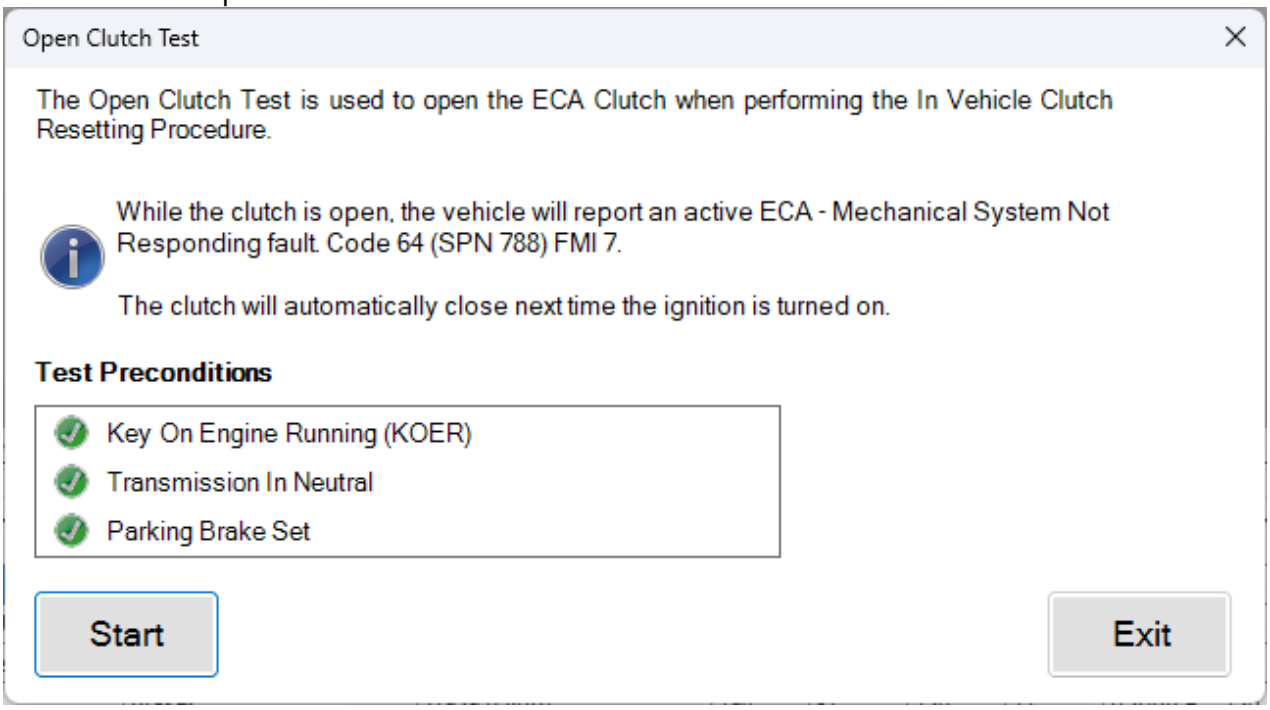
The **Move Clutch to Service Position** is supported on:

✓ Eaton UltraShift PLUS transmissions

1. User launches Move Clutch to Service Position from the Available Tests menu.

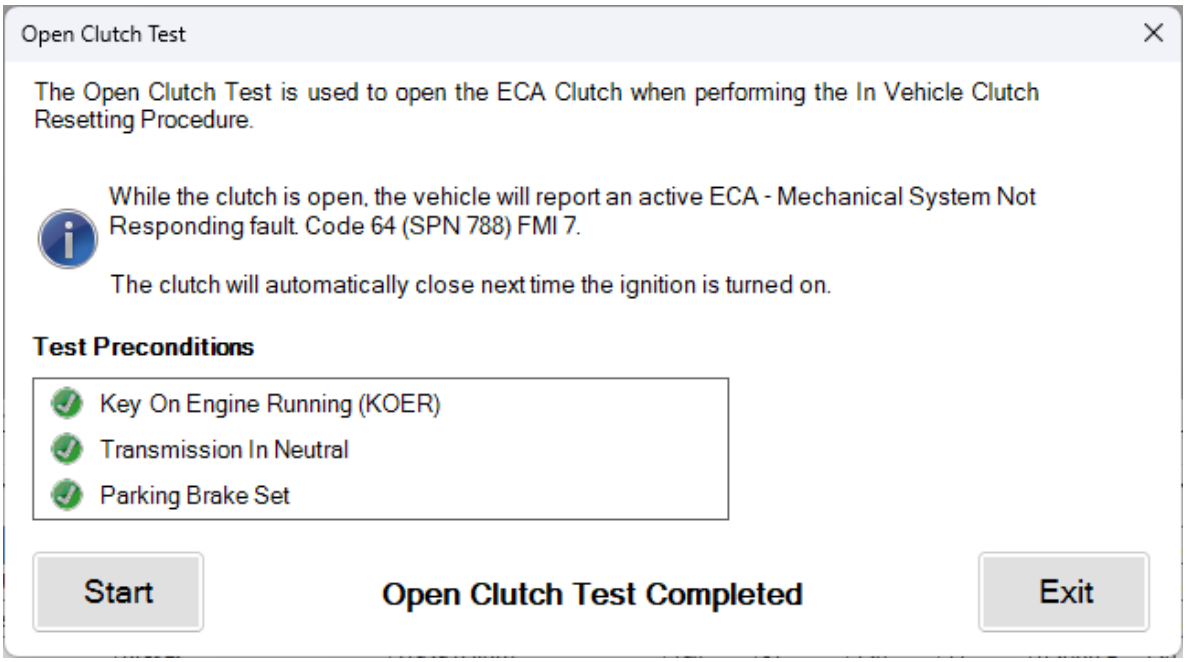


1. User launches Open Clutch Test



2. User clicks the "Start" button

3. The clutch calibration completes.



4. User clicks Exit button and dialog closes.

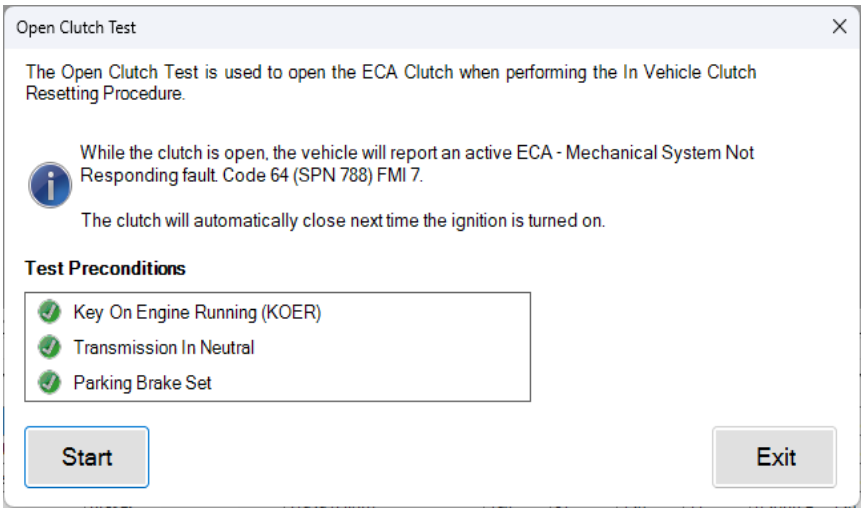
Open Clutch Test

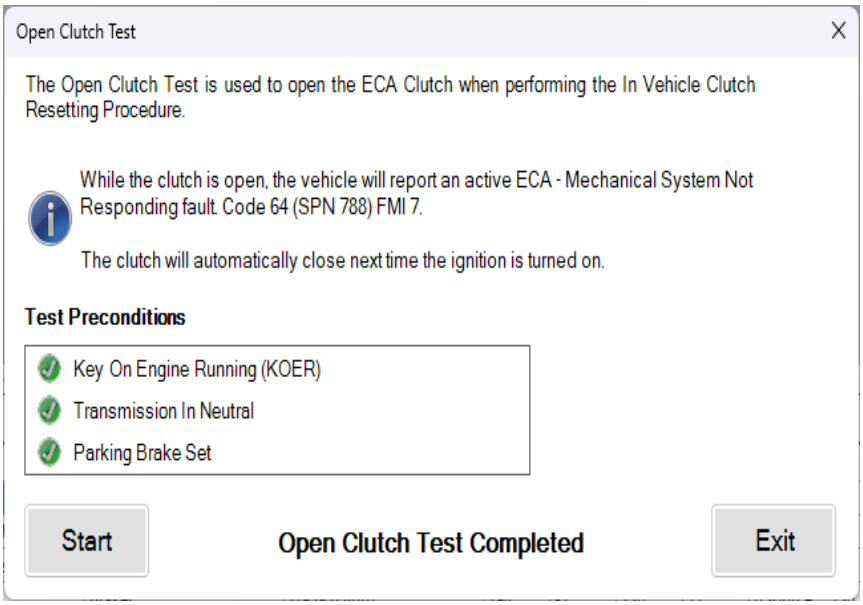
The **Open Clutch Test** is supported on:

- ✓ Eaton UltraShift PLUS transmissions

1. Open test "Open Clutch test"
2. Click start button
3. Wait for test to complete

4. Click Exit button





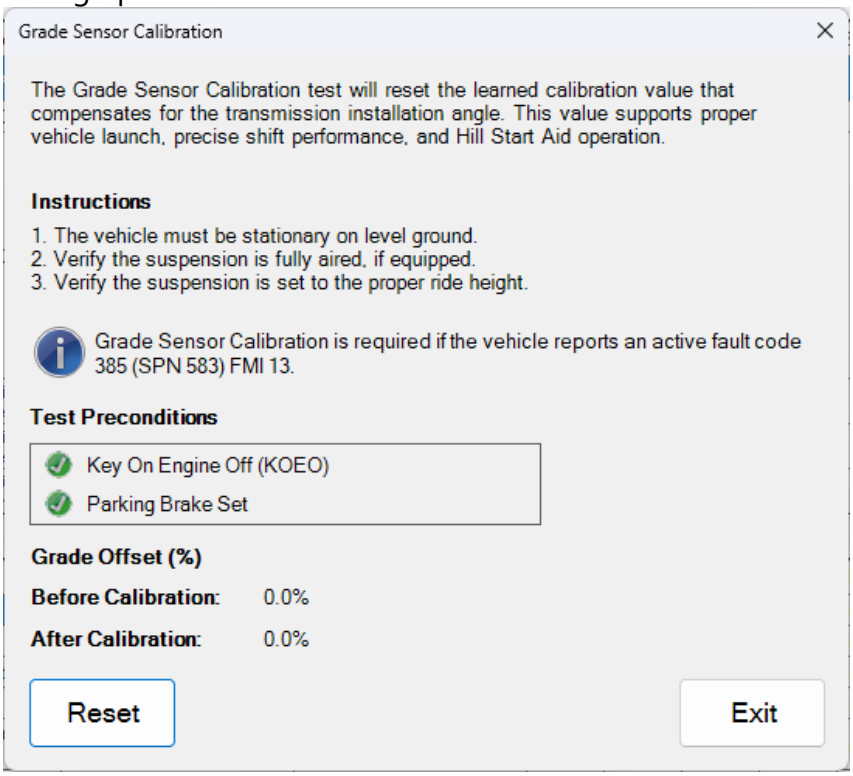
Grade Sensor Calibration Test

The **Grade Sensor Calibration Test** is supported on:

- ✓ Eaton UltraShift PLUS transmissions

1. User launches Grade Sensor Calibration Test

- Dialog opens:



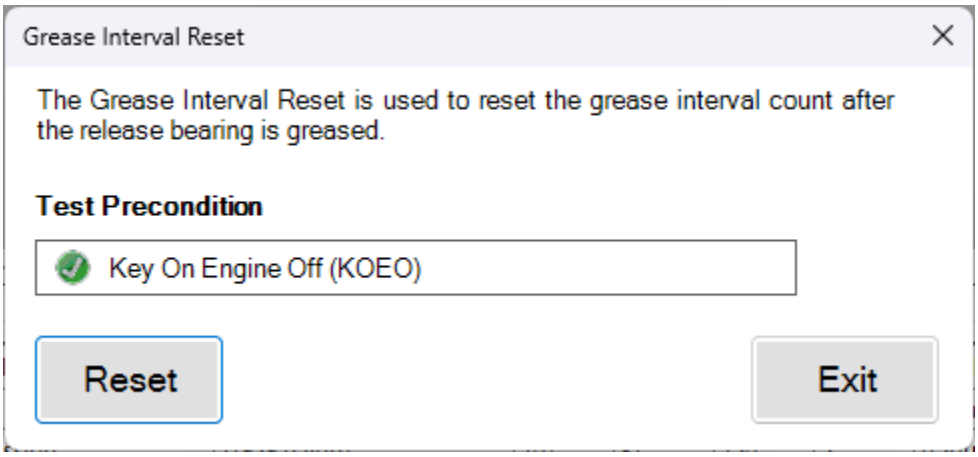
2. User clicks the "Reset" button
3. The grade calibration completes.
4. User clicks Exit button and dialog closes.

Grease Interval Reset

The **Grease Interval Reset** is supported on:

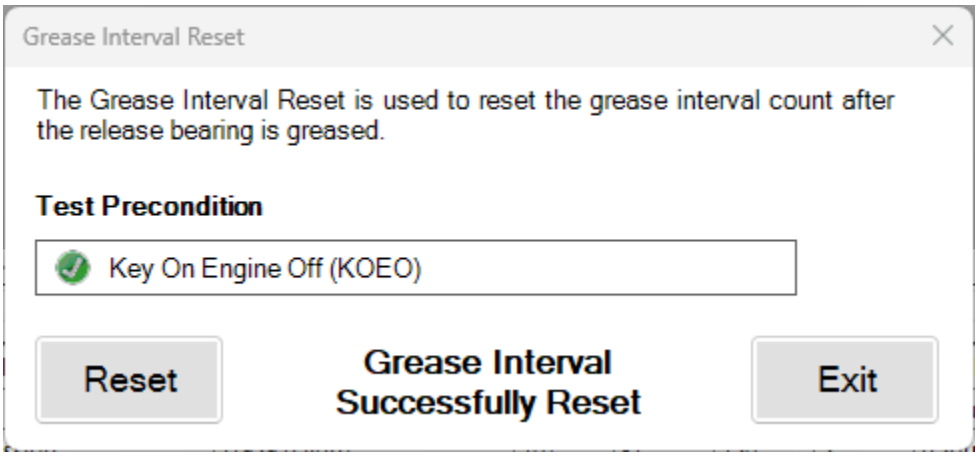
- ✓ Eaton UltraShift PLUS transmissions

1. User launches Grease Interval Reset



2. User clicks the "Reset" button

3. The clutch calibration completes.



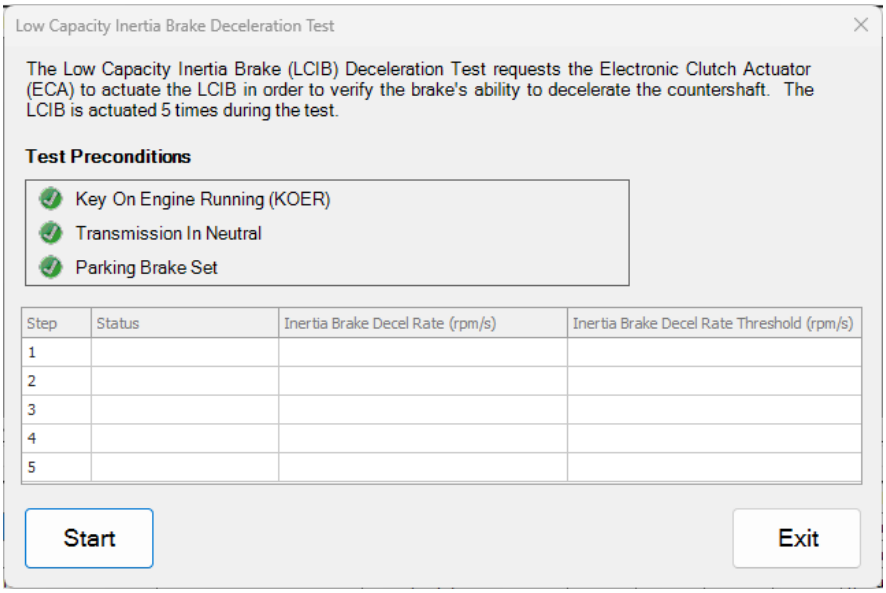
4. User clicks Exit button and dialog closes.

Low-Capacity Inertia Brake Test

The **Low-Capacity Inertia Brake Test** is supported on:

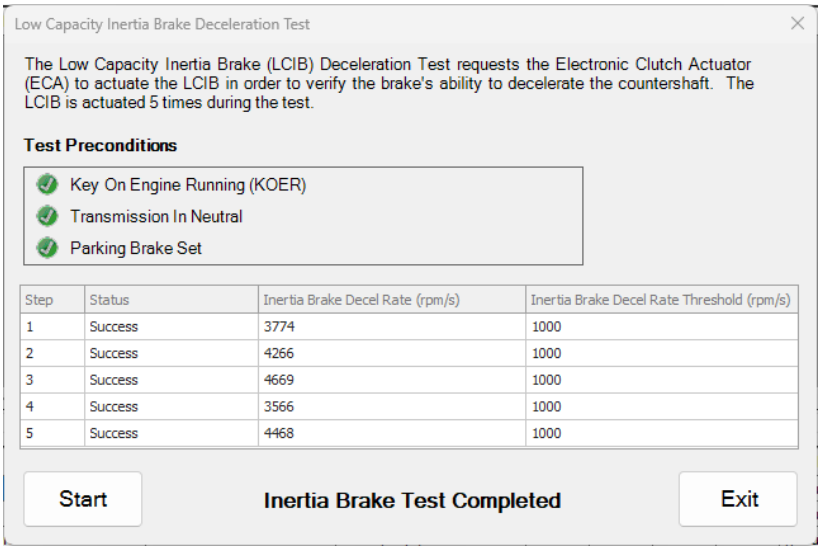
- ✓ Eaton UltraShift PLUS transmissions

1. User launches Low-Capacity Inertia Brake Test



2. User clicks the "Start" button

3. The Inertia Brake test completes.



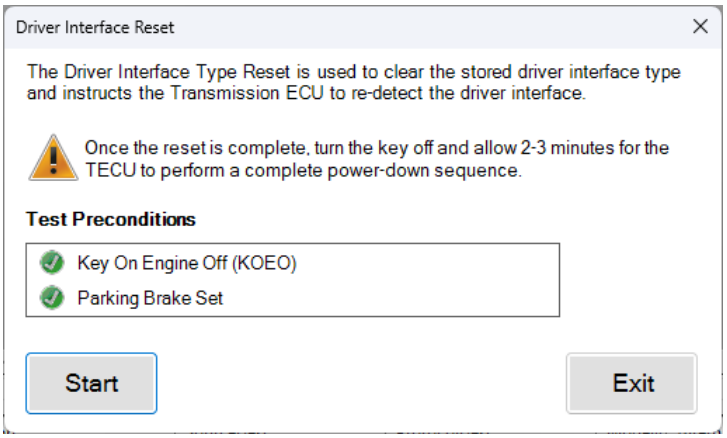
4. User clicks Exit button and dialog closes.

Driver Interface Type Reset

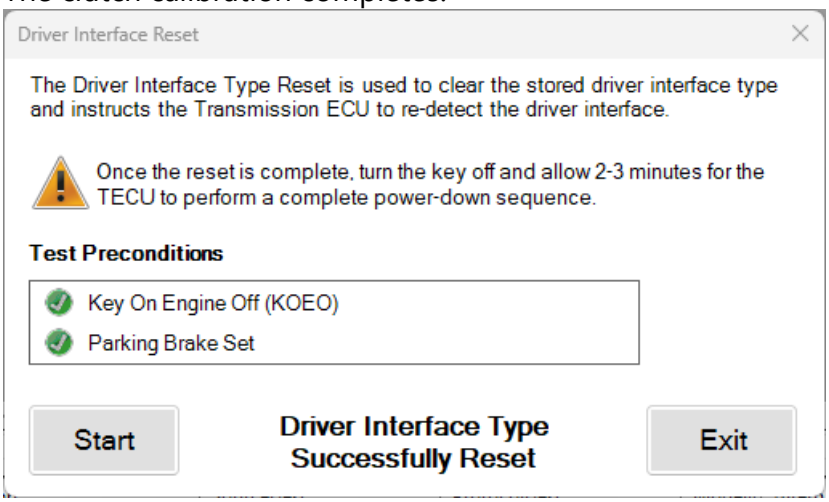
The **Driver Interface Type Reset** is supported on:

- ✓ Eaton UltraShift PLUS transmissions

1. User launches Driver Interface Type Reset



2. User clicks the "Start" button
3. The clutch calibration completes.



4. User clicks Exit button and dialog closes.

Gear Split Range Activation Test

The **Gear Split Range Activation Test** is supported on:

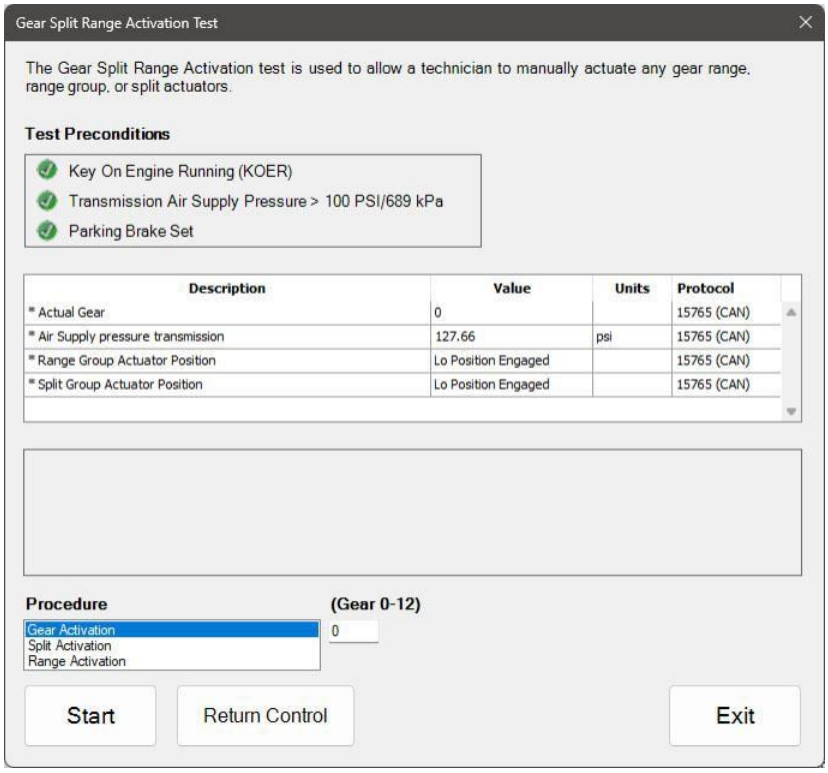
- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The **Gear Split Range Activation Test** is used to verify the function of the transmission by

allowing a technician to manually actuate any gear range, range group, or split actuators.

Follow the steps below to perform the **Gear Split Range Activation Test**:

1. Select the **Gear Split Range Activation Test** and press Enter or the **Start** button.
2. The **Gear Split Range Activation Test** dialog will display.



Gear Split Range Activation Test

3. Select the desired procedure and enter the desired gear number. Click **Start** to command the transmission to perform the defined activation. The result of the procedure will be displayed in the status log.
4. Click **Return Control** to stop commanding the transmission and allow it to return to its original state.
5. Repeat this across the desired procedures and gears to test the transmission's operation.
6. When done, press the **Exit** button to return to the test selection dialog.

TCM Global Status

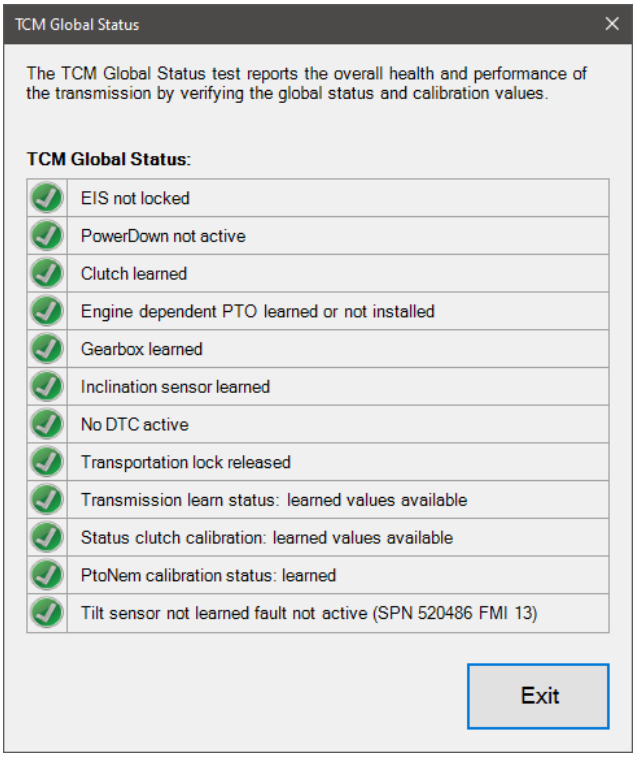
The **TCM Global Status** test is supported on:

- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The **TCM Global Status** test reports the overall health and performance of the transmission by verifying the global status and calibration values.

Follow the steps below to perform the **TCM Global Status** test:

1. Select the **TCM Global Status** test and press Enter or the **Start** button.
2. The **TCM Global Status** dialog will display.



TCM Global Status

3. The monitored global status values are displayed with a green check mark for positive results, or a red X for negative results.
4. When done, press the **Exit** button to return to the test selection dialog.

TCM Release Lock

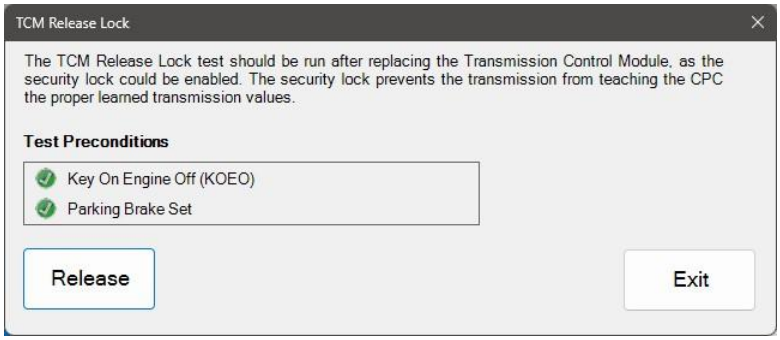
The **TCM Release Lock** test is supported on:

- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The **TCM Release Lock** test should be run after replacing the Transmission Control Module, as the security lock could be enabled. The security lock prevents the transmission from teaching the CPC the proper learned transmission values.

Follow the steps below to perform the **TCM Release Lock** test:

1. Select the **TCM Release Lock** and press Enter or the **Start** button.
2. The **TCM Release Lock** dialog will display.



TCM Release Lock

3. Clicking the **Release** button will instruct the TCM to release the security lock if it has been activated. A success message will be displayed when the lock has been released.
4. When done, press the **Exit** button to return to the test selection dialog.

Tilt Sensor Calibration

The **Tilt Sensor Calibration** test is supported on:

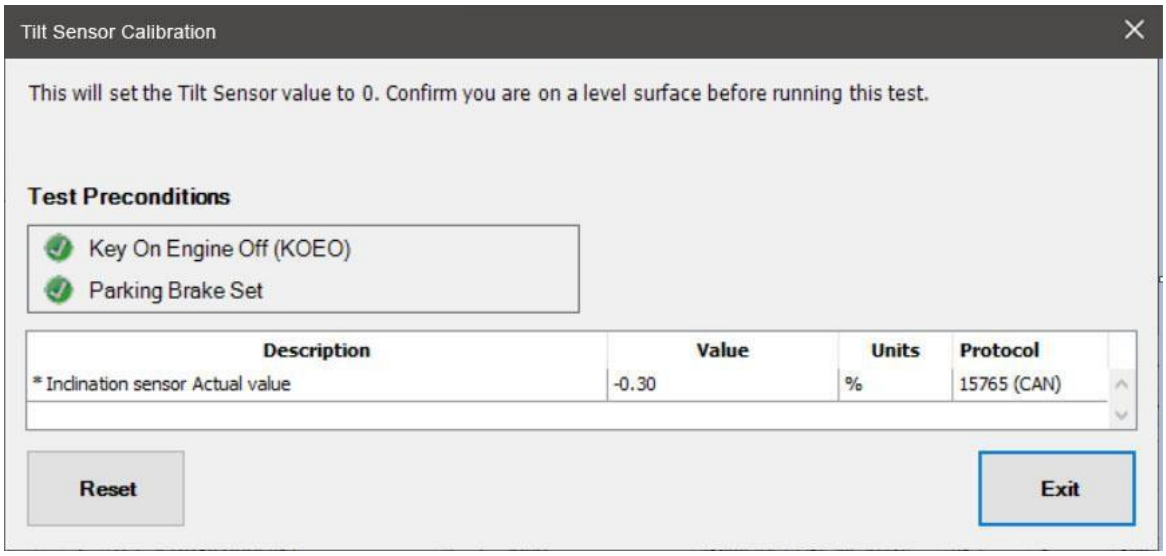
- ✓ Detroit Diesel DT12 TCM05T transmissions

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.

Follow the steps below to perform the **Tilt Sensor Calibration** 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

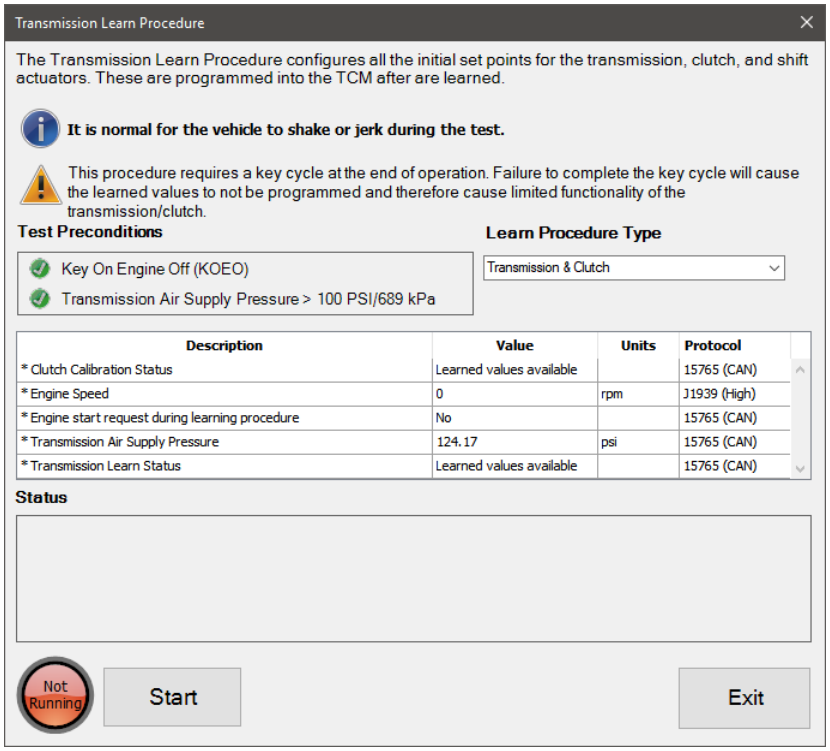
The **Transmission Learn Procedure** is supported on:

- ✓ Detroit Diesel DT12 TCM01T and TCM05T transmissions

The **Transmission Learn Procedure** configures all initial set points for the transmission, clutch, and shift actuators.

Follow the steps below to perform the **Transmission Learn Procedure**:

1. Select **Transmission Learn Procedure** and press Enter or the **Start** button.
2. The test dialog will be displayed.



Transmission Learn Procedure Dialog

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.

Clutch Calibration Test

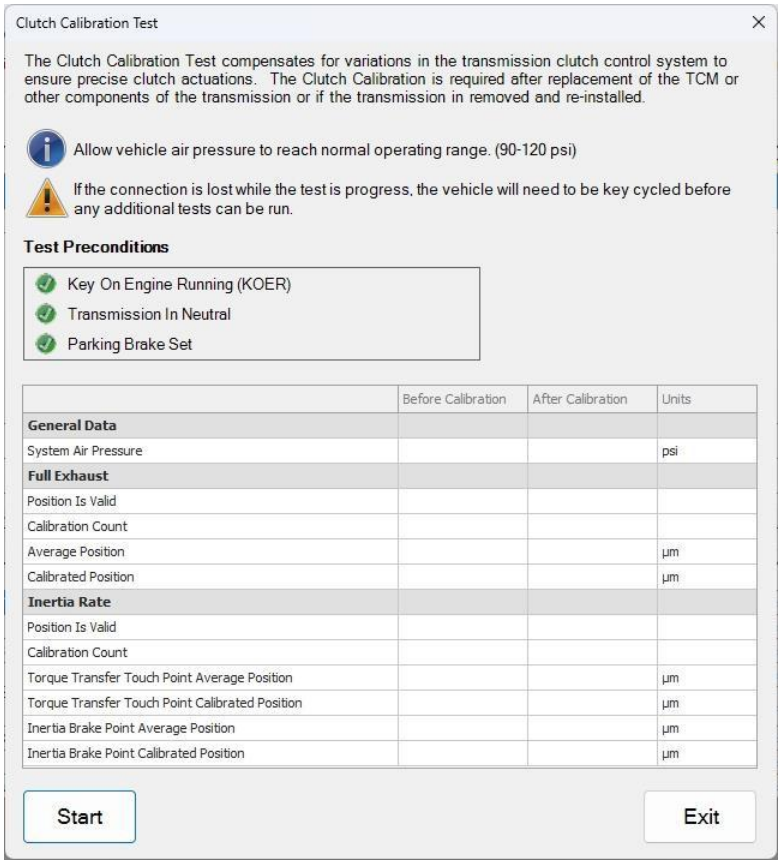
The **Clutch Calibration Test** is supported on:

- ✓ Eaton 2017 - 2022 Endurant transmissions
- ✓ PACCAR 2017 - 2022 TX-12 transmissions

The **Clutch Calibration Test** compensates for variations in the transmission clutch control system to ensure precise clutch actuations.

Follow the steps below to perform the **Clutch Calibration Test**:

1. Select the **Clutch Calibration Test** and press Enter or the **Start** button.
2. The **Clutch Calibration Test** dialog will display.



Clutch Calibration Test Dialog

3. Click **Start** to begin the test.

> If the connection is lost during the test, the engine will need to be key cycled before additional tests may be run.

4. When completed, a success message will be displayed.
5. Click the **Exit** button to return to the test selection dialog.

Grade Sensor Calibration

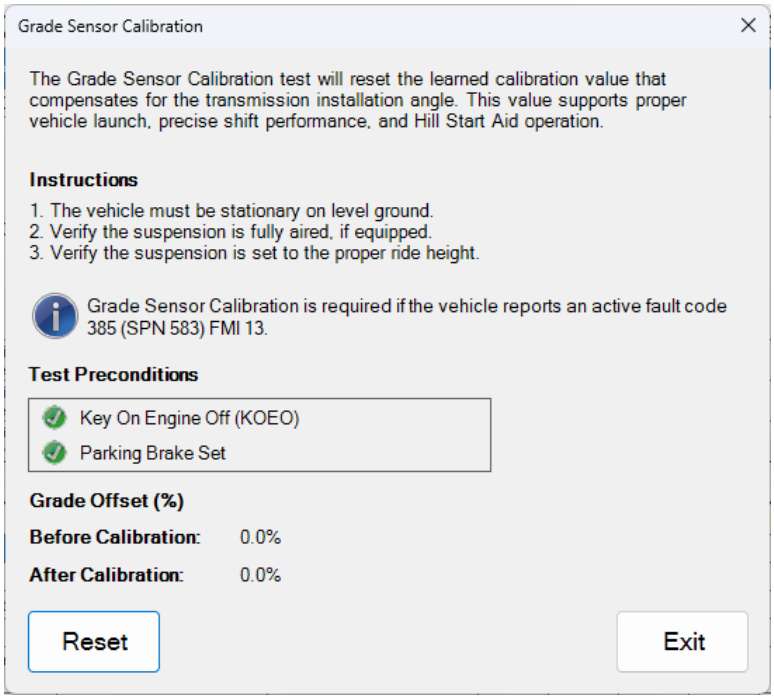
The **Grade Sensor Calibration** is supported on:

- ✓ Eaton 2017 - 2022 Endurant Transmissions
- ✓ PACCAR 2017 - 2022 TX-12 Transmissions

The **Grade Sensor Calibration** is required to be performed with the vehicle stationary and on level ground. This calibration compensates for the transmission installation angle and ensures accurate grade information to support proper vehicle launch, precise shift performance and Hill Start Aid operation. The **Grade Sensor Calibration** is initially performed at the OEM factory and is required after TCM replacement.

Follow the steps below to perform the **Grade Sensor Calibration Test**:

1. Select the **Grade Sensor Calibration Test** and press Enter or the **Start** button.
2. The **Grade Sensor Calibration Test** dialog will display.



Grade Sensor Calibration Test Dialog

3. After confirming the vehicle is on level ground, click **Reset** to clear the learned values.

4. After the new calibration value has been learned, a success message will be displayed.
5. Click the **Exit** button to return to the test selection dialog.

Inertia Brake Test

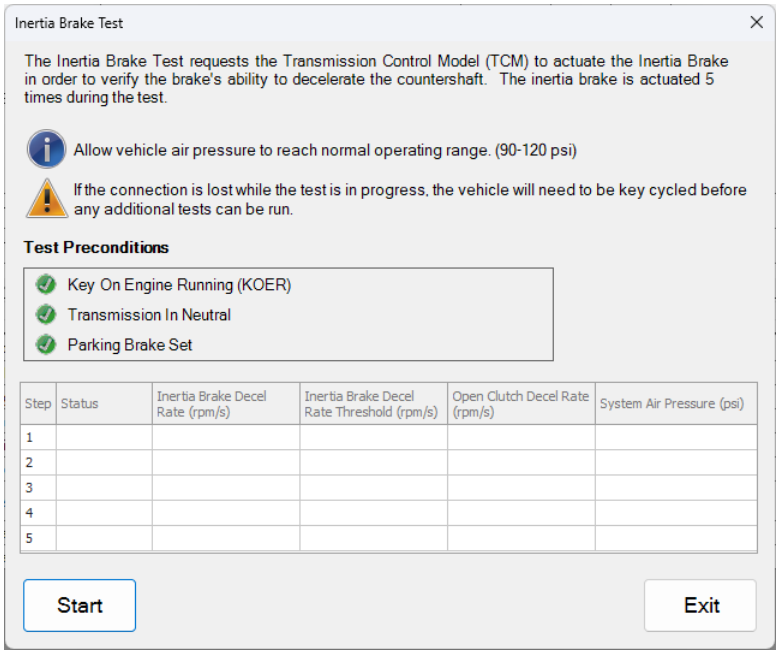
The **Inertia Brake Test** is supported on:

- ✓ Eaton 2017 - 2022 Endurant Transmissions
- ✓ PACCAR 2017 - 2022 TX-12 Transmissions

The **Inertia Brake Test** requests the Transmission Control Model (TCM) to actuate the inertia brake to verify the brake's ability to decelerate the countershaft. The inertia brake is actuated 5 times during the test.

Follow the steps below to perform the **Inertia Brake Test**:

1. Select the **Inertia Brake Test** and press Enter or the **Start** button.
2. The **Inertia Brake Test** dialog will display.



Inertia Brake Test Dialog

3. Click **Start** to begin the test.

If the connection is lost during the test, the engine will need to be key cycled before additional tests may be run.

4. Results for each actuation will be displayed during the test. When completed, a success message is displayed.
5. Click the **Exit** button to return to the test selection dialog.

Product Diagnostic Test

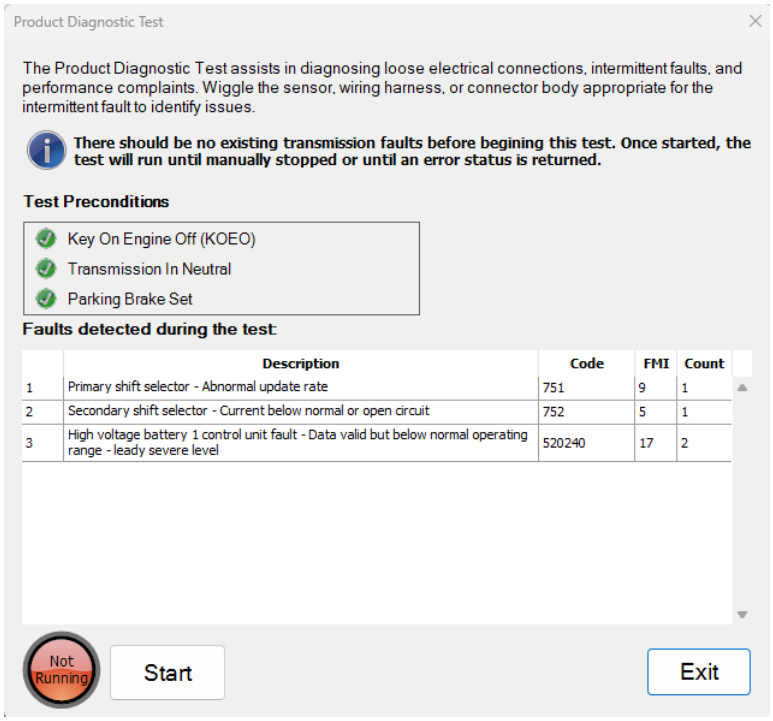
The **Product Diagnostic Test** is supported on:

- ✓ Eaton 2017 - 2022 Endurant Transmissions
- ✓ PACCAR 2017 - 2022 TX-12 Transmissions

The **Product Diagnostic Test** increases the sensitivity of certain components or wiring diagnostics to identify Intermittent issues of inactive fault codes.

Follow the steps below to perform the **Product Diagnostic Test**:

1. Select the **Product Diagnostic Test** and press Enter or the **Start** button.
2. The **Product Diagnostic Test** dialog will display.



Product Diagnostic Test Dialog

3. Click **Start** to begin the test. Detected intermittent faults are displayed.
4. Wiggle the sensor, wiring harness, or connector body appropriate for the intermittent fault to identify issues. When done, click **Stop** to end the test.
5. Click the **Exit** button to return to the test selection dialog.

Rail Calibration Test

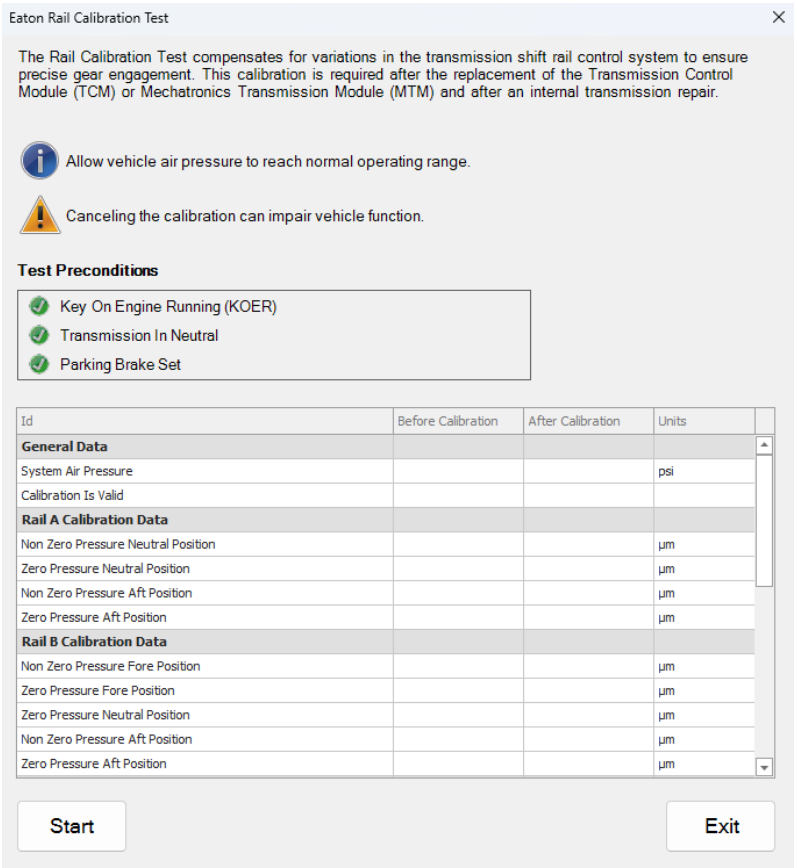
The **Rail Calibration Test** is supported on:

- ✓ PACCAR 2017 - 2022 TX-12 Transmissions

The **Rail Calibration Test** compensates for variations in the transmission shift rail control system to ensure precise gear engagement.

Follow the steps below to perform the **Rail Calibration Test:**

1. Select the **Rail Calibration Test** and press Enter or the **Start** button.
2. The **Rail Calibration Test** dialog will display.



Rail Calibration Test Dialog

3. Click **Start** to begin the test. The before and after calibration values will be displayed as the test progresses.
4. When completed, a success message is displayed.
5. Click the **Exit** button to return to the test selection dialog.

Trip and Life of Vehicle Tests

Learned Data Reset

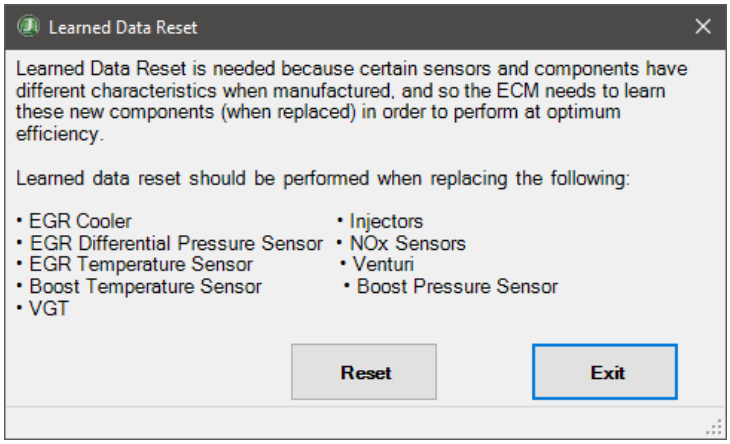
Learned Data Reset is supported on:

✓ 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.

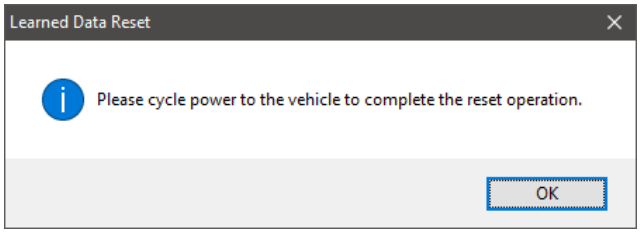
Follow the steps below to perform the **Learned Data Reset**:

1. Select **Learned Data Reset** and press Enter or press the **Start** Button.
2. 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

3. 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 the **Learned Data Reset** dialog.
4. 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 the **OK** button when this is 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 and Volvo EPA 07 to EPA 10 with DataMax enabled

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

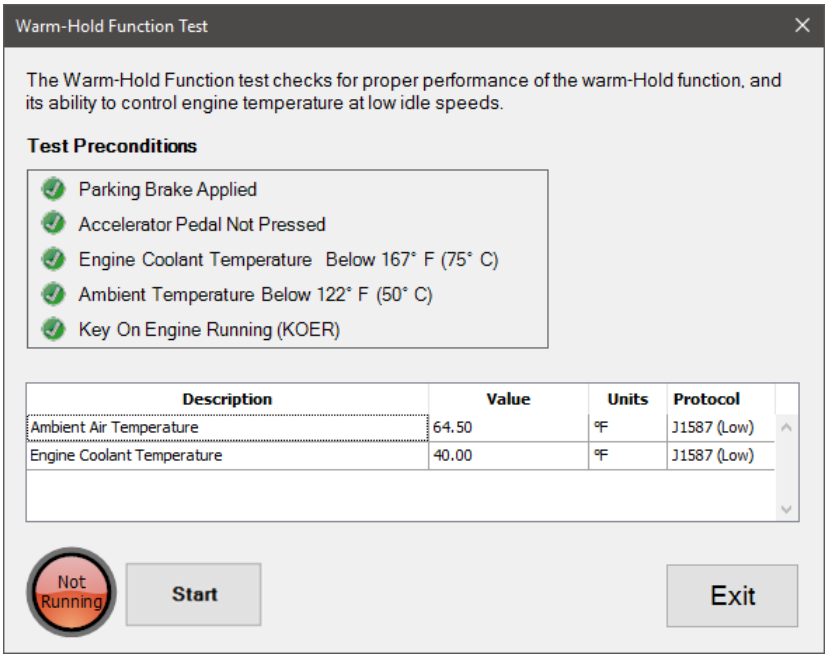
The **Warm Hold Function Test** is supported on:

- ✓ 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.

Follow the steps to perform the **Warm Hold Function Test**:

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

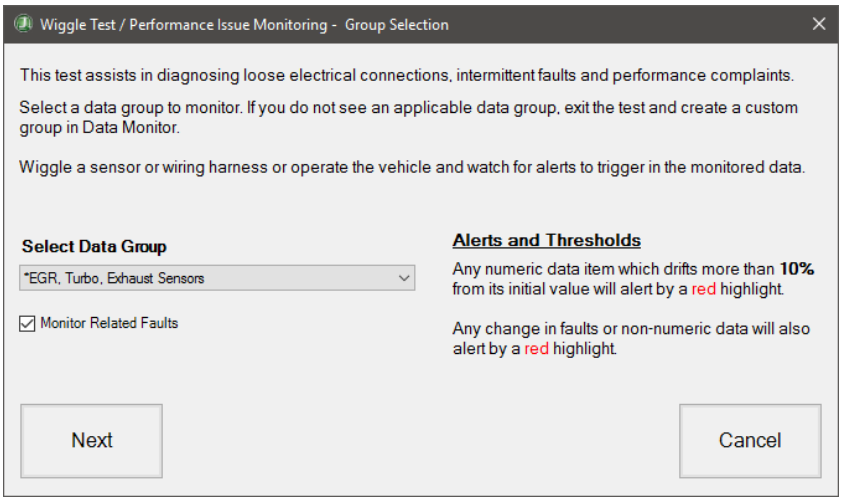
The **Wiggle Test / Performance Issue Monitor** is supported on:

- ✓ All heavy-duty engines
- ✓ Agility fuel systems
- ✓ Bendix EC-60 and EC-80 braking systems
- ✓ Caterpillar C-7 truck engines
- ✓ Cummins EPA 07/10/13: 6.7L ISB and 5.7L ISB 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.

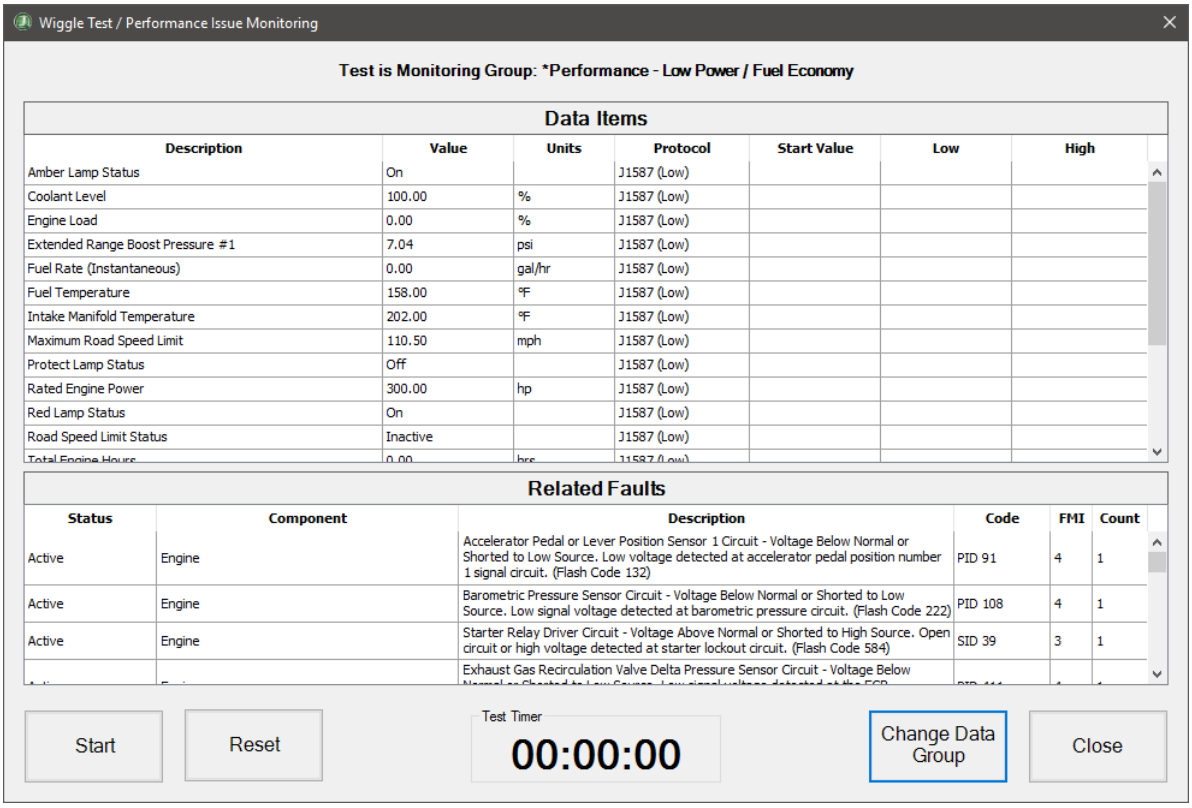
1. Select **Wiggle Test / Performance Issue Monitor** and press Enter or press **Start** Button.
2. The **Group Selection** dialog will be displayed. Select a data group to monitor.

> **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 at the bottom of the window, 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 that drifts more than **10%** from its initial value will be alerted by a red highlight.

Any change in faults or non-numeric data will also be alerted 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.

OFF-HIGHWAY BI-DIRECTIONAL

Bi-directional allows you to run tests and perform calibrations on the vehicle. This is only available if the currently 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:

OFF-Highway Engine	Aftertreatment Injector Flow Test	Aftertreatment Injector Leak Test	Aftertreatment Injector Shutoff Valve Test
Komatsu Off-Highway Engines	✔	✔	✔

OFF-Highway Engine	Cylinder Cut-Out Test	DEF Doser Pump Test	DPF Regen Interval Time Reset
Komatsu Off-Highway Engines	✔	✔	✔
Caterpillar Off-Highway engines	✔		
Cummins Off-Highway engines	✔		
John Deere Off-Highway engines	✔		
Kubota Off-Highway Engines	✔		✔

OFF-Highway Engine	DPF Service Regen	DPF Soot Load Reset	EGR Valve ON/OFF Function
Komatsu Off-Highway Engines	✔		
Cummins Off-Highway engines	✔		
John Deere Off-Highway engines	✔		
Kubota Off-Highway Engines	✔	✔	✔

OFF-Highway Engine	Fuel Injector Compensation	Fuel Injector Performance Test	Fuel System Leakage Test
Komatsu Off-Highway Engines		✔	✔
Cummins Off-Highway engines			✔
Kubota Off-Highway Engines	✔		

OFF-Highway Engine	Injector Injection Control Function Test	SCR Performance and System Test	Supply Pump Learning Test
Komatsu Off-Highway Engines		✔	
Cummins Off-Highway engines		✔	
Kubota Off-Highway Engines	✔		✔

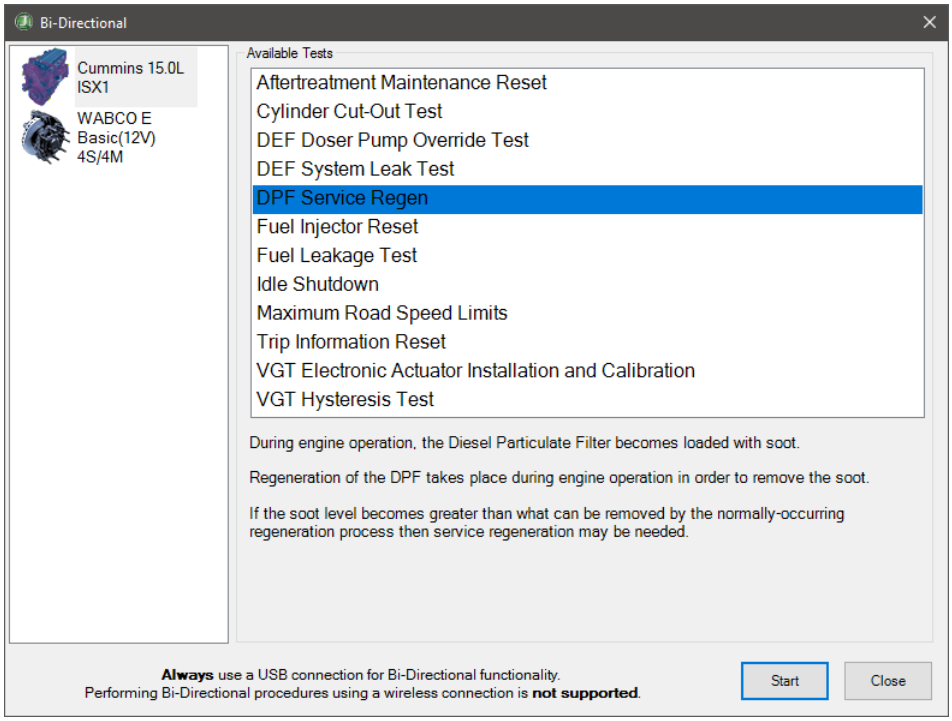
OFF-Highway Engine	VGT Hysteresis Test	Wheel Speed Chart Test or Wheel Speed Window Test	Wiggle Test/Performance Issue Monitoring
Komatsu Off-Highway Engines			✔
Cummins Off-Highway engines		✔	✔
Kubota Off-Highway Engines	✔		✔
Bobcat Off-Highway engines			✔

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.

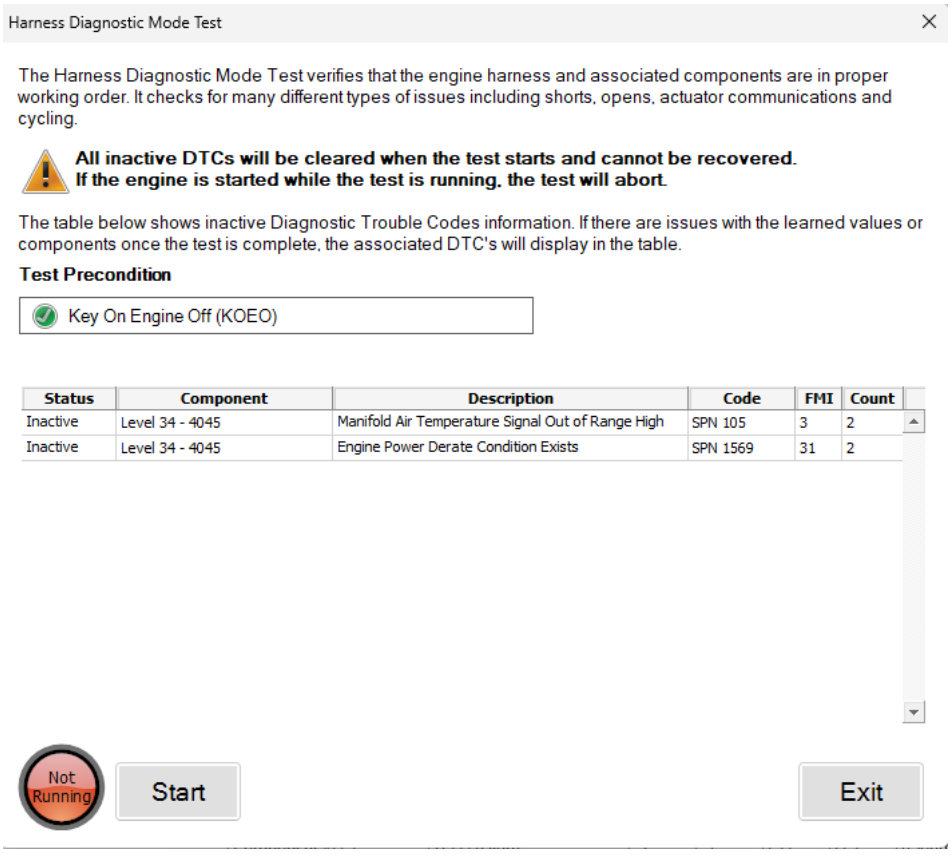


Bi-Directional Test Selection

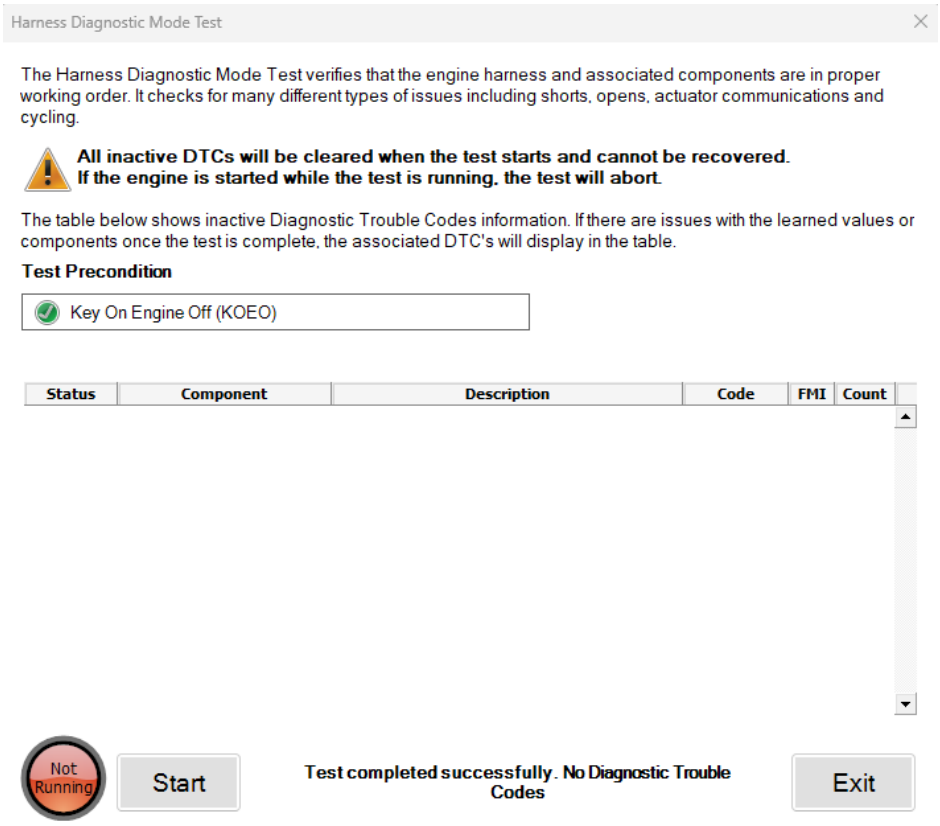
Harness Diagnostic Mode Test

The **Harness Diagnostic Mode Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment



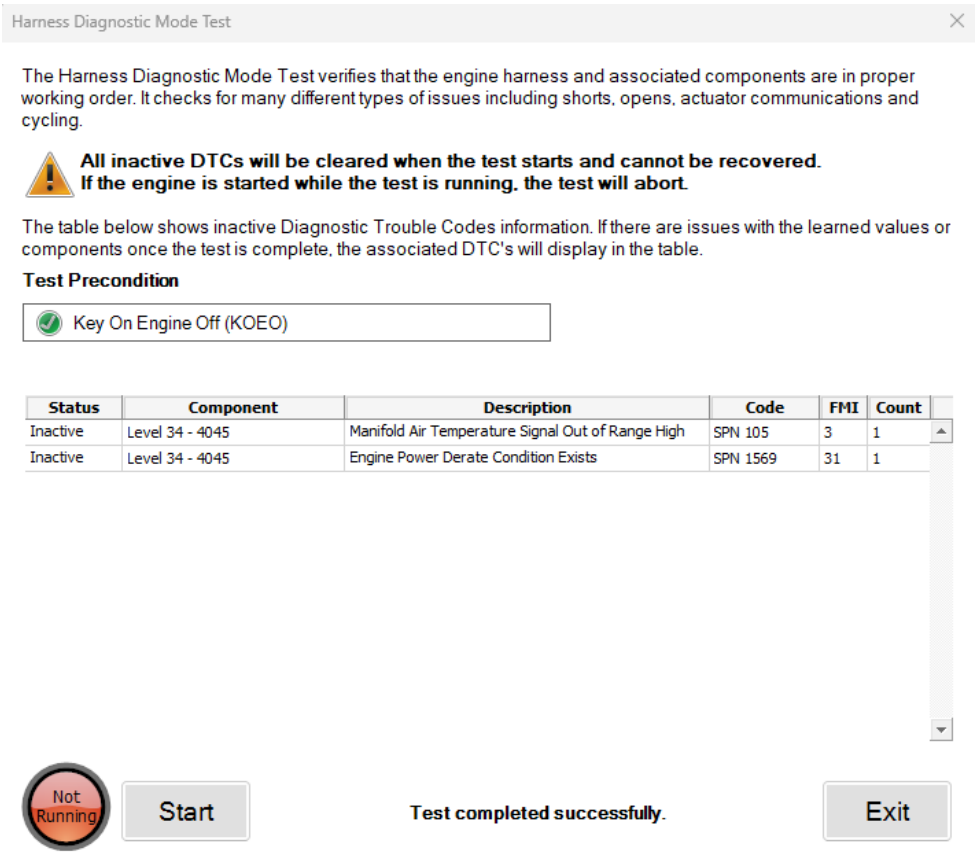
1. The application executes Commanded Test Manager Basic Flow use case steps (see Core Libraries SRS).
2. The Harness Diagnostic Mode Test dialog opens
   a. The Start button is enabled
   b. The lamp is a Not Running lamp
   c. The Exit button is enabled
   d. The datagrid is populated with existing DTCs
3. The user clicks the Start button
   a. The Start button changes to a Stop button
   b. The Not Running lamp changes to a Running lamp
4. The test is successful
   a. A label appears between the Start and Exit buttons stating "Test completed successfully. No Diagnostic Trouble Codes."
   b. The Stop button changes to a Start button
   c. The Running lamp changes to a Not Running lamp
   d. DTCs are cleared from the table



The user clicks the Exit button
a. The test closes

Basic Flow 2 - DTCs Found

1. Basic Flow 1 steps 1 - 3 are performed
2. The test is successful
   a. A label appears between the Start and Exit buttons stating "Test completed successfully."
   b. The Stop button changes to a Start button
   c. The Running lamp changes to a Not Running lamp
   d. The datagrid displays DTCs found during the test



1. The user clicks the Exit button
   a. The test closes

Alternate Flow 1 - Precondition Violation

1. Basic Flow 1 steps 1 - 2 are performed.
2. One or more precondition are not met
   a. A red "X" appears next to any unmet preconditions
   b. The Start button is disabled
   c. The Not Running lamp is grayed out
3. The user corrects the unmet preconditions
   a. The Start button is enabled
   b. The Not Running lamp is no longer grayed out

Alternate Flow 2 - ECU Returns an Error

1. Basic Flow 1 steps 1 - 3 are performed
2. The ECU returns an error
   a. A popup dialog is displayed with the error message
   b. The Stop button changes to a Start button
   c. The Running lamp changes to a Not Running lamp
3. The user closes the popup dialog
   a. The test returns to Basic Flow 1 step 2

Alternate Flow 3 - Early Exit

1. Basic Flow 1 steps 1 - 3 are performed
2. The user clicks the Exit button or the red "X" at the top right of the form
   a. A popup dialog appears warning the user that to test is in progress and asks for confirmation
3. If the user clicks "Yes"
   a. The popup dialog and the test both close
4. If the user clocks "No"
   a. The popup dialog closes and the test continues

Alternate Flow 4 - User Stops the Test

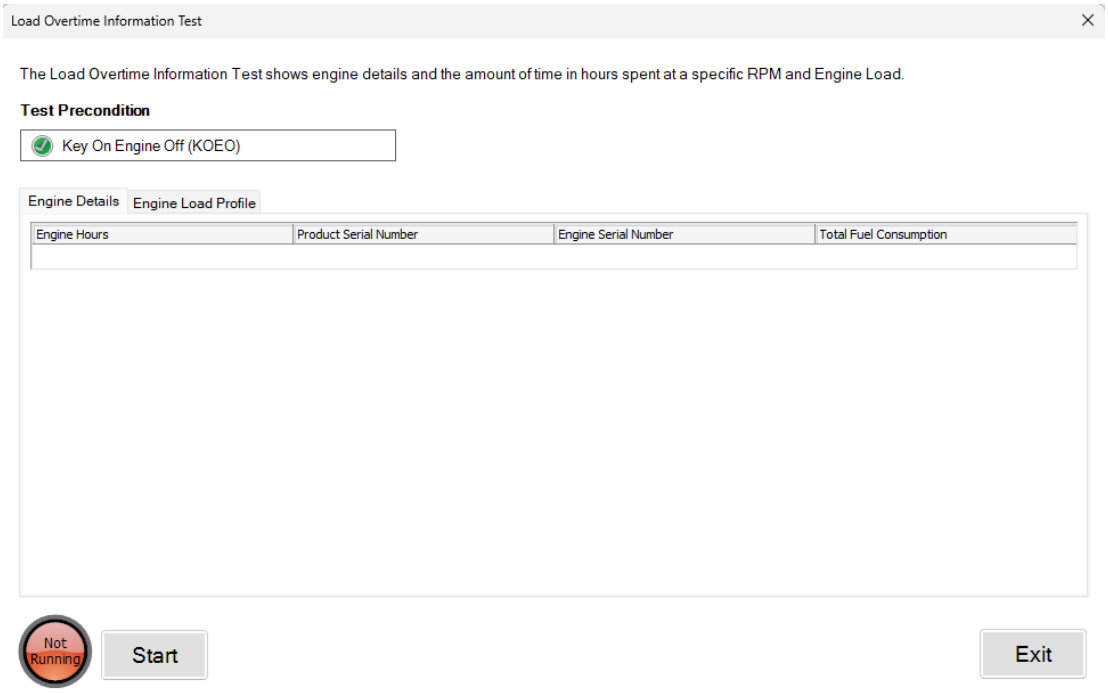
1. Basic Flow 1 steps 1 - 3 are performed
2. The user clicks the Stop button
   a. The Stop button changes to a Start button
   b. The Running lamp changes to a Not Running Lamp
   c. Any DTCs already in the datagrid before the test started are marked as cleared in the Status column

Load Overtime Information Test

The **Load Overtime Information Test** is supported on:

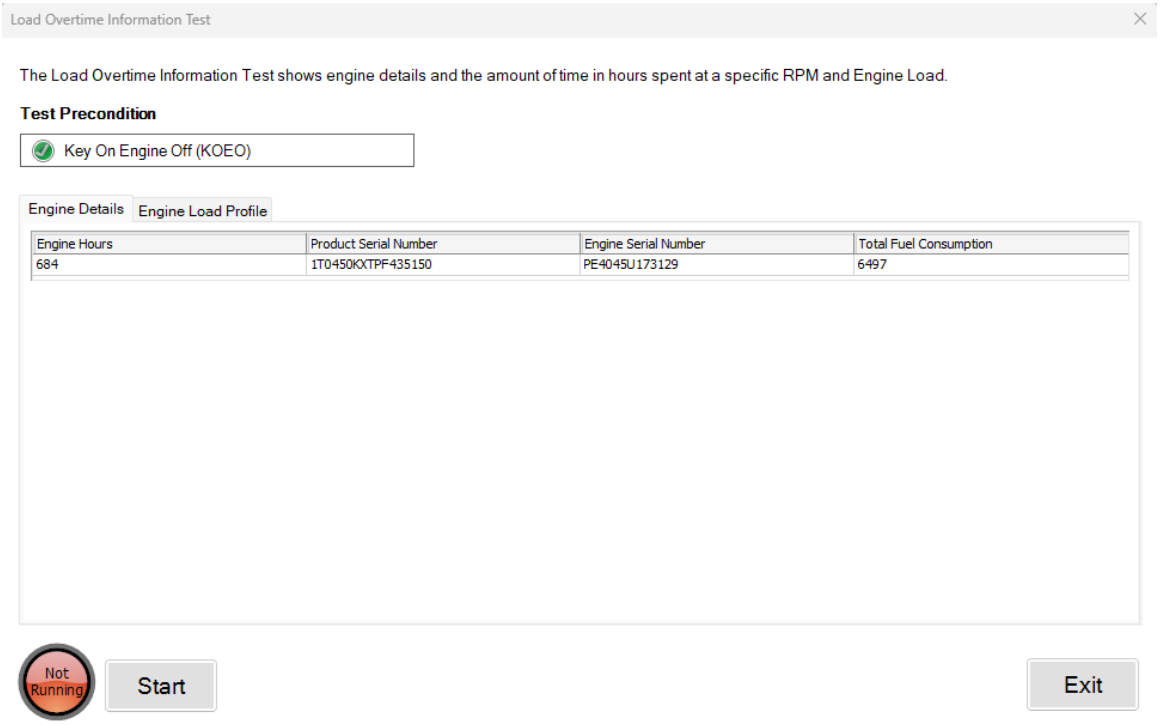
- ✓ John Deere 4045 and 6068 engines on applicable equipment

1. The application executes Commanded Test Manager Basic Flow use case steps (see Core Libraries SRS).
2. The Load Overtime Information Test dialog opens
   a. The Start button is enabled
   b. The lamp is a Not Running lamp
   c. The Exit button is enabled
   d. The Engine Details datagrid is empty

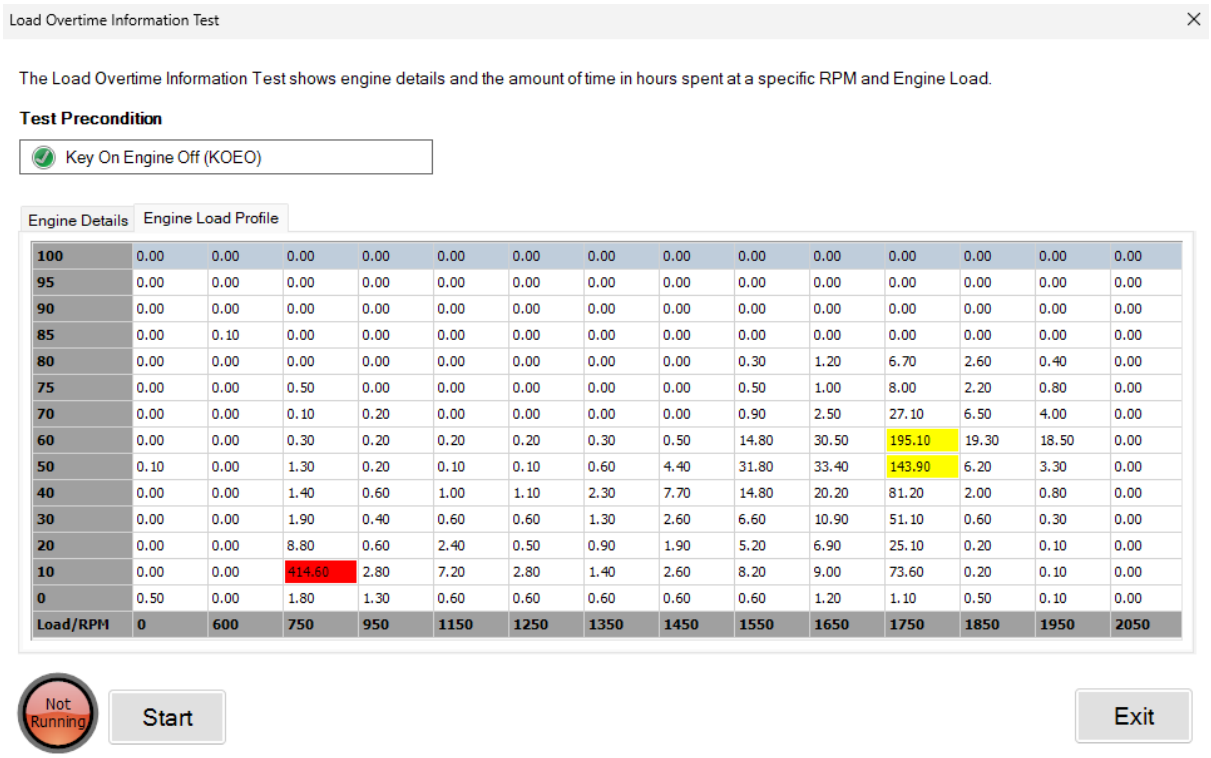


e. The Engine Load Profile datagrid is empty

3. The user clicks the Start button
   a. The Start button changes to a Stop button
   b. The Not Running lamp changes to a Running lamp
4. The test is successful
   a. The Stop button changes to a Start button
   b. The Running lamp changes to a Not Running lamp
   c. The Engine Details datagrid is populated



D. The Engine Load Profile datagrid is populated



Load/RPM	0	600	750	950	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	1.20	6.70	2.60	0.40	0.00
75	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.50	1.00	8.00	2.20	0.80	0.00
70	0.00	0.00	0.10	0.20	0.00	0.00	0.00	0.00	0.90	2.50	27.10	6.50	4.00	0.00
60	0.00	0.00	0.30	0.20	0.20	0.20	0.30	0.50	14.80	30.50	195.10	19.30	18.50	0.00
50	0.10	0.00	1.30	0.20	0.10	0.10	0.60	4.40	31.80	33.40	143.90	6.20	3.30	0.00
40	0.00	0.00	1.40	0.60	1.00	1.10	2.30	7.70	14.80	20.20	81.20	2.00	0.80	0.00
30	0.00	0.00	1.90	0.40	0.60	0.60	1.30	2.60	6.60	10.90	51.10	0.60	0.30	0.00
20	0.00	0.00	8.80	0.60	2.40	0.50	0.90	1.90	5.20	6.90	25.10	0.20	0.10	0.00
10	0.00	0.00	414.60	2.80	7.20	2.80	1.40	2.60	8.20	9.00	73.60	0.20	0.10	0.00
0	0.50	0.00	1.80	1.30	0.60	0.60	0.60	0.60	0.60	1.20	1.10	0.50	0.10	0.00

5. The user clicks the Exit button
a. The test closes

Alternate Flow 1 - Precondition Violation

1. Basic Flow steps 1 - 2 are performed.
2. One or more precondition are not met
   a. A red "X" appears next to any unmet preconditions
   b. The Start button is disabled
   c. The Not Running lamp is grayed out
3. The user corrects the unmet preconditions
   a. The Start button is enabled
   b. The Not Running lamp is no longer grayed out

Alternate Flow 2 - ECU Returns an Error

1. Basic Flow steps 1 - 3 are performed
2. The ECU returns an error
   a. A popup dialog is displayed with the error message
   b. The Stop button changes to a Start button
   c. The Running lamp changes to a Not Running lamp
   d. The Engine Details datagrid is cleared
   e. The Engine Load Profile datagrid is cleared
3. The user closes the popup dialog
   a. The test returns to Basic Flow 1 step 2

Alternate Flow 3 - Early Exit

1. Basic Flow steps 1 - 3 are performed
2. The user clicks the Exit button or the red "X" at the top right of the form
   a. A popup dialog appears warning the user that to test is in progress and asks for confirmation
3. If the user clicks "Yes"
   a. The popup dialog and the test both close
4. If the user clocks "No"
   a. The popup dialog closes and the test continues

Alternate Flow 4 - User Stops the Test

1. Basic Flow steps 1 - 3 are performed
2. The user clicks the Stop button
   a. The Stop button changes to a Start button
   b. The Running lamp changes to a Not Running Lamp
   c. The Engine Details datagrid is cleared
   d. The Engine Load Profile datagrid is cleared

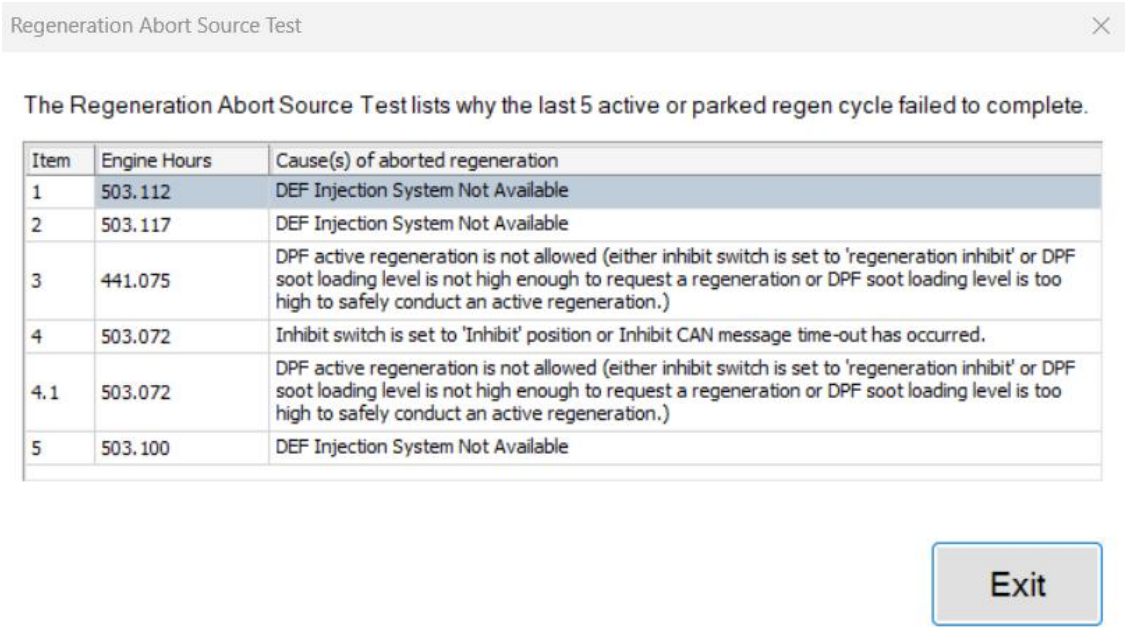
Aftertreatment System Tests

Regeneration Abort Source Test

The **Regeneration Abort Source Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment

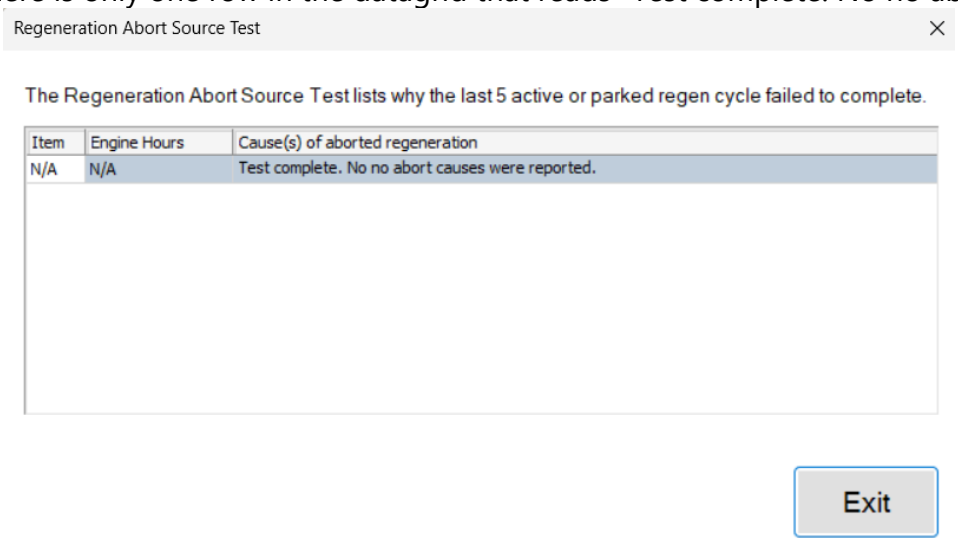
1. The application executes Commanded Test Manager basic flow use case steps (see Core Libraries SRS).
2. Regeneration Abort Source Test dialog opens
   a. The datagrid is populated with the last 5 regen abort causes and their sub-causes (if any).



1. The user clicks the red "X" at the top right of the dialog.
   a. The dialog closes.

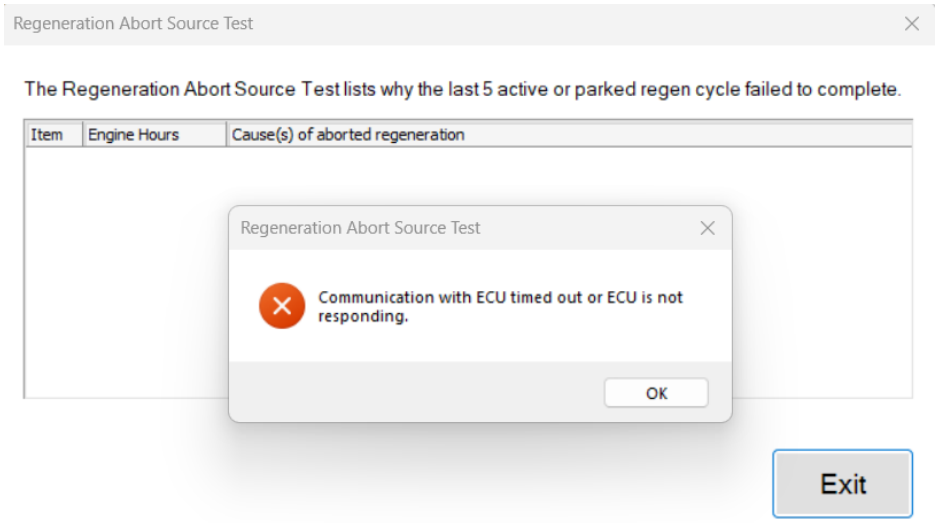
Alternate Flow 1 - No Abort Causes

1. Basic Flow steps 1-2 are performed
2. No abort reasons are found.
   a. There is only one row in the datagrid that reads "Test complete. No no abort causes were reported."



Alternate Flow 2 - ECU returns error

1. Basic Flow steps 1-2 are performed
2. The ECU returns an error
   a. A popup is displayed with an error message describing the error



a. The dialog closes.

Aftertreatment Injector Flow Test

The **Aftertreatment Injector Flow** test is available on:

- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

This test is used to verify that the aftertreatment fuel injector is operating properly by inspecting the nozzle spray and measuring the amount of fuel dispensed.

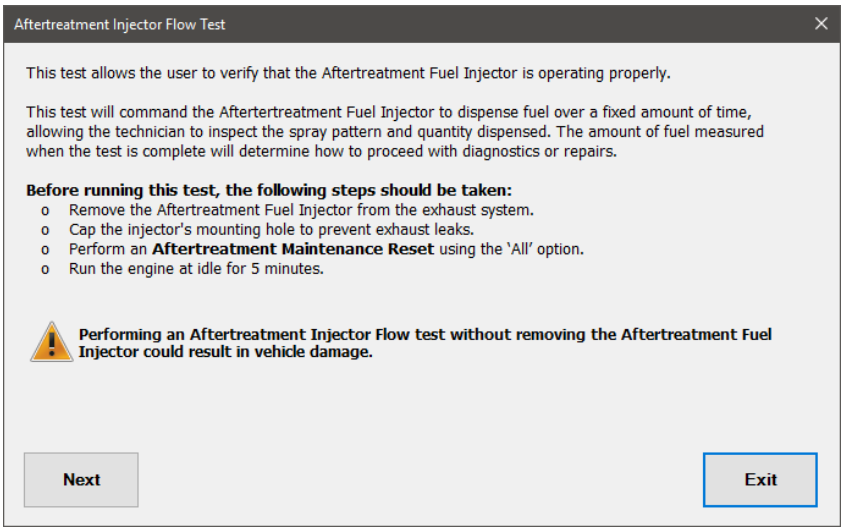
Before running this test, you must:

- Remove the Aftertreatment Fuel Injector from the exhaust system.
- Cap the injector's mounting hole 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.

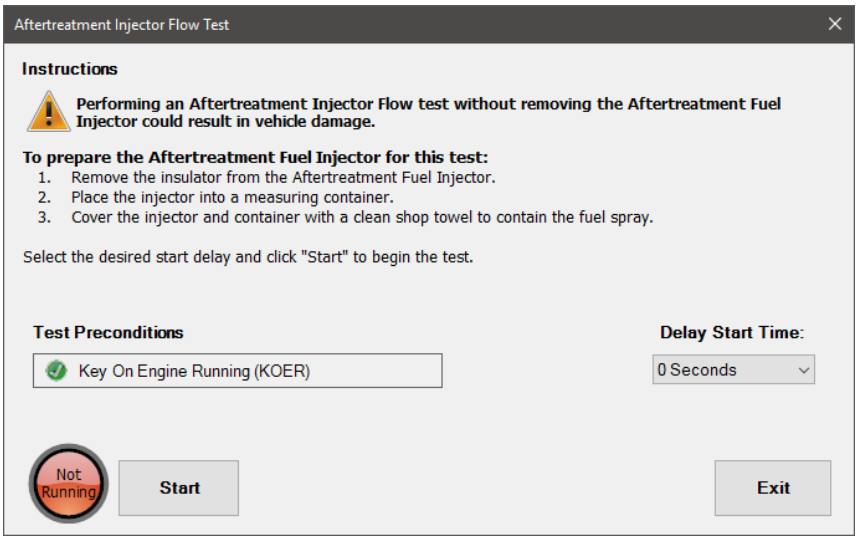
Follow the steps below to carry out the **Aftertreatment Injector Flow Test:**

1. Select **Aftertreatment Injector Flow Test** and press **Enter** or the **Start** button.
2. The test dialog will be displayed.



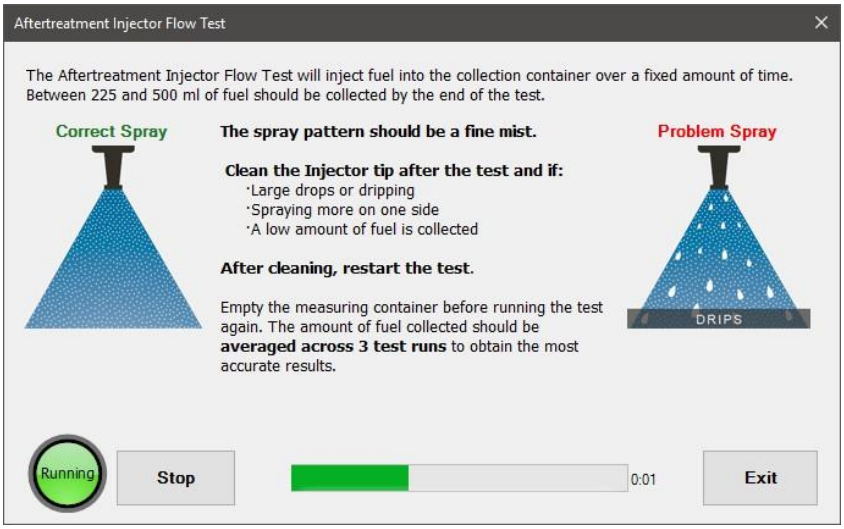
Aftertreatment Injector Flow Test

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, the 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 a 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:

- ✓ 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

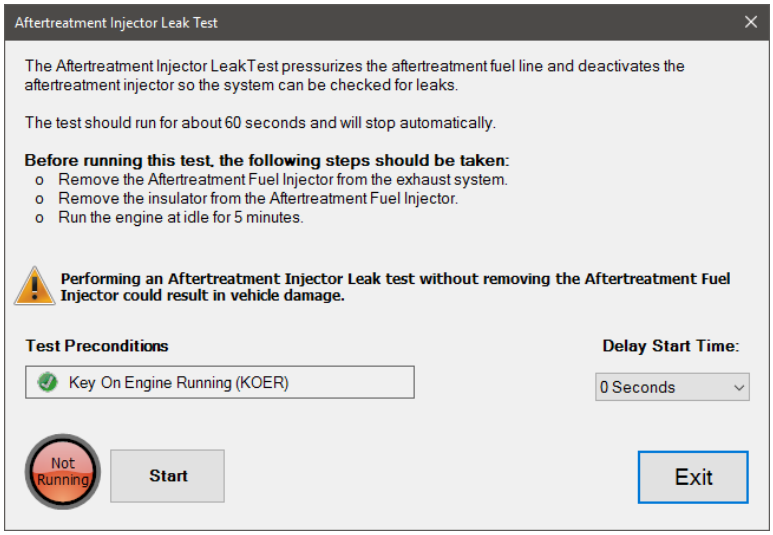
Before running this test, you must:

- 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.

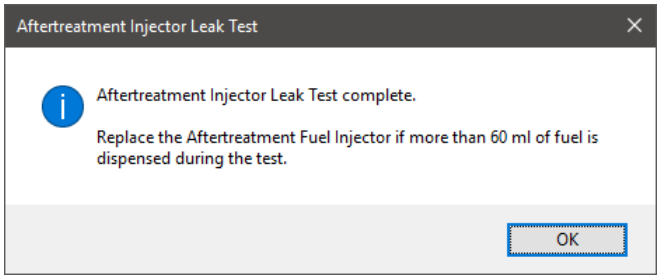
Follow the steps below to carry out the **Aftertreatment Injector Leak Test:**

1. Select **Aftertreatment Injector Leak 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 be completed 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

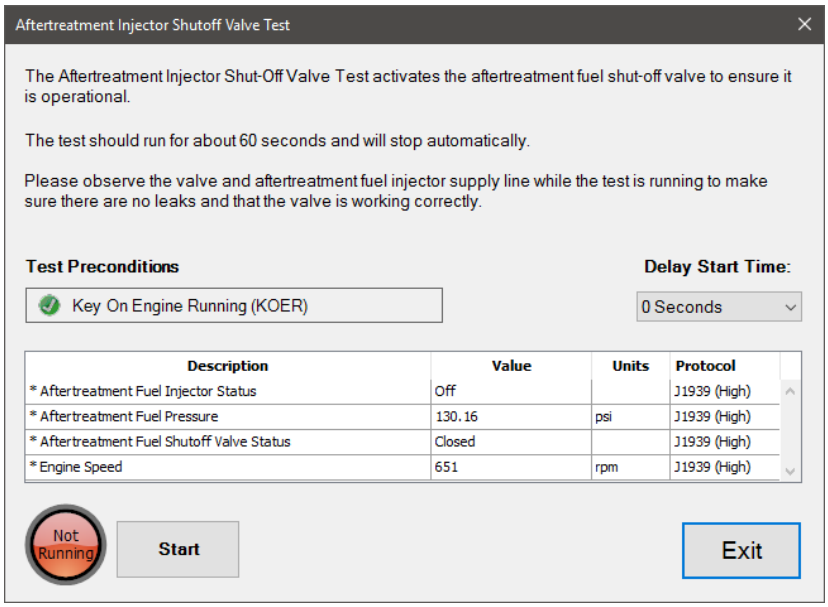
The **Aftertreatment Injector Flow test** is available on:

- ✓ 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.

Follow the steps below to carry out the **Aftertreatment Injector Shutoff Valve Test:**

1. Select **Aftertreatment Injector Shutoff Valve Test** and press Enter or the **Start** button.
2. The **Aftertreatment Injector Shutoff Valve 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 be completed after about 60 seconds.
5. A message will display indicating test completion.
6. Click the **Exit** button to return to the test selection dialog.

DEF Doser Pump Test

DEF Doser Pump Test is supported on:

- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

Cummins and International call this test the DEF Doser Pump Override Test.

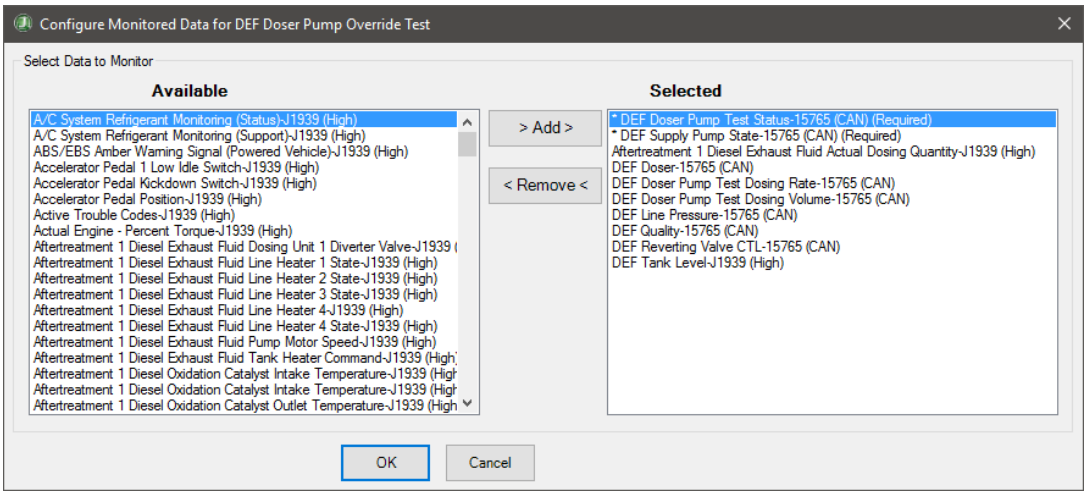
NOTE: The DEF Doser Pump Override Test contains some manufacturer-specific information that will change depending on the make of the vehicle, but the major steps listed below remain the same.

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.

Follow the steps below to carry out the **DEF Doser Pump Test:**

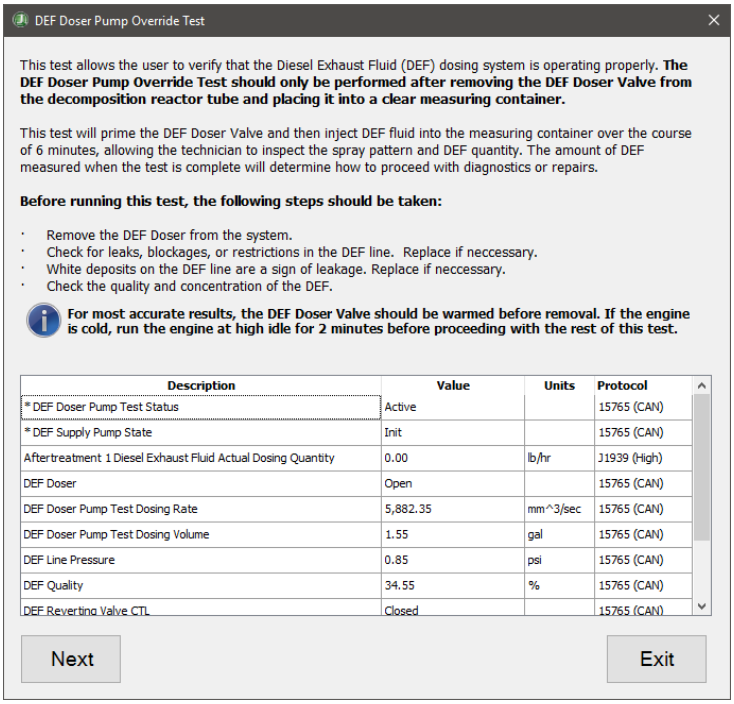
1. Select **DEF Doser Pump Test** and press **Enter** or the **Start** button.
2. The **Configure Monitored Data for DEF Doser Pump Override Test** dialog will be displayed.

NOTE: Data display and, therefore, configuration of data is not available for Cummins engines.



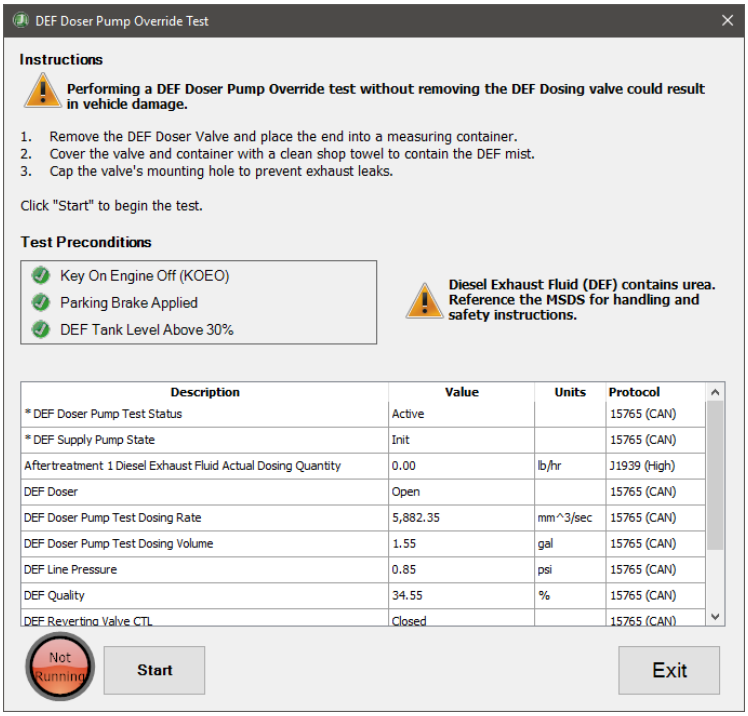
Configure Monitored Data for DEF Doser Pump Override Test Dialog

3. Select parameters from the Available list and click the **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 **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)

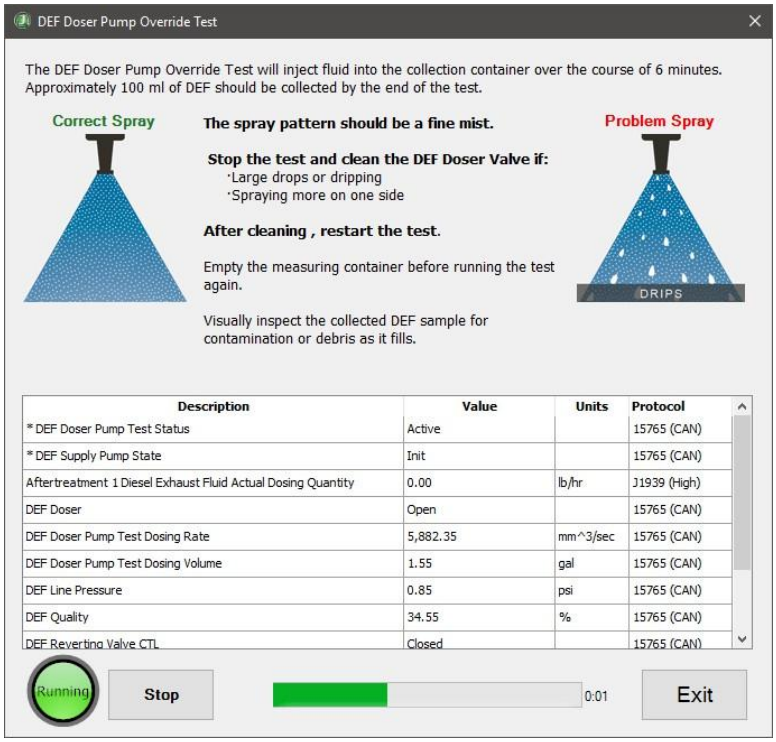
7. Click the **Next** button for test Instructions and to view the status of **Test Preconditions**.



DEF Doser Pump Override Test Instructions (International)

8. 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, the 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 a 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.

DPF Regen Interval Time Reset

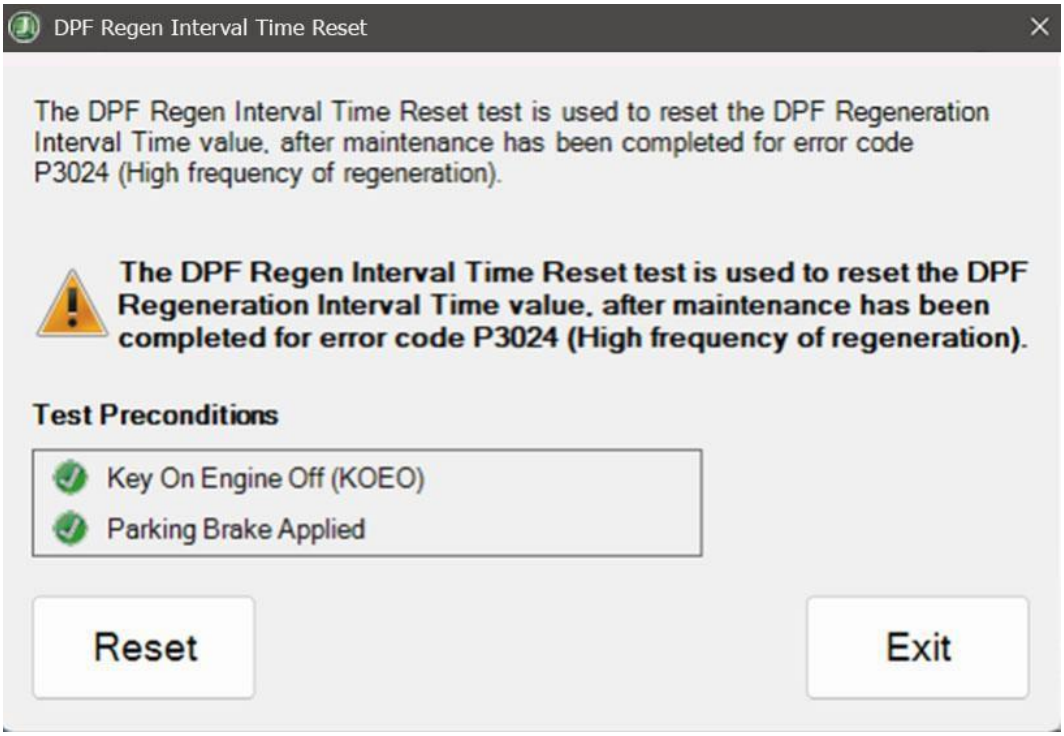
The **DPF Regen Interval Time Reset** test is supported on:

- ✓ Kubota V2607-CR-TE4 and V3800-TIEF4 engines on applicable equipment

The **DPF Regen Interval Time Reset** test is used to reset the DPF Regeneration Interval Time value. This procedure should be run after maintenance has been completed for **Error Code P3024 (High frequency of regeneration)**.

Follow the steps below to reset the DPF regen interval time:

1. Select the **DPF Regen Interval Time Reset** test and press Enter or the **Start** button.
2. The **DPF Regen Interval Time Reset** test dialog will display.



DPF Regen Interval Time Reset

3. Click the **Rest** button to begin the test. A success message will be displayed when the DPF Regeneration Interval Time value has been reset.
4. When done, press the **Exit** button to return to the test selection dialog.

DPF Service Regen

DPF Service Regen is supported on:

- ✓ Cummins Tier 3: all QSB, QSC, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSC, QSF, QSL, QSX, B6.7, B4.5, F3.8
- ✓ John Deere 4045 and 6068 engines on applicable equipment
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.
- ✓ Kubota V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment

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.

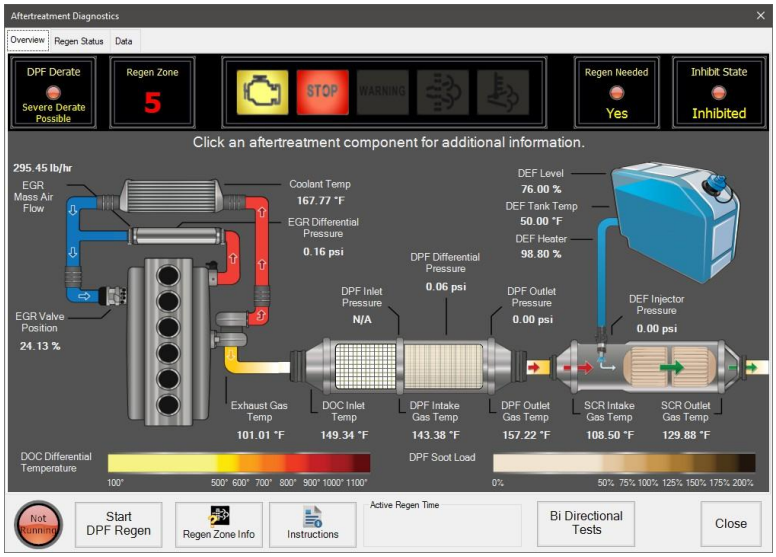
If the soot level becomes greater than what can be removed by the normally occurring regeneration process, then service regeneration may be needed.

Follow the steps below to carry out the **DPF Service Regen:**

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 Soot Load Reset

The **DPF Soot Load Reset** test is supported on:

- ✓ Kubota V2607-CR-TE4
- ✓ V3800-TIEF4 engines
- ✓ Kubota V3307-CR-TE4 engines

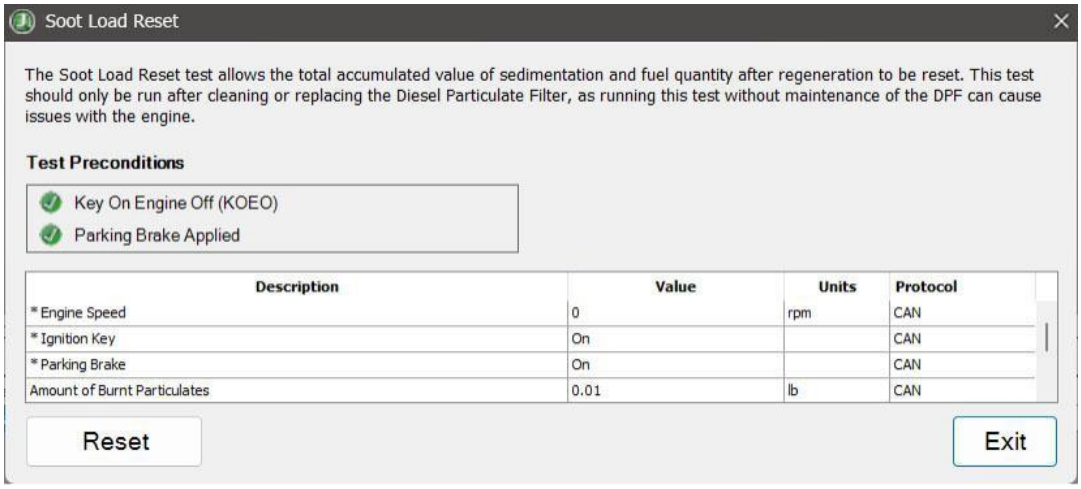
The **DPF Soot Load Reset** test should only be performed after cleaning or replacing the Diesel Particulate Filter. This test will reset the total accumulated value of particulates and fuel quantity after regeneration to be reset.



Running the Soot Load Reset test without maintenance of the DPF could result in vehicle damage.

Follow the steps below to carry out the **DPF Soot Load Reset** test:

1. Select the **DPF Soot Load Reset** test and press Enter or the **Start** button.
2. The **DPF Soot Load Reset** test dialog will display.



Soot Load Reset

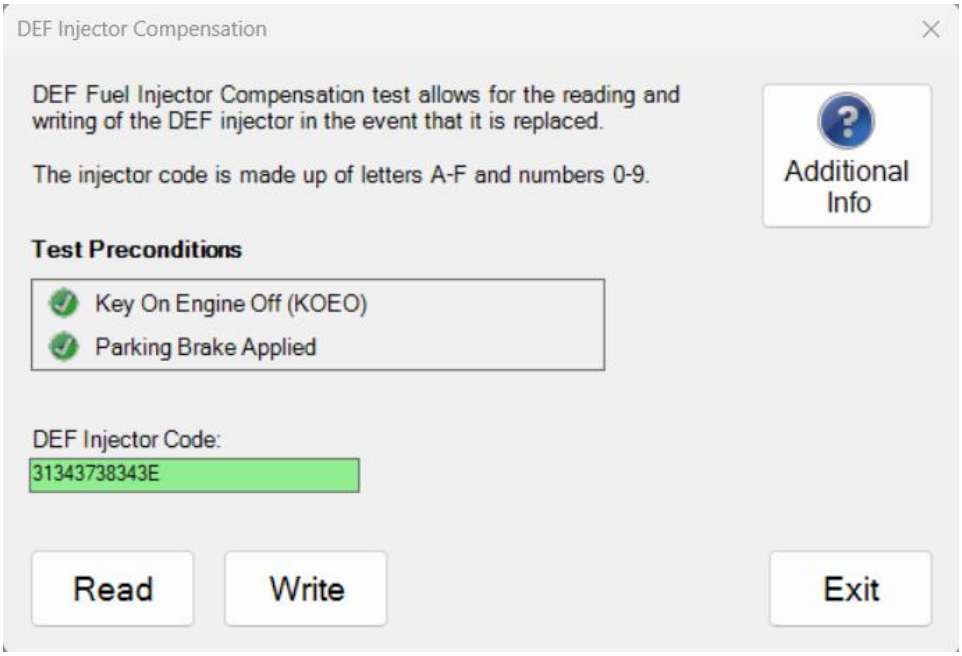
3. Click the **Reset** button to reset the learned values. A success message will be displayed when the test is completed.
4. When done, press the **Exit** button to return to the test selection dialog.

DEF Injector Compensation

The **DEF Injector Compensation** test is supported on:

- ✓ Kubota V3800-TE4 engines on applicable equipment

1. The application executes Commanded Test Manager basic flow use case steps (see Core Libraries SRS).
2. The DEF Injector Compensation dialog opens
   a. A label with test description appears
   b. A green check appears next to each met precondition
   c. A textbox appears for the DEF injector code
      - The textbox is enabled
      - The "Read" button is enabled
      - The "Write button is disabled

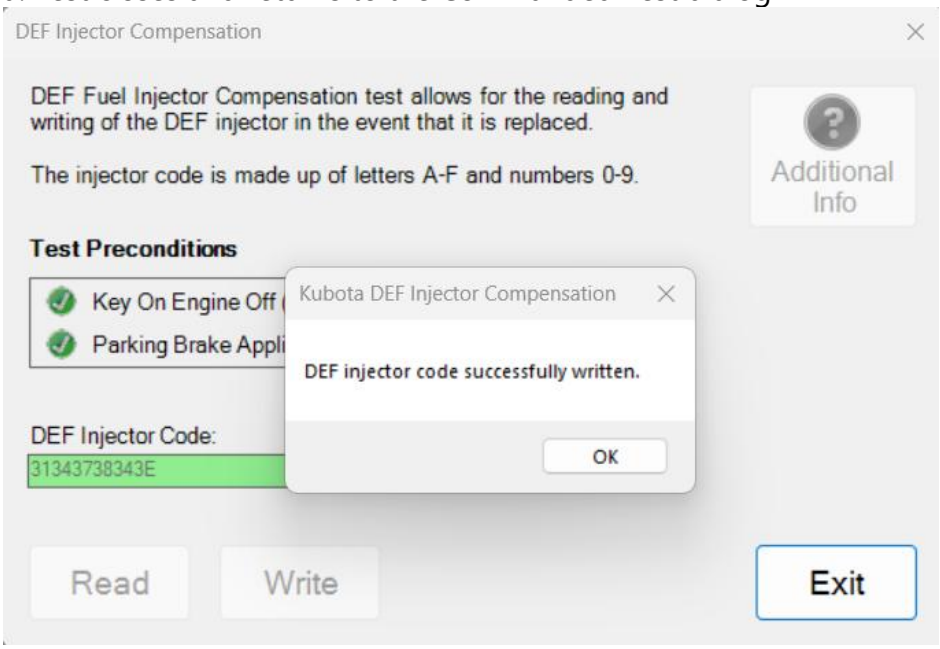


3. User clicks "Read"
   a. Mouse cursor becomes a wait cursor
   b. The "Read" button becomes disabled
4. Injector code read is successful:
   a. Mouse cursor returns to default
   b. The "Read" button becomes enabled
   c. The textbox displays a full 12-character (6 byte) injector code
      - If the injector code is valid:
        i. The text box will have a green background
        i. The "Write" button becomes enabled

5. User clicks "Exit" button or "X" in top right corner of test dialog
   a. Test closes and returns to Commanded Test dialog

Basic Flow 2: User Clicks "Write":

1. Basic Flow 1: steps 1 and 2 are performed
2. User enters a known valid 12-character (6 bytes) injector code, or an injector code from a new injector, into the textbox
   a. Upon entering the full injector code, the textbox turns green
   b. The "Write" button enables
3. User clicks "Write"
   a. Mouse cursor becomes a wait cursor
   b. The textbox becomes disabled
   c. The "Read" button becomes disabled
   d. The "Write" button becomes disabled
   e. The injector code is sent to the ECU
4. Injector code write is successful
   a. Mouse cursor returns to default
   b. The "Read" button becomes enabled
   c. The "Write" button becomes enabled
   d. A message box displays with the message:
   DEF injector code successfully written
5. User clicks "Exit" button or "X" in top right corner of test dialog
   a. Test closes and returns to the Commanded Test dialog



Alternate Flow 1: Precondition Violation:

1. Basic Flow 1: step 1 is performed

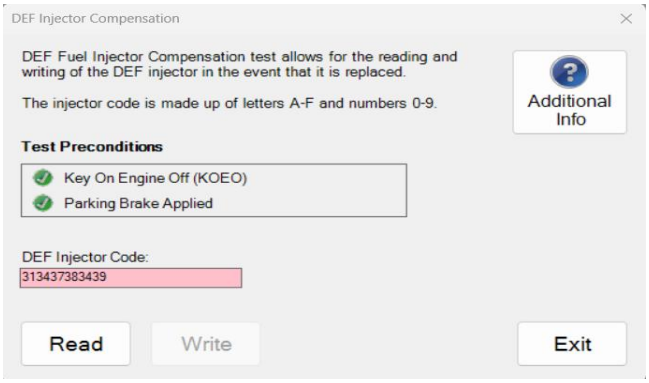
2. The Fuel Injector Compensation test dialog opens
   a. A red "X" appears next to each unmet precondition
   b. The "Read" button is disabled
   c. The "Write" button is disabled
3. User corrects each unmet precondition
   a. Each red "X" becomes a green check
   b. The "Read" button becomes enabled (NOTE: The write button does *not* enable after correcting the precondition violation. It should only become enabled when a valid injector code has been entered into the text box.)
4. Test returns to Basic Flow 1: User Clicks "Read": step 2

Alternate Flow 2: User attempts to exit the test during a write:

1. Basic Flow 2: steps 1 through 3 are performed
2. The user clicks the Exit or "X" button before the write is complete
3. A message dialog opens, preventing the test from exiting before the write is complete.
   a. Message verbiage: "The DEF Injector Compensation test cannot be exited while an injector code is being written. Please wait for the writing process to complete before exiting the test."
4. Basic Flow 2: steps 4 and 5 are performed

Alternate Flow 3: User Enters An Invalid Injector Code:

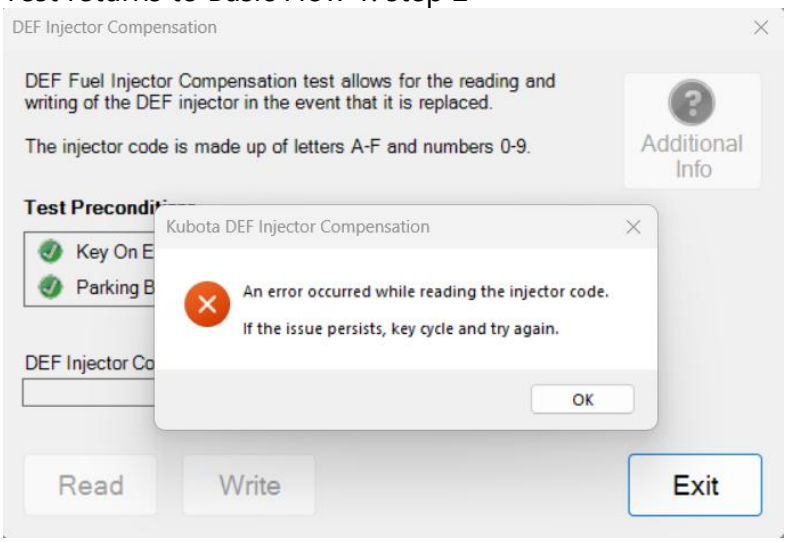
1. Basic Flow 1: steps 1 and 2 are performed
2. User enters invalid injector code
   a. Textbox color changes to light pink to indicate the injector code is invalid
   b. The "Write" button remains disabled
3. User corrects invalid injector code
   a. Textbox color changes to green
   b. The "Write" button enables
4. Test returns to Basic Flow 2: User Clicks "Write": step 3



Alternate Flow 4: ECU Returns Error On Read:

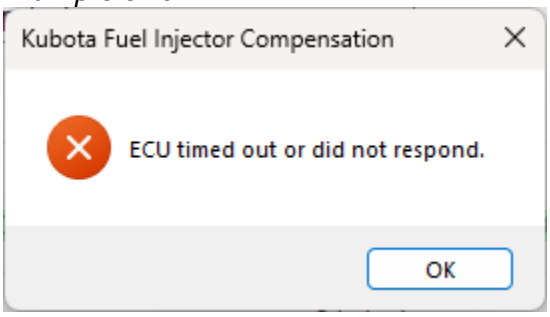
1. Basic Flow 1: steps 1 through 3 are performed

2. Injector code read returns with an error
   a. A message box displays details about the error
   b. An "OK button appears in the bottom right corner of the message box
3. User closes message box and takes corrective action (if necessary) to fix the error
4. Test returns to Basic Flow 1: step 2



Alternate Flow 5: ECU Returns Error on Write:

1. Basic Flow 2: User Clicks "Write": steps 1 through 4 are performed
2. Injector code write returns with an error
   a. A message box displays details about the error
   b. An "OK button appears in the bottom right corner of the message box
3. User closes message box and takes corrective action (if necessary) to fix the error
4. Test returns to Basic Flow 2: step 3
   Example error



Injector Injection Control Function Test

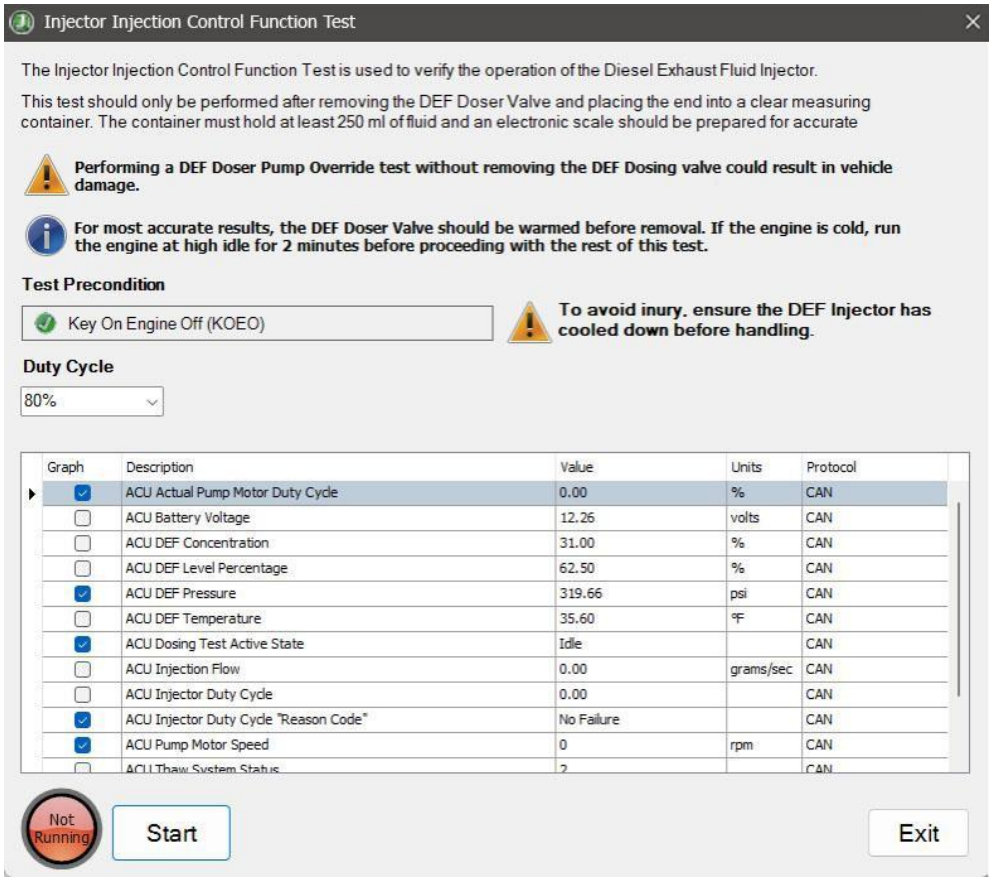
The **Injector Injection Control Function Test** is supported on:

- ✓ Kubota supported engines with part number 1H01 Aftertreatment Control Unit on applicable equipment

The **Injector Injection Control Function Test** is used to verify proper operation of the Diesel Exhaust Fluid injector.

Follow the steps below to carry out the **Injector Injection Control Function Test:**

1. Select the **Injector Injection Control Function Test** and press Enter or the **Start** button.
2. The **Injector Injection Control Function Test** dialog will display.



Injector Injection Control Function Test

3. Once all warnings have been observed and instructions followed, click the **Start** button to begin the test. The DEF Injector should start pumping out DEF into the measuring container. Data values can be graphed during the test to assist in identifying issues with performance. A success message will be displayed when the test is complete.

4. When done, press the **Exit** button to return to the test selection dialog.

SCR Performance and System Test

The **SCR Performance and System Test** is supported on:

- ✓ Cummins Tier 3: all QSB, QSC, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSC, QSF, QSL, QSX, B6.7, B4.5, F3.8
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

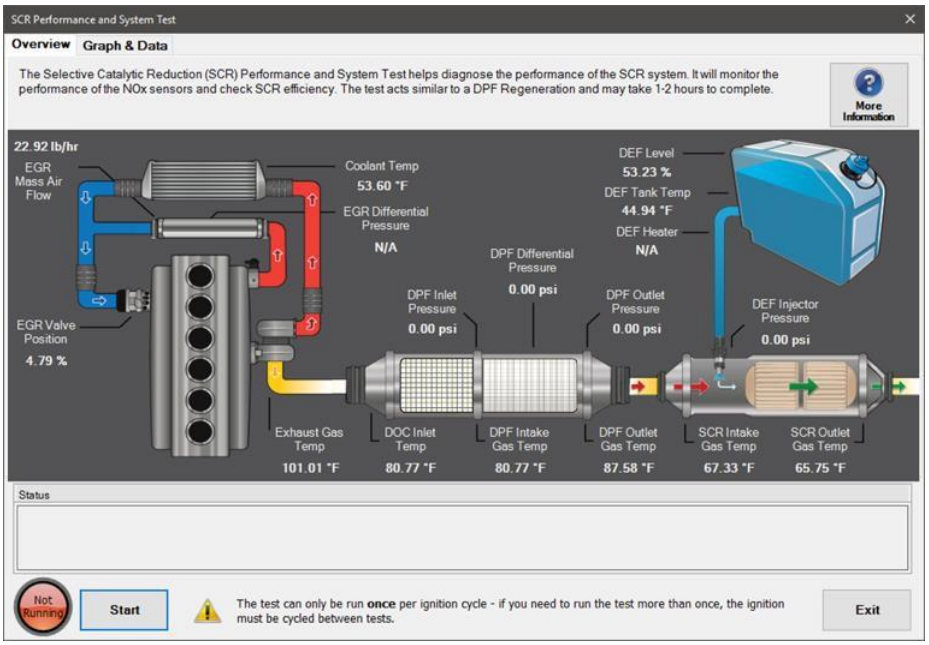
The **Selective Catalytic Reduction (SCR) Performance and System Test** helps diagnose issues with the performance of the SCR system. It monitors the performance of the NOx sensors and checks SCR efficiency.

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.

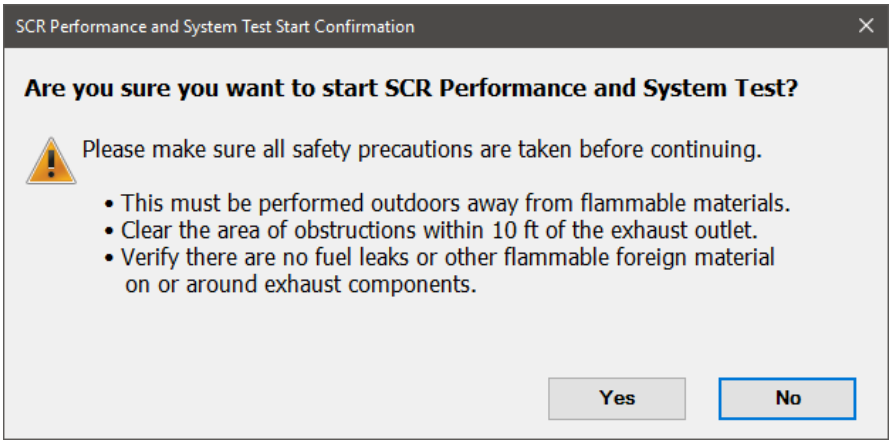
Follow the steps below to carry out the SCR performance and system test**:**

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. Click the **Exit** button when ready to exit this test and return to the test selection dialog.

Fuel System Tests

Cylinder Cut-Out Test

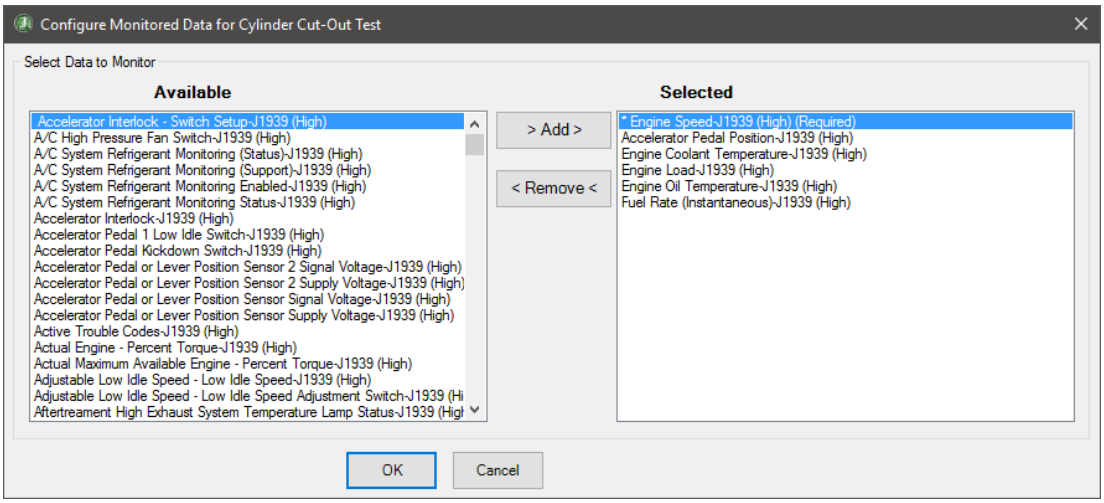
Cylinder Cut-Out Test is supported on:

- ✓ Caterpillar Off-Highway C4.4, C6.6, C7.1, C9.3, C9.3B, and C13 engines
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX
- ✓ Cummins Tier 4: all QSB, QSF, QSL, QSX, B6.7
- ✓ John Deere 4045 and 6068 engines on applicable equipment
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.
- ✓ Kubota V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment
- ✓ Yanmar 4TNV98C engines on applicable equipment

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.

Follow the steps below to carry out the cylinder cut-out test:

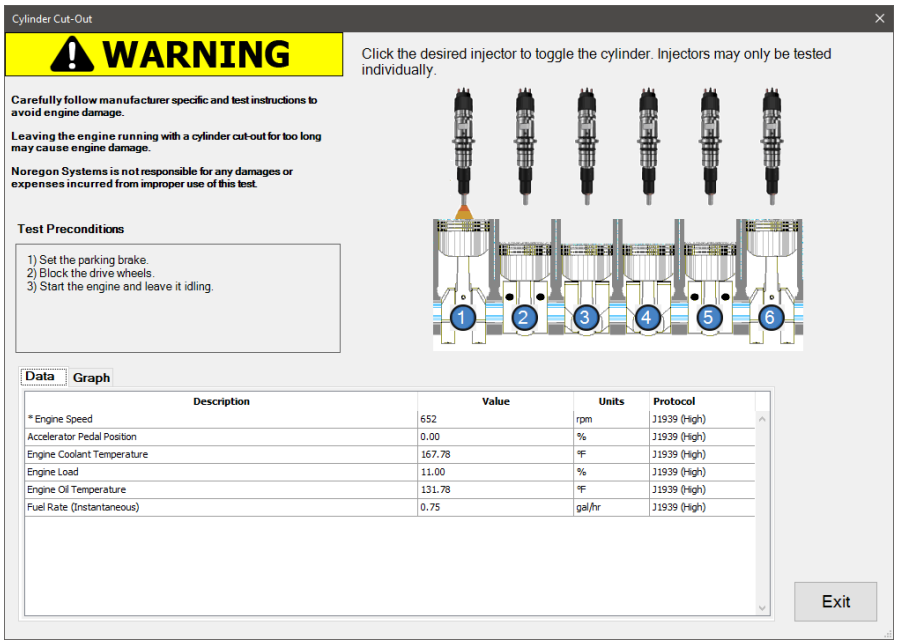
1. Select **Cylinder Cut-Out** and press Enter or press **Start** Button.
2. The **Configure Monitored Data for Cylinder Cut-Out Test** dialog will be displayed.



Configure Monitored Data for Cylinder Cut-out Test Dialog

3. Select parameters from the **Available** list and click the **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 the **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 the disabling 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 the **Done** button when ready to exit this test and return to the test selection dialog.

Fuel Injector Compensation

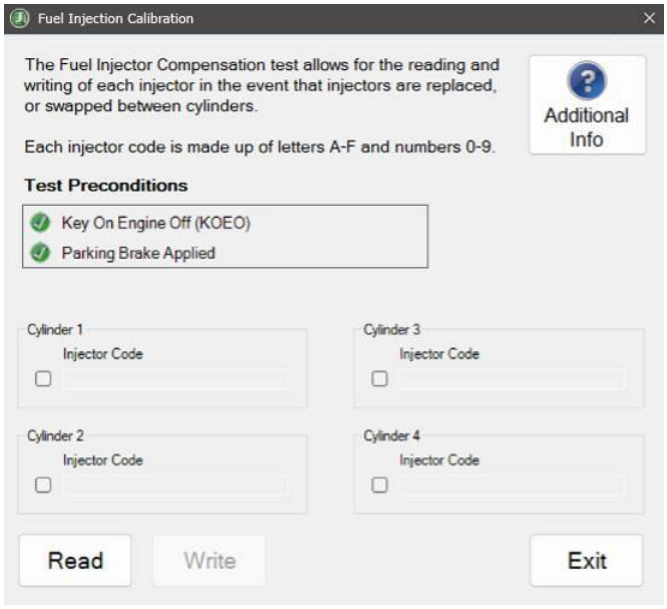
The **Fuel Injector Compensation** test is supported on:

- ✓ Kubota V2607-CR-TE4, V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment

The **Fuel Injector Compensation** test allows injector codes to be read for installed injectors or written for injectors that are replaced or swapped between cylinders.

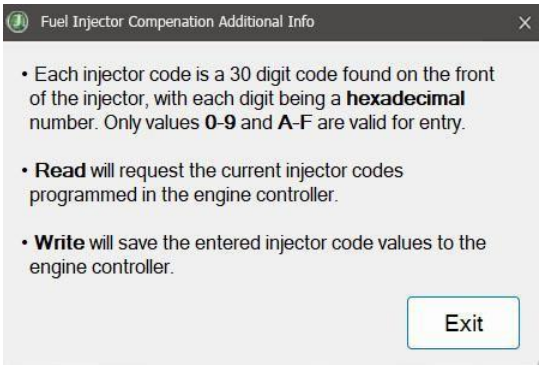
Follow the steps below to carry out the **Fuel Injector Compensation** test:

1. Select the **Fuel Injector Compensation** test and press Enter or the Start button.
2. The **Fuel Injector Compensation** test dialog will display.



Fuel Injector Compensation

3. Click the **Read** button to retrieve the currently stored injector codes for each cylinder.
4. To enter a new injector code, select the checkbox of the desired cylinder. The injector code field will become editable. Enter the new **30-character** injector code. This may be repeated for all desired cylinders.
5. Click the **Write** button to save the entered injector codes. A success message will be displayed when all values have been written.
6. Select the **Additional Info** button to view additional information about injector codes and this test.



Fuel Injector Compensation Additional Info

7. When done, press the **Exit** button to return to the test selection dialog.

Fuel Injector Performance Test

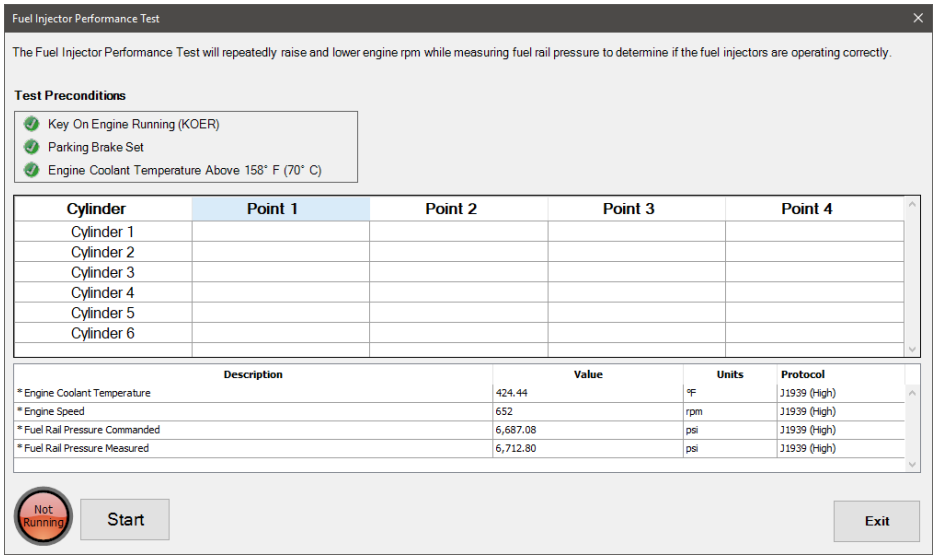
Fuel Injector Performance Test is supported on:

- ✓ 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.

Follow the steps below to carry out the **Fuel Injector Performance Test:**

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 System Leakage Test

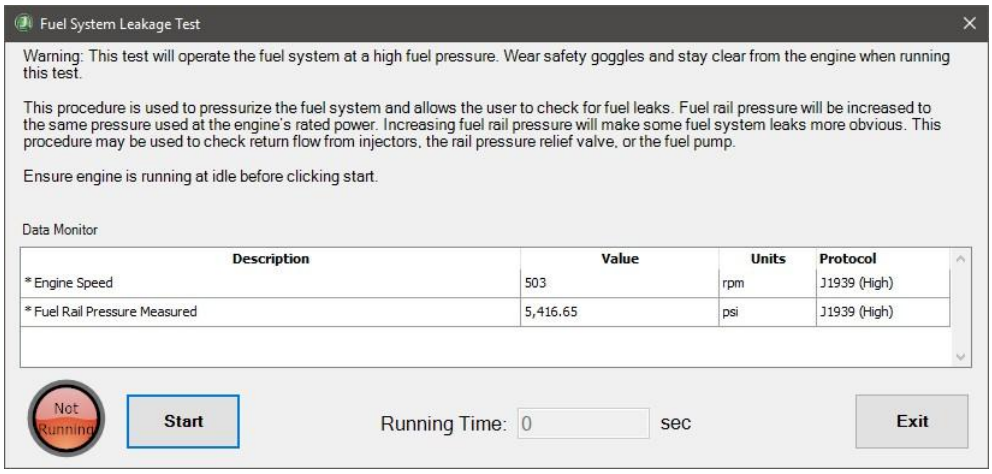
Fuel System Leakage Test is supported on:

- ✓ 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.

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.

Follow the steps below to carry out the **Fuel System Leakage Test:**

1. Select **Fuel Leakage** and press **Enter** or press the **Start** button.
2. The **Fuel System Leakage Test** dialog will be displayed.

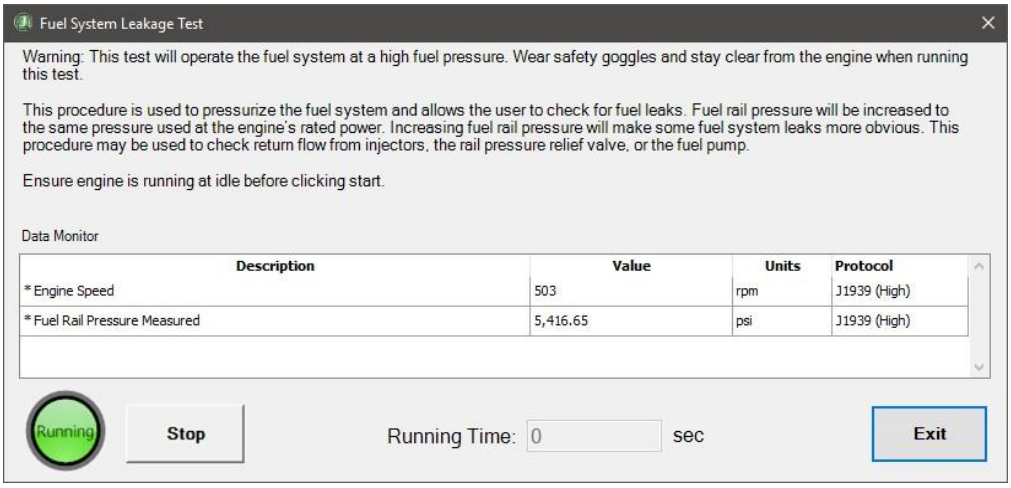


Fuel System Leakage Test

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 of the engine when running this test.

4. The dialog will update the displayed status and start tracking the Running Time. The **Start** button changes to **Stop**.
5. Wait for the status to change to "**Running**", then examine the fuel system for leaks.



Fuel System Leakage Test – Running

6. When done, select the **Stop** button. The engine will return to normal operation.
7. Press **Exit** to return to the test selection dialog.

Supply Pump Learning Test

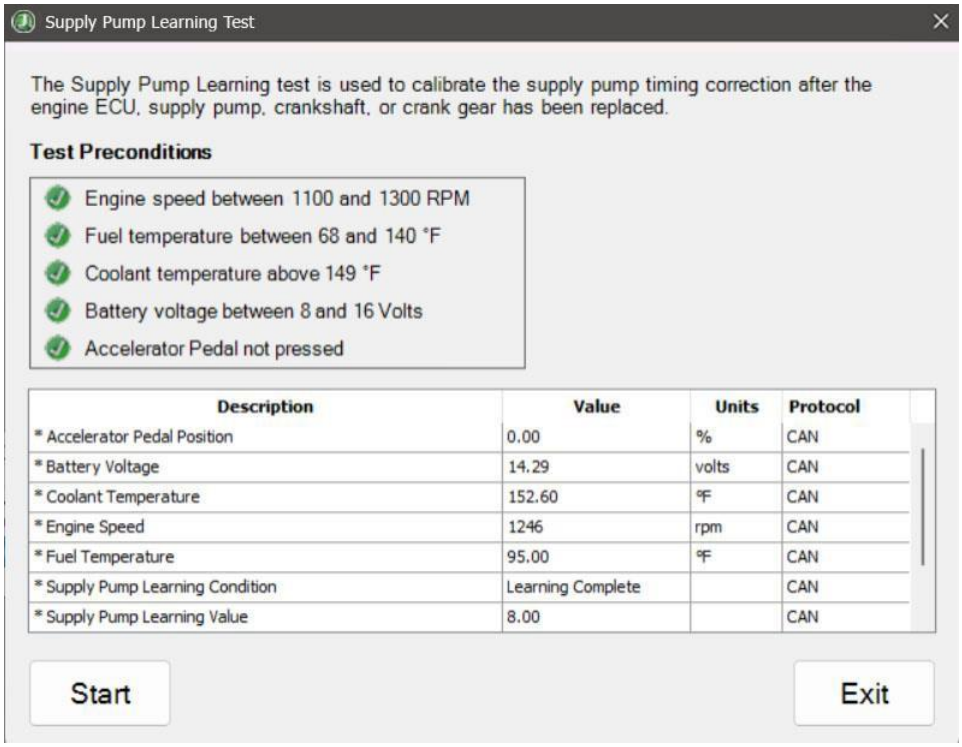
The **Supply Pump Learning Test** is supported on:

- ✓ Kubota V2607-CR-TE4, V3307-CR-TE4, and V3800-TIEF4 engines on applicable equipment

The **Supply Pump Learning Test** is used to calibrate the supply pump timing correction and should be performed after repair or replacement of the engine ECU, supply pump, crankshaft, or crank gear.

Follow the steps below to carry out the **Supply Pump Learning Test:**

1. Select the **Supply Pump Learning Test** and press Enter or the **Start** button.
2. The **Supply Pump Learning Test** dialog will display.



Supply Pump Learning Test

3. Click the **Start** button to begin the test. When the learning operation is complete, a success message will be displayed.
4. When done, press the **Exit** button to return to the test selection dialog.

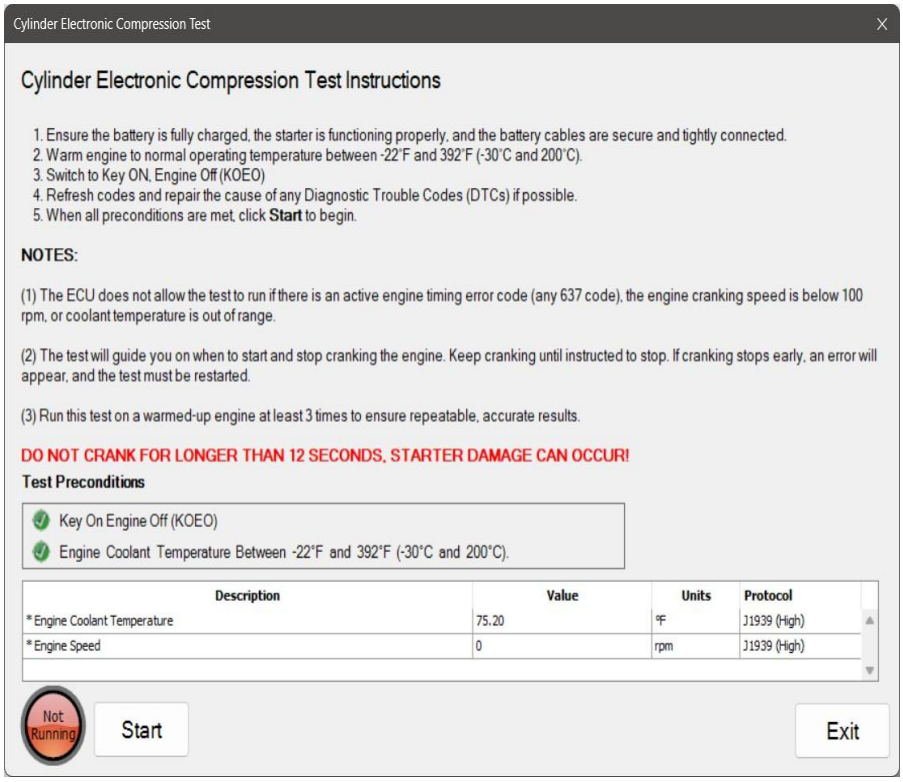
Cylinder Electronic Compression Test

The Cylinder Electronic Compression Test is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment with supported Compatibility Code:
  - 22020E03, 22020E0D, 21011203, 21011506, 22020C02, 21010E03, 10020403, 10020304

The **Cylinder Electronic Compression Test** verifies cylinder compression to ensure sufficient fuel combustion for proper engine operation and identifies weak cylinders that may cause issues. Conducted as a Key ON Engine OFF (KOEO) test, it requires manual engine cranking without starting the engine. Users must crank for no longer than 12 seconds to prevent damage to the battery, starter, or other electrical components. After the test, compression values for each cylinder are displayed, with 100% indicating optimal performance.

1. Select the **Cylinder Electronic Compression Test** and press Enter or the **Start** button.
2. The **Cylinder Electronic Compression Test** dialog will display.



Cylinder Electronic Compression Test

3. Once all instructions have been followed and preconditions met, click **Start**.
4. Crank the engine for 12 seconds, or until prompted to stop.

> **NOTE:** Cranking the engine for more than 12 seconds can result in starter damage.

5. The test results are displayed. Click **Restart** if the test needs to be run again.
6. Click the **Exit** button to return to the test selection dialog.

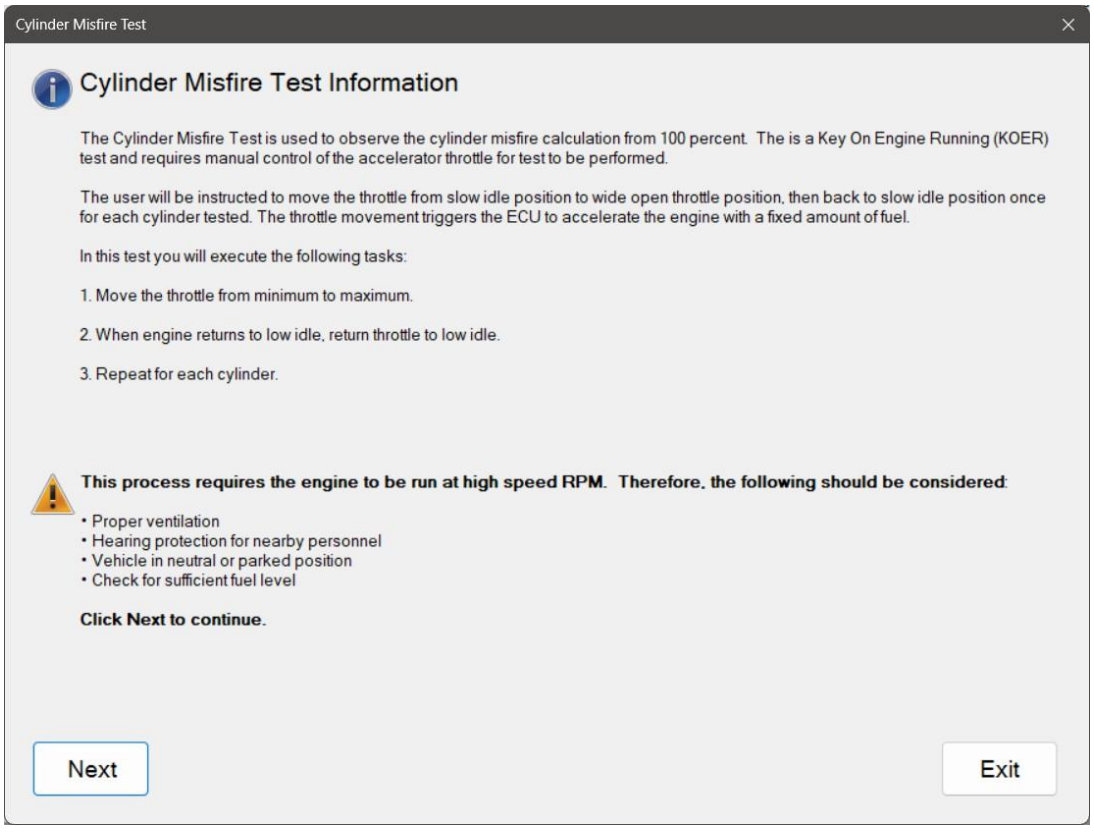
Cylinder Misfire Test

The **Cylinder Misfire Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment with supported Compatibility Code:
  - 22020E03, 22020E0D, 21011203, 21011506, 22020C02, 21010E03, 10020403, 10020304

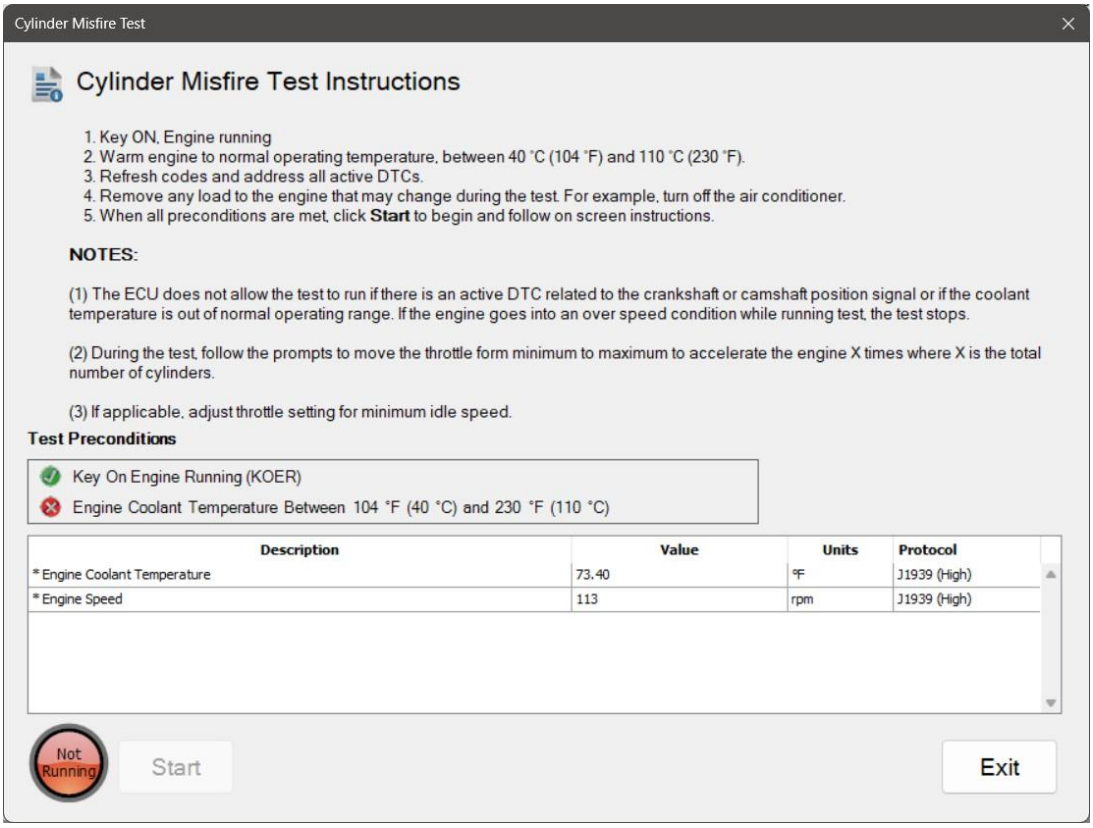
The **Cylinder Misfire Test** is used to observe the cylinder misfire calculation from 100 percent. This test is a Key ON Engine Running (KOER) test and requires manual control of the accelerator throttle for the test to be performed.

1. Select the **Cylinder Misfire Test** and press Enter or the **Start** button.
2. The **Cylinder Misfire Test** dialog will display.



Cylinder Misfire Test

3. Important test information and warnings are displayed. Click **Next** to proceed.



Cylinder Misfire Test Instructions

4. Once all instructions have been followed and preconditions met, click **Start**.
5. When instructed, increase throttle to maximum. When the engine returns to low idle, decrease the throttle to minimum. Repeat this process as directed for each cylinder.
6. The test results are displayed. Click **Restart** if the test needs to be run again.
7. Click the **Exit** button to return to the test selection dialog.

Induction and Exhaust Tests

EGR Valve On/Off Function

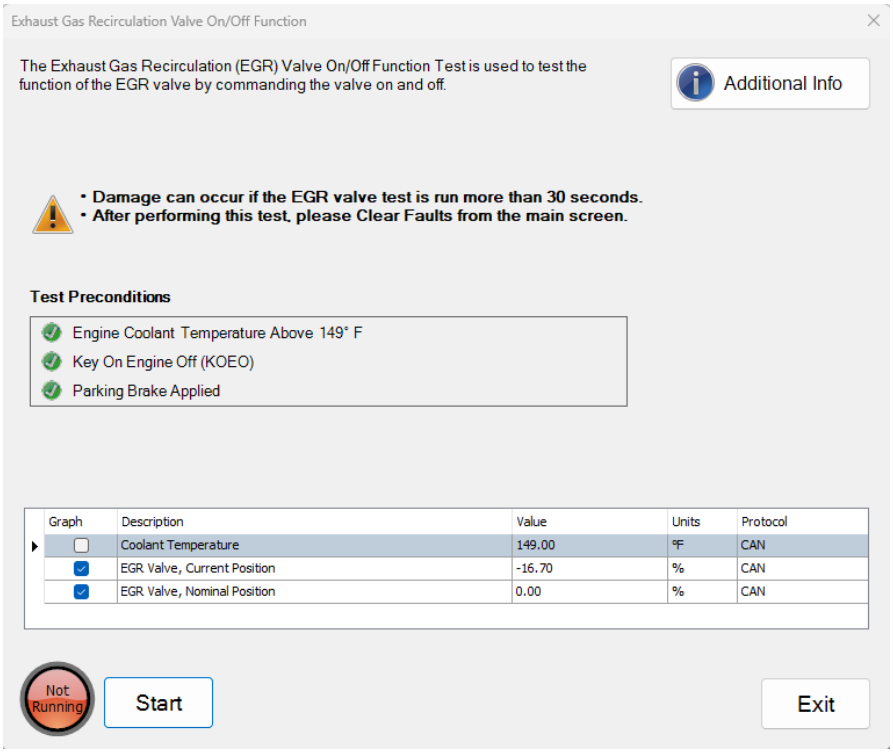
The **EGR Valve On/Off Function** test is supported on:

- ✓ Kubota V3800-TIEF4 engines on applicable equipment

The **EGR Valve On/Off Function** test is used to test the function of the EGR valve by commanding the valve on and off.

Follow the steps below to carry out the **EGR Valve On/Off Function** test:

1. Select the **EGR Valve On/Off Function** test and press Enter or the **Start** button.
2. The **EGR Valve On/Off Function** test dialog will display.



Exhaust Gas Recirculation (EGR) Valve On/Off Function

3. Select the **Start** button to begin the test. The EGR valve will be commanded on, and the reported position will be graphed to assist in identifying issues with valve performance.
4. When the countdown ends, the valve will be commanded off. Proper actuation can be determined by observing the graph and the monitored data.
5. Select the **Additional Info** button to view information on EGR valve opening targets.



EGR Valve Test Additional Information

6. When done, press the **Exit** button to return to the test selection dialog.

VGT Hysteresis Test

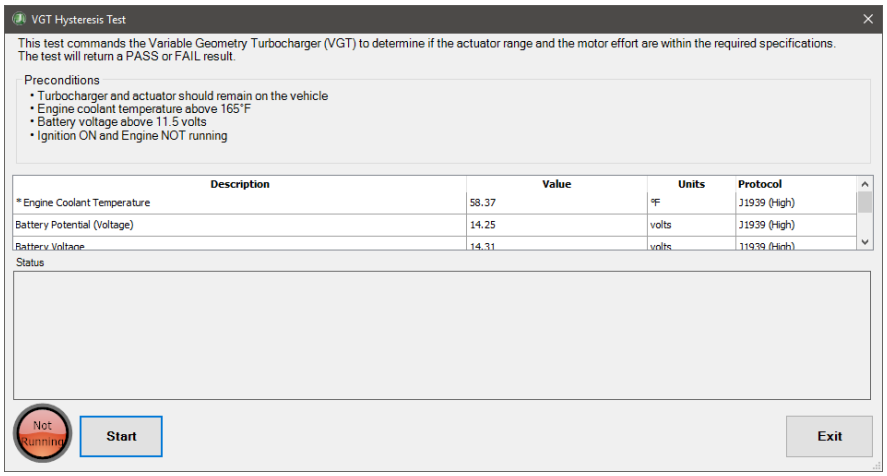
VGT Hysteresis Test is supported on:

- ✓ 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.

Follow the steps below to carry out the VGT hysteresis test**:**

1. Select **VGT Hysteresis Test** and press **Enter** or press the **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 the **Exit** button when ready to exit this test and return to the test selection dialog.

Wiggle Test/Performance Issue Monitoring

The **Wiggle Test / Performance Issue Monitor** is supported on:

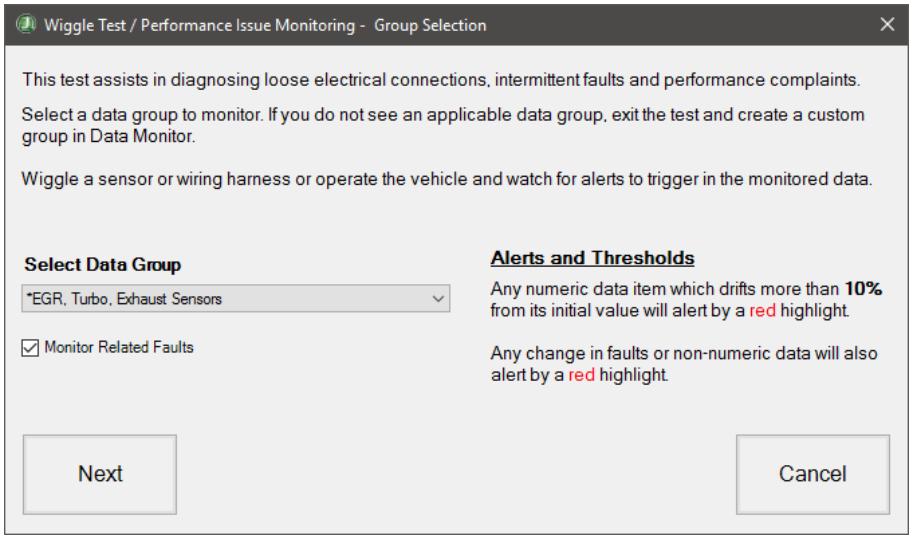
- ✓ Cummins Tier 3: all QSB, QSF, QSL, QSX, QSC
- ✓ Cummins Tier 4: all QSB, QSF, QSC, QSL, QSX, B6.7, B4.5, F3.8
- ✓ Komatsu equipment with SAA6D107E-3, SAA6D114E-6, SAA6D125E-7, and SAA4D95LE-7 engines.

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.

Follow the steps below to monitor the Wiggle Test/Performance Issue**:**

1. Select Wiggle Test/Performance Issue Monitor and press **Enter** or press the **Start** Button.
2. The **Group Selection** dialog will be displayed. Select a data group to monitor.

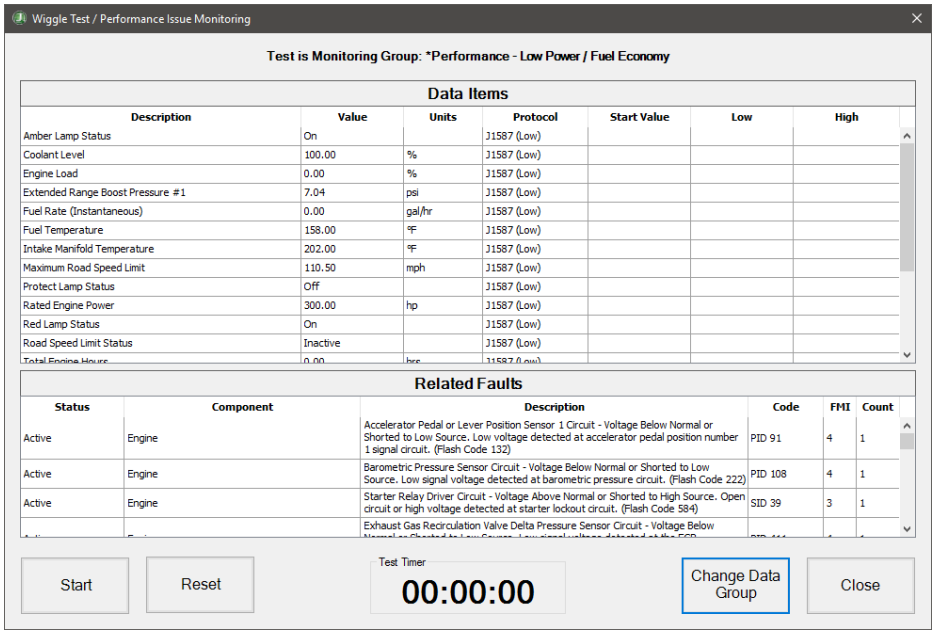
> **NOTE:** If you do not see an applicable data group, exit the test and create a custom group in the Data Monitor "Data Groups" tab.



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 at the bottom of the window, all currently reported related faults are listed.



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 that drifts more than 10% from its initial value will be highlighted in red.



Any change in faults or non-numeric data will also be alerted 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.

EGR Valve Clean Test

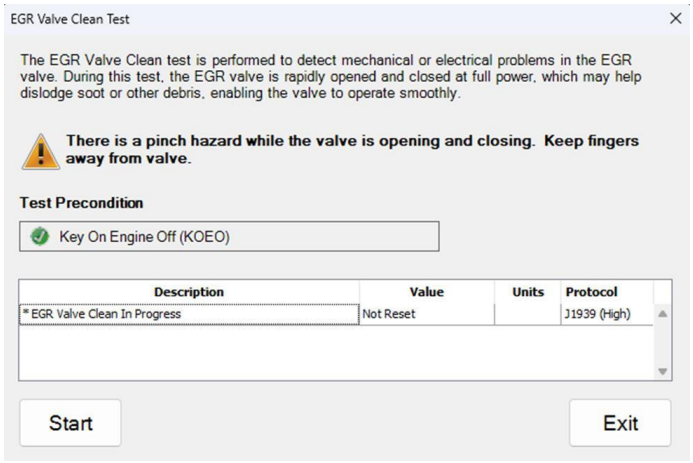
The **EGR Valve Clean Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment with supported Compatibility Code:
  - 22020E03, 22020E0D, 21011203, 21011506, 22020C02, 21010E03, 10020403, 10020304

The **EGR Valve Clean Test** is performed to detect mechanical or electrical problems in the EGR valve.

Follow the steps below to perform the **EGR Valve Clean Test**:

1. Select the **EGR Valve Clean Test** and press Enter or the **Start** button.
2. The **EGR Valve Clean Test** dialog will display.



EGR Valve Clean Test

3. Click **Start** to begin the test. The EGR valve will rapidly open and close to dislodge soot and debris.
4. Click the **Exit** button to return to the test selection dialog.

ECU Communication Tests

Communication Error Test

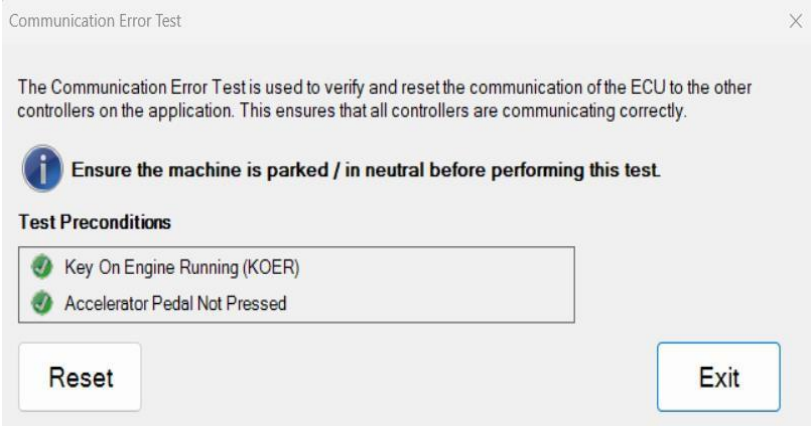
The **Communication Error Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment with supported Compatibility Code:
  - 22020E03, 22020E0D, 21011203, 21011506, 22020C02, 21010E03, 10020403, 10020304

The **Communication Error Test** is used to verify and reset the communication of the ECU to the other controllers on the application. This ensures that all controllers are communicating correctly.

Follow the steps below to carry out the **Communication Error Test**:

1. Select the Communication Error Test and press Enter or the Start button.
2. The Communication Error Test dialog will display.



Communication Error Test

3. Click reset to verify and reset the communications between the ECU and other controllers.
4. When completed, a status message is displayed.

After communications have been reset, please allow the vehicle to run for at least 15 minutes to ensure communication authentication has been attempted.

5. Click the **Exit** button to return to the test selection dialog.

Control Unit Info and Overview Test

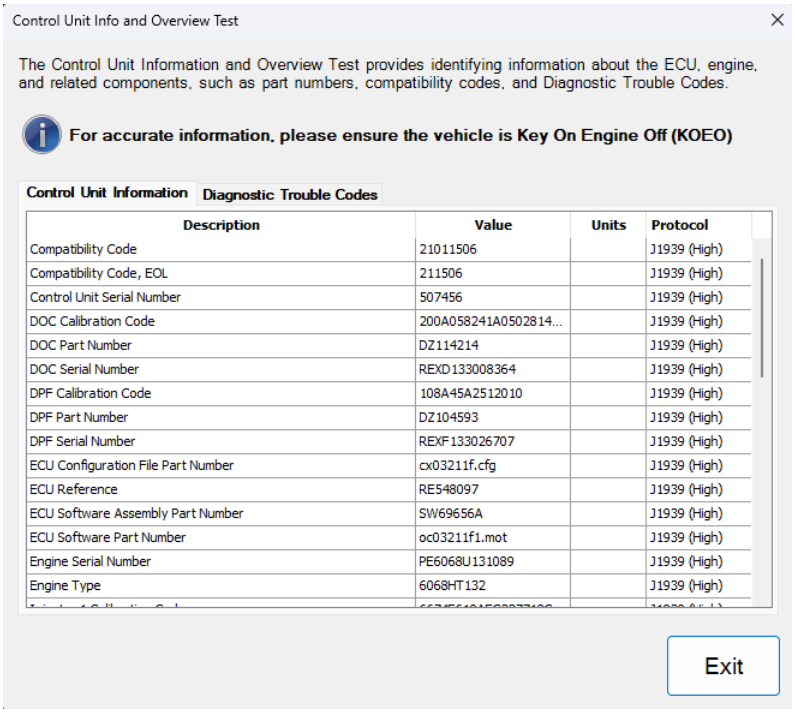
The **Control Unit Info and Overview Test** is supported on:

- ✓ John Deere 4045 and 6068 engines on applicable equipment

The **Control Unit Info and Overview Test** retrieves and displays ECU, Engine, and DTC information.

Follow the steps below to carry out the **Control Unit Info and Overview Test**:

1. Select the **Control Unit Info and Overview Test** and press Enter or the **Start** button.
2. The **Control Unit Info and Overview Test** dialog will display.



Control Unit Info and Overview Test

3. ECU configuration information and detected DTCs are displayed.
4. Click the **Exit** button to return to the test selection dialog.

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

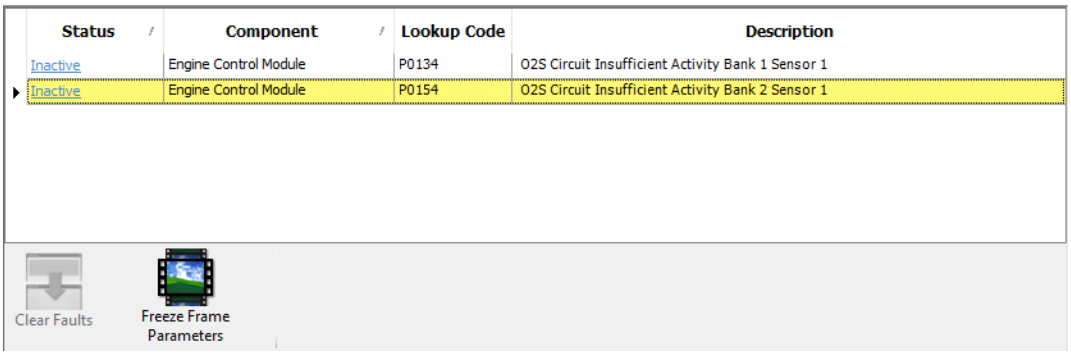
A **Red Stop Sign** icon will be displayed if **active faults** are present.

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, or permanent are highlighted in red, and pending or inactive faults are highlighted in yellow.

1. Fault information is requested from the vehicle data bus every 10 seconds.



Medium Duty Fault Code Information

2. Click on a fault Description with a hyperlink to view the definition of the industry terms used in that fault description.



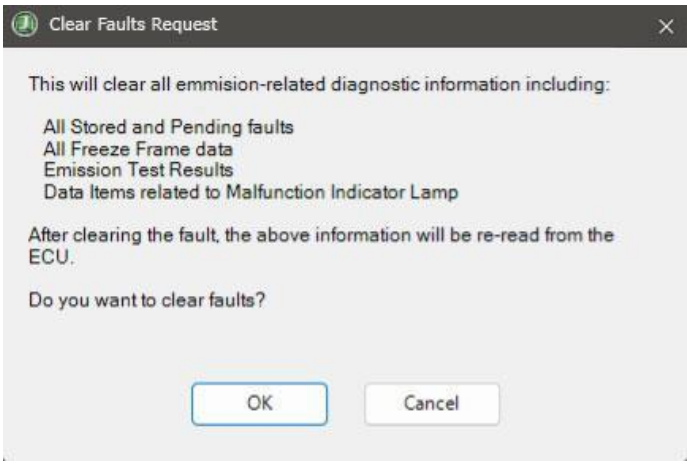
Medium Duty Fault Code Information

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

When the **Clear Faults** button is clicked, a confirmation is displayed. Click **OK** to clear faults.



Clear Faults Request Confirmation

Once all the **Clear Faults** request is made, the application will read the 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 shown will vary from vehicle to vehicle based on the types of sensors available.

Follow steps below to get **Data Monitor** items:

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.

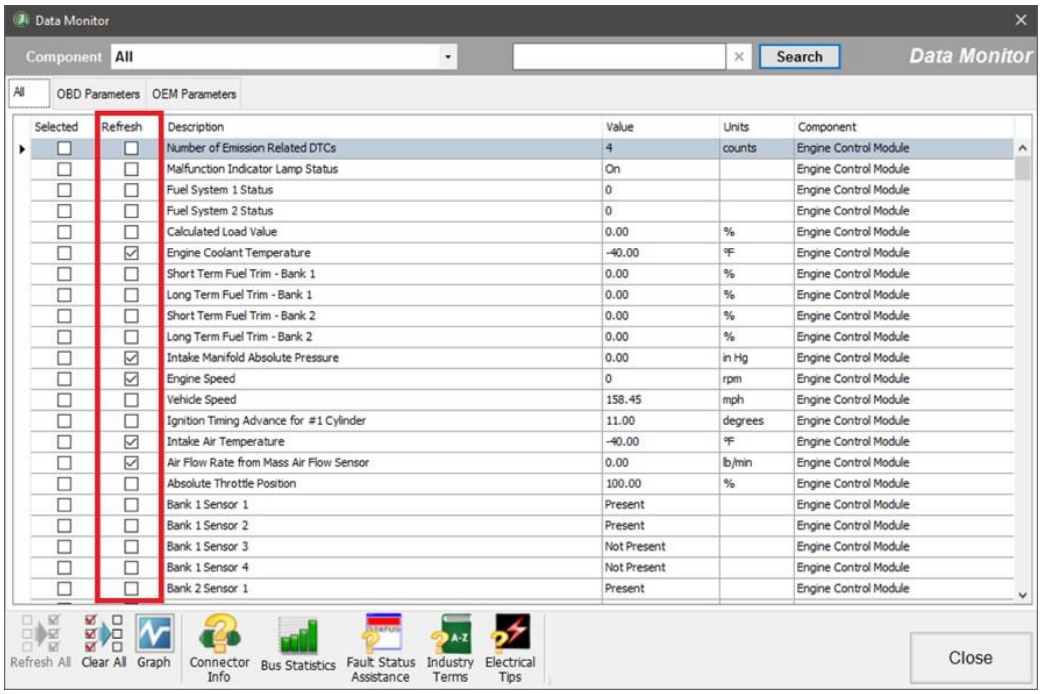
NOTE: Data items are not continually updated. The data values displayed are generally the sensor readings read during the initial connection.

3. 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 refreshment.

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 to begin refreshing new data values.
NOTE: The *Refresh* checkbox is not available during playback of a previously recorded log file.



Data Monitor

4. 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.

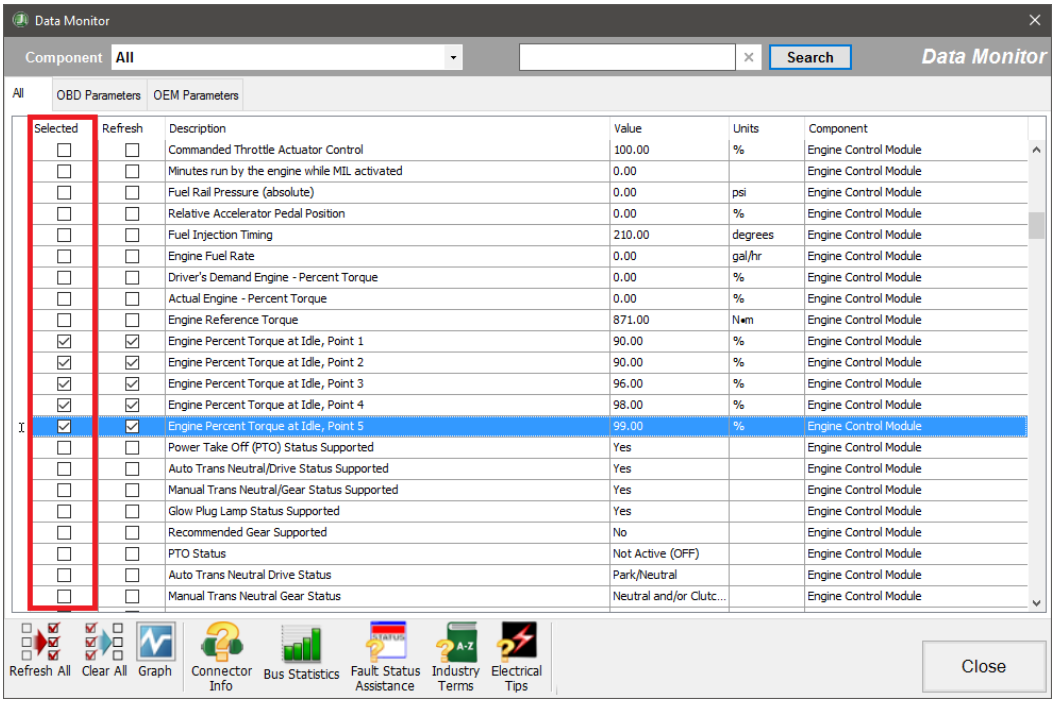
5. Filter the **Data Monitor list** by any component by selecting the component from the dropdown list at the top of the window.
6. Data Monitor items can be quickly found by typing in search criteria and clicking the **Search** button. Results will be displayed for all items that have the search criteria 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.

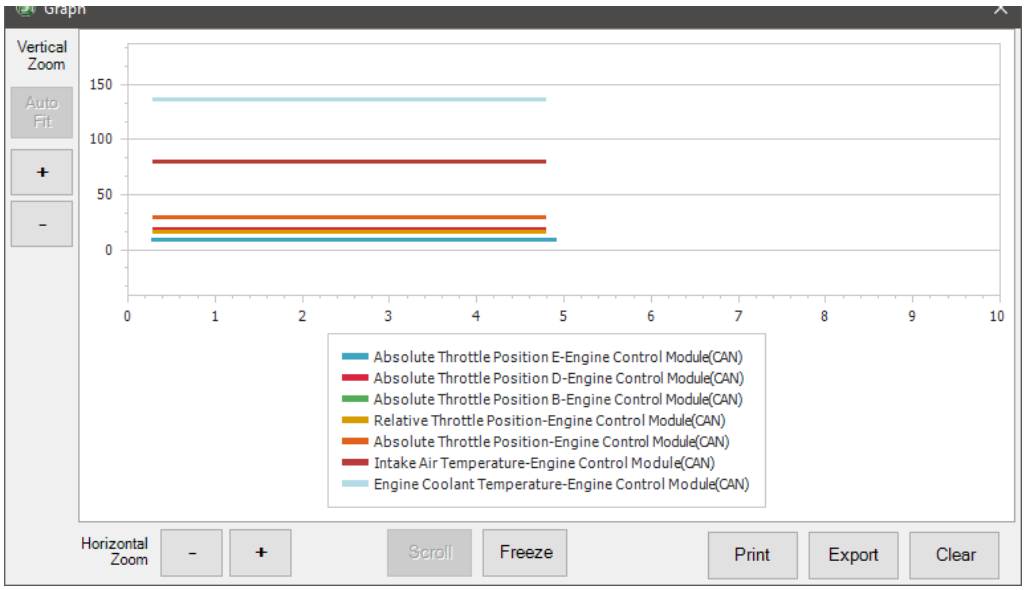
Follow the steps below to display and customize the **Medium Duty Data Graph**:

1. Select data rows of interest in the **Data Monitor** by clicking the **Selected** checkbox.
2. When you click the **Selected** checkbox, the **Refresh** checkbox is also automatically selected, ensuring that the data to be graphed is 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

3. 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

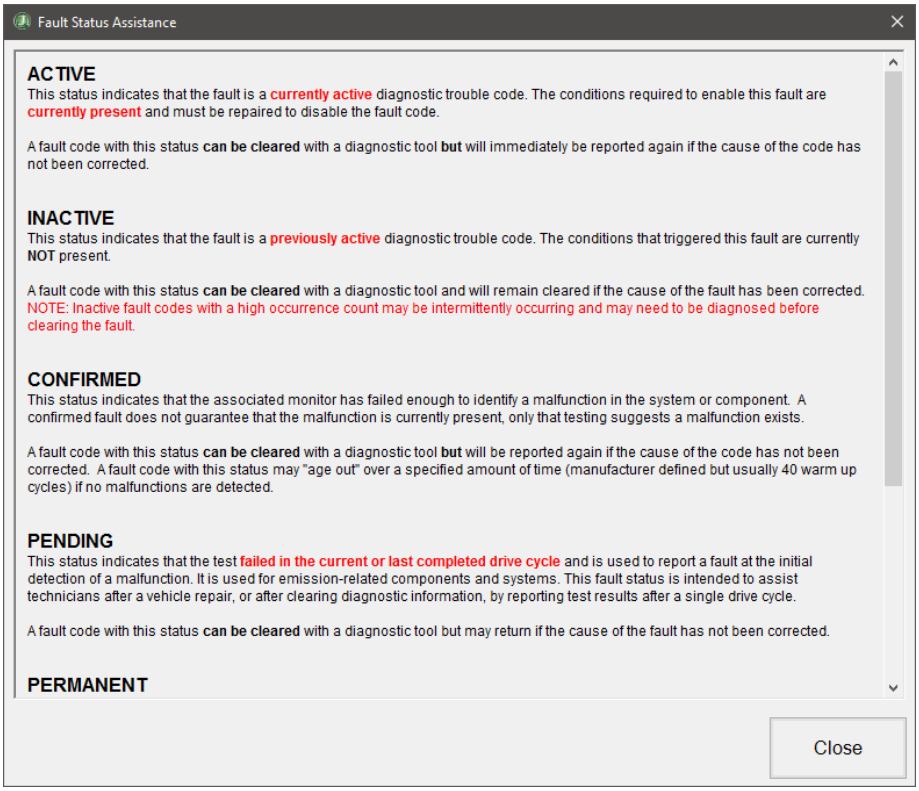
5. To customize the display:
    a. Hover the cursor over the graph to see the value plotted.
    b. You can zoom each axis of the graph independently by clicking either the **+** or **–** button.
    c. Clicking the **Auto Fit** button will resize the graph to show all plotted data items.
    d. The **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**s allow 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.



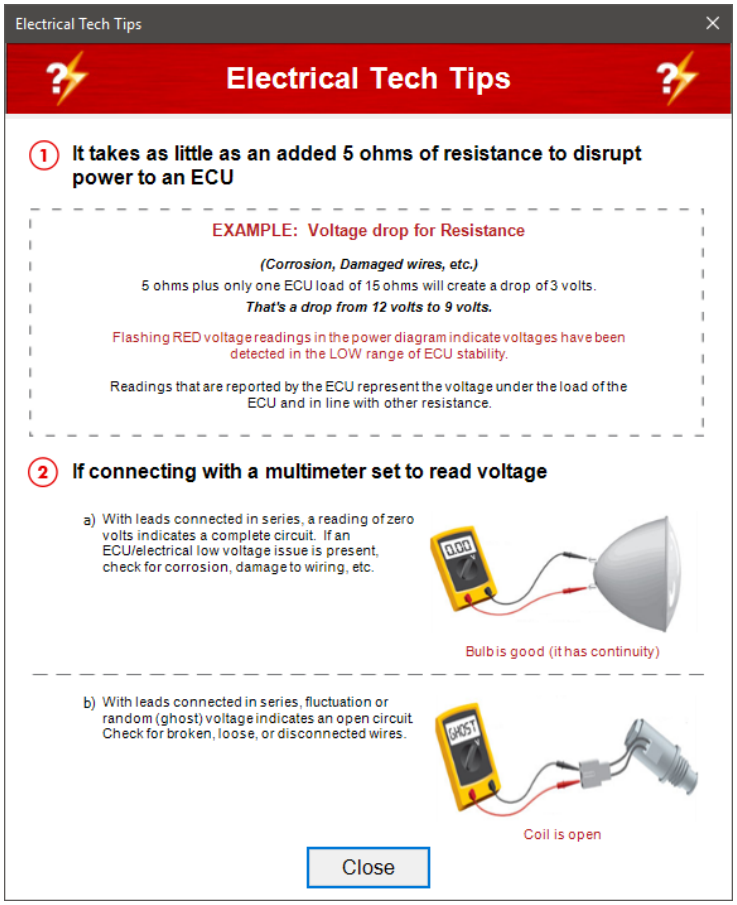
Fault Status Assistance – Medium Duty Connection

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

Aftertreatment Diagnostics

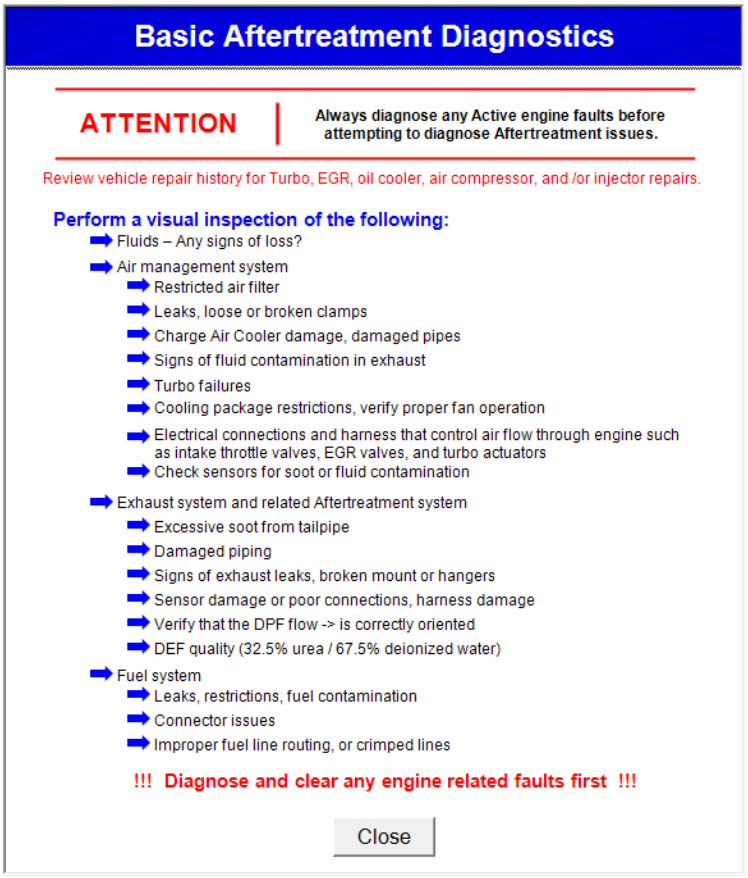
Aftertreatment Diagnostics are only available on EPA 07 or newer Ford, GM, Hino, and Isuzu medium-duty vehicles. It displays data related to the Aftertreatment system, including the Diesel Particulate Filter (DPF) Lamps, Status, Inhibits, and Diagnostic DPF, EGR, SCR, and DEF Tank Sensor Readings in an easy-to-understand graphical format.

The Aftertreatment Diagnostics button is not available until all initial vehicle data is completely read.

Follow the steps below to carry out **Basic Aftertreatment Diagnostics:**

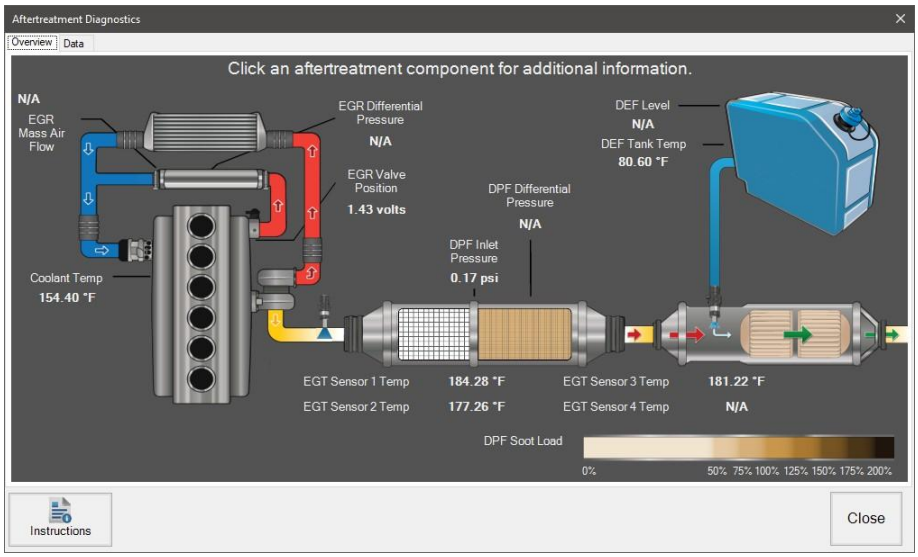
1. Select the **Aftertreatment Diagnostics** button on the main toolbar.

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.



Aftertreatment Diagnostic Instructions

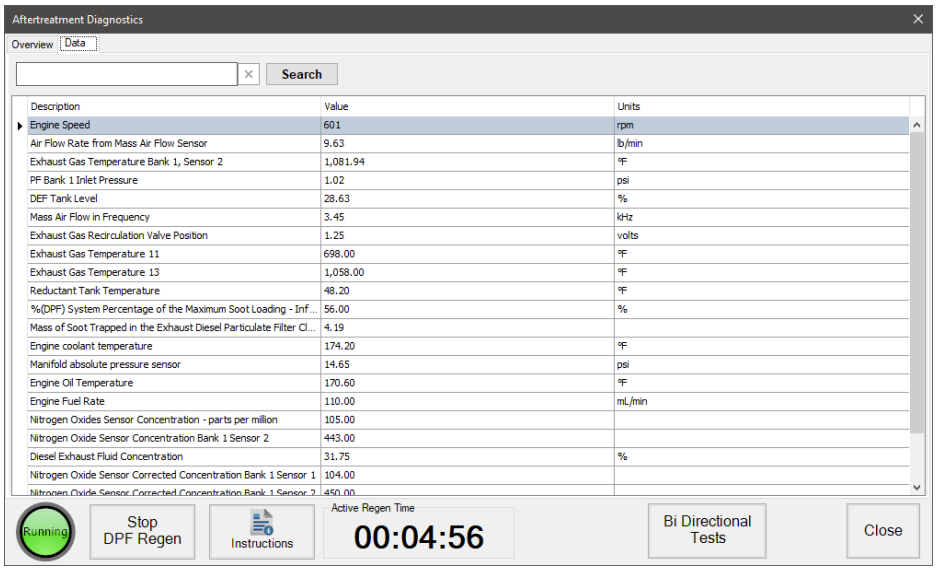
3. The **Aftertreatment Diagnostics** overview window is displayed, and an **Overview** tab displays a schematic of the aftertreatment system. Key data points labeled include the DPF, EGR, SCR, and DEF Tank Sensor readings.



Aftertreatment Diagnostics Overview

NOTE: On EPA 2007 engines, the schematic does not include the SCR and DEF Tank.

4. Click the **Engine**, **DPF**, **SCR**, or **DEF Tank** to view additional information for the selected component.
5. 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.
6. Select the **Data** tab to see all aftertreatment data displayed in an easily searched and sorted grid format.

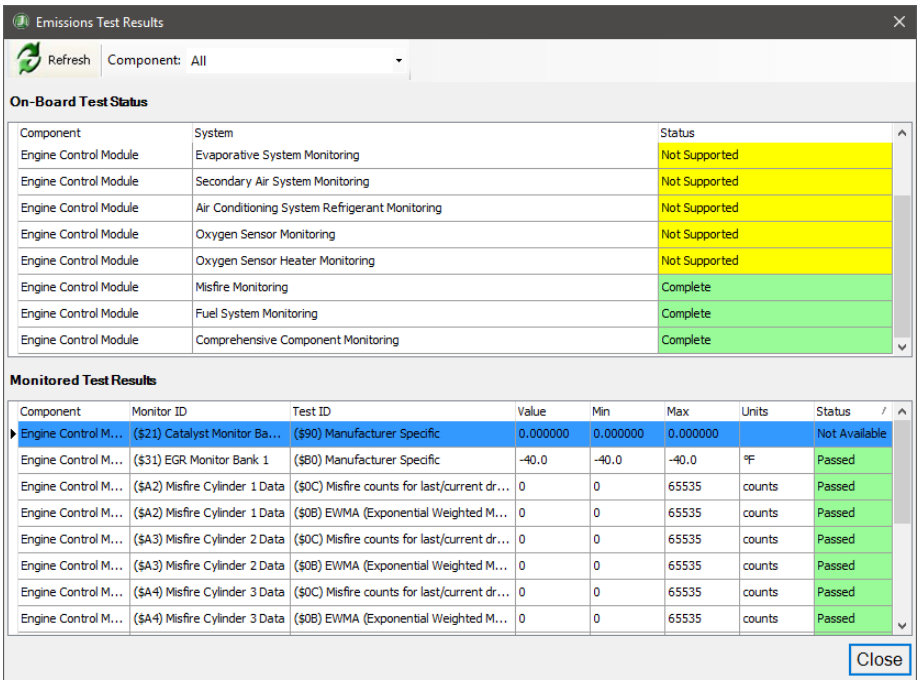


Aftertreatment Diagnostics Data

7. 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 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 need to undergo 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:

OEM	A/C Relay	Battery Voltage Test	CMP Actuator (CAM Phaser)
GM	✔		✔
Ford		✔	

OEM	CMP Actuator Solenoid	Compression Test	Crankshaft Position Variation Learn
GM	✔		✔
Sprinter		✔	

OEM	Cylinder Cut-Out	Dashboard Lamp Tests	DPF Catalyst Reset
GM	✔		✔
Ford		✔	
Hino	✔		
Isuzu	✔		
Sprinter	✔		

OEM	DPF Pressure Sensor Reset	DPF Service Regen	DPF Soot Load Customization
GM	✔	✔	
Ford		✔	
Hino		✔	✔
Isuzu		✔	
Sprinter		✔	

OEM	Enable / Disable ATC	Engine Controls Ignition Relay	Engine Speed Control
GM		✔	✔
Ford	✔		

OEM	EVAP Purge Solenoid	EVAP Purge/Seal Solenoid	EVAP Vent Solenoid
GM	✔	✔	✔

OEM	Fuel Control Loop Status	Fuel Injector Balance	Fuel Pump Relay
GM	✔	✔	✔

OEM	Fuel Trim Enable	GEN L-Terminal	G-Sensor Calibration Test
GM	✔	✔	
Ford			✔

OEM	HO2S Heater Learn	HO2S Heater Tests	Idle Shutdown Customization
GM	✔	✔	
Hino			✔

OEM	Idle Spark	Initialize Rail Pressure	Injector Quantity Adjustment
GM	✔		
Sprinter		✔	✔

OEM	IPMA Camera Alignment	KAM (Keep Alive Memory) Reset	KOEO Injector Buzz Test
Ford	✔	✔	✔

OEM	KOEO On Demand Self-Test	KOER Glow Plug Monitor Self-Test	KOER On Demand Self-Test
Ford	✔	✔	✔

OEM	KOER Switch Test	Malfunction Indicator Lamp	Misfire Graphic
GM		✔	✔
Ford	✔		

OEM	Misfire Monitor Test	Misfire Profile Correction Learn Test	Memorized Components Reset
Ford	✔	✔	✔

OEM	NOx Sensor Reset	On-Demand Self Test	Power Balance Test
GM	✔		
Ford		✔	✔

OEM	Reductant Heater Tests	Reductant System Leak Test	Reductant Tank Reset
GM	✔	✔	✔

OEM	Relative Compression Test	Reset Filter Life	Reset Fuel Trim
GM			✔
Ford	✔	✔	

OEM	Reset HO2S	Reset Oil Life	RVS Disable History Reset
GM	✔	✔	✔
Ford		✔	

OEM	SCR Related Memory Reset	Sensor Initialization	Service Indicator Lamp Test
Ford		✔	✔
Hino	✔		

OEM	Set EGR Position	Set EGR Throttle	Spark Retard
GM			✔

OEM	Set EGR Position	Set EGR Throttle	Spark Retard
Ford	✔	✔	

OEM	Starter Relay	Throttle Position	Throttle Position Sweep
GM	✔	✔	✔

OEM	Transmission Adaptive Learn Tests	Transmission Fault Lamp Test	Wiggle Test / Performance Issue Monitoring
Ford	✔	✔	✔

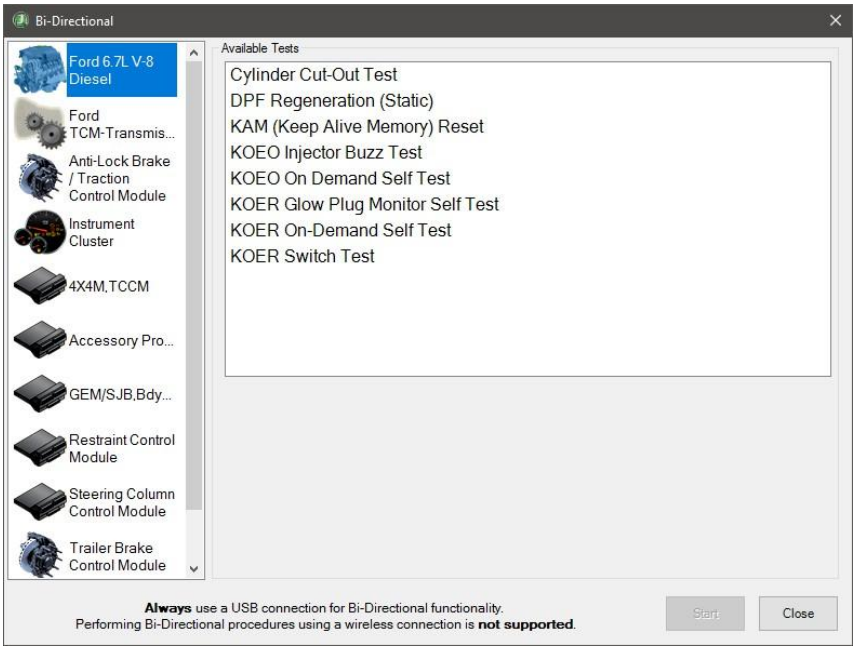
Bi-Directional Test Selection

Selecting the **Bi-Directional** button displays the test selection dialog. The ECUs with available tests will be listed 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 test.

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 a list of tests supported for non-engine components.

Aftertreatment System Tests

DPF Catalyst Reset

DPF Catalyst Reset is supported on:

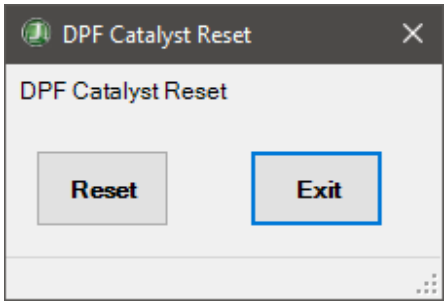
- ✓ 2011 – 2018 GM vehicles with a Duramax 6.6L diesel engine
- ✓ 2016 – 2018 GMC Canyon and Chevy Colorado with a 2.8L diesel engine

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. It can result in problems when performing a DPF Regeneration.

Follow the steps below to carry out the **DPF Catalyst Reset:**

1. Select **DPF Catalyst Reset** and press Enter or click the **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

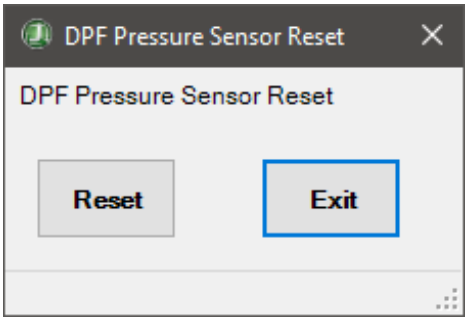
DPF Pressure Sensor Reset is supported on:

- ✓ 2011 – 2018 GM vehicles with a Duramax 6.6L diesel engine
- ✓ 2016 – 2018 GMC Canyon and Chevy 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.

Follow the steps below to carry out the **DPF Pressure Sensor Reset:**

1. Select **DPF Pressure Sensor Reset,** and press Enter or click the **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:

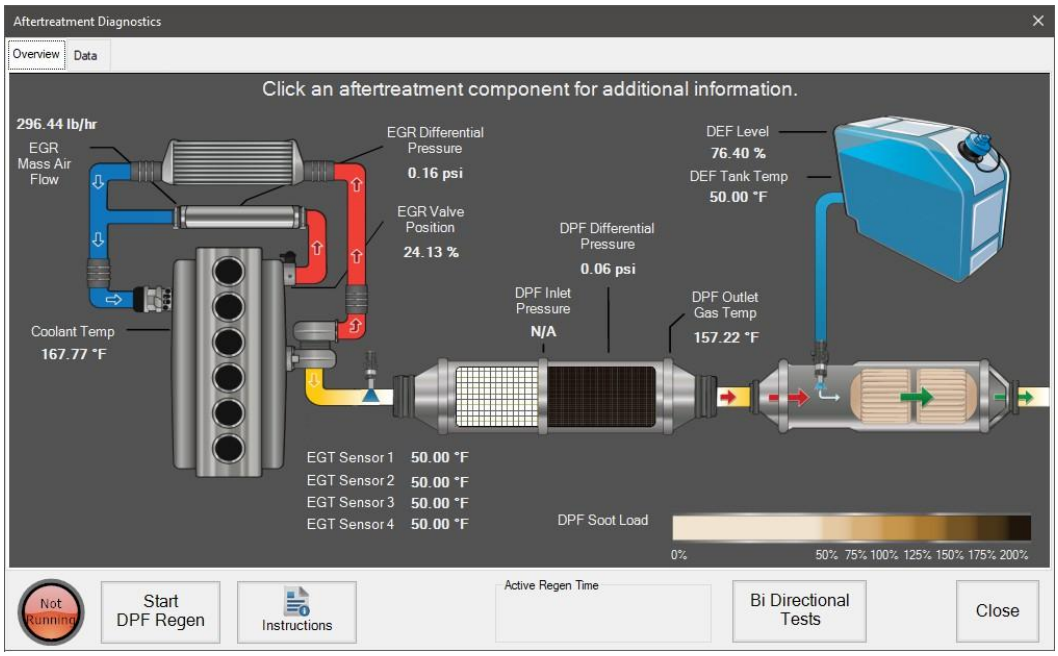
- ✓ Ford 2008 – 2010 6.4L diesel engines
- ✓ Ford 2011 – 2018 6.7L diesel engines
- ✓ 2010 – 2018 GM vehicles with a Duramax 6.6L diesel engine
- ✓ 2016 – 2018 GMC Canyon and Chevy Colorado with a 2.8L diesel engine
- ✓ All Hino engines 2011-2019 vehicles
- ✓ Isuzu 2008 – 2017 5.2L (4HK1) or 3.0L (4JJ1) 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.

Follow the steps below to carry out the **DPF Service Regen:**

1. Select **DPF Service Regen** and press Enter or click the **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)

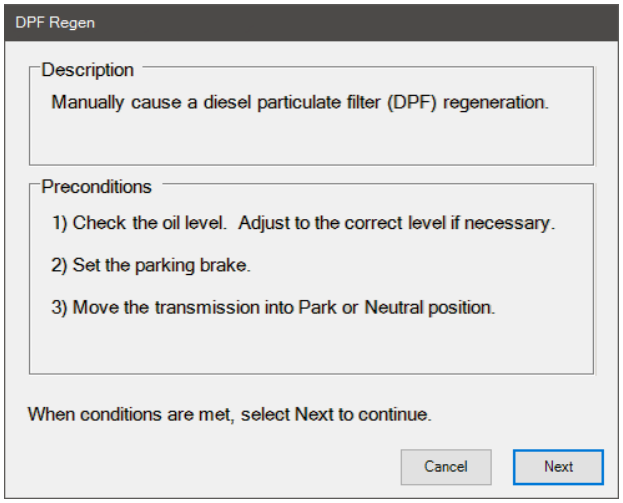
DPF Regen is supported on:

- ✓ Sprinter EPA 07 diesel engines

Allows a user to initiate a stationary-parked manual DPF regeneration.

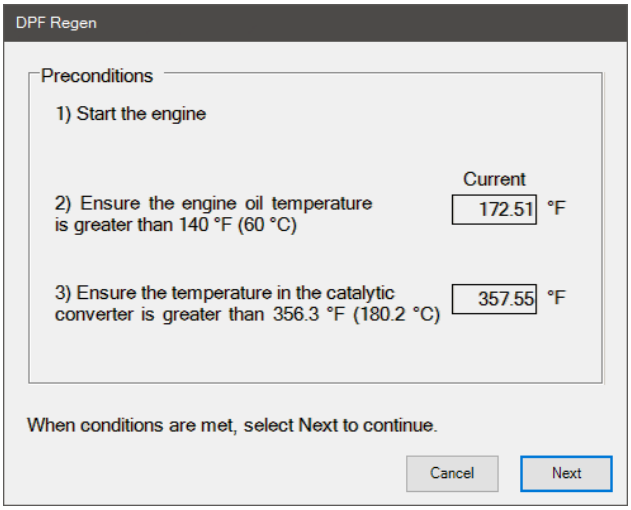
Follow the steps below to carry out the **Sprinter DPF Service Regen:**

1. Select **Manual DPF Regen** and press Enter or click the **Start** button.
2. The DPF Regen dialog opens, displaying preconditions that must be met before beginning the test. Click **Next** to continue.



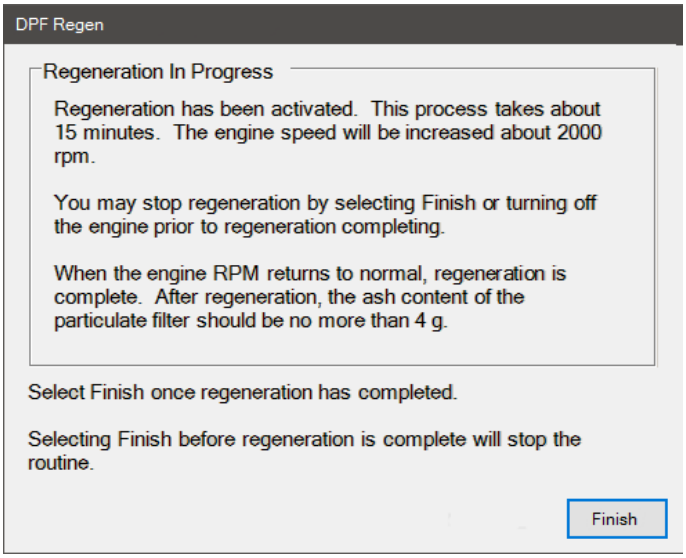
Sprinter DPF Regen Preconditions

3. **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.



Sprinter DPF Regen

4. The vehicle engine speed will increase as the regeneration procedure begins. When the engine speed returns to normal idle speed, the regeneration will be completed, and the test can be safely exited.



Sprinter DPF Regen Running

5. Click **Finish** to exit the test.

DPF Soot Load Customization

The **DPF Soot Amount Piling Up Customization** is supported on:

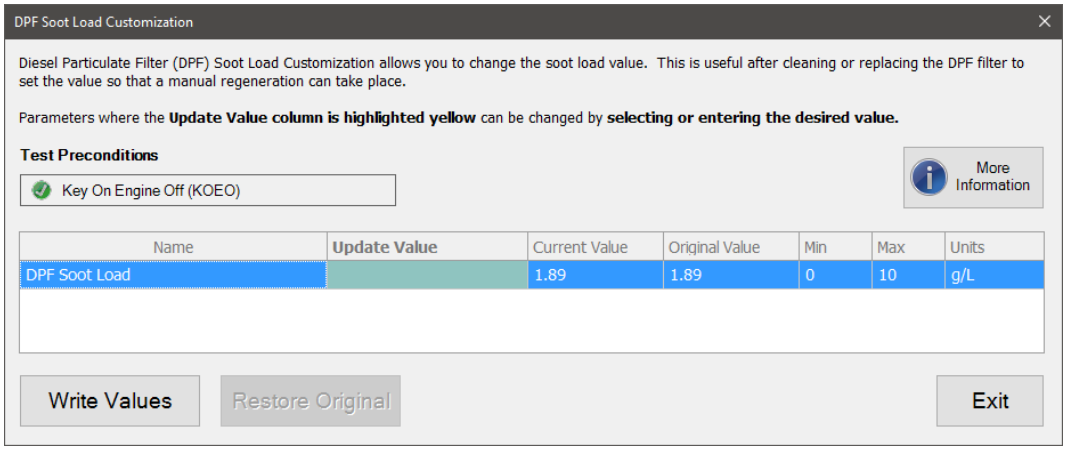
- ✓ All Hino engines in 2011-2019 vehicles

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 manual regeneration can take place.

This test can also reset the DPF Regeneration lockout that occurs when the DPF soot load is exceeded.

Follow the steps below to carry out the **DPF Soot Load Customization:**

1. Select the **DPF Soot Load Customization** and press Enter or click the **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.



DPF Soot Load Customization

3. Click the **More Information** button to learn more about the **DPF Soot Load** value.
4. Enter a new value for the **DPF Soot Load**.
5. Click the **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.

NOx Sensor 1 or 2 Reset

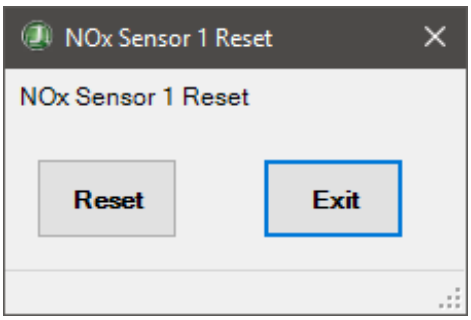
NOx Sensor Reset is supported on:

- ✓ 2011 - 2018 GM vehicles with a Duramax 6.6L Diesel engine
- ✓ 2016 - 2018 GMC Canyon and Chevy 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.

Follow the steps below to carry out the **NOx Sensor Reset:**

1. Select **NOx Sensor # Reset (1 or 2)** and press Enter or click the **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

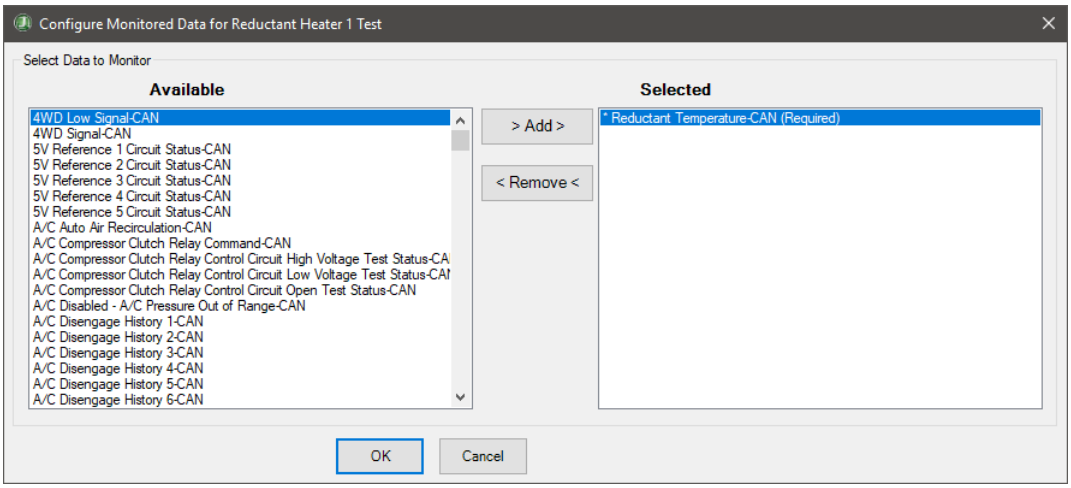
Reductant Heater Tests are supported on:

- ✓ 2011 - 2018 GM vehicles with a Duramax 6.6L Diesel engine
- ✓ 2016 - 2018 GMC Canyon and Chevy Colorado with a 2.8L diesel engine

The **Reductant Heater Test** allows individual reductant fluid line heaters to be turned on/off to identify heater component faults, circuit faults, or ECM/ACM control issues.

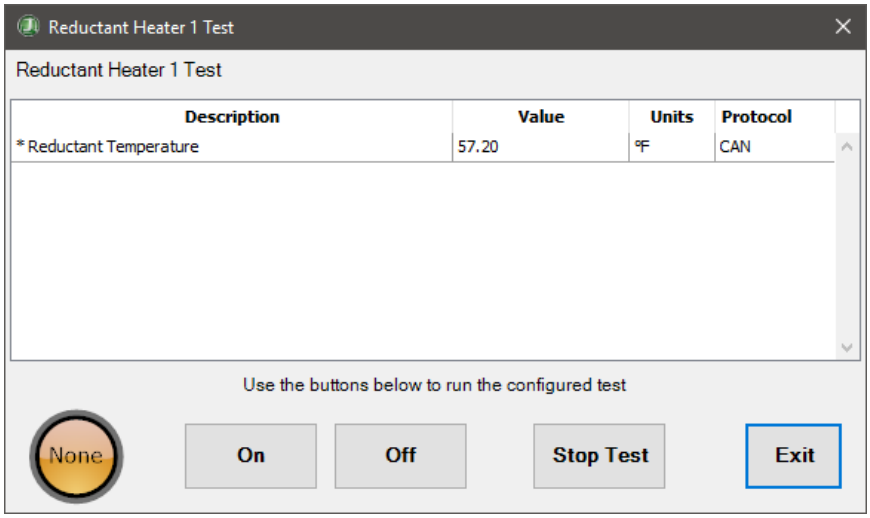
Follow the steps below to carry out the **Reductant Heater Test:**

1. Select **Reductant Heater # Test** (1, 2, or 3) and press Enter or click the **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

3. The **Reductant Heater Test** dialog is open. 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

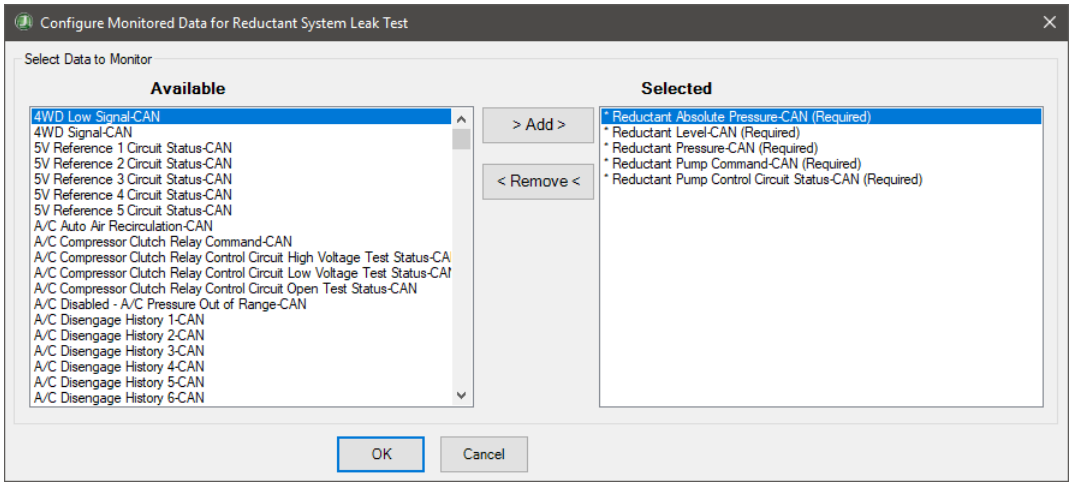
Reductant System Leak Test is supported on:

- ✓ 2011 - 2018 GM vehicles with a Duramax 6.6L Diesel engine
- ✓ 2016 – 2018 GMC Canyon and Chevy 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.

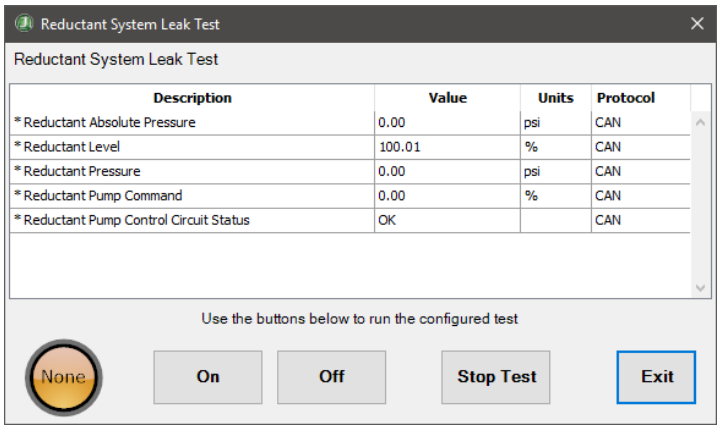
Follow the steps below to carry out the **Reductant System Leak Test:**

1. Select **Reductant System Leak Test** and press Enter or click the **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 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 be updated 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

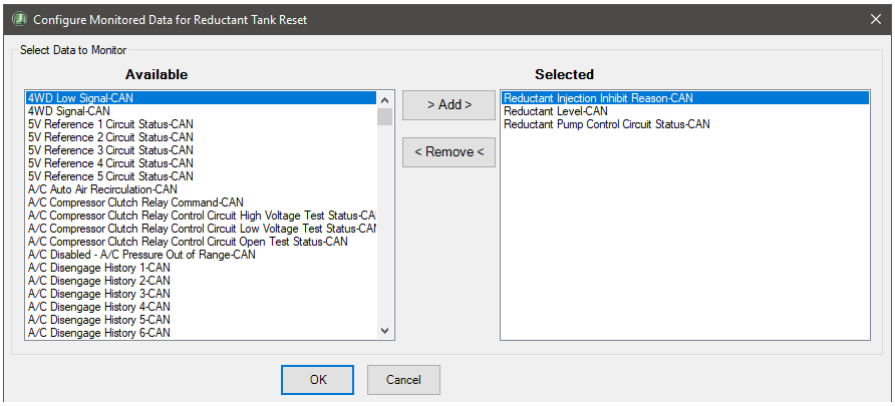
Reductant Tank Reset is supported on:

- ✓ 2011 - 2018 GM vehicles with a Duramax 6.6L Diesel engine
- ✓ 2016 – 2018 GMC Canyon and Chevy Colorado with a 2.8L diesel engine

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.

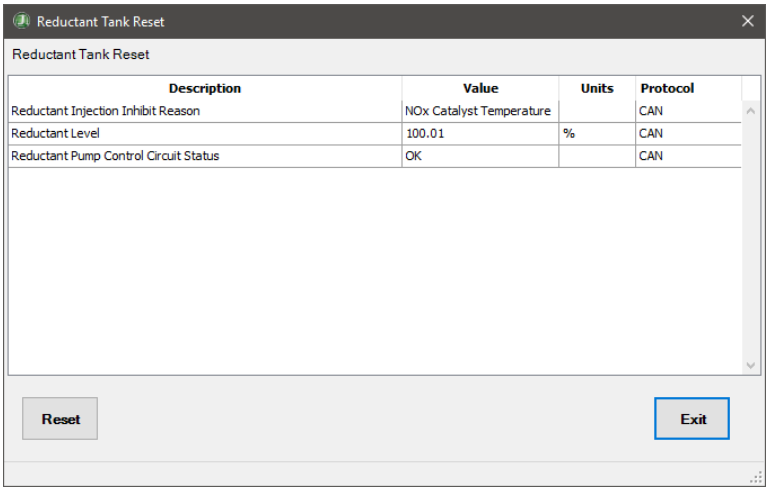
Follow the steps below to carry out the **Reductant Tank Reset:**

1. Select **Reductant Tank Reset,** and press Enter or click the **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.

SCR Related Memory Reset

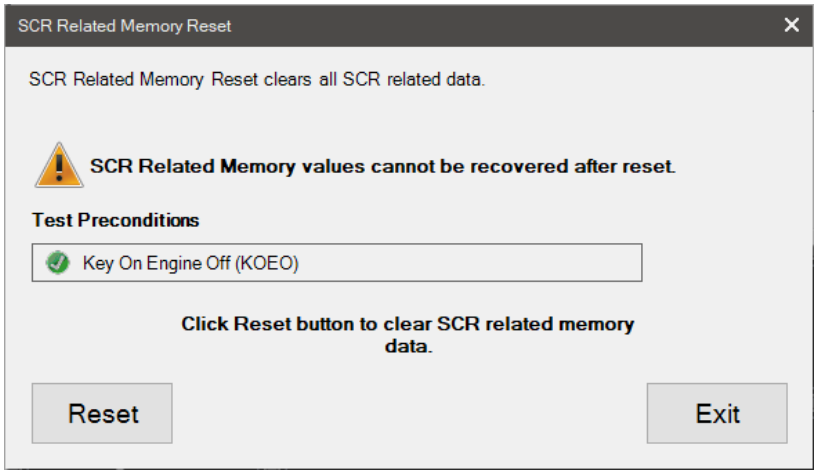
SCR Related Memory Reset is supported on:

- ✓ 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 on the SCR/DEF system.

Follow the steps below to carry out the **SCR Related Memory Reset:**

1. Select **SCR Related Memory Reset** and press Enter or click the **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 Test

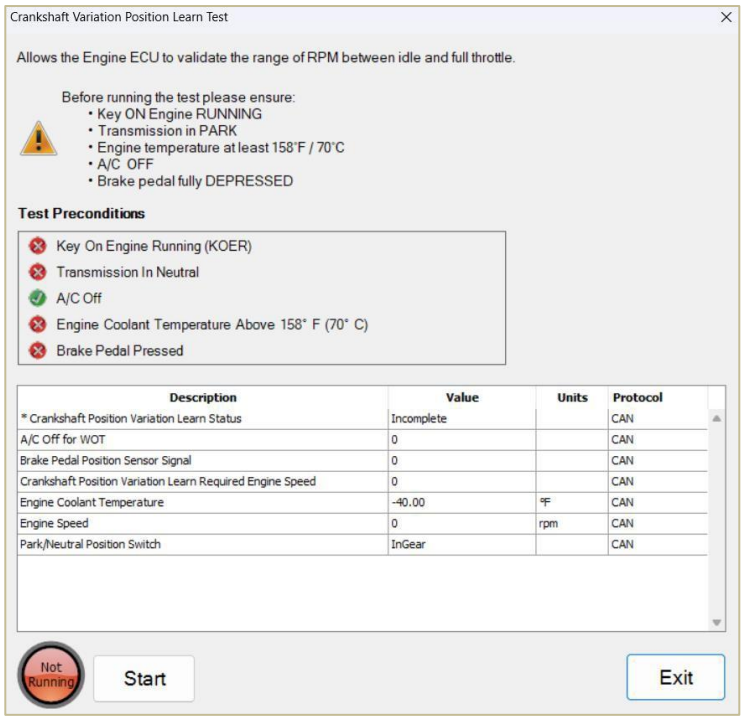
The **Crankshaft Position Variation Learn Test** is supported on:

- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 - 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 - 2023 Freightliner MT45 Trucks with 6.6L Gas engine

The **Crankshaft Position Variation Learn Test** allows the engine to validate the range of RPM between idle and full throttle.

Follow the steps below to carry out the **Crankshaft Position Variation Learn Test:**

1. Select the **Crankshaft Position Variation Learn test** and press Enter or the **Start** button.
2. The **Crankshaft Position Variation Learn** dialog will be displayed.



Crankshaft Variation Position Learn Test

3. Click **Start** to begin the test. When instructed, press the accelerator pedal all the way down, then release when fuel cutoff occurs. When completed, the test results are displayed.
4. When done, press the **Exit** button to return to the test selection dialog.

KAM (Keep Alive Memory) Reset

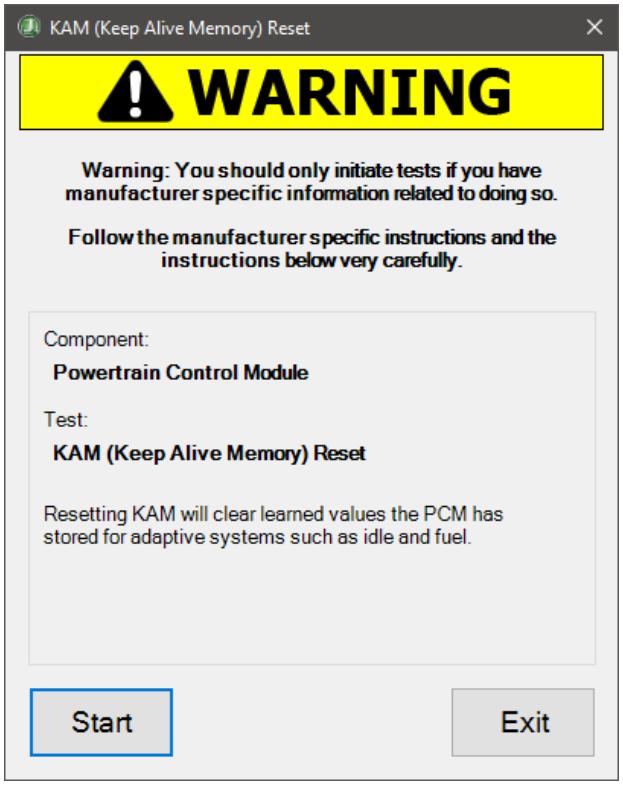
KAM (Keep Alive Memory) Reset is supported on:

- ✓ 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.

Follow the steps below to carry out the **KAM (Keep Alive Memory) Reset** Test:

1. Select **KAM Reset** and press Enter or click the **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 the **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.

Follow the steps below to carry out **Mass Air Flow Sensor Initialization**:

1. Select **Mass Air Flow Sensor Initialization** and press Enter or click the **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.

HO2S Heater Learn

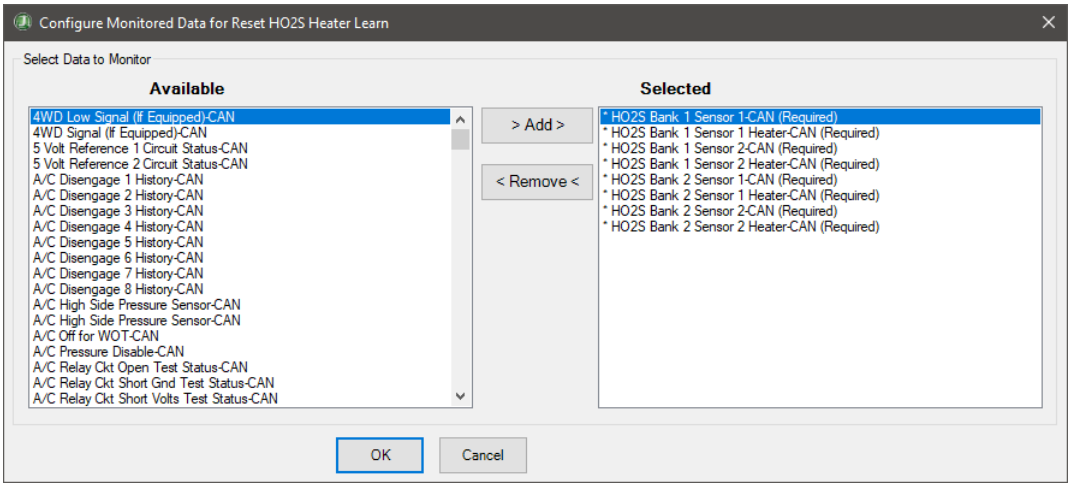
HO2S Heater Learn is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

HO2S Heater Learn forces a reset of all learned HO2S heater values.

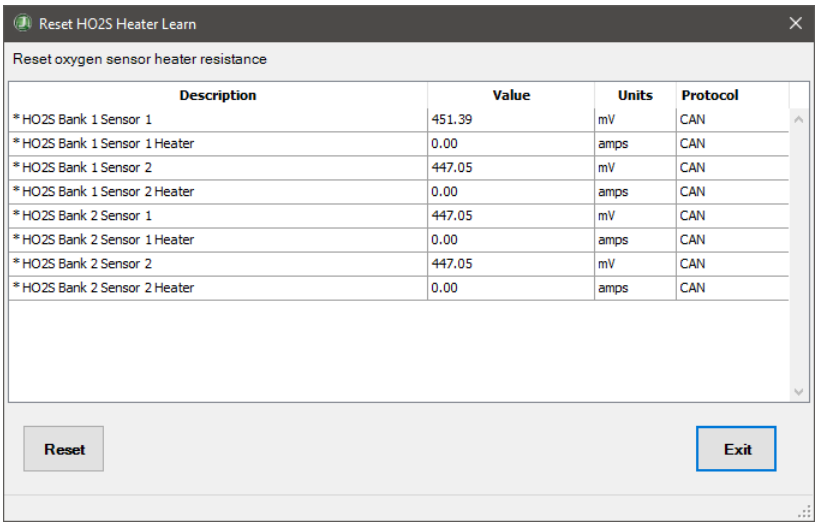
Follow the steps below to carry out the **HO2S Heater Learn**:

1. Select **HO2S Heater Learn,** and press Enter or click the **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.
5. Click the **Exit** button to return to the test selection dialog.

Reset Oil Life

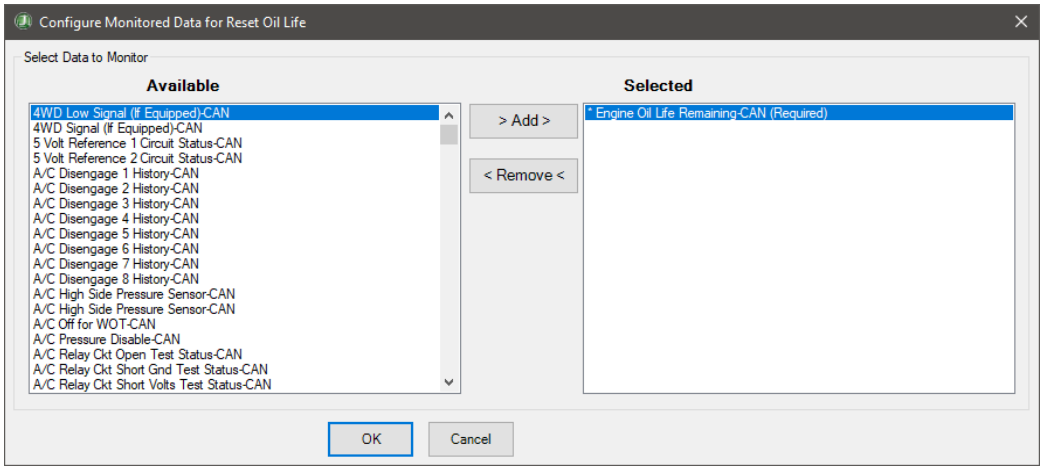
Reset Oil Life is supported on:

- ✓ 2010 – 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2023 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.

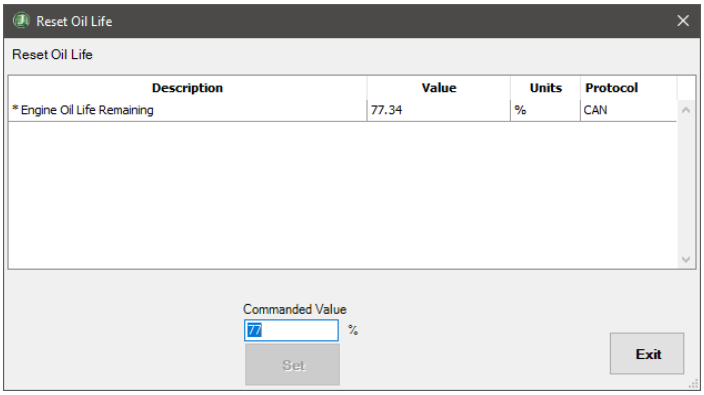
Follow the steps below to carry out **Reset Oil Life**:

1. Select **Reset Oil Life** and press Enter or click the **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

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 the **Exit** button to return to the test selection dialog.

Reset RVS Disable History

Reset RVS Disable History is supported on:

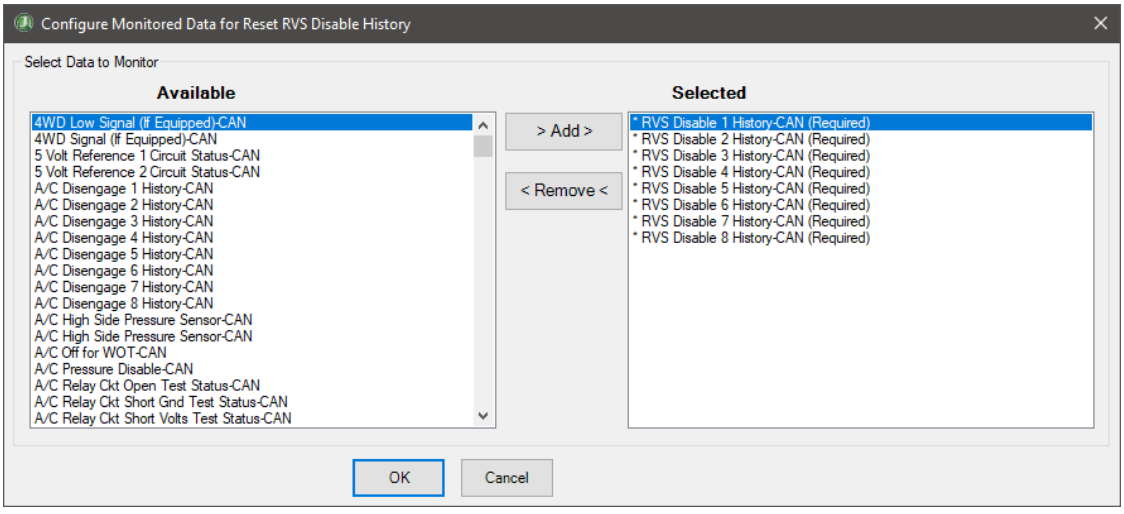
- ✓ 2010 – 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

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 remotely start the vehicle. Too many disabled 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.

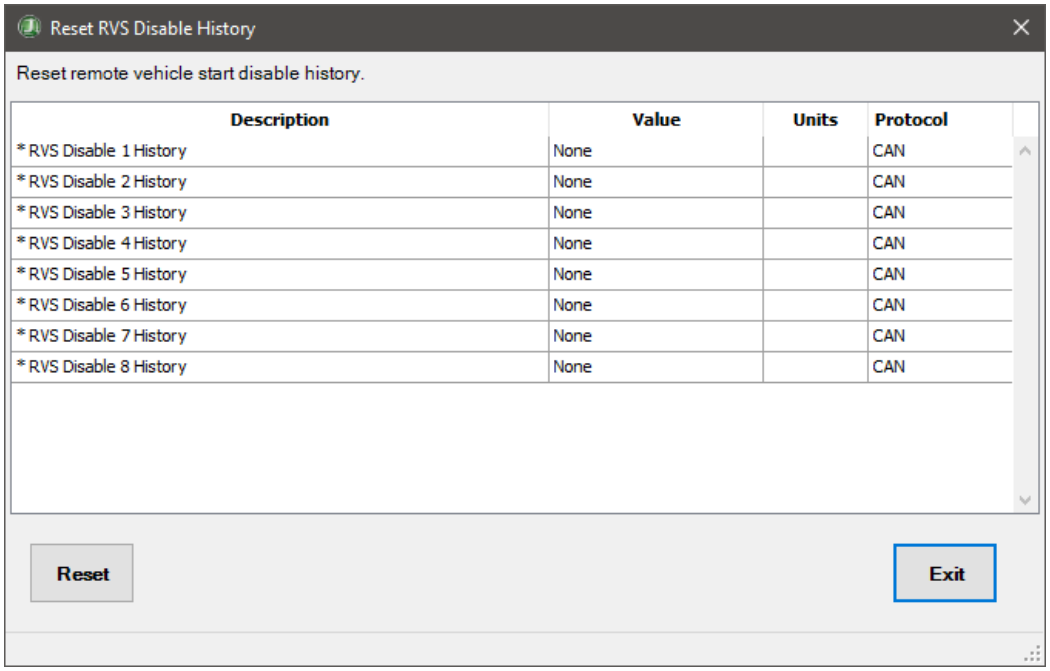
Follow the steps below to carry out **Reset RVS Disable History:**

1. Select **Reset RVS Disable History** and press Enter or click the **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 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 values.



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

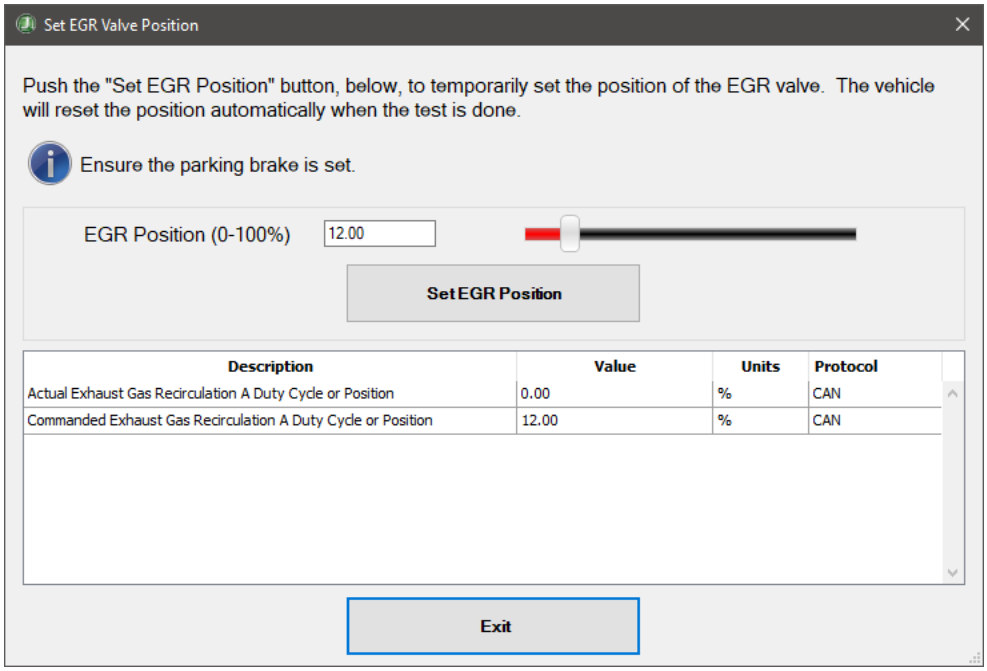
Set EGR Position is supported on:

- ✓ Ford 2011 – 2021 6.7L diesel engines

The Set EGR Position test can be used to check the functionality of the EGR Valve and support components/sensors by changing the valve position and monitoring the change of related data items on the vehicle.

Follow the steps below to carry out the **Set EGR Position** test:

1. Click **Set EGR Position** and press Enter or click the **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

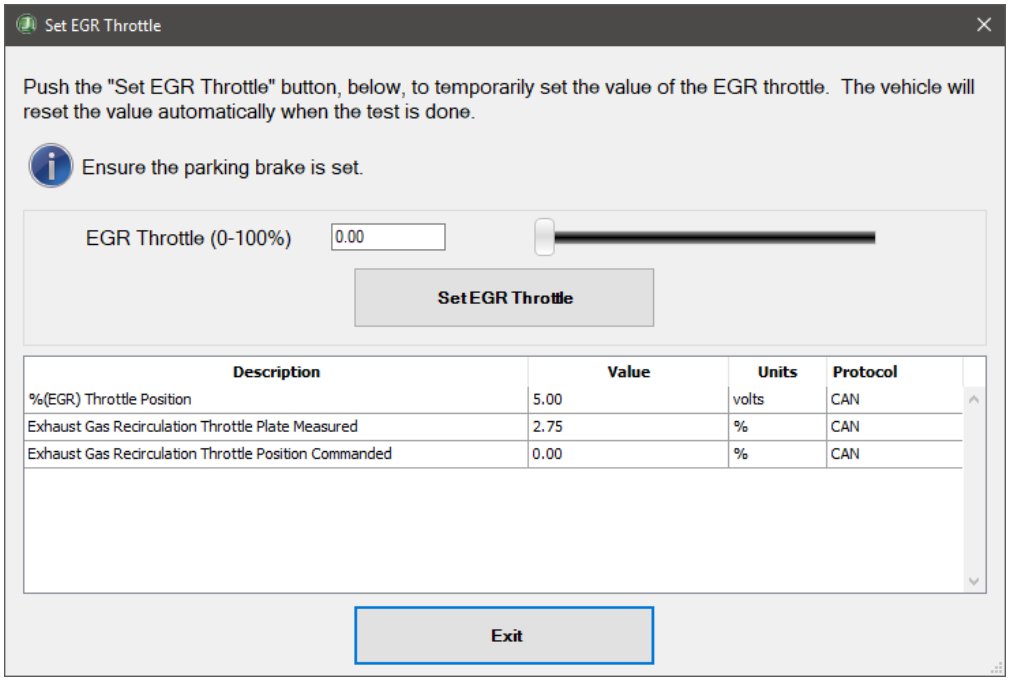
Set EGR Throttle is supported on:

- ✓ 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 support components/sensors by changing the valve position and monitoring the change of related data items on the vehicle.

Follow the steps below to **EGR Throttle** setting:

1. Click **Set EGR Throttle** and press Enter or click the **Start** button.
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.



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:

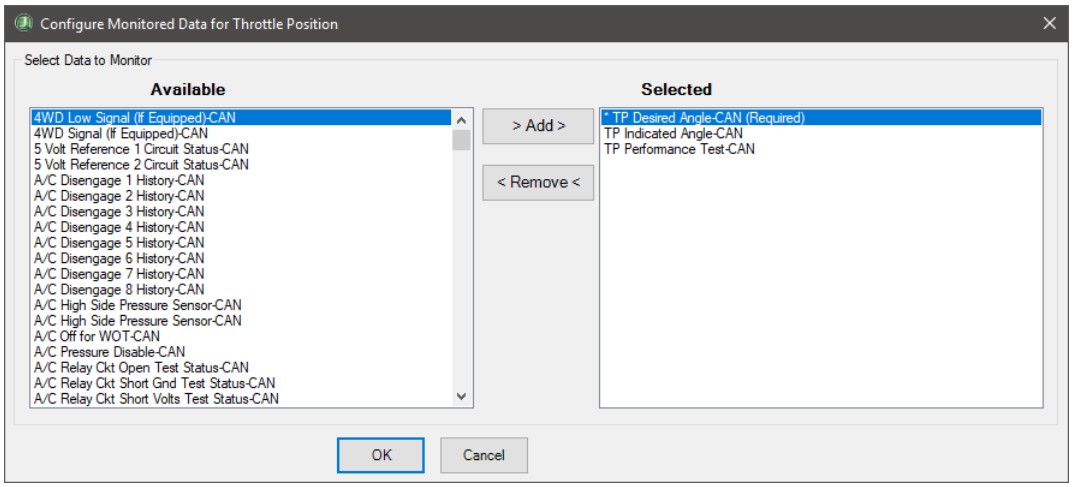
- ✓ 2010 - 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 - 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.6L Gas engine
- ✓ 2021 - 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 - 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 - 2023 Freightliner MT45 Trucks with 6.6L 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.

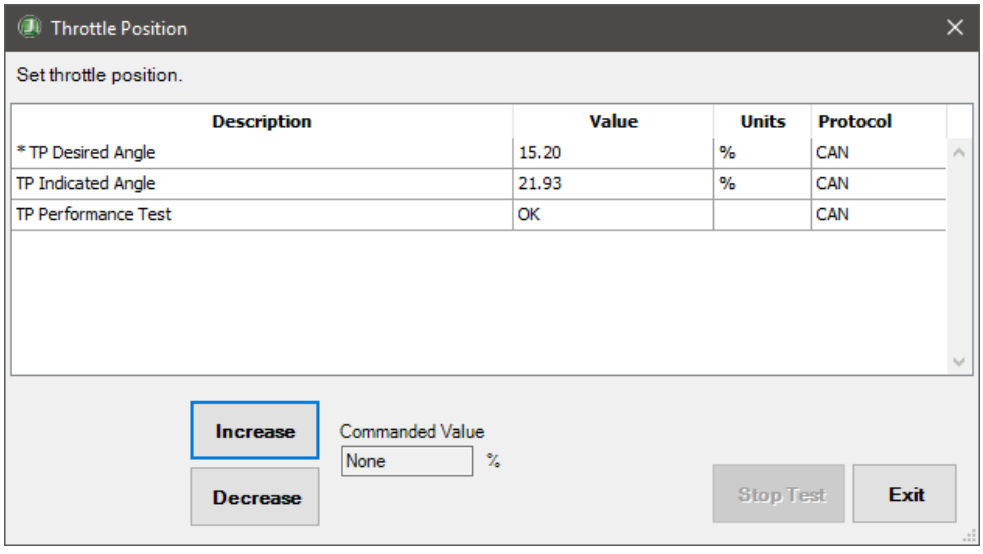
Follow the steps below to **Configure Monitored Data for Throttle Position:**

1. Click **Throttle Position** and press Enter or click the **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.



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:

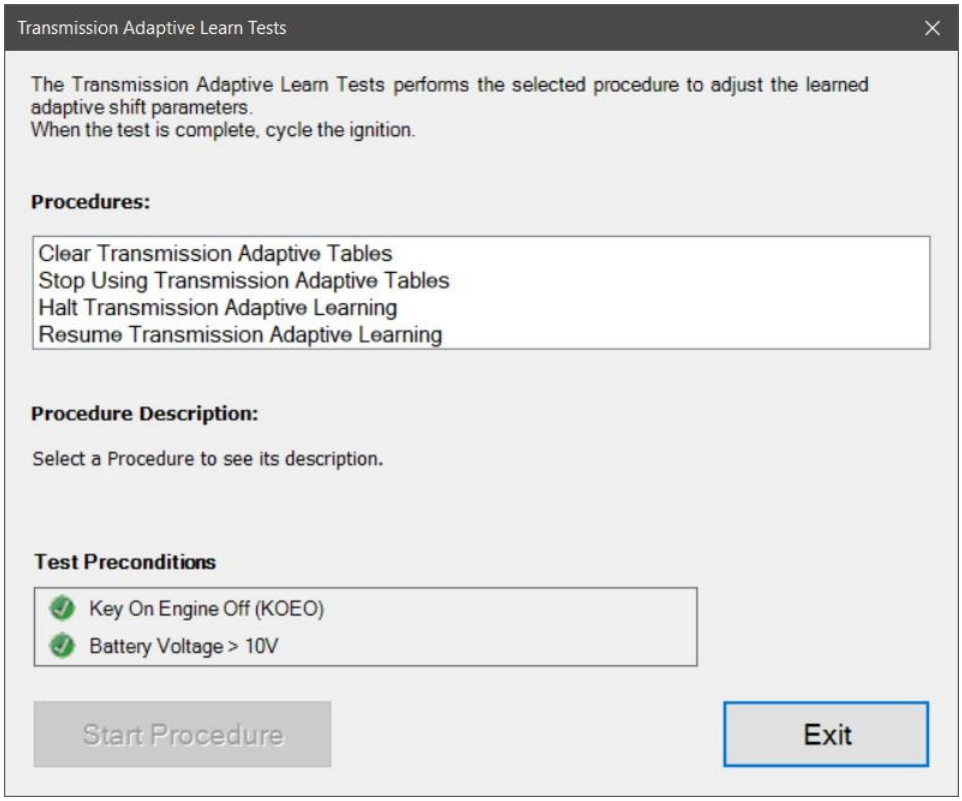
- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 6.8L gasoline engines
- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 6.8L CNG engines
- ✓ Ford 2018 - 2021 Motorhome/Incomplete Chassis (F-59) with 7.3L gasoline engines
- ✓ Transit complete vehicles and cutaway vans with:
  - 2015 - 2019 3.7L V6 Gas engines
  - 2020 - 2024 3.5L V6 Gas engines
  - 2015 - 2019 3.5L I5 Diesel engines

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

Follow the steps below to carry out the **Transmission Adaptive Learn Tests:**

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 the **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.

Driver Assistance Systems (DAS) Tests

IPMA Camera Alignment

The **IPMA Camera Alignment** test is supported on:

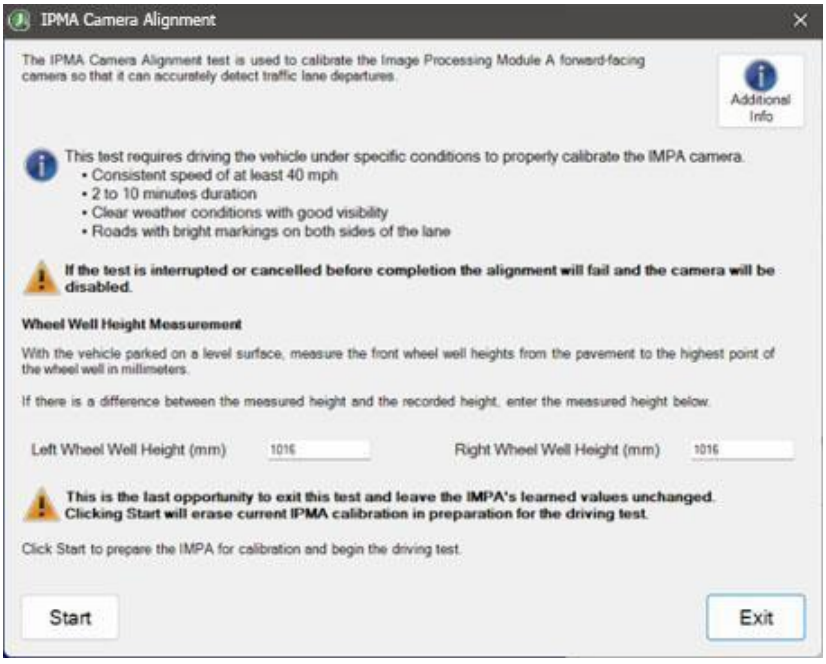
- ✓ Ford Image Processing Module A forward-facing camera, with 2022-2024 supported engines

The **IPMA Camera Alignment test** is used to calibrate the Image Processing Module A forward-facing camera so that it can accurately detect traffic lane departures.

This test requires the vehicle to be driven at 40 mph in the daytime during clear weather to complete.

Follow the steps below to carry out the **IPMA Camera Alignment** test:

1. Select the **IPMA Camera Alignment** test and press Enter or the **Start** button.
2. The **IPMA Camera Alignment** test dialog will display.

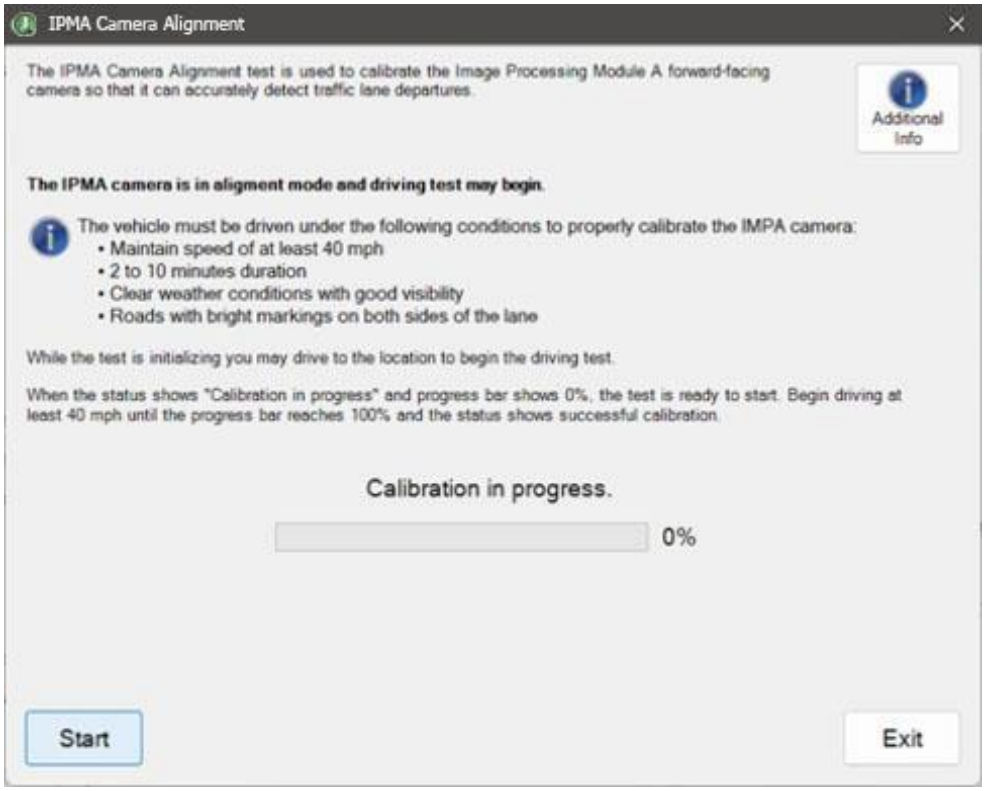


IPMA Camera Alignment

3. Review the test instructions and warnings. When ready, compare the reported front wheel well heights in millimeters with the actual vehicle measurements. If there is a discrepancy, enter the correct values and click **Next** to begin the test.

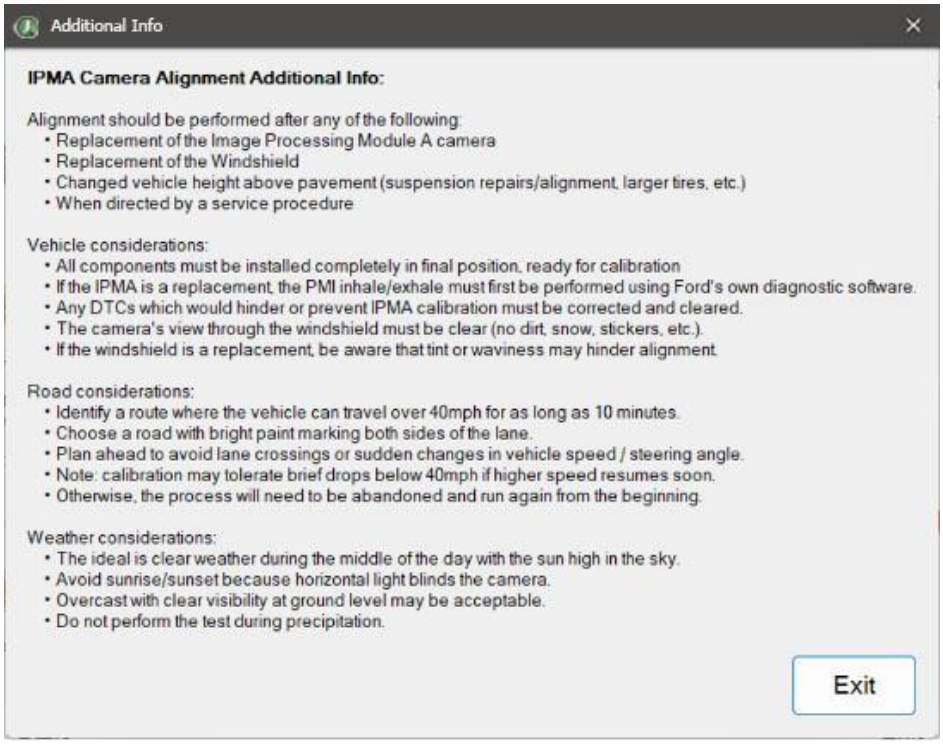
NOTE: The vehicle must be parked on a level surface for accurate measurement.

If the test is interrupted or cancelled before completion, the alignment will fail, and the camera will be disabled.



IMPA Camera Alignment Calibration

4. The IMPA camera is now set to Alignment Mode. While the test is initializing, the vehicle may be driven to the location of the road test. When the learned value shows 0% the vehicle is ready to be driven to perform the calibration.
5. The vehicle must be driven at a speed of at least 40 mph under good visibility for calibration to take place. The progress bar will fill during the process if the requirements are met. The vehicle may require 2 to 10 minutes of driving for the calibration to complete.
6. A success message will be displayed when the calibration has reached 100%.
7. Click the **Additional Info** button for more information about when the test should be performed and considerations to help ensure successful calibration.



IPMA Camera Alignment Additional Info

8. When done, press the **Exit** button to return to the test selection dialog.

Diagnostic Monitoring and Tests

Compression Test

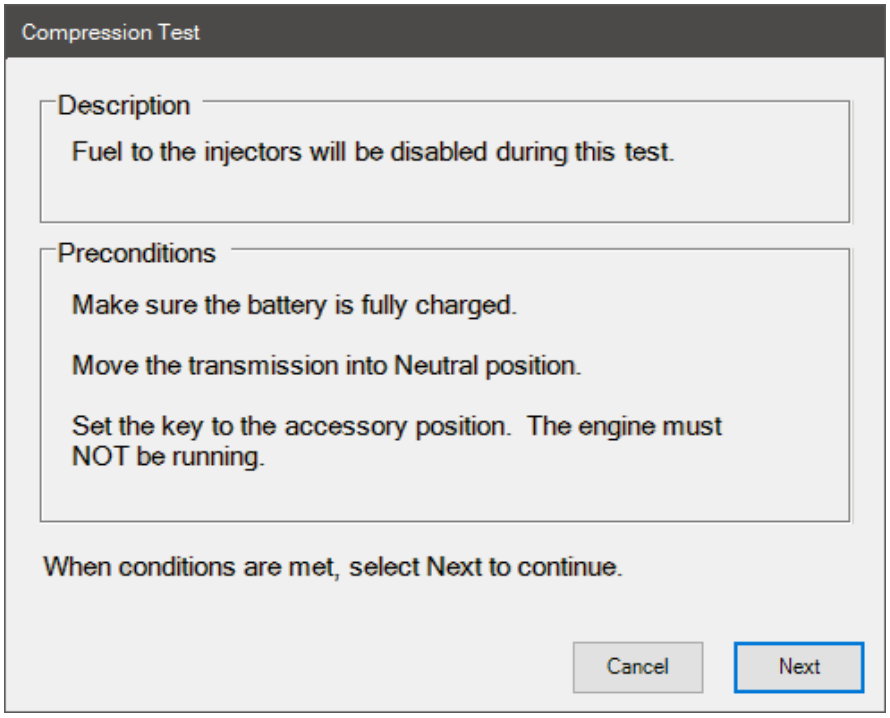
The **Compression Test** is supported on:

- ✓ Sprinter EPA 07 diesel engines

The **Compression Tes**t is useful for diagnosing cylinder compression issues. The fuel injectors are disabled during the length of the test while cylinder compression is monitored.

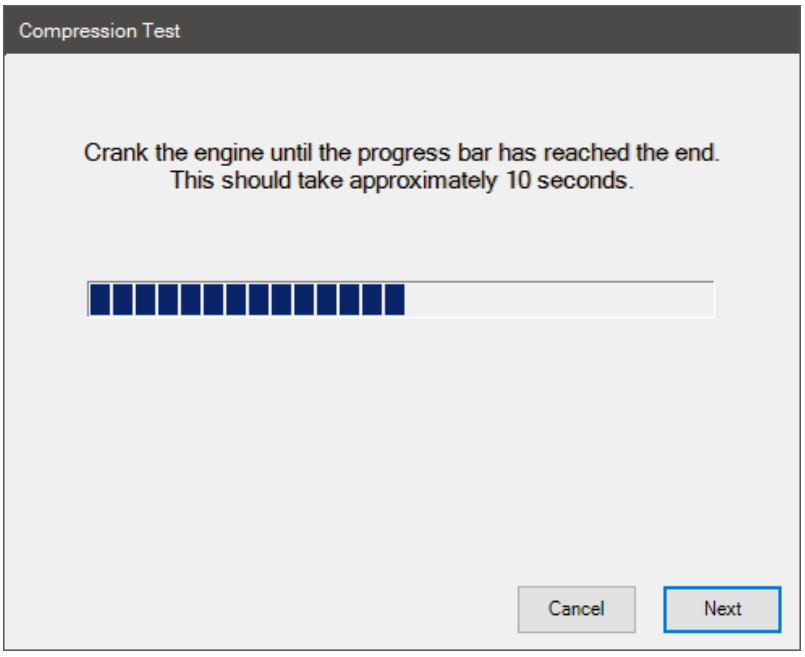
Follow the steps below to carry out the **Compression Test:**

1. Click **Compression Test** and press Enter or click the **Start** button.
2. The **Compression Test** dialog is displayed, showing preconditions that must be met before beginning the test. Click **Next** to proceed.



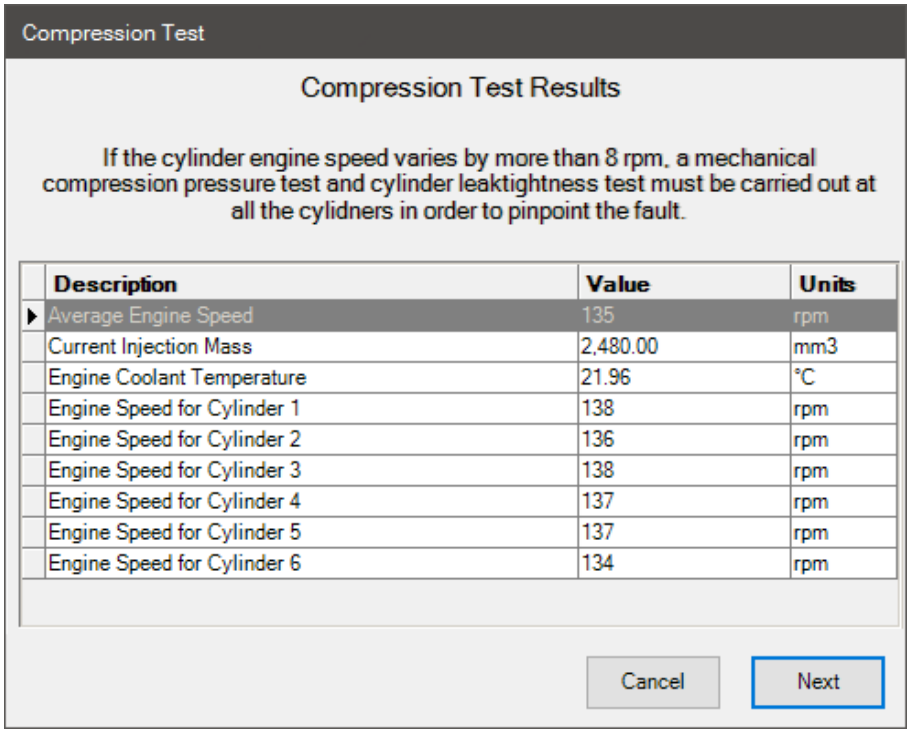
Compression Test - Preconditions

3. Following the on-screen instructions, crank the engine until the progress bar has filled.



Compression Test - Crank Engine

4. When completed, the results of the **Compression Test** will be displayed.



Compression Test Results

5. Click the **Finish** button to return to the test selection dialog.

KOEO On-Demand Self Test

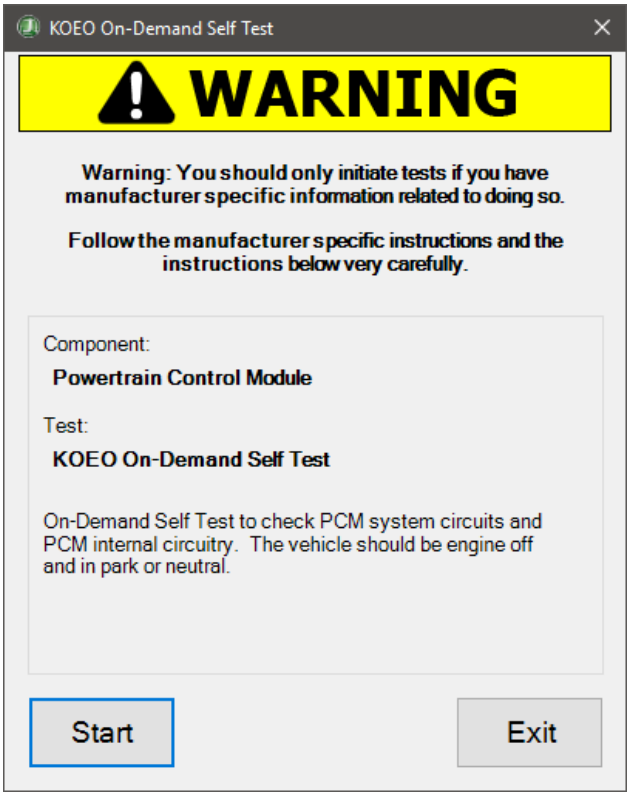
KOEO On-Demand Self Test is supported on:

- ✓ Ford 2004 – 2018 All Supported Engines

The **KOEO On-Demand Self Test** is useful for detecting electrical circuit problems.

Follow the steps below to carry out the **KOEO On-Demand Self Test:**

1. Click **KOEO On-Demand Self Test** and press Enter or click the **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

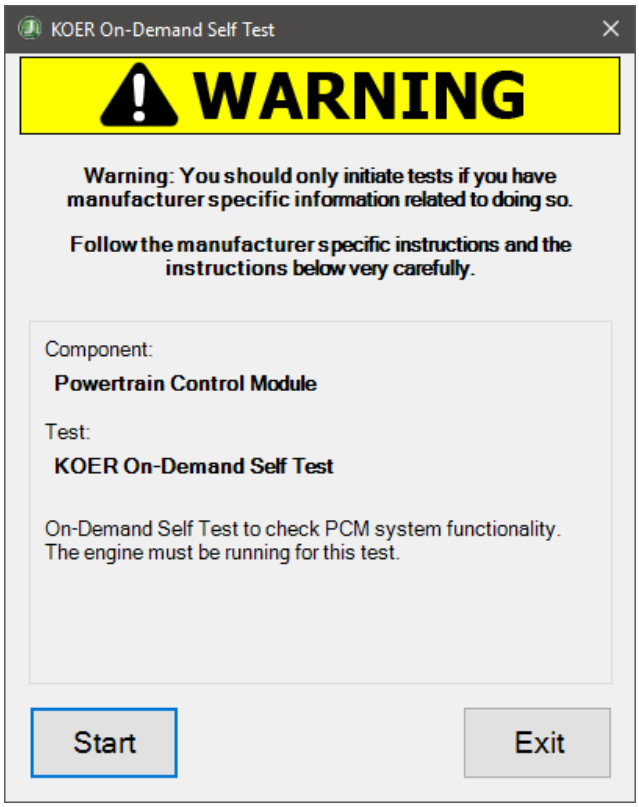
KOER On-Demand Self Test is supported on:

- ✓ Ford 2004 – 2018 All Supported Engines

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.

Follow the steps below to carry out the **KOER On-Demand Self Test:**

1. Click **KOER On-Demand Self Test** and press Enter or click the **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 the **Exit** button to return to the test selection dialog.

KOER Switch Test

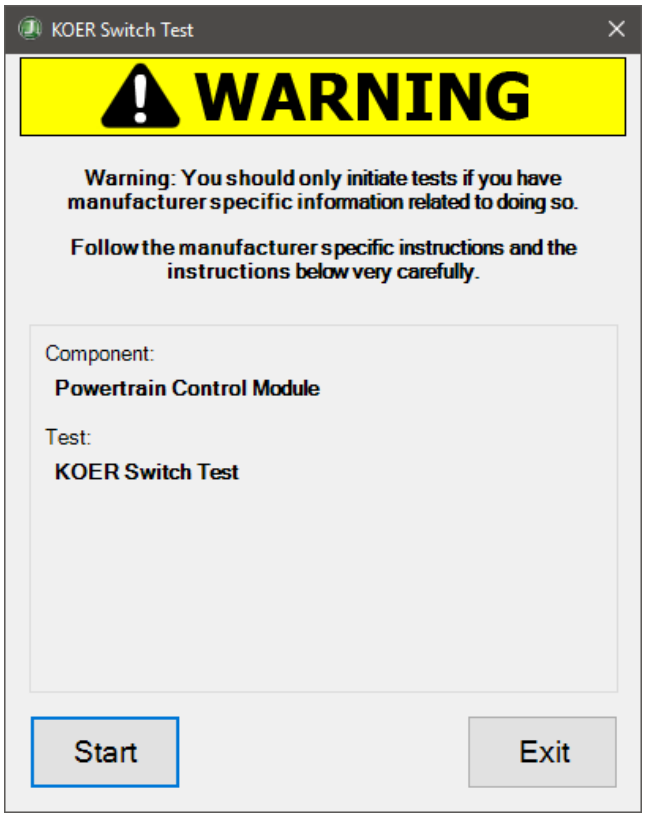
Key-On Engine Running (KOER) Switch Test is supported on:

- ✓ Ford 2004 – 2021 diesel engines

The **KOER Switch Test** is used to test the functionality of switches and pedals.

Follow the steps below to carry out the **KOER Switch Test:**

1. Click **KOER Switch Test** and press Enter or click the **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 the **Exit** button to return to the test selection dialog.

Misfire Graphic

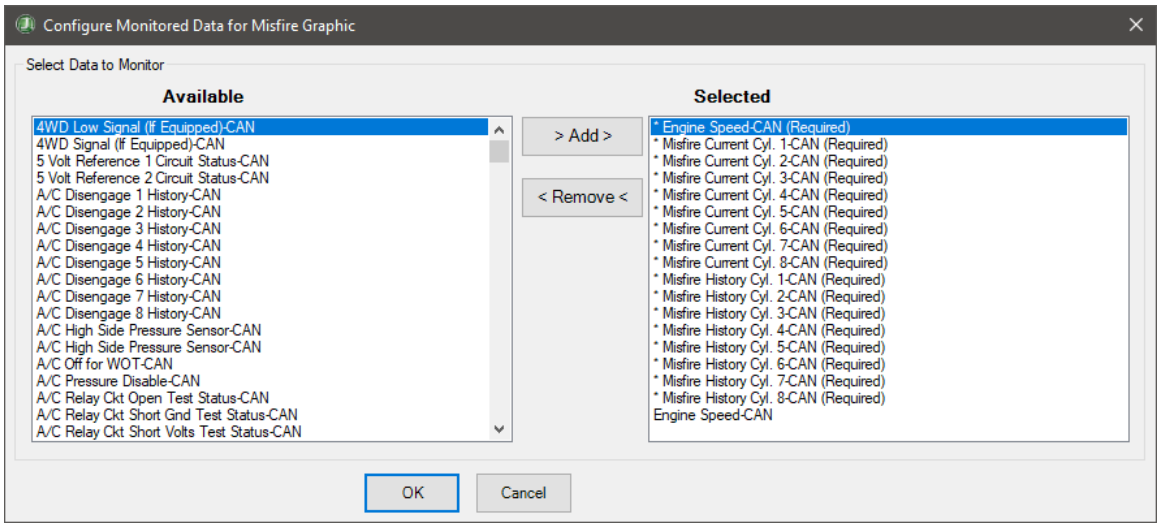
Misfire Graphic is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2023 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.

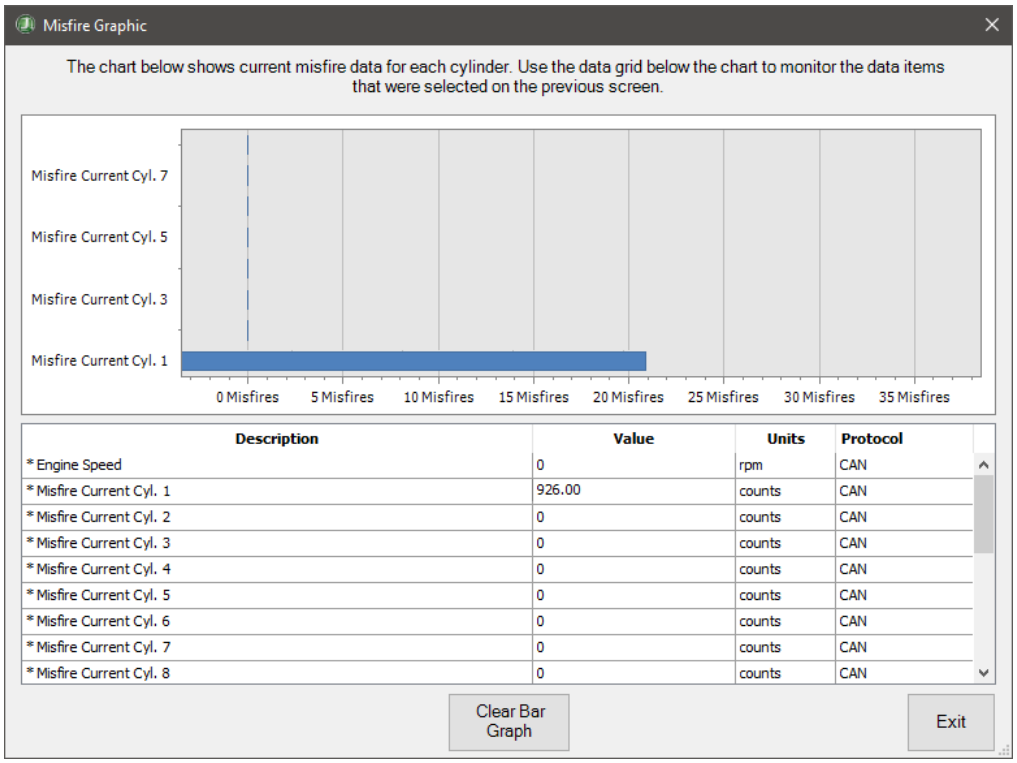
Follow the steps below to **Configure Monitored Data** for the **Misfire Graphic:**

1. Click **Misfire Graphic** and press Enter or click the **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.

Misfire Monitor Test

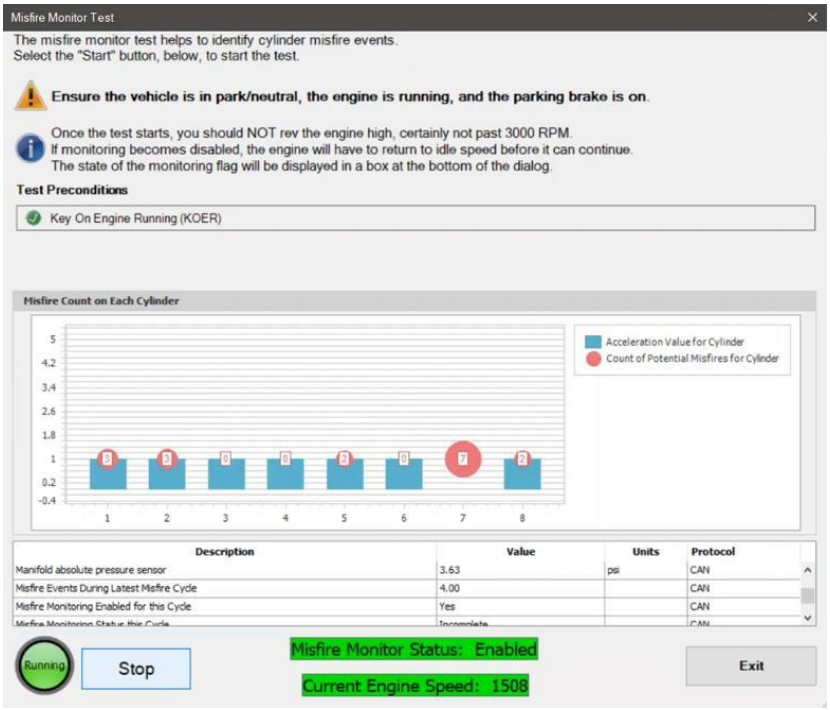
Misfire Monitor Test is supported on:

- ✓ 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.

Follow the steps below to carry out the **Misfire Monitor Test:**

1. Click **Misfire Monitor Test** and press Enter or click the **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

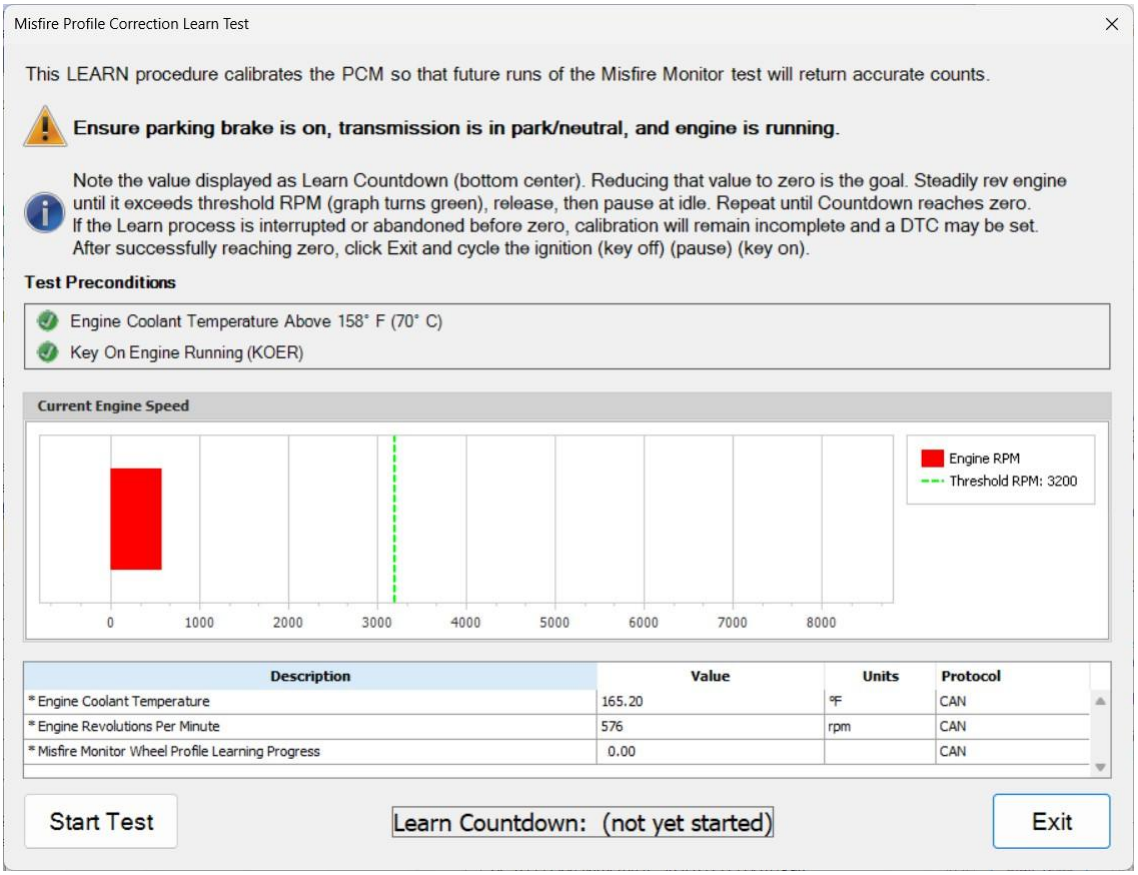
The **Misfire Profile Correction Learn Test** is supported on:

- ✓ Ford 6.8L V-10 Gasoline Engines
- ✓ Ford 2015-2019 3.7L V6 Gas Engines
- ✓ 2020-2024 3.5L V6 Gas Engines

The **Misfire Profile Correction Learn Test** calibrates the PCM so the misfire monitor test can be run.

Follow the steps below to carry out the **Misfire Profile Correction Learn Test:**

1. Click **Misfire Profile Correction Learn Test** and press Enter or click the **Start** button.
2. The test dialog will be displayed.



Misfire Profile Correction Learn Test

3. 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 completed, cycle the ignition.

NOTE: PCM Learn will not complete if the test is stopped before the misfire count reaches 0, and a DTC may be set.

4. Click the Exit button to return to the test selection dialog.

Engine Component Tests

A/C Relay

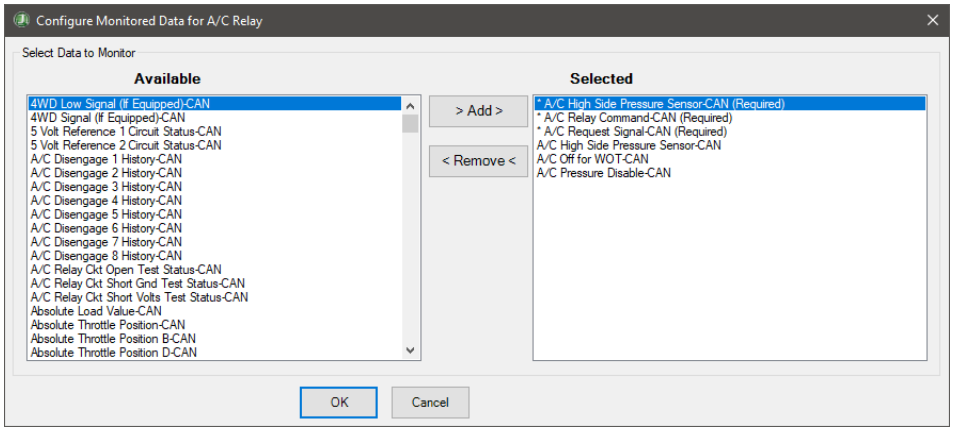
A/C Relay is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

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.

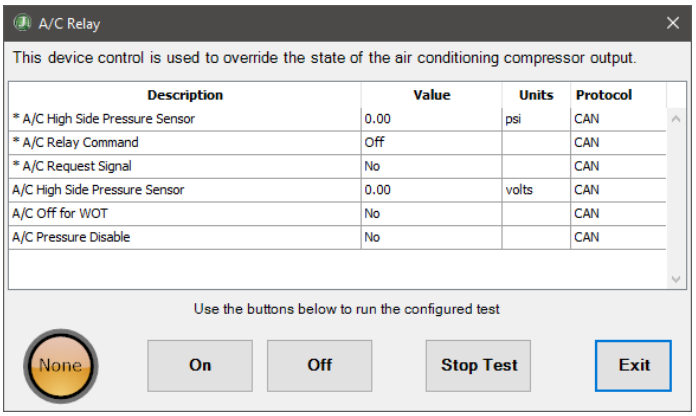
Follow the steps below to carry out the **A/C Relay test:**

1. Click **A/C Relay** and press Enter or click the **Start** button.
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 (CAM Phaser)

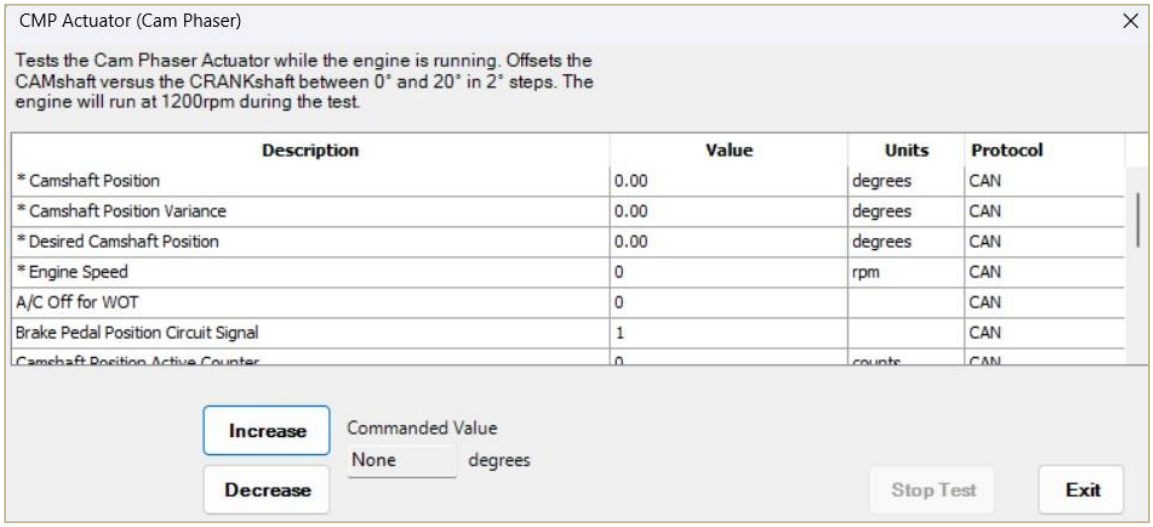
The **Camshaft Actuator (Cam Phaser)** test is supported on:

- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L Gas engine

The **Camshaft Actuator (Cam Phaser)** verifies that the ECU can properly advance the camshaft by a specified amount.

Follow the steps below to carry out the **Camshaft Actuator (Cam Phaser)** test:

1. Select the **Camshaft Actuator (Cam Phaser)** test and press Enter or the **Start** button.
2. The **Camshaft Actuator (Cam Phaser) Learn** dialog will display.



CMP Actuator (Cam Phaser)

3. Click the **Increase** or **Decrease** command button to change the camshaft position to the desired value.
4. Click **Stop Test** to end the test.
5. When done, press the **Exit** button to return to the test selection dialog.

CMP Actuator Solenoid

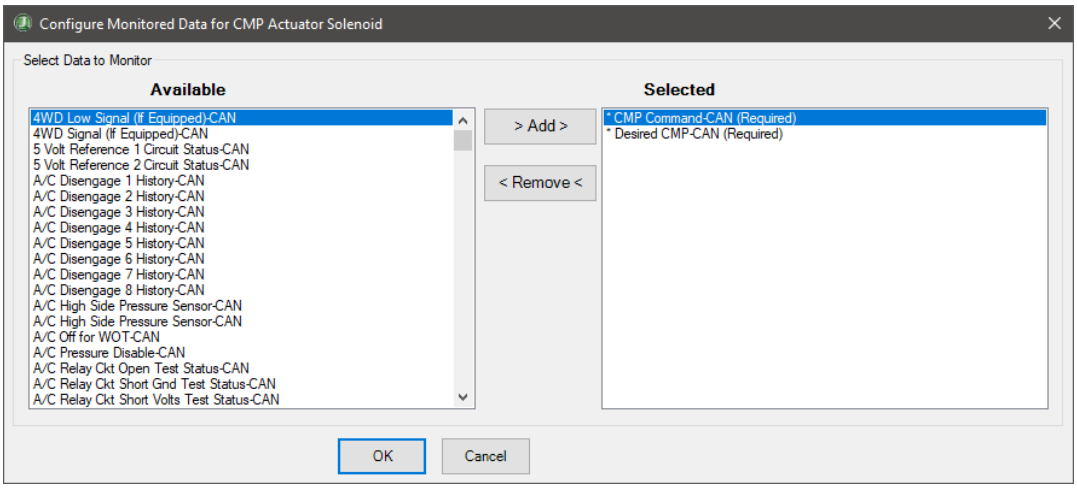
CMP Actuator Solenoid is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

The **Camshaft Position (CMP) Actuator Solenoid** test allows for manual control of the CMP Actuator control solenoid and the CMP actuator. This allows for observation and diagnosis of the CMP Actuator electronic and mechanical components.

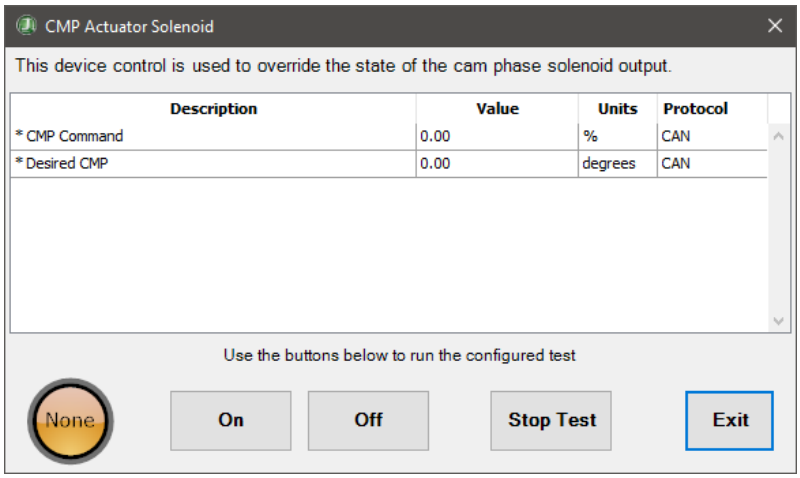
Follow the steps below to carry out the **Camshaft Position (CMP) Actuator Solenoid** test:

1. Click **CMP Actuator Solenoid** and press Enter or click the **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 is open. 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.

Engine Controls Ignition Relay

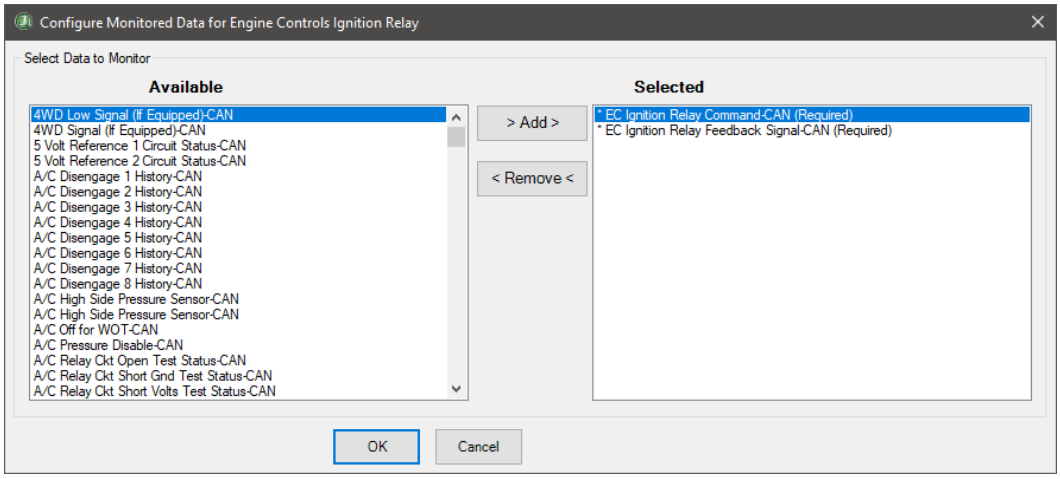
Engine Controls Ignition Relay is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 – 2023 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.

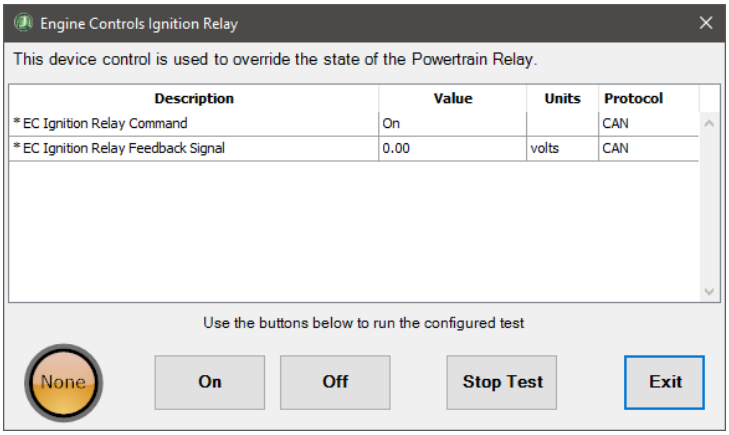
Follow the steps below to configure monitored data for **Engine Controls Ignition Relay:**

1. Click **Engine Controls Ignition Relay** and press Enter or click the **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

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:

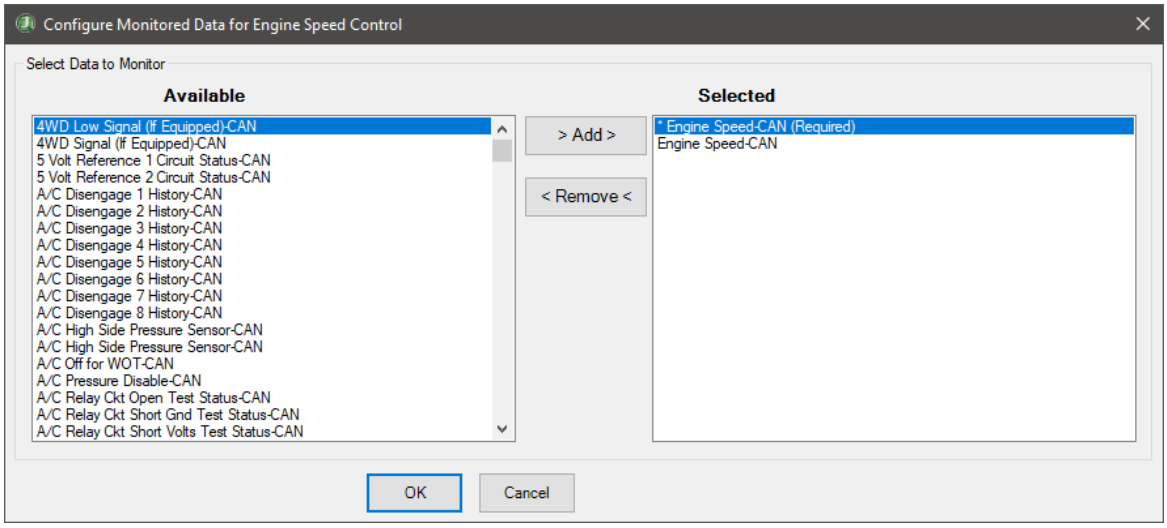
- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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.

Follow the steps below to configure monitored data for **Engine Speed Control:**

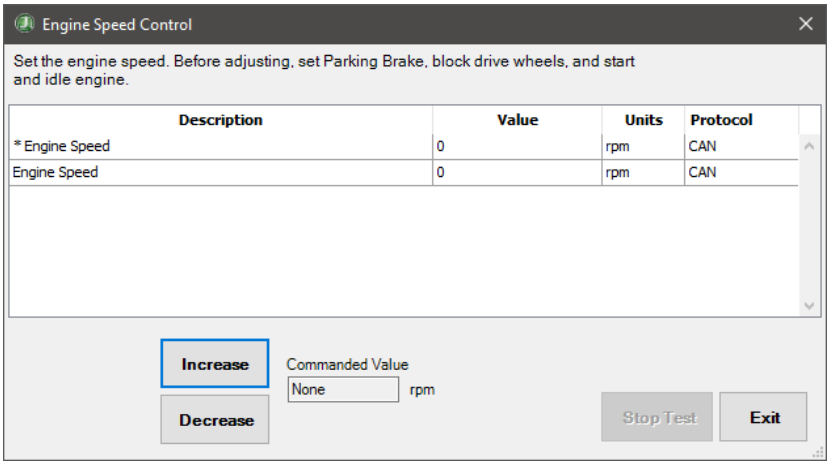
1. Click **Engine Speed Control Information** and press Enter or click the **Start** button.

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 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.

GEN L-Terminal

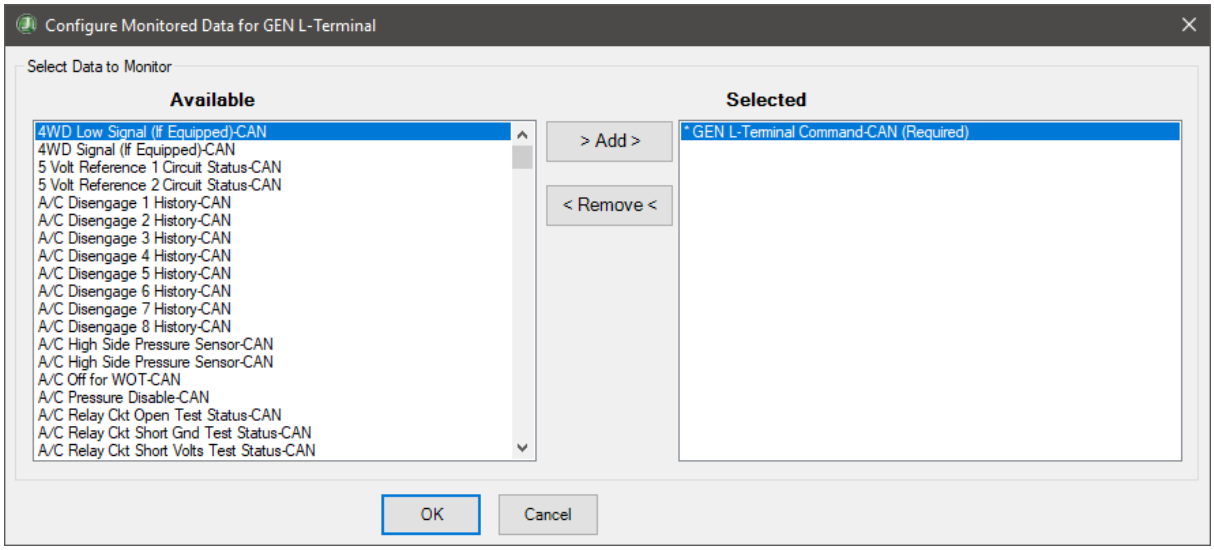
GEN L-Terminal is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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 the 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.

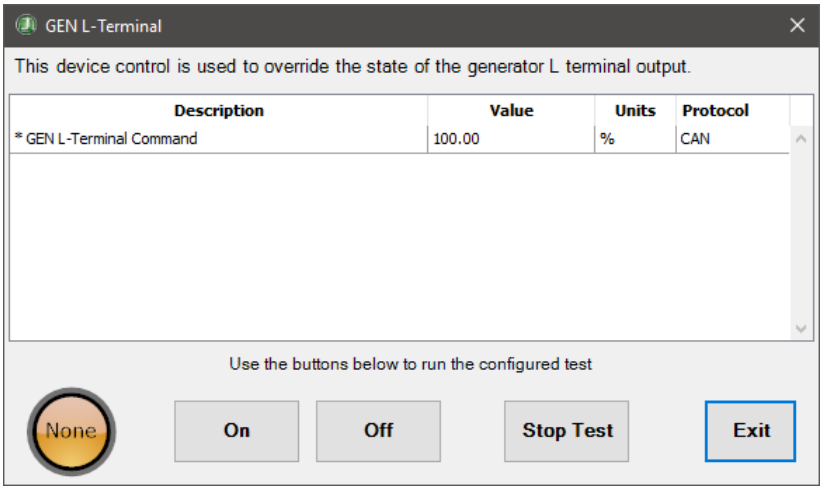
Follow the steps below to carry out the **GEN L-Terminal test:**

1. Click **GEN L-Terminal** and press Enter or click the **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

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 are supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L Gas engine

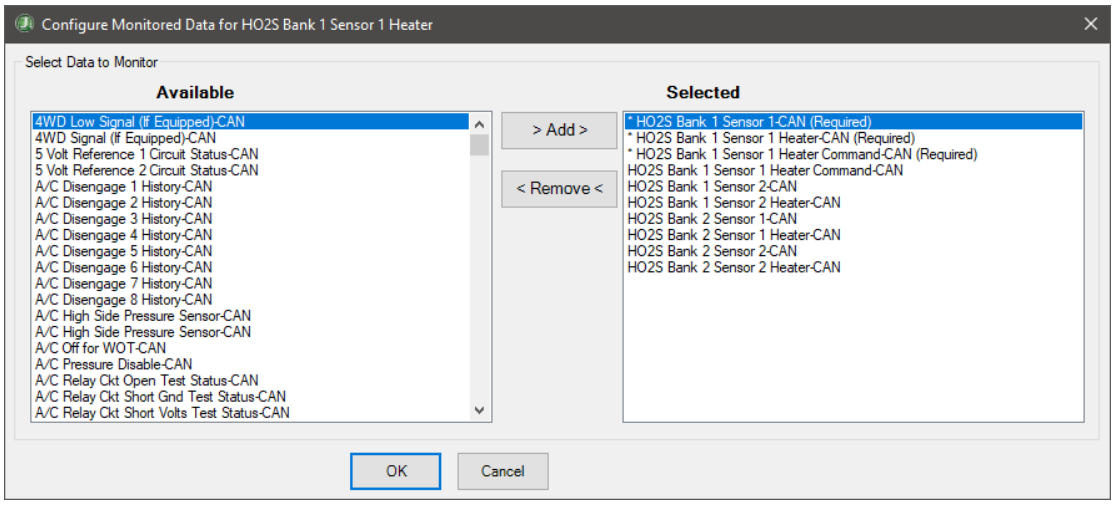
This covers all available Bank and Sensor combinations:

- ✓ Bank 1 Sensor 1
- ✓ Bank 1 Sensor 2
- ✓ Bank 2 Sensor1
- ✓ Bank 2 Sensor2

The **HO2S Heater test** allows a user to manually control the ECM's 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.

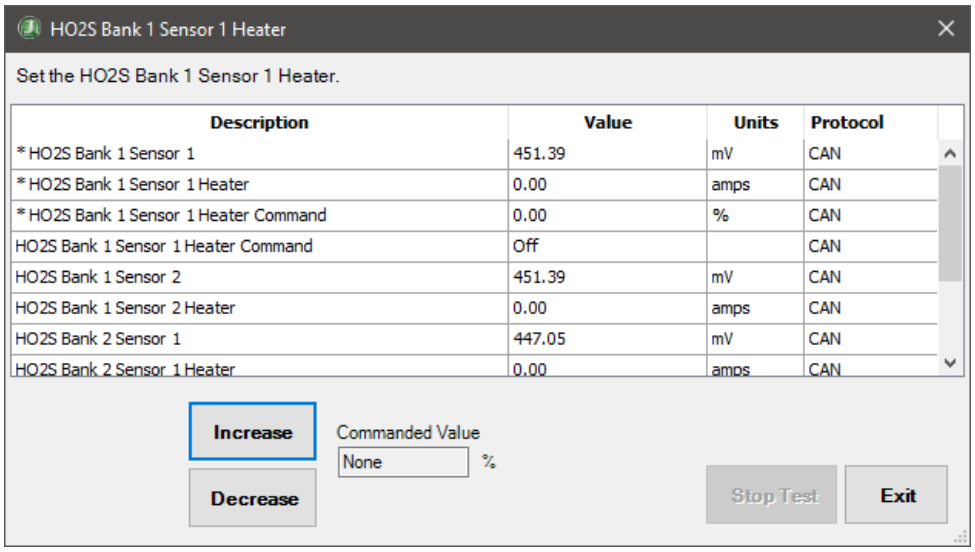
Follow the steps below to carry out the **HO2S Heater test:**

1. Click the desired **HO2S Heater Bank and Sensor** test and press Enter or click the **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.



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

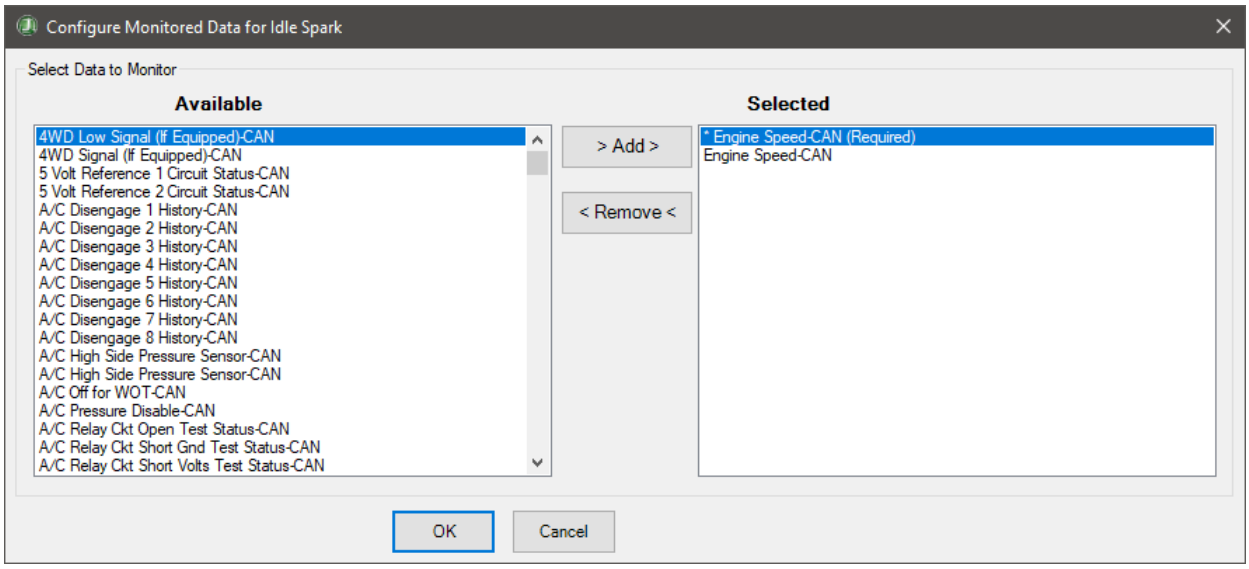
Idle Spark is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

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.

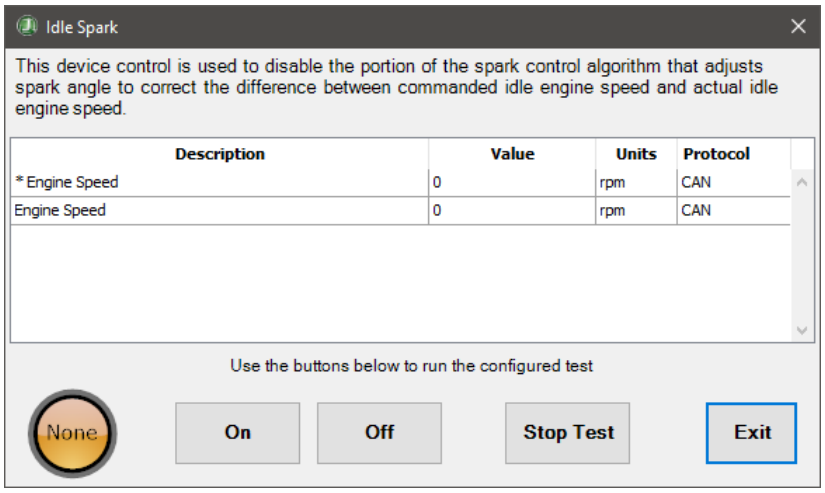
Follow the steps below to carry out the **Idle Spark test:**

1. Click **Idle Spark** and press Enter or click the **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.

KOER Glow Plug Monitor Self Test

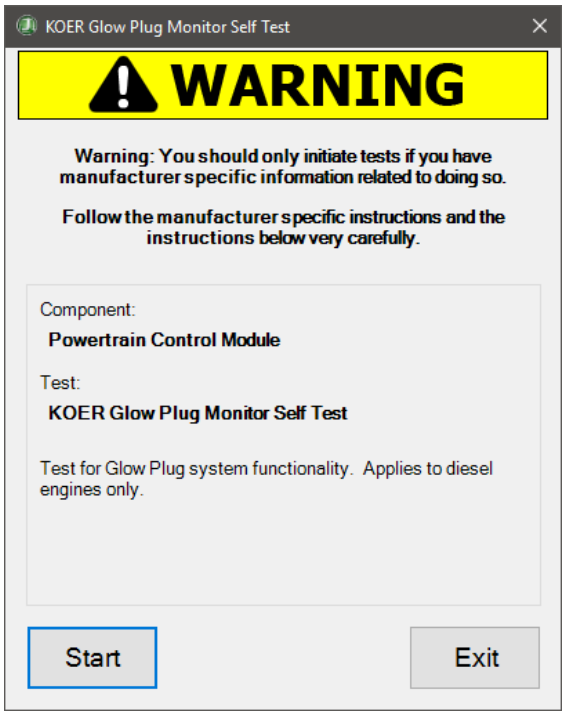
KOER Glow Plug Monitor Self Test is supported on:

- ✓ All Supported Diesel Engines

The **KOER Glow Plug Monitor Self Test** is useful for diagnosing issues with the glow plug system.

Follow the steps below to carry out the **KOER Glow Plug Monitor Self Test:**

1. Click **KOER Glow Plug Monitor Self Test** and press Enter or click the **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 the **Exit** button to return to the test selection dialog.

Malfunction Indicator Lamp

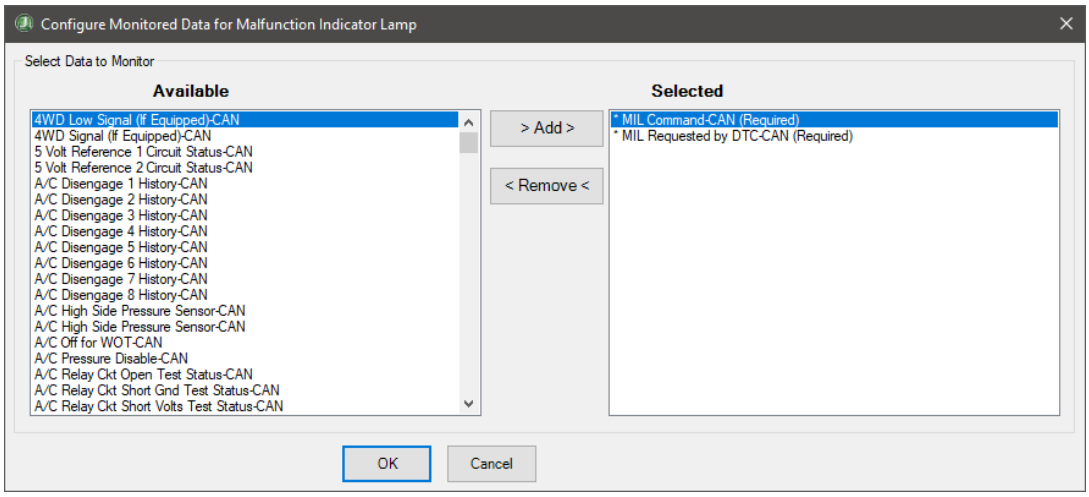
Malfunction Indicator Lamp is supported on:

- ✓ 2010 – 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

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.

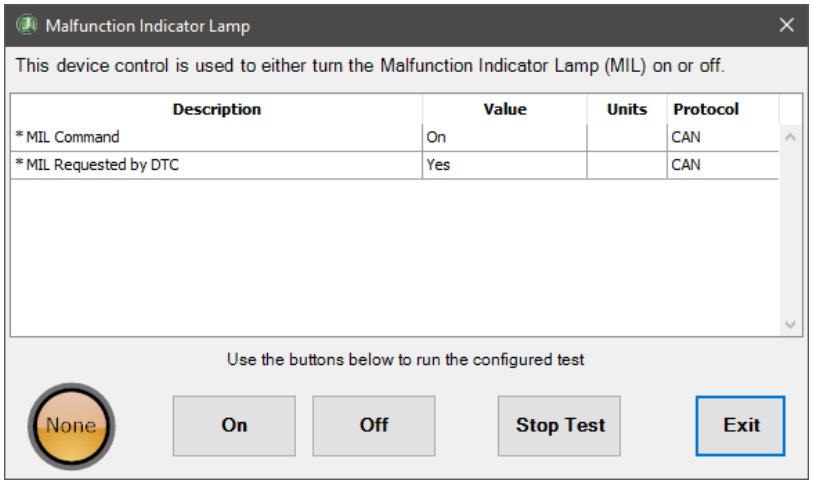
Follow the steps below to carry out the **Malfunction Indicator Lamp test:**

1. Click **Malfunction Indicator Lamp** and press Enter or click the **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.

Relative Compression Test

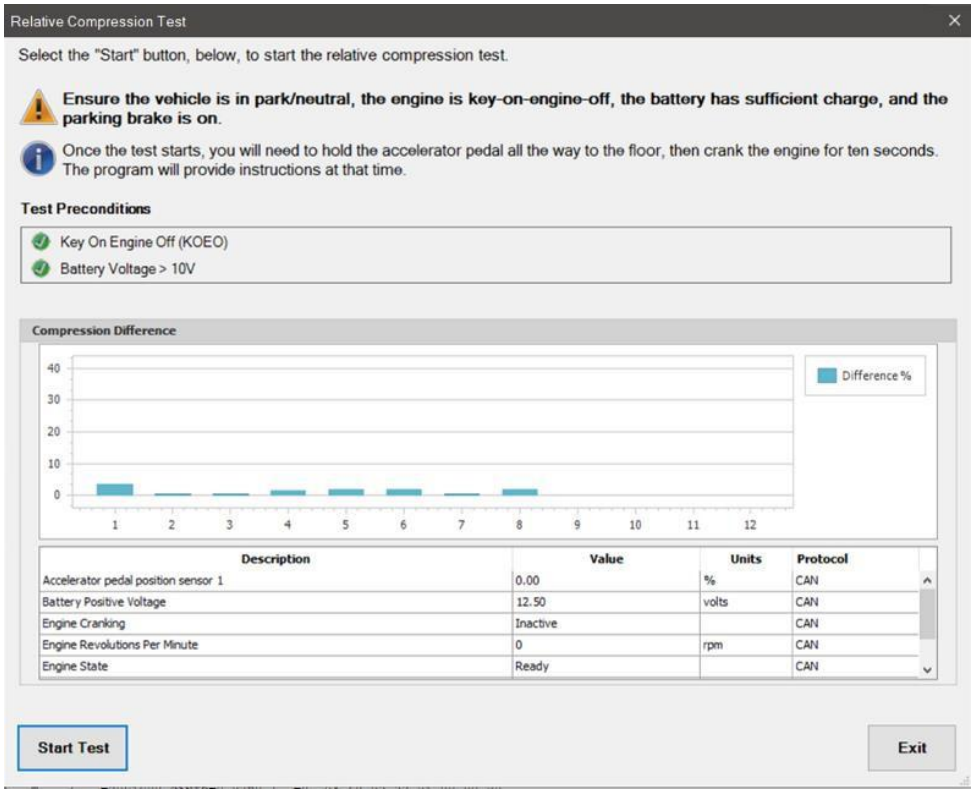
Relative Compression Test is supported on:

- ✓ 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.

Follow the steps below to carry out the **Relative Compression Test:**

1. Click the **Relative Compression Test** and press Enter or click the **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

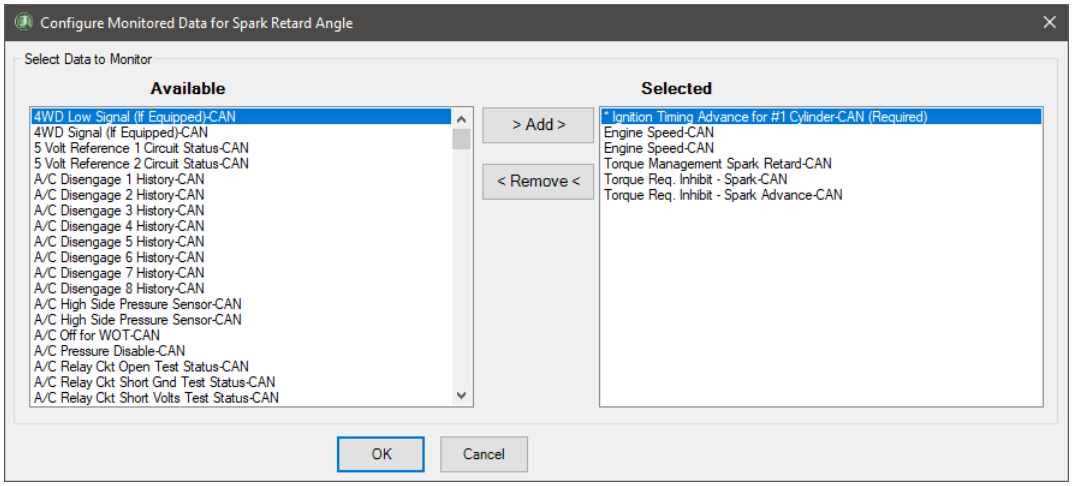
Spark Retard Angle is supported on:

- ✓ 2010 – 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

The **Spark Retard Angle test** allows ECM control of the spark retard value against base ignition timing for diagnosing engine performance issues.

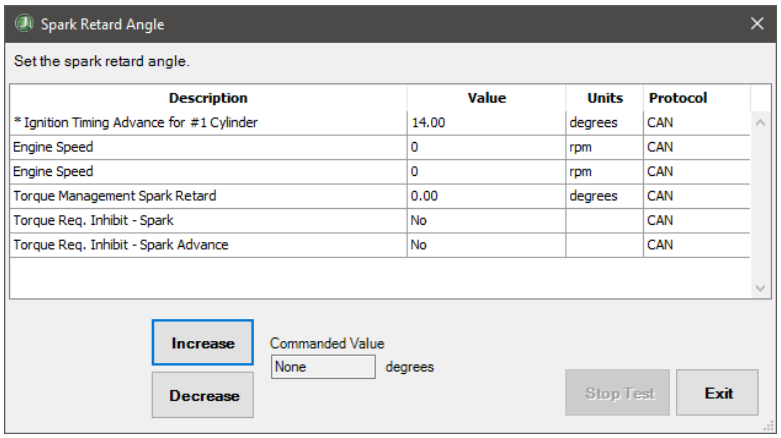
Follow the steps below to carry out the **Spark Retard Angle test:**

1. Click **Spark Retard** and press Enter or click the **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.

Starter Relay

Starter Relay is supported on:

- ✓ 2010 – 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L Gas engine



This test can cause the starter motor to spin while fuel injection and ignition are disabled.

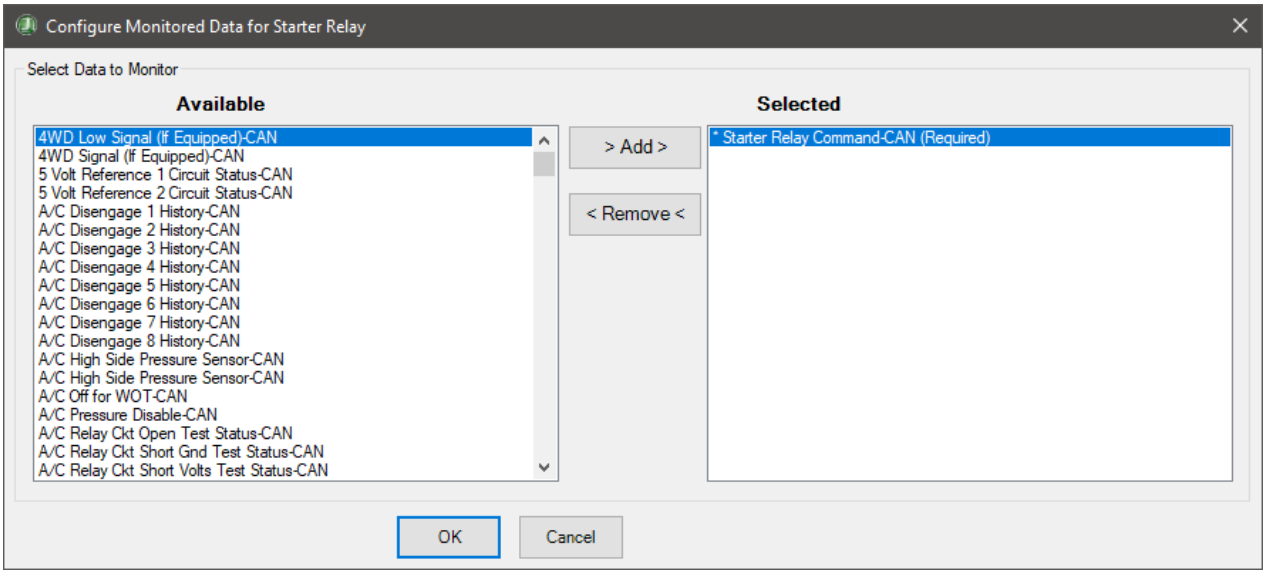
The **Starter Relay control test** is used to verify the correct ECM **Start**er Relay control function.

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.

Follow the steps below to carry out the **Starter Relay control test:**

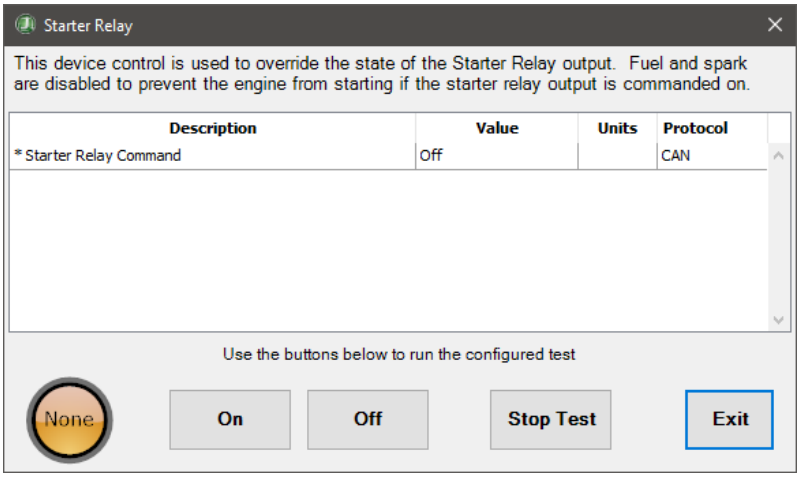
1. Click **Starter Relay** and press Enter or click the **Start** button.

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

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:

- ✓ 2010 - 2018 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 - 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 - 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 - 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 - 2023 Freightliner MT45 Trucks with 6.6L Gas engine

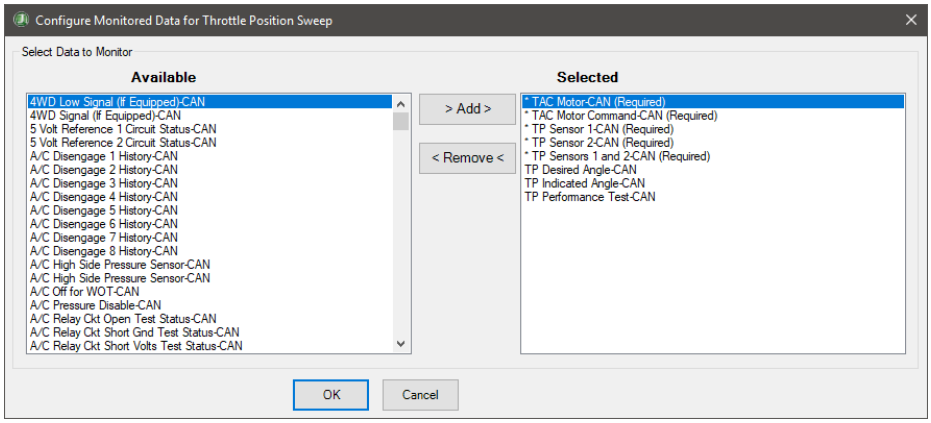


This test can be performed while the Throttle Blade is exposed. This test controls the movement of the Throttle Blade, so ensure fingers, tools, or other items are clear of the area during this test.

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.

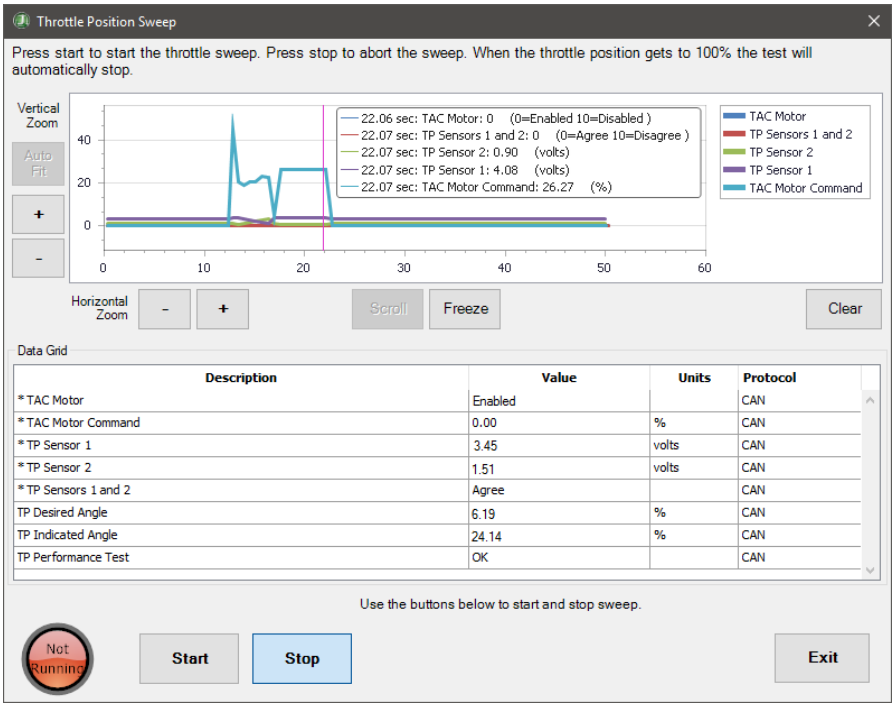
Follow the steps below to carry out the **Throttle Position Sweep** test:

1. Click **Throttle Position Sweep** and press Enter or click the **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.



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.

Transmission Component Tests

Solenoid Bands

The **Solenoid Bands** test is supported on:

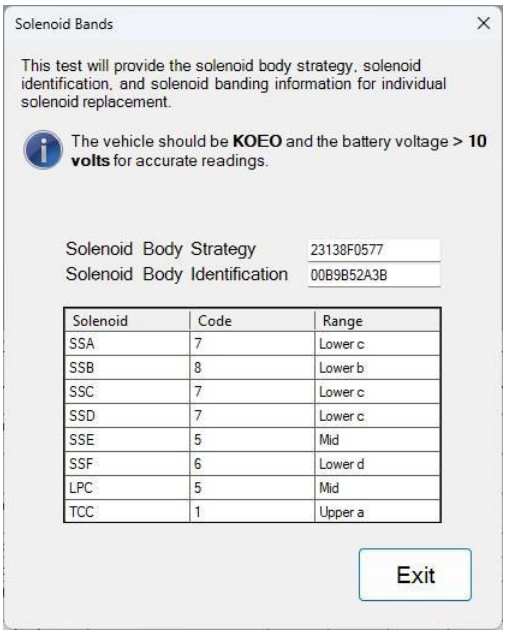
- ✓ Ford 2020 – 2024 10R80 Transmissions

The **Solenoid Bands** test will provide the solenoid body strategy, solenoid identification, and solenoid banding information for individual solenoid replacement.

NOTE: To ensure accurate readings, make certain that KOEO and the battery voltage are 10 Volts or more.

Follow the steps below to carry out the **Solenoid Bands** test:

1. Select the **Solenoid Bands** test and press Enter or the **Start** button.
2. The **Solenoid Bands** test dialog will display.



Solenoid Bands

3. Specific information on the solenoid body strategy, component identification, and replacement information will be displayed.
4. Click the **Exit** button to return to the test selection dialog.

Fuel System Tests

Cylinder Cut-Out

Cylinder Cut-Out is supported on:

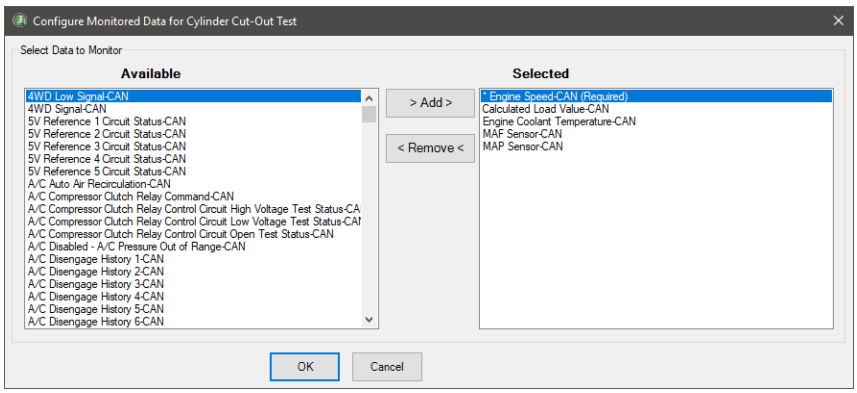
- ✓ 2002 - 2021 all GM diesel and gasoline engines (except GM vehicles with CAT engines or 3.0L Duramax diesel)
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 - 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 - 2023 Chevy Silverado HD and GMC Sierra HD
- ✓ 2020 - 2023 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.

Follow the steps below to carry out the **Cylinder Cut-Out test:**

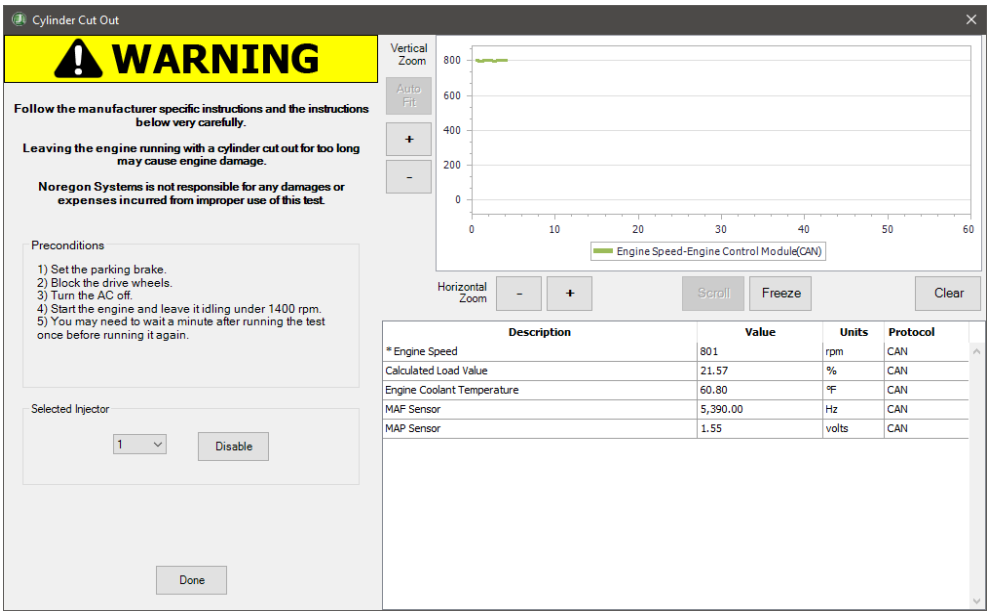
1. Click **Cylinder Cut-Out** and press Enter or click the **Start** button.
2. A **Configure Monitored Data** dialog appears, allowing users to add data items to monitor during the test. Click **Add** to add the selected data item to the **Selected** list. Click **OK** to continue.



Cylinder Cut-Out Configure Monitored Data (GM)

NOTE: The Configure Monitored Data dialog does not appear for Isuzu vehicles.

3. The **Cylinder Cut-Out** dialog opens. Select an injector number from the **Selected Injector** and click the **Disable** button to disable the selected injector.



Cylinder Cut-Out (GM)

4. 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.
5. 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 be changed to **Enable**. The strip chart should show the reaction of the engine's speed to the disabling of the cylinder. To enable the cylinder, press the **Enable** button, and the **Enable** Button will now change to **Disable**.
6. Press the **Done** button when ready to exit this test and return to the test selection dialog.

EVAP Purge/Seal Solenoid

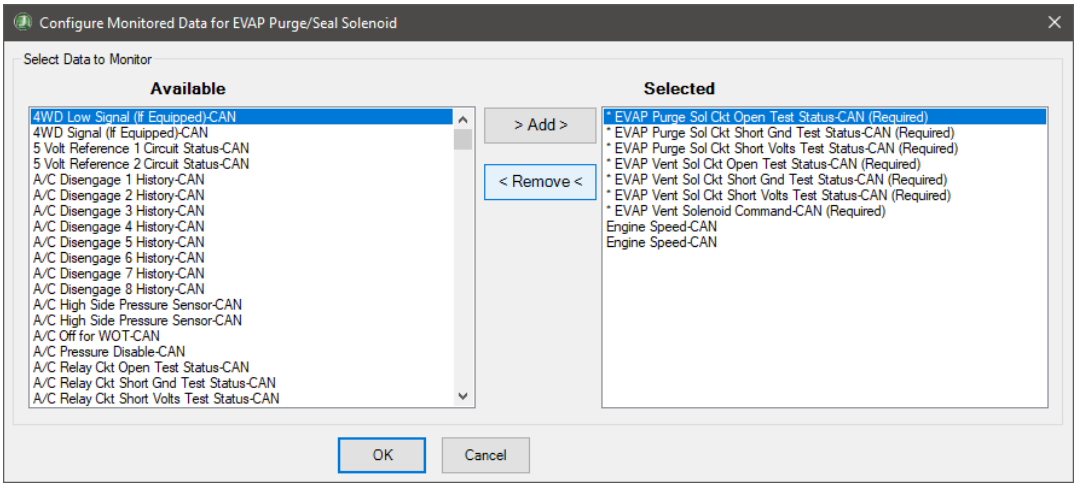
EVAP Purge/Seal Solenoid is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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.

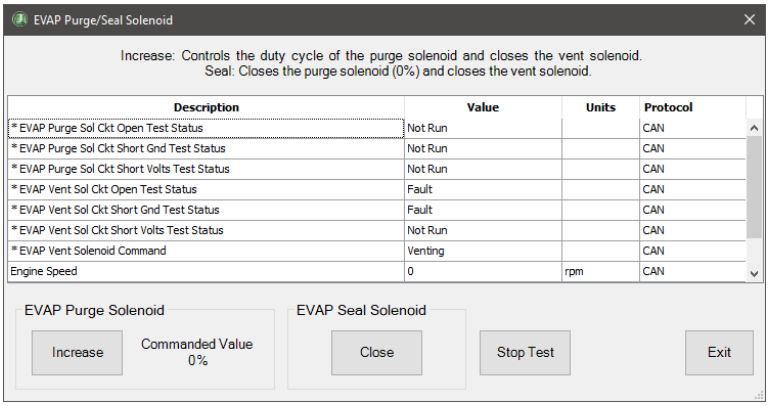
Follow the steps below to carry out the **EVAP Purge/Seal Solenoid test:**

1. Click **EVAP Purge/Seal Solenoid** and press Enter or click the **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/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

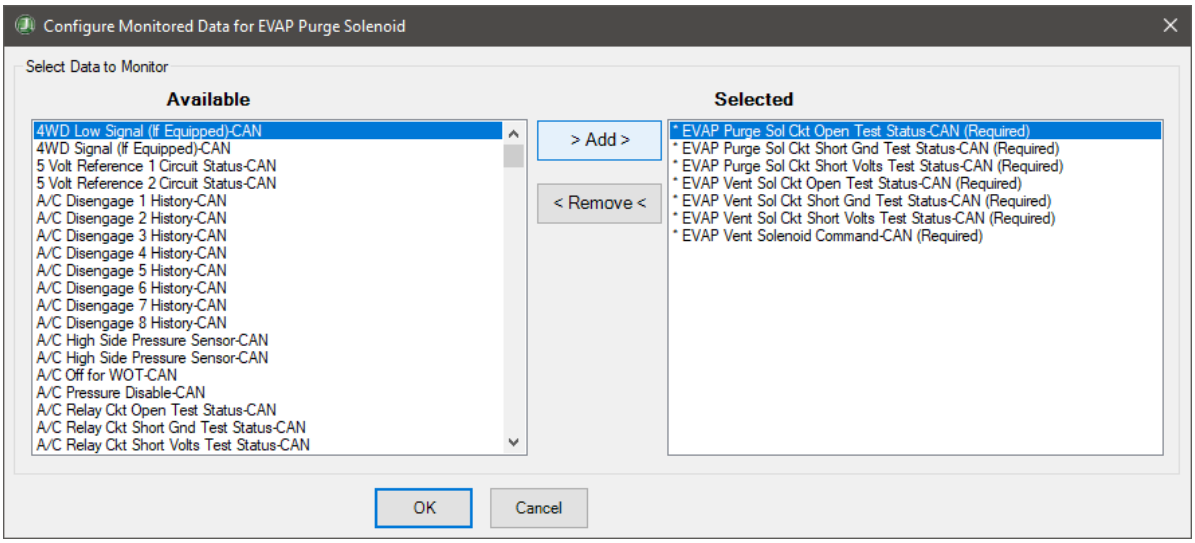
EVAP Purge Solenoid is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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.

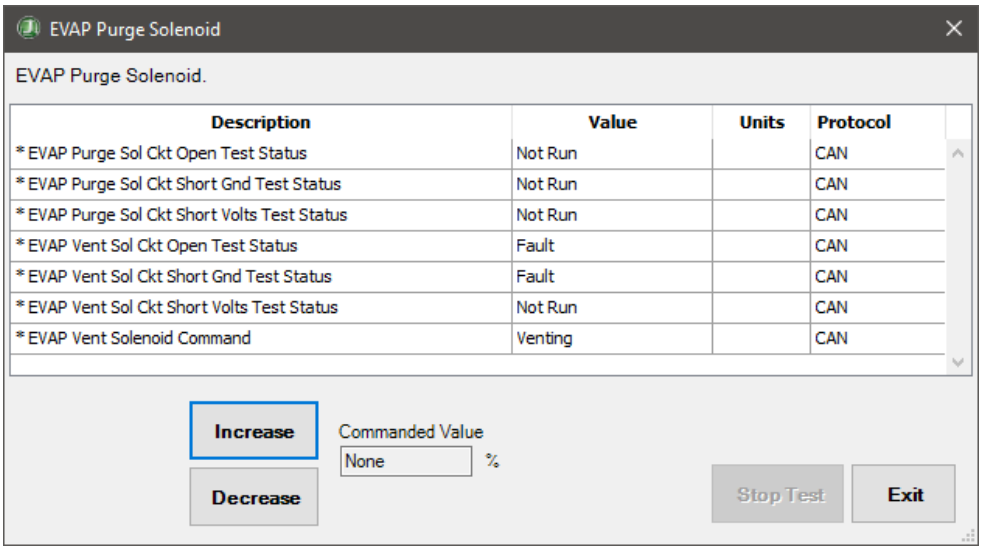
Follow the steps below to check the functionality of the **EVAP Purge Solenoid:**

1. Click **EVAP Purge Solenoid** and press Enter or click the **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.

EVAP Vent Solenoid

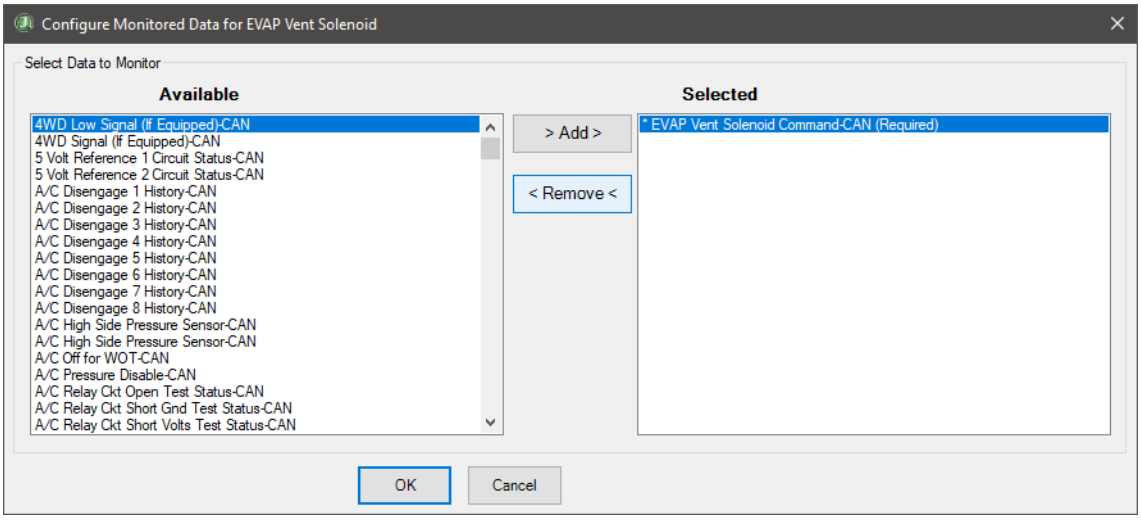
EVAP Vent Solenoid is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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.

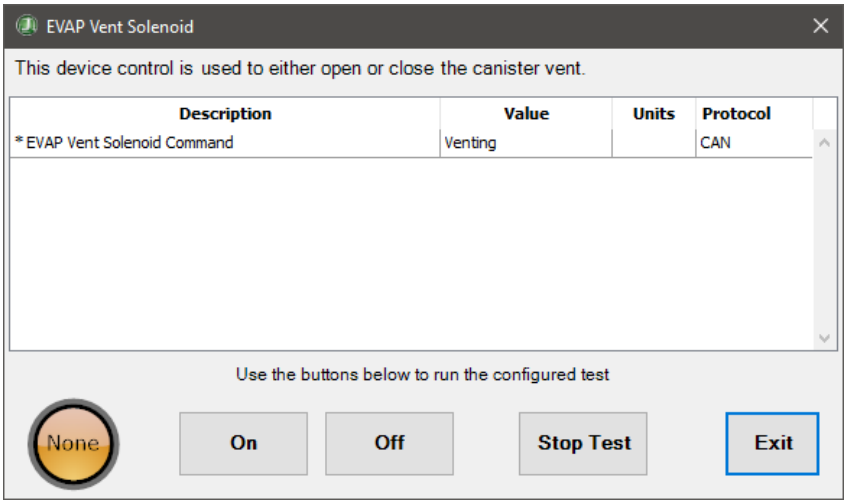
Follow the steps below to carry out the **EVAP Vent Solenoid test:**

1. Click **EVAP Vent Solenoid** and press Enter or click the **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

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 Control Loop Status

Fuel Control Loop Status is supported on:

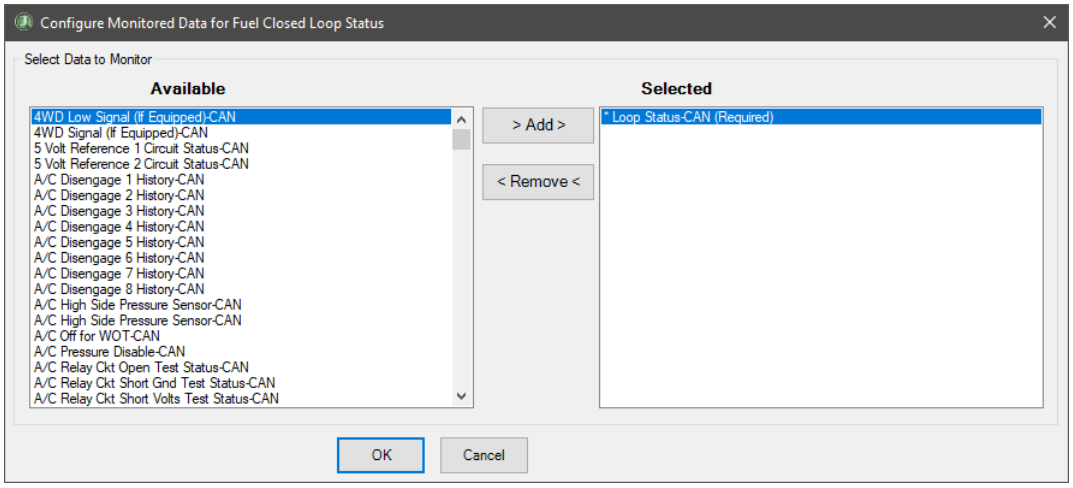
- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 - 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 - 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 - 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L Gas engine

The **Fuel Control 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 injections 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.

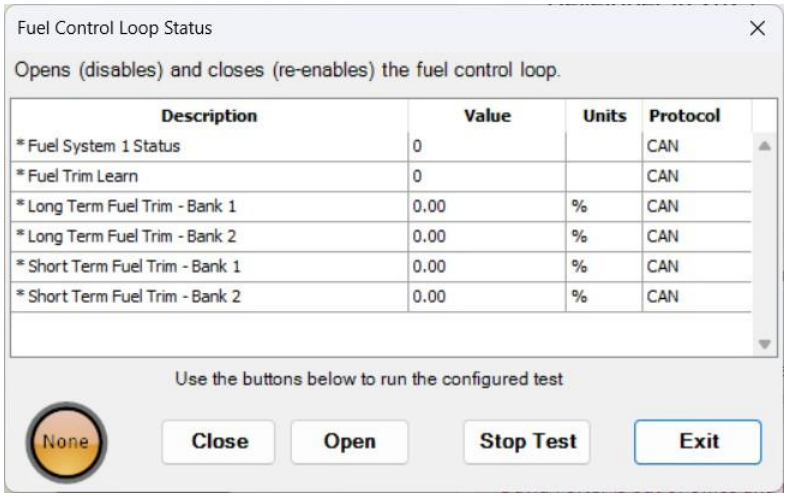
Follow the steps below to carry out the **Fuel Control Loop Status test:**

1. Click **Fuel Control Loop Status** and press Enter or click the **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

3. The **Fuel Control 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

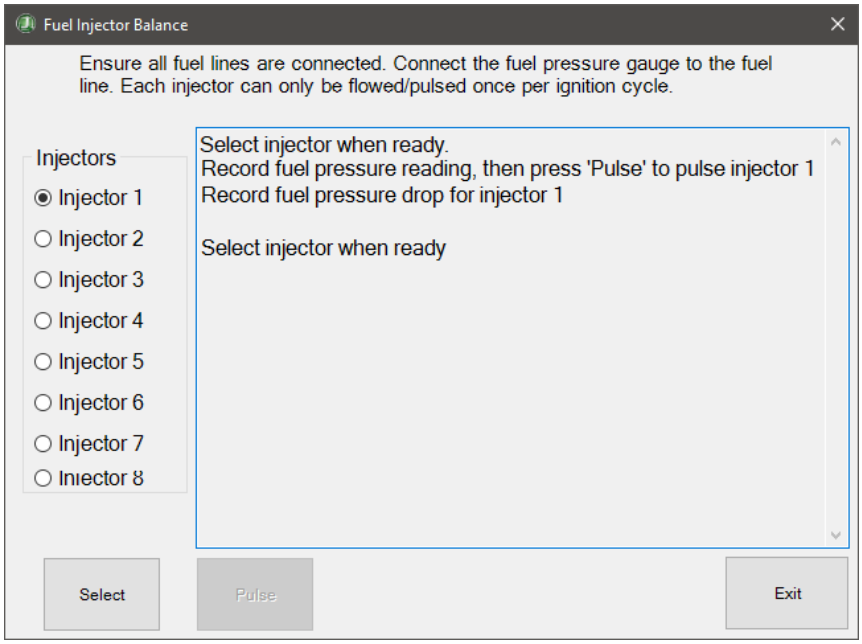
Fuel Injector Balance is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines

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.

Follow the steps below to carry out the **Fuel Injector Balance test:**

1. Click **Fuel Injector Balance** and press Enter or click the **Start** button.
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

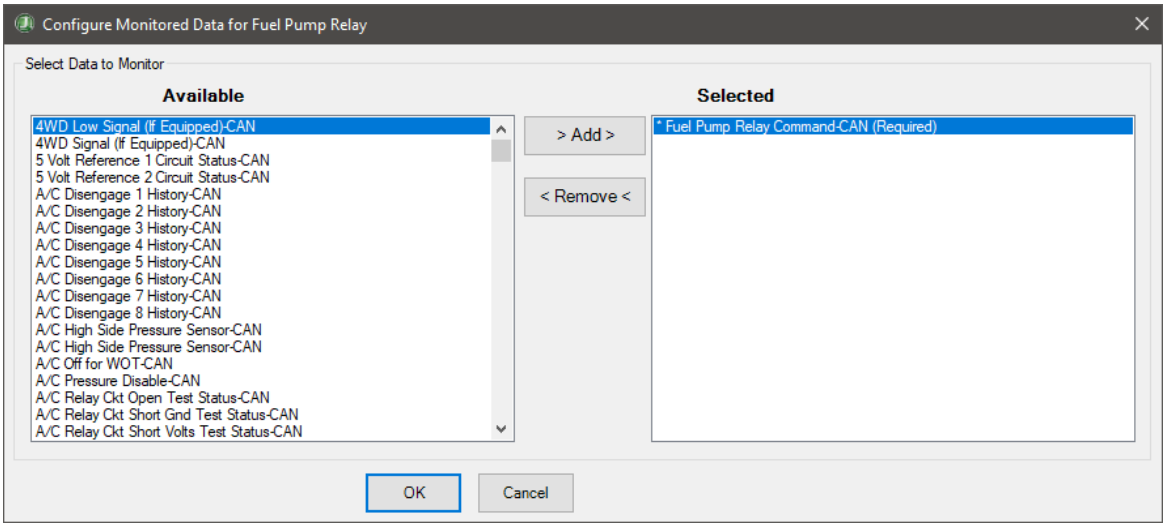
Fuel Pump Relay is supported on:

- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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.

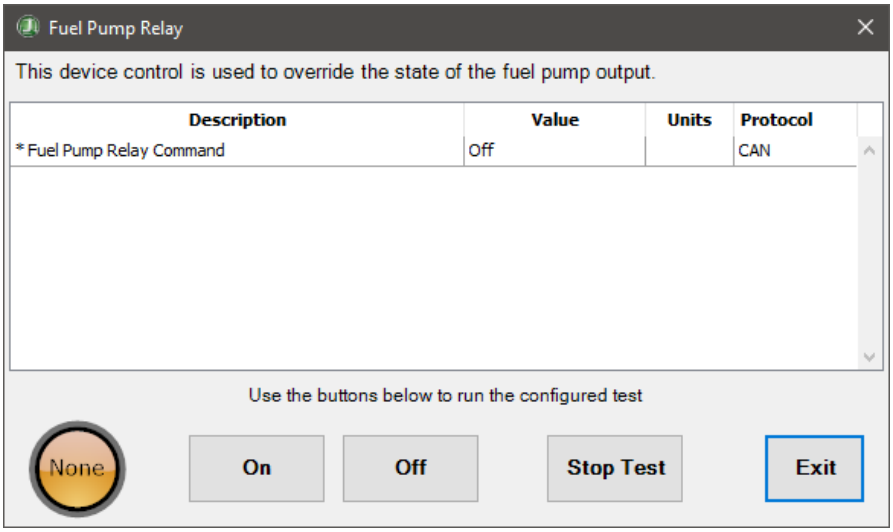
Follow the steps below to carry out the **Fuel Pump Relay test:**

1. Click **Fuel Pump Relay** and press Enter or click the **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 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.

Fuel Trim Enable

Fuel Trim Enable is supported on:

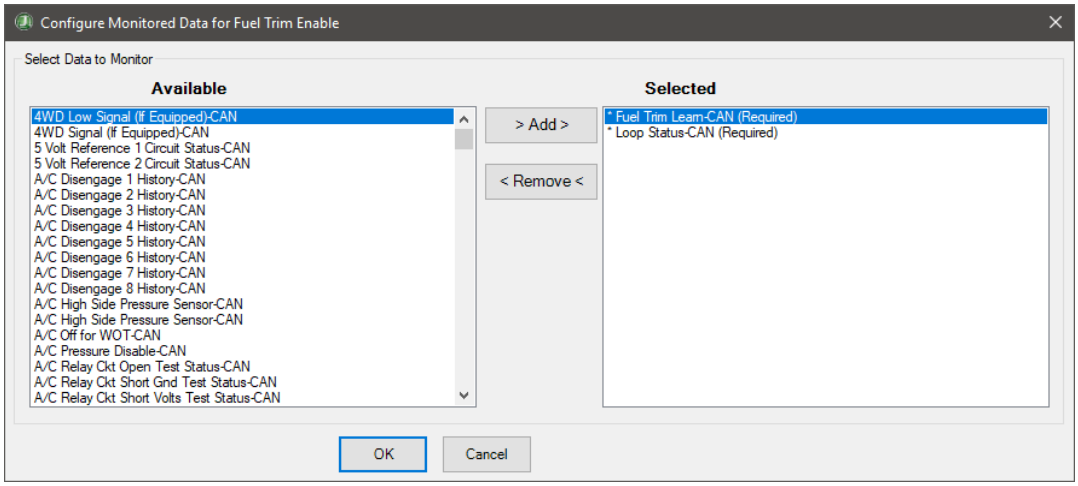
- ✓ 2010 – 2021 GMC and Chevy Full Sized Trucks 2500, and 3500 with 6.0L Gas engine
- ✓ 2010 – 2017 GMC Express and Chevy Savana 6.0L gas engines
- ✓ 2020 – 2021 GMC and Chevy Full Sized Trucks 2500 and 3500 with 6.6L Gas engine
- ✓ 2021 – 2023 GMC Express and Chevy Savana with 6.6L Gas engine
- ✓ 2021 – 2023 Chevy Low Cab Forward 3500, 4500, 5500, 6500 with 6.6L Gas engine
- ✓ 2022 – 2023 Chevy Silverado HD and GMC Sierra HD with 6.6L Gas engine
- ✓ 2020 – 2023 Freightliner MT45 Trucks with 6.6L 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's ability to modify fuel trim values.

Follow the steps below to carry out the **Fuel Trim Enable test:**

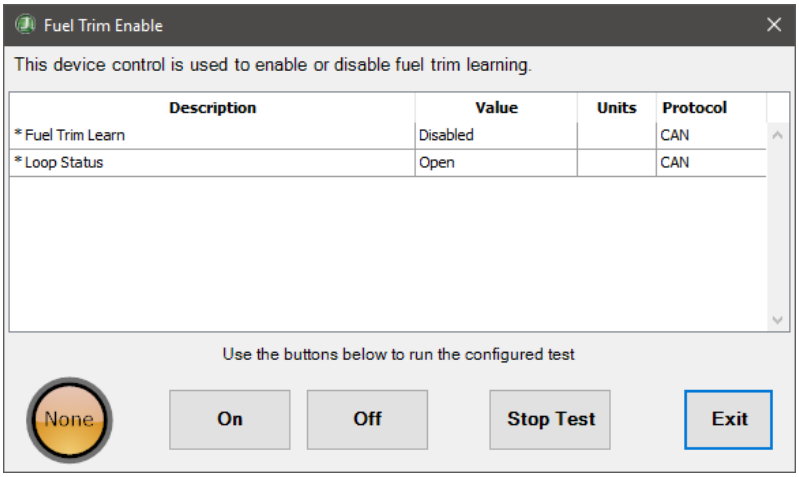
1. Click **Fuel Trim Enable** and press Enter or click the **Start** button.

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 is open. 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

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 is replaced.

NOTE: Initialize Rail Pressure does not have a dialog. Selecting the test from the test selection dialog will automatically run the procedure.

Follow the steps below to carry out the **Initialize Rail Pressure Test:**

1. Select **Initialize Rail Pressure** and press Enter or click the **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

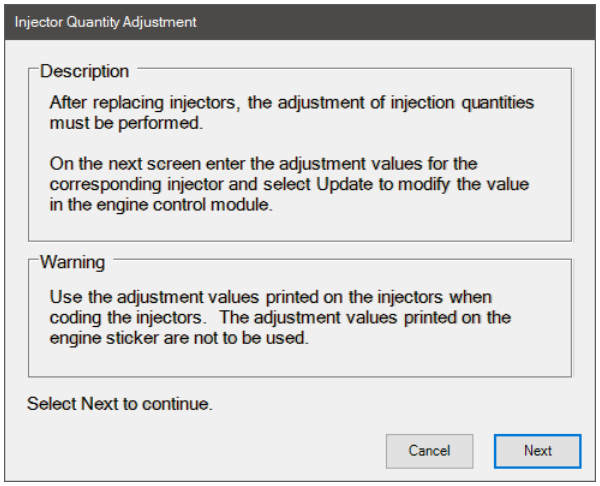
Injector Quantity Adjustment is supported on:

- ✓ 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.

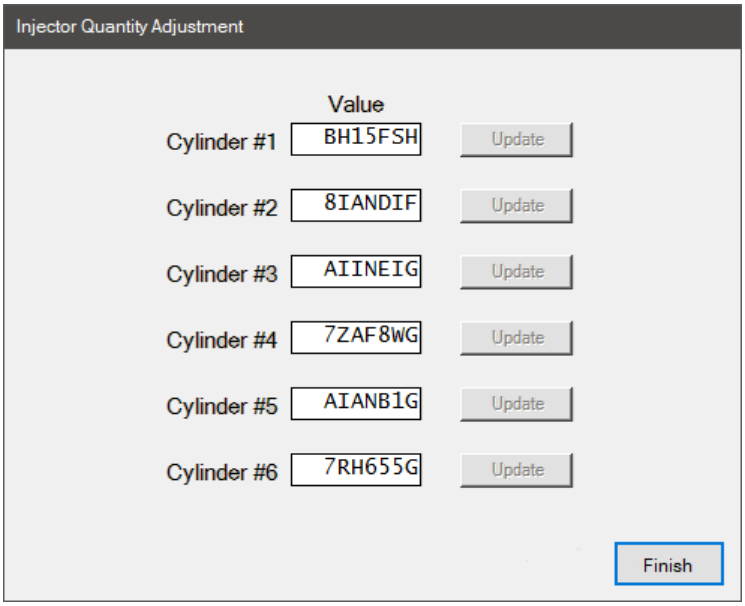
Follow the steps below to carry out the **Injector Quantity Adjustment:**

1. Click **Injector Quantity Adjustment** and press Enter or click the **Start** button.
2. The **Injector Quantity Adjustment** dialog opens. Click **Next** to continue.



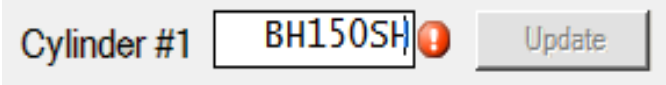
Injector Quantity Adjustment

3. The adjustment coding screen is displayed. Enter the adjustment values printed on the injectors next to the appropriate cylinder. Click the **Update** button next to the edited value to update the ECM.



Injector Quantity Adjustment Update Control

4. If the entered value contains invalid characters, an error indicator will be displayed next to the incorrect value.



Injector Quantity Adjustment Error Indicator

5. After all Cylinders have been updated, click the **Finish** button to return to the test selection dialog.

KOEO Injector Buzz Test

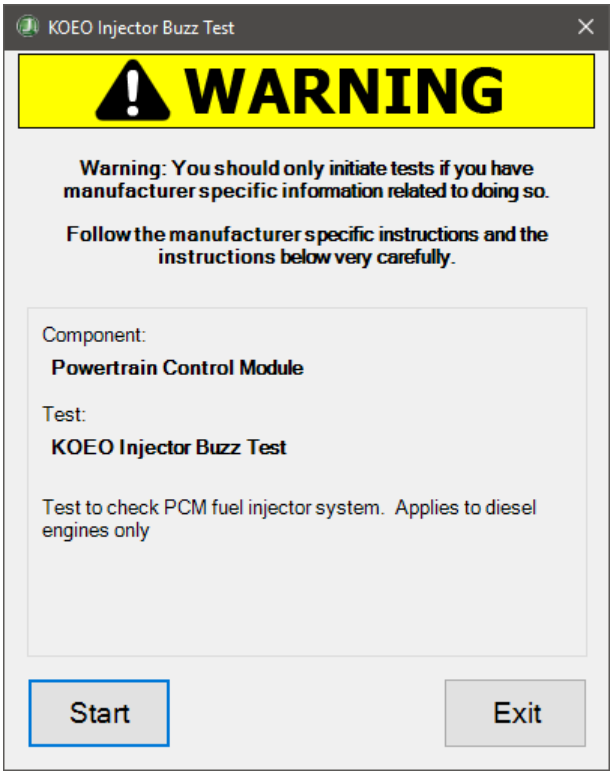
KOEO Injector Buzz Test is supported on:

- ✓ 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.

Follow the steps below to carry out the **KOEO Injector Test:**

1. Click **KOEO Injector Buzz Test** and press Enter or click the **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 the **Exit** button to return to the test selection dialog.

Power Balance Test

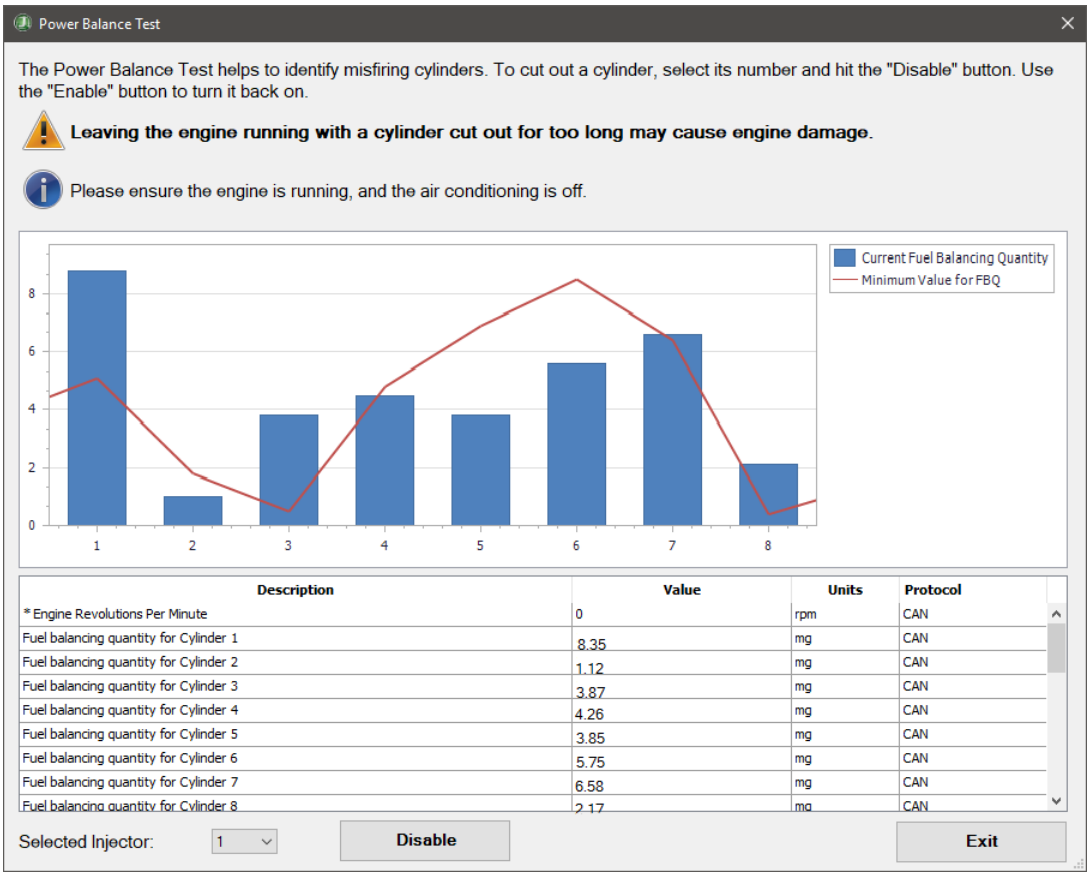
Power Balance Test is supported on:

- ✓ Ford 2008 – 2010 6.4L diesel engines
- ✓ Ford 2011 – 2018 6.7L diesel engines
- ✓ 6.8L V-10 Gasoline Engines
- ✓ Ford 2020-2024 3.5L V6 Gas Engines

The **Power Balance Test** functions and view screen are 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.

Follow the steps below to carry out the **Power Balance Test:**

1. Click **Power Balance Test** and press Enter or click the **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 be changed 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 the **Exit** button when ready to exit this test and return to the test selection dialog.

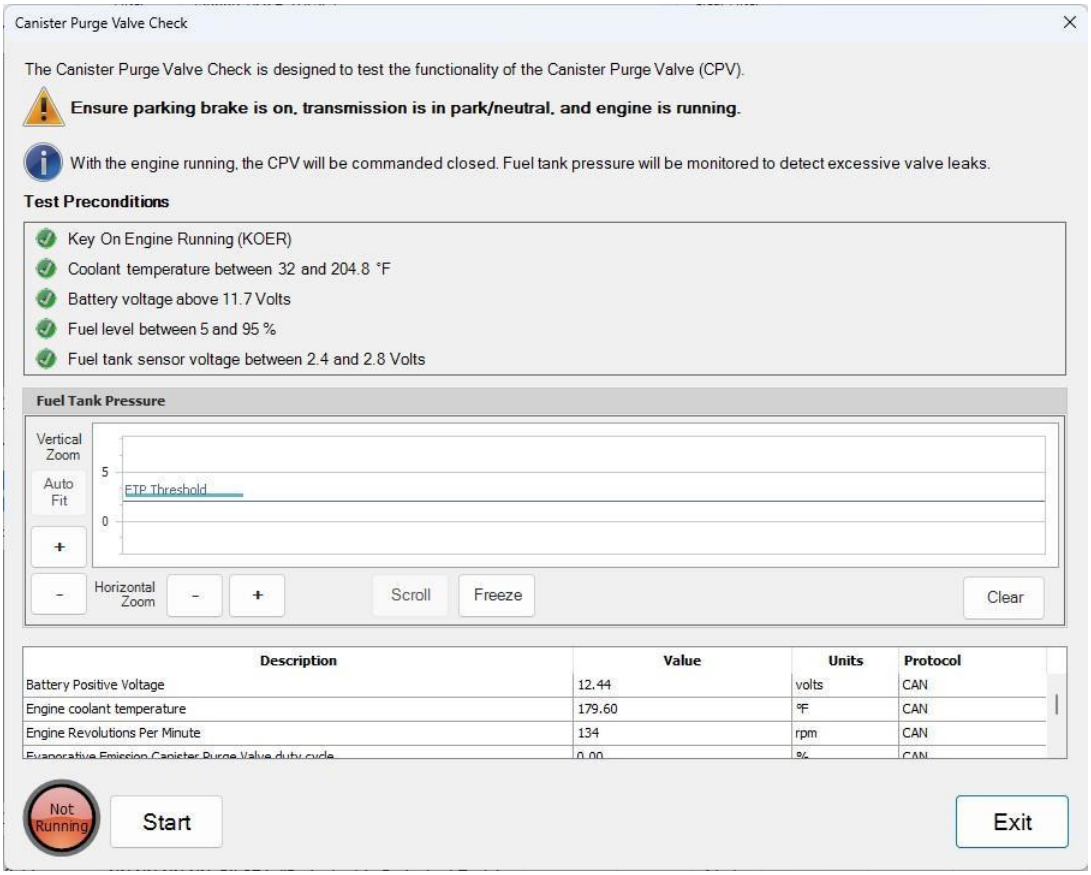
Canister Purge Valve Check

The **Canister Purge Valve Check** test is supported on:

- ✓ Ford 2020 – 2024 3.5L V6 Gas engines

Follow the steps below to carry out the **Canister Purge Valve Check** test:

1. Select the **Canister Purge Valve Check** test and press Enter or the **Start** button.
2. The **Canister Purge Valve Check** test dialog will display.



Canister Purge Valve Check

3. Click **Start** to begin the test. The fuel tank pressure will be graphed for the duration of the test.
4. When prompted, cycle the engine to engine off key on.
5. A status message will display the results of the test.
6. Click the **Exit** button to return to the test selection dialog.

Parameter Tests

Cruise Speed Customization

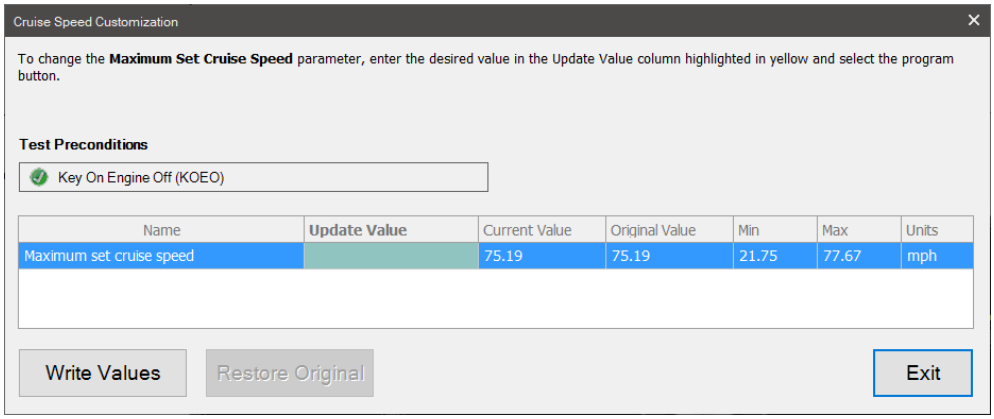
Cruise Speed Customization is supported on:

- ✓ All Hino engines 2011-2019 vehicles

Follow the steps below to carry out the **Cruise Speed Customization:**

1. Click **Cruise Speed Customization** and press Enter or click the **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.



Cruise Speed Customization

3. Click the **More Information** button to learn more about **Cruise Speed Customization**.
4. Enter a new value for the Cruise Speed Customization.
5. Click the **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.

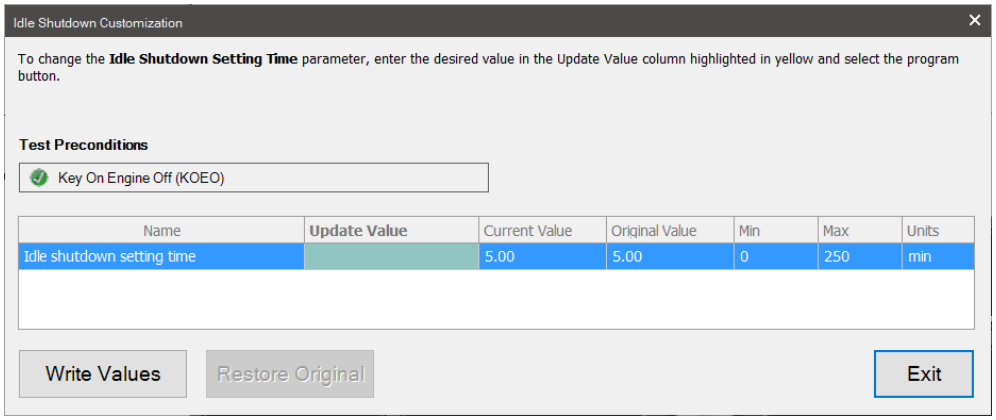
Idle Shutdown Customization

Idle Shutdown Customization is supported on:

- ✓ All Hino engines 2011-2019 vehicles

Follow the steps below to carry out the **Idle Shutdown Customization:**

1. Click **Cruise Speed Customization** and press Enter or click the **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.



Idle Shutdown Customization

3. Click the **More Information** button to learn more about the **Idle Shutdown Customization**.
4. Enter a new value for the **Idle Shutdown Customization**.
5. Click the **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.

OTHER MAIN TOOLBAR OPTIONS

Exit

Select the **F4** key or the **Exit** button to end your session and quit the application.

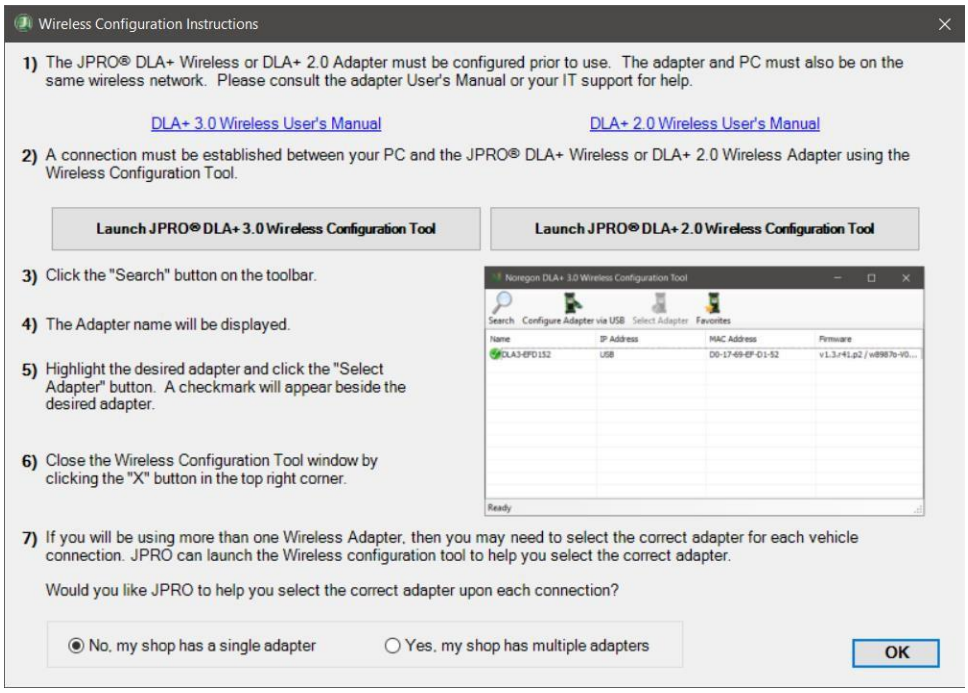
Help

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.



Wireless Configuration Instructions

DLA+ Adapter Connectivity Test

Select the **DLA+ Adapter Connectivity Test** button to launch the Noregon DLA+ Adapter Family Connectivity Test application.

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.

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.