# ACOM® PRO™ Diagnostics

2024 v1 Bendix

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# FEATURE LIST

# **General Features**

- Displays manufacturer faults and select data for Bendix components.
- Reads all standard SAE faults and data for all components on the supported data bus protocols.
- Enhanced VIN decoding for North American VINs.
  - Vehicle Series provided when available.
- Provides key data points in graphical displays for vehicle and components.
- Automatically displays all component parameters of interest in the Data Monitor.
  - Search, sort or filter capabilities to easily identify parameters of interest.
  - Graph parameter changes over time.
  - Export up to the last 5 minutes of graphed data to local file.
- Data can be displayed in Metric or English units of measurement.
- Automatically connects to all supported and available data buses on the vehicle.
- Vehicle Readiness List displays information about each identified component.
- Ability to install and/or update ACom Legacy from within ACom PRO.
- ECU images marked with red exclamation point when one or more active faults are reported.

# Heavy-Duty Features

- Supports all standard Heavy-Duty vehicles. VIN is not required for vehicle connections.
- Supports the heavy-duty SAE J1587/J1708, J1939, and ISO 15765 messages.
- Support for trailer diagnostics using:
  - PLC 7-way connector combined with a Noregon Trailer Diagnostic Adapter or the Noregon DLA+ PLC adapter.
  - Nexiq Universal J560 PLC Adapter combined with a Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, DLA+ PLC, or Nexiq USB-Link<sup>™</sup> 2 adapter.
  - o 4-pin to 9-pin diagnostic extension cable combined with a Noregon DLA+ 3.0, DLA+ 2.0, DLA+,DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, DLA+ PLC, or Nexiq USB-Link<sup>™</sup> 2 adapter.
  - Trailers equipped with 9-Pin SAE J1939 connector using a Noregon DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, DLA+ PLC, or Nexiq USB-Link<sup>™</sup> 2 adapter.
- Read faults from all vehicle components.
- Clear faults from all vehicle components or only from a selected Bendix component.
- Bendix proprietary fault codes will include the SAE SPN, or SID and FMI in the displayed fault description.
- Graphically displays data using thermometers, gauges, etc. on the Data Monitor.
- Display of data related to reported faults in Data Monitor.
- Pre-defined Data Groups in Data Monitor enables troubleshooting electrical problems and common performance complaints.
- Ability to define custom groups of related data parameters to display in Data Monitor.

- Clear indication of overall vehicle health considering:
  - ✓ No 1939 Data (on 2009 or newer vehicles)
  - ✓ Active Faults Present
  - ✓ Consumable Fluid(s) Low
  - ✓ Battery Voltage Low
  - ✓ Cannot Detect ABS (on 2001 or newer vehicles)
- Displays wheel speeds, road speed, vehicle and brake lamp status, Intellipark switches and lights, vehicle and ABS battery voltage, and primary and secondary brake pressure values on the tractor brake key data point's window.
- Displays percentage of estimated brake wear life (pads plus rotor) remaining on key data points window for:
  - ✓ iSense (Pad Wear Sensing)
  - ✓ iSense Pro (ADB Continuous Pad Wear Sensing)
- Displays reported pad wear life status on the ABD Wear Sensing key data points window.
- Consumable Fluid screen to monitor fluids used by vehicle and inform user of low levels.
- ABS Monitor provides an at-a-glance assessment of Bendix braking system's health by monitoring related electrical and pneumatic components.
- EOL (End of Line) Test are available from main toolbar for:
  - ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
  - ✓ TABS-6<sup>™</sup> Advanced Multi-Channel Trailer ABS
  - ✓ TABS-8™ Trailer ABS
- Lookup Codes replace blink codes for path-type faults for the EC-80.

## Education and Troubleshooting Features

- Integrates with Noregon's NextStep<sup>™</sup> NET for Bendix (internet connection required)
  - View troubleshooting information, wiring diagrams and step-by-step repair procedures for Bendix faults with one click in Bendix® ACom® PRO™ Diagnostics.
  - Enhanced integration features from the troubleshooting repair view:
    - View fault related data while simultaneously viewing repair procedures.
    - Clear faults to verify the repair without leaving the NextStep<sup>™</sup> Bendix screen.
    - Access Bi-Directional functionality directly from the troubleshooting repair view.
    - Access to installed Service Data Sheets on the NextStep<sup>™</sup> Bendix screen.
  - Works on vehicle without requiring a VIN.
  - Regular content updates to add more fault and component coverage.
- Link to Bendix Service Data Sheets from Fault display to support troubleshooting when internet connection is not available.
- Virtual Truck feature enables exercising Bendix® ACom® PRO<sup>™</sup> Diagnostics features including bi-directional tests for training and educational purposes without the need for an actual truck connection.
- Bendix Demo Truck demonstrates the tests and data available for various Bendix ECU versions and configurations.
  - Demo Truck connections display a demonstration indicator below the Fault Code Information window.

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

- Fault Assistance providing technician friendly descriptions for fault status values from both the Fault Display and the Data Monitor.
- Diagnostic connector pinout diagrams for Heavy-Duty cable connectors to aid in troubleshooting connection issues.
- Provides data bus utilization statistics on live vehicle connections.
- Displays CAN error frame data to aid in diagnosing communication issues. NOTE: CAN error frame data is only available when using a DLA+ 3.0, DLA+ 2.0, DLA+, DLA+ 3.0 Wireless, DLA+ 2.0 Wireless, DLA+ Wireless, DAL+ PLC, or NEXIQ adapter.
- Power Diagram and Electrical Assistance available in Data Monitor to aid in the diagnosis of electrical problems for heavy-duty vehicle connections.
- FMI Assistance providing technician friendly descriptions for fault code FMI values from both the Fault display and the Data Monitor.
- Industry Terms definitions available from the Fault Grid, NextStep window, and the Data Monitor window.
- Lookup Code Assistant provides a reference for the equivalent term used in an ECU's Service Data Sheet.

# **Reporting Features**

- Prints Bendix DTC Report and Bendix Trailer DTC Report, which contain faults and key data.
- Bendix proprietary fault codes will include the SAE SPN and FMI, or SID and FMI in the displayed fault description.
- Bendix Data Reporting (BDR) file is generated for EC-60 and EC-80 braking systems when the DTC report is created or submitted.
- Automatically captures a vehicle snapshot recording containing all available ECUs and parameters on every vehicle connection.
- Ability to manually record logs for up to 1 hour of vehicle data for later analysis. Log will contain all ECU and parameter data that is requested and reported during the recording.

NOTE: log recording time may be limited by computer system resources.

• Ability to playback recorded logs and monitor parameters via Data Monitor.

# **Integration Features**

- Automatically detects OEM applications and provides convenient methods to launch them.
- Link to download ServiceMaxx from OEM Application Portal.
- Launches OEM component diagnostic applications in Fault Code Information. Simply click on the OEM application icon to launch the application for more information about that component.
- Launches ACom® Legacy by clicking on the "Launch ACom 6 Legacy with Trailer" icon.
- Support Warranty Submission by enabling you to submit a vehicle report via email.
- Ability to update or install ACom® Legacy from within Bendix® ACom® PRO™.

# **Configuration Features**

- Ability to automatically switch between USB, Wi-Fi®, or Bluetooth® when connecting with a DLA+ 3.0 Wireless adapter.
- Ability to automatically switch between USB or Wi-Fi® when connecting with a DLA+ 2.0 Wireless, or DLA+ Wireless adapter.

# **Product Support Features**

- Links to contact Bendix support or sales from within the application.
- Links to enable remote access for support.
- Support for automatic updates.
- Easy access to Noregon DLA+ family adapter test tools to aid in diagnosing connection problems.

# Bendix ECU Features

- Supports identification of all Bendix components.
- Ability to launch ACom® Legacy to provide support for older Bendix ECUs not currently supported by the Bendix® ACom® PRO™ Diagnostics application.

#### **Tractor Brakes**

- Supports proprietary sensor data on all EC-60 and EC-80 braking systems, and iSense (Pad Wear Sensing) ECUs.
- Supports reading and clearing Bendix proprietary fault codes on all EC-60 and EC-80 braking systems.
- Supports reading fault codes and sensor data for Bendix EC-80 EAC (Electronic Air Control) components.
- Supports reading and clearing Bendix proprietary fault codes and data for Intellipark.
- Supports reading and clearing Event History records on all EC-60 and EC-80 braking systems.
- Event History supports reading:
  - ✓ Event Counters for EC-80 braking systems.
  - ✓ ESP Counters for EC-60 and EC-80 braking systems.
- CPC Configuration Layout displays a configuration diagram for the connected CPCenabled (Central Pressure Controller) EC-80 ECU.
- Users will be automatically prompted to run the ABS ECU Recovery test when required, based on the configuration of the EC-80 ABS ECU.
- Bi-Directional support for Bendix tractor brakes:

Bi-Directional Test or Calibration	Supported On
ABS Air Bag Pressure Test	EC-60 Advanced braking systems
	EC-80 ESP braking systems

<b>Bi-Directional Test or Calibration</b>	Supported On
ABS Configuration	EC-60 and EC-80 braking systems
• ABS	
Tire Size	
• ATC	
<ul><li>ESP</li><li>Broadcast</li></ul>	
For the full list of supported	
parameters, see <u>all 36 ABS</u>	
Configuration Parameters	
ABS Engine Limiting Test	EC-60 Premium or Advanced braking systems
	EC-80 ATC or ESP braking systems
ABS Pressure Test	EC-60 Advanced braking systems
	EC-80 ESP braking systems
ABS ECU Recovery	EC-80 braking systems
ABS Self Config Test	EC-60 braking systems
	EC-80 ABS or ATC braking systems
ATC Configuration	EC-80 ATC or ESP braking systems
✓ ATC Control	
<ul> <li>Traction Control Switch</li> </ul>	
Battery Voltage Test	EC-60 and EC-80 braking systems
Braking System Switches Test	EC-60 and EC-80 braking systems
Dashboard Lamp Tests	EC-60 and EC-80 braking systems
Drag Torque Test	EC-60 Premium or Advanced braking systems
	EC-80 ATC or ESP braking systems
ECU Reset	EC-60 and EC-80 braking systems
ESP Lamp Test	EC-80 ESP braking systems
Maintenance Mode	Intellipark systems
Modulator Valve (Chuff) Tests	EC-60 and EC-80 braking systems
Steering Angle Test and Calibration	EC-60 Advanced braking systems
	EC-80 ESP or ATC+ with EV Support braking systems
Wheel Speed Chart Test	All braking systems reporting wheel speed values
Wheel Speed Window Test	All braking systems reporting wheel speed values
Wiggle Test/Performance Issue Monitoring	EC-60 and EC-80 braking systems
Yaw Rate and Lateral Accel. Test and	EC-60 Advanced braking systems
Calibration	EC-80 ESP braking systems

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#### 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)

#### **Trailer Brakes**

- Supports reading and clearing proprietary fault codes and SAE sensor data for the following:
  - TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
  - o TABS-6™ Multi-Channel (MC) Trailer ABS
  - TABS-8<sup>™</sup> Trailer ABS
- Supports reading and clearing faults for iSense Pro (ADB Continuous Pad Wear Sensing) ECUs.
- Supports trailer diagnostics over CAN for the following modules using the Bendix 4-pin to 9-pin diagnostic extension cable:
  - o TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
  - o TABS-6™ Multi-Channel Trailer ABS
  - o TABS-8™ Trailer ABS
- 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<sup>™</sup> Advanced Single-Channel Trailer ABS
  - ✓ TABS-6™ Multi-Channel (MC) Trailer ABS
  - ✓ TABS-8<sup>™</sup> Trailer ABS
  - EOL Test report provides general ECU information, test results, and information gathered by individual tests.
  - o Individual EOL tests are also available from the bi-directional test menu.
- ECU Configuration provides technicians the tools to set the configuration and parameters of TABS-6<sup>™</sup> Multi-Channel (MC) Trailer ABS ECUs.
- Bi-Directional Support for Bendix Trailer Brakes:

Bi-Directional Test or Calibration	Supported On
ABS Indicator Lamp Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Axle Load Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Battery Voltage Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Chuff Test	TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Door Switch Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
<ul> <li>ECU Configuration</li> <li>✓ ABS Configuration</li> <li>✓ Load and Sensor</li> <li>Configuration</li> <li>✓ TRSP</li> <li>✓ Auxiliary IO</li> </ul>	TABS-6™ Multi-Channel (MC) Trailer ABS

<b>Bi-Directional Test or Calibration</b>	Supported On
ECU Information Test*	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
General Output Functions Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Installation Angle Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Installation Configuration Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Lift Axle Control Test <b>NOTE:</b> Supports LAC1 and LAC2	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Lift Axle Sensing Test <b>NOTE:</b> Supports LAS1 and LAS2	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Lift Lower Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Low Pressure Warning Emergency Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Low Pressure Warning Service Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-8™ Trailer ABS
P-21 Delivery Test	TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
P-21 Modulator Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
P-22 Delivery Test	TABS-6™ Multi-Channel (MC) Trailer ABS
P-22 Modulator Test	TABS-6™ Multi-Channel (MC) Trailer ABS
Pad Wear Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS

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Bi-Directional Test or Calibration	Supported On
Pressure Sensor Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
S-C and S-D Sensor Tests	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
S-E and S-F Sensor Tests <b>NOTE:</b> Supports 4 sensor configuration only	TABS-6™ Multi-Channel (MC) Trailer ABS
Scratchpad Test*	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Tire Inflation System Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Wear Sensing Test <b>NOTE:</b> Requires QWS on SENS IN 1 and 2	TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS with minimum software version of TCWG.730.88
Wheel Speed Chart Test	All braking systems reporting wheel speed values
Wheel Speed Window Test	All braking systems reporting wheel speed values

\*These tests are only displayed within the EOL Test dialog

#### Driver Assistance Systems (DAS)

- Supports reading and clearing fault codes and reading sensor data for the following:
  - ✓ AutoVue® 3G LDW System
  - ✓ SafetyDirect<sup>®</sup> Web Portal Processor (3G and 5G)
  - ✓ AutoVue® FLC20™ Camera
  - ✓ AutoVue® FLC25<sup>™</sup> Camera
  - ✓ Wingman® FLR20<sup>™</sup>/FLR21<sup>™</sup> Radar
  - ✓ Wingman® FLR25<sup>™</sup> Radar
  - ✓ Blindspotter® Radar
  - ✓ Vorad VS500 Radar
  - ✓ Driver Interface Unit (DIU)
  - ✓ Steering Assist
- Supports reading and clearing Event History records on all FLR 21 ECUs.

• Bi-Directional support for Bendix Driver Assistance Systems:

-Directional support for Bendix Driver Ass Bi-Directional Test or Calibration	Supported On
<ul> <li>AutoVue 3G Configuration</li> <li>✓ Enable Startup Chirps</li> <li>✓ Enable Radio Mute Discrete Output</li> <li>✓ Allow Driver Volume Control</li> <li>✓ LDW Warning Alert Type</li> <li>✓ LDW Minimum Operating Speed</li> <li>✓ TPMS Sampling Interval</li> </ul>	AutoVue <sup>®</sup> 3G LDW System
Blindspotter Configuration✓Enable Auto Baud Rate✓Set J1939 Baud Rate✓Legacy Mode✓Hazard Lamp Suppression✓Fixed CCVS Acceptance Address✓Sensor Location✓Extra CAN Target Messages✓FOV Speed Threshold✓J1939 Base Source Address✓Suppress Side Object Display BIST	Blindspotter <sup>®</sup> Radar
Camera Snapshot Test	AutoVue® FLC20™ Camera
Clear Stored Events and Videos	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (3G and 5G)
<ul> <li>DIU Configuration</li> <li>✓ Minimum Volume Percentage</li> <li>✓ Minimum Volume Retained</li> <li>✓ Power-up Tone</li> <li>✓ 2 Second Alert Tone</li> <li>✓ 1 Second Alert Tone</li> <li>✓ 1 Second Alert When Breaking</li> <li>✓ Collision Alert When Braking</li> <li>✓ Collision Alert When Braking</li> <li>✓ Wingman Advanced Alerts</li> <li>✓ Left Speaker Diagnostics</li> <li>✓ LDW Audio Support</li> <li>✓ Right Speaker Diagnostics</li> <li>✓ Blackout Mode</li> </ul>	Driver Interface Unit
Indicator Component Tests	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (5G)
Lamp Component Tests	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (5G)

Bi-Directional Test or Calibration	Supported On
LDW Configuration ✓ LDW ✓ LDW Minimum Operating Speed ✓ LDW Sensitivity (Left Side) ✓ LDW Sensitivity (Right Side) ✓ LDW + Blindspotter 2 Integration	AutoVue® FLC20 Camera
Output Component Tests	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (3G and 5G)
Pressure Trimming and Coil Polarity Test	Steering Assist components
Radar Service Alignment	Wingman <sup>®</sup> FLR25™ Radar
<ul> <li>Safety Direct Event Configuration</li> <li>SD Event Collection</li> <li>SD Event Triggers</li> <li>SD Min Speeds</li> <li>For the full list of supported parameters, see all <u>22 Safety Direct Event</u></li> <li><u>Configuration Parameters</u></li> </ul>	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (3G and 5G)
Safety Direct Event Selection Configuration • Notification Beep • Video Recording For the full list of supported parameters, see all <u>18 Safety Direct Event Selection</u> <u>Configuration Parameters</u>	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (3G and 5G)
<ul> <li>SDP3 Configuration</li> <li>✓ Enable Startup Chirps</li> <li>✓ Enable Radio Mute Discrete Output</li> <li>✓ LDW Driver Disable Switch Type</li> <li>✓ Alert Type</li> <li>✓ Audio Sound Type</li> <li>✓ TPMS Sampling Interval</li> <li>✓ Video Input Camera Type</li> </ul>	SafetyDirect <sup>®</sup> Web Portal Processor (3G)

-

Bi-Directional Test or Calibration	Supported On
<ul> <li>SDP5 Configuration</li> <li>✓ Enable Startup Chirps</li> <li>✓ Enable Radio Mute Discrete Output</li> <li>✓ LDW Driver Disable Switch Type</li> <li>✓ Alert Type</li> <li>✓ Audio Sound Type</li> <li>✓ TPMS Sampling Interval</li> <li>✓ Cellular Enable</li> <li>✓ DVR Options</li> <li>✓ Startup Chirp Volume</li> <li>✓ Video Input Camera Type</li> </ul>	SafetyDirect <sup>®</sup> Web Portal Processor (5G)
<ul> <li>SDP5 System Configuration</li> <li>✓ FLC Camera</li> <li>✓ DFC Camera</li> <li>✓ MPC2 Camera</li> <li>✓ CTP OBC</li> <li>✓ Private CAN</li> <li>✓ Power Backup: Backup Battery</li> <li>✓ Use Only CTP for Data Offloading</li> <li>✓ Power Backup: Supercaps</li> </ul>	SafetyDirect <sup>®</sup> Web Portal Processor (5G)
Speaker Volume Configuration	AutoVue <sup>®</sup> 3G LDW System SafetyDirect <sup>®</sup> Web Portal Processor (3G and 5G)
SPTAC Calibration	AutoVue <sup>®</sup> FLC20™ Camera
Startup Chirp Volume Setting	SafetyDirect <sup>®</sup> Web Portal Processor 3G version 21.19 and above SafetyDirect <sup>®</sup> Web Portal Processor 5G
<ul> <li>TSR Configuration</li> <li>✓ Traffic Sign Recognition</li> <li>✓ TSR OverSpeed Alert</li> <li>✓ TSR OverSpeed Alert and Action</li> <li>✓ Source Address for the Country Select message</li> </ul>	AutoVue® FLC20™ Camera

-

Bi-Directional Test or Calibration	Supported On
Wingman FLR Configuration	Wingman <sup>®</sup> FLR20™/FLR21™ Radar
General Settings:	Wingman <sup>®</sup> FLR25™ Radar
<ul> <li>ACC Lateral Mounting Offset</li> <li>Stationary Object Warning</li> <li>Direct TSC1 Control</li> <li>Highway Departure Braking</li> <li>ACC Type</li> <li>Multi Lane AEB</li> <li>ACC Type Engine Mismatch</li> </ul> DFA Alerts/Following Distance Settings: <ul> <li>Following Distance Alert Table</li> <li>Momentary FDA</li> </ul>	Vorad VS500 Radar
Wingman Fusion Blindness Adjustment	Wingman <sup>®</sup> FLR21 <sup>™</sup> Radar

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#### <u>Safety Direct Event Configuration</u> <u>Parameters</u>

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
- ✓ 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

#### <u>Safety Direct Event Selection</u> Configuration Parameters

NOTE: The exact Safety Direct Event Selection Configuration parameters available vary based on ECU type.

#### Notification Beep:

- ✓ Excessive Curve Speed
- ✓ Excessive Braking
- ✓ 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

## Tire Pressure Monitoring System (TPMS)

- Supports reading and clearing Bendix proprietary fault codes on all SmarTire<sup>™</sup> TPMS Solutions.
- Supports proprietary sensor data on all SmarTire<sup>™</sup> TPMS Solutions.
- Supports reading and clearing of mileage accumulation statistics and sensor fault occurrences on all SmarTire<sup>™</sup> NextGen TPMS Solutions.
- TPMS key data points screen displays tire pressure and temperature data for configured sensor ID's.
- Supports reading Event History Information and saving to local file.
- Bi-Directional support for Bendix TPMS:

Bi-Directional Test or Calibration	Supported On
<ul> <li>TPMS Ambient Sensor Configuration</li> <li>Global Settings:</li> <li>✓ Altitude Compensation</li> <li>Ambient Application Configuration:</li> <li>✓ Ambient Sensor ID Code</li> <li>✓ Ambient Condition Enable</li> <li>✓ Ambient Pressure From Sensor</li> <li>✓ Ambient Pressure Enable</li> <li>✓ Ambient Pressure Source</li> <li>✓ Ambient Sensor Fault Enable</li> </ul>	All SmarTire <sup>™</sup> TPMS solutions
TPMS Backup and Restore For compatibility rules see <u>TPMS</u> <u>Backup and Restore Compatibility</u>	All SmarTire™ TPMS solutions
TPMS Configuration	All SmarTire <sup>™</sup> TPMS solutions
TPMS Lamp Display Configuration	SmarTire <sup>™</sup> Standard and NextGen TPMS Solutions
<ul> <li>TPMS Parameters</li> <li>Global Settings</li> <li>Sensor Fault Time Programming</li> <li>Programming Restrictions</li> <li>Dual Tire Imbalance</li> <li>Low Power Mode</li> <li>Vehicle and Trailer Settings</li> <li>Antenna Configuration</li> <li>For the full list of supported parameters, see all 36 TPMS Parameters</li> </ul>	All SmarTire™ TPMS solutions
TPMS Scratchpad	SmarTire <sup>™</sup> NextGen TPMS solutions
TPMS Signal Strength Test	All SmarTire <sup>™</sup> TPMS solutions (except for Standard TPMS models 200.0213, 200.0216, and 200.0219)
TPMS Statistics	SmarTire <sup>™</sup> 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

#### TPMS Backup and Restore Compatibility

The TPMS Backup and Restore 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<sup>™</sup> Standard TPMS solutions:

May update Standard and NextGen controllers.

#### SmarTire<sup>™</sup> iTPMS solutions:

May only update other iTPMS controllers.

#### SmarTire<sup>™</sup> NextGen TPMS solutions:

May update Standard and NextGen controllers.

#### 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

#### 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

#### Air Treatment Systems

- Supports reading proprietary faults and data, and clearing faults for the following air treatment system components:
  - ✓ EAC (EC-80 Integrated)
  - ✓ EAC (Standalone)
- Supports reading and clearing proprietary fault codes for the following air treatment system components:
  - ✓ eAPU2
  - ✓ iAPU
  - ✓ ESM1
  - ✓ ESM2
  - ✓ EVM1
  - ✓ elAG
- Bi-Directional support for Bendix Air Treatment Systems:

<b>Bi-Directional Test or Calibration</b>	Supported On
Cartridge Lifetime Prediction Reset Test	EAC (EC-80 Integrated) EAC (Standalone)
Cartridge Reset Test	eAPU2 iAPU
Oil Change Reset Test	eAPU2 iAPU

#### **Auxiliary Components**

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

# System Requirements

## Supported Operating Systems

- > Windows 10 (32 or 64-bit English, 32-bit Spanish)
- Windows 11

## Hardware Requirements

- Minimum: 4 GB RAM, 20 GB of available hard drive space, Intel Core i3, 1024 x 768 monitor
- > Recommended: 8 GB RAM, 20 GB of available hard drive space, Intel Core i5
- USB port for Noregon DLA+ 3.0, DLA+ 2.0, DLA+, or port for another RP1210C-Compliant vehicle adapter

NOTE: Ensure the RP1210C-Compliant adapter driver and firmware is the most current available.

NOTE: Internet access required for registration, NextStep<sup>™</sup> Bendix, and to automatically check for software updates.

# Registration

Bendix® ACom® PRO<sup>™</sup> 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 contact information as well as the License Key that you received.

The information will be sent to 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.

Bendix® ACom® PRO™ Diagnostics Registration			
To renew your subscription, contact sales at AComSales@noregon.com.			
······································			
Customer Information			
Name			
E-mail			
Phone			
Company			
Shop Number / Location Code			
Address .			
Service Outlet Type			
Please correct missing information			
License Key Register			
Not Activated			
Proxy Support Settings Information Cancel			

#### **Registration Screen**

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

NOTE: Current subscription support is required to be eligible for Bendix® ACom® PRO<sup>™</sup> Diagnostics product updates.

# **Setting Up Preferences**

## Preferences Wizard

After initial registration, Bendix® ACom® PRO<sup>™</sup> Diagnostics will display the Preferences Wizard to help setup the application. The Preferences Wizard may be accessed at any time via the *Application Settings – Preferences Wizard* **<sup>™</sup>** toolbar option.

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



**Preferences Wizard Welcome** 

2. From the Report Setting window you may customize your Bendix® ACom® PRO<sup>™</sup> 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* Set button see what the report header will look like.

Preferences Wizard			
Report Setting	<i>s</i>	Be	ndix <sup>®</sup>
Customize the Bendix® ACom® PRO™ Diagnostics Report by providing your company's logo and address?			
Select Report Logo: Default		Browse	Use
_			Default
Include Company Name and Address			the Print w button
Company: Noregon Systems, Inc	Company: Noregon Systems, Inc.		to preview
Address: 7009 Albert Pick Rd	ss: 7009 Albert Pick Rd your report.		r report.
City: Greensboro		]	$\bigcirc$
State/Province: NC		]	
Zip/Postal Code: 27409			
Step 2 of 6	Back	Next	Cancel

Logo & Company Information

3. Select *Next* to configure Bendix® ACom® PRO<sup>™</sup> 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.

Preferences Wizard	
Report Settings	Bendix
Would you like Bendix® ACom® PRO <sup>™</sup> Diagr Diagnostic Report each time it connects to a	
• Yes	
O No	
Would you like to specify a different location fo Automatic Files Directory: C:\ACom PRO Logs\Automatic	Browse Use
Step 3 of 6 Back	Next Cancel

**Report Settings** 

4. 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.

Preferences Wizard		
Location	E	<b>Bendix</b>
If your company has multi enables you to easily iden		
Location Name:		
Step 4 of 6	Back Next	Cancel

Location

5. 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** 

6. Next is setting up adapter connections. If you are using a Noregon adapter, 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.

 If you are using a device other than a Noregon adapter, select "No, (Advanced Settings)" and specify the Vendor and Device with which to connect.

Preferences Wizard	Preferences Wizard
Connection Settings Bendix	Connection Settings Bendix
Would you like to use the default connection settings?	Would you like to use the default connection settings?
Yes (Auto-Connect)	O Yes (Auto-Connect)
O No (Advanced Settings)	No (Advanced Settings)
Noregon Adapters Only	Please specify the connection settings you will be using.
	Vendor Noregon Systems Inc., DLA+ 2.0 Adapter V
	Device DLA+ 2.0, USB 🗸
	NOTE: Vendor selection only supports RP1210C compliant adapters. Device selection is limited to devices that support at least 2 CAN channels.
Step 6 of 6 Back Finish Cancel	Step 6 of 6 Back Finish Cancel
Conne	ction Settings

NOTE: Only adapters that are RP1210C compliant will be available for selection. The Device selection is limited to devices that support auto baud and at least 2 CAN channels.

8. 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* X toolbar option which displays the Preferences window in a simple tabbed dialog.

🔁 Prefere	nce Setti	ngs							×
Connection	Display	Fleet	Report						
NOTE:	Connectio	n Settin		pply to Trail RO Trailer D			using the J	PRO DLA+ PLC or	·
Ū	o-Connec Norego Adapters (	ı							
Cor		e select	ion is limited				liant adapte 2 CAN char		
0	Vendo	-	-	ns Inc., DLA	a 2 0 Adar	nter	~		
	101100	Nore	gon System	13 IIIC., DD	(+ 2.0 / 00)	ptor			
	Device	DLA	+ 2.0, USB				$\sim$		
				ОК	Canc	el			

**Advanced Connection Settings** 

NOTE: If you have a Demo license, the Connection tab will not be shown because live vehicle connections are not available.

# Working with Live Vehicle Data Bus

# Connection to the Data Bus on Heavy Duty Vehicles

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

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

Select Connection Type			×
This of What's New	Please select the an be determined by the type cable used to conr	e of connector in the vehicle o	or the How To
Current A	dapter Selection: Noregon	Systems Inc., DLA+ 2.0	Adapter
Heavy Duty	Trailer Connections	DLA+ Connectivity Test	ROWERED BY JRCO <sup>+</sup> TECHNOLOGY Truck Simulators
	NOTE: Heavy Duty Type 2 adapters which support a		Cancel



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

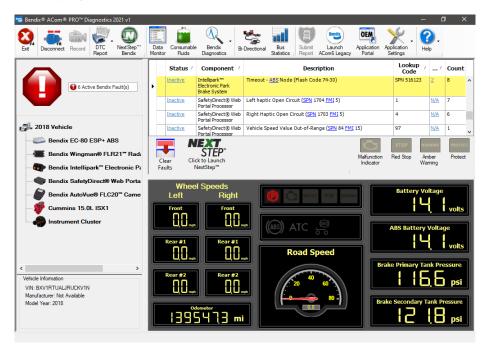
- a. Select the How To < button to view this User's Guide document. This option requires Adobe Acrobat Reader.
- b. Select the What's New to view the What's New document which contains an overview of all features available in the Bendix® ACom® PRO™ Diagnostics application. This option requires Adobe Acrobat Reader.
- c. Select the DLA+ Connectivity Test <sup>I</sup> 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.*
- d. Select the Truck Simulators 2 button to open a virtual or demo truck connection. See <u>Virtual Truck Connection</u> or <u>Bendix Demo Truck Connection</u> for more information.
- 3. 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.* A progress bar in the lower left status bar will display the connection progress.



4. After connections, the Vehicle Readiness, Fault Code Information and Key Data Points windows are displayed.

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



Heavy-Duty Connection Main Screen

5. The application will verify the software version and display Launch Notes.

Source 🔺	Effect	Description
Bendix	Informational	The "Clear faults" button function has been modified. Previously, clicking it would dear all active and inactive faults for all detected ECUs. Now, by clicking it only the active and inactive faults associated with the selected ECU will be cleared.
Bendix AutoVue® FLC20™ Camera	Informational	AutoVue® FLC20™ Camera flash download support is available only through ACom@ Legacy.
Bendix EC-80 ESP+ ABS	Informational	The EC-80 service replacement functionality support is available only through ACom@ Legacy.
Bendix Wingman® FLR21™ Radar Sensor	Informational	Wingman® FLR21™ Radar Sensor flash download support is available only through ACom® Legacy.

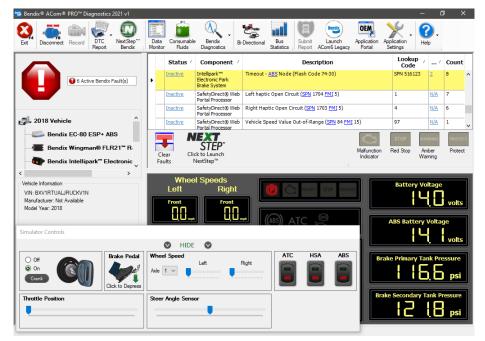


# Virtual Truck Connection

The virtual truck feature is designed to show the vehicle diagnostic and repair capabilities of ACom PRO without having to be physically connected to a vehicle. Any calibrations, configurations, testing, faults and functionality of ACom PRO in virtual truck are simulations.

- 1. Select the F8 key or the *Connect* **i** button on the main toolbar.
- 2. You will be prompted for the connection type. Select the *Truck Simulators* button.
- 3. Choose Virtual Truck from the Select Virtual or Demo Truck screen.
- 4. The application will enter a truck simulation mode allowing you to exercise application features for training and educational purposes.
- 5. The simulation will behave like a Heavy-Duty vehicle connection. The Vehicle Readiness, Fault Code Information and Key Data Points windows are displayed.

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



Heavy-Duty Connection Main Screen

 Explore Bendix® ACom® PRO<sup>™</sup> Diagnostics features such as <u>NextStep<sup>™</sup> Bendix</u>, <u>Data</u> <u>Monitor</u>, <u>Connector Info</u>, <u>Bus Statistics</u>, <u>Clearing Faults</u>, as well as exercising <u>bi-</u> <u>directional tests</u>. These features will behave exactly as if you were connected to a normal Heavy-Duty vehicle connection.



7. Use the Simulator Controls to adjust wheel speeds, cycle ignition power, or perform other functions 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.

Simulator Controls				
	S HIDE S			
O Off On Crank OCID Crank Crank	Wheel Speed Axle 1 V Left Right	ATC	HSA	ABS
Throttle Position	Steer Angle Sensor			

#### **Simulator Controls**

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

8. Select the F8 key or the *Disconnect* subtract 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* **i** button on the main toolbar.
- 2. You will be prompted for the connection type. Select the *Truck Simulators* button.
- 3. Choose Bendix Demo Truck from the Select Virtual or Demo Truck screen.



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

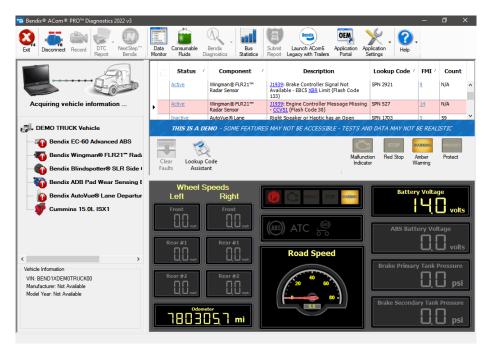
P	Please select Bendix ECUs t	o demo.
	strates the tests and data available for OTE: Tests and data may not function	r various ECU versions and configurations. realistically.
System 💦 📻 🕻	Radar 💼	Optional
🔾 EC-60 Advanced 🐨 💼 👌	⊖ FLR20	🙎 📹 💼 🗆 AutoVue3G
C EC-80 ESP+	⊖ FLR21	Blindspotter® SLR
⊖ Wingman Adv ABS6 (EC-60 Advanced and FLR)	O FLR25	Active Steering
	SDP	2
O Wingman Adv ABS8 (EC-80 ESP+ and FLR)	O SDP3	
🕤 Wingman Fusion	○ SDP5	
(EC-80 ESP+, FLR21 and FLC)	ADB Wear Sensing	See 🖬 👘 🗆 Intellipark
⊖ Vorad S500 (EC-80 ESP+, FLR21, and DIU)	O ADB Wear Sensing	
C TABS-6 SC Trailer	O ADB Continuous W Sensing	lear 👌 📾 🗈 TPMS NextGen
🔾 TABS-6 MC Trailer		2
C TABS-8 Trailer	FLC O FLC20 Camera	Š
<b>2</b>	○ FLC25 Camera	8

**Bendix Demo Truck** 

5. 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.

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

**NOTE:** Demo Truck connections display a demonstration indicator beneath the Fault Code Information window.



Bendix Demo Truck Connection Main Screen

- 6. Explore Bendix® ACom® PRO<sup>™</sup> Diagnostics features such as <u>Data Monitor</u> and <u>bi-</u> <u>directional tests</u> to view the options available for the selected ECUs.
- 7. Select the F8 key or the *Disconnect* subtraction on the main toolbar to close the demo truck session.

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

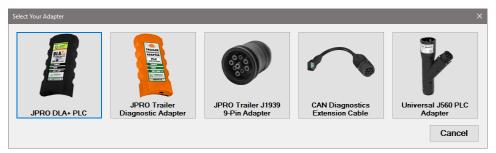
## Connecting to the Data Bus on a Trailer

Connect a Noregon DLA+ PLC or Noregon Trailer Diagnostic Adapter using the PLC 7-way cable. Power must be provided to the trailer using either an auxiliary battery or the tractor.



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

- 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. If multiple PLC adapters are available, a selection screen will be displayed. Select the desired device to continue.

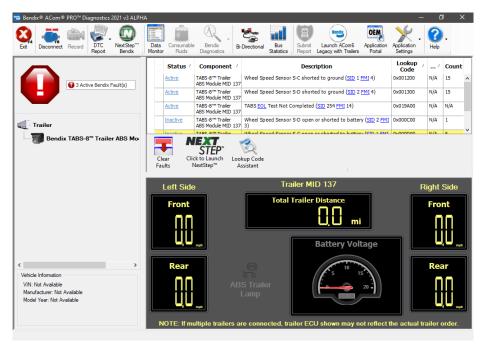


Select Your Adapter

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

If the Universal J560 PLC Adapter 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 Points windows are displayed.



**PLC Trailer Connection Main Screen** 

# Disconnecting from the Data Bus

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

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

# Submit Report By E-mail

Bendix® ACom® PRO<sup>™</sup> Diagnostics provides the ability to generate a comprehensive diagnostic report that can be viewed, saved, or emailed as needed. The BDR report is included in the submitted data. 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.

			×
Method			
Comp	oose Email	O Save File	e
		program (such as Outloo mail program with the subm	
Any message enter	ed below will be include	ed in the email body and sub	omission file.
Message			
Vehicle Informat			
VIN: 1XPBI	D49X9LD675300	Connection Date/1	Fime:
VIN: 1XPBI Make: Peterb	D49X9LD675300	Connection Date/T 2019-05-10 15:4	
VIN: 1XPBI	D49X9LD675300	· · · · · · · · · · · · · · · · · · ·	
VIN: 1XPBI Make: Peterb	D49X9LD675300	· · · · · · · · · · · · · · · · · · ·	
VIN: 1XPBI Make: Peterb	D49X9LD675300	· · · · · · · · · · · · · · · · · · ·	

**Compose E-mail for Submit Report** 

# Compose Email

- 1. During a live vehicle connection select the Submit Report <sup>1</sup>/<sub>2</sub> 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.

# Save File

- 1. During a live vehicle connection select the *Submit Report* <sup>[1]</sup> 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.

Once the file has been saved a dialog will appear showing the Bendix Support email address, subject line to use, and path to the saved file,. Select the *Copy* or *Copy Path* 

button to copy the displayed text to the clipboard so it can be pasted in the webmail message.

Save Subr	mission File	×
<b>()</b>	To submit the file to Bendix for support, please email the file to: Copy TechTeam@bendix.com	
	Use the subject line:	
	Copy DTC Report - 1XPVDP9X6ED225699	
	Attach the report file located at:	
	Copy Path C:\ACom PRO Logs\LocationID_1XPVDP9X6ED225699_2020-11-13 100459_a.zip	
	ОК	

Save Submission File

# 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.

- 1. Select the Vehicle History **b** 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.

		× Search	h		Close
Date	∀ Time	∇ Faults	VIN	Make	Year
2019-07-15	08:50	Active	2HSCWAPR48C456634	International	2008
2019-07-11	15:23	Active	2HSCWAPR48C456634	International	2008
2019-07-11	15:14	Active	2HSCWAPR48C456634	International	2008
2019-07-11	15:06	Active	2HSCWAPR48C456634	International	2008
2019-07-11	14:57	Active	2HSCWAPR48C456634	International	2008
2019-07-10	14:49	Active	2HSCWAPR48C456634	International	2008
2019-07-10	14:20	Active	2HSCWAPR48C456634	International	2008
2019-07-10	14:15	Active	2HSCWAPR48C456634	International	2008
2019-07-10	14:10	Active	2HSCWAPR48C456634	International	2008
2019-07-10	14:00	Active	2HSCWAPR48C456634	International	2008
2019-07-10	13:43	Active	2HSCWAPR48C456634	International	2008
2019-07-10	13:09	Active	2HSCWAPR48C456634	International	2008
2019-07-10	10:51	Active	2HSCWAPR48C456634	International	2008
2019-07-10	09:08	Active	2HSCWAPR48C456634	International	2008
2019-07-10	09:03	Active	2HSCWAPR48C456634	International	2008
2019-07-10	08:58	Active	2HSCWAPR48C456634	International	2008
2019-07-10	08:47	Active	2HSCWAPR48C456634	International	2008
2019-07-10	08:40	Active	2HSCWAPR48C456634	International	2008
2019-07-09	14:55	Active	2HSCWAPR48C456634	International	2008
2019-07-09	14:42	Active	2HSCWAPR48C456634	International	2008
2019-07-09	14:37	Active	2HSCWAPR48C456634	International	2008
2019-07-09	13:47	Active	2HSCWAPR48C456634	International	2008
2019-07-09	13:19	Active	2HSCWAPR48C456634	International	2008
Group By:	Current Fo C:\ACom Pl	RO Logs\Automa	atic		avback View E-mail Fi



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

- 3. Use the *Search* at the top of the form to search all columns by Make, Unit Number, Customer Name, Comments or even a partial VIN. The displayed results will show only those items that meet all search criteria.
- 4. Use the Group By box to select which report heading to sort on.
- 5. 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* we button to view the Bendix® ACom® PRO™ Diagnostic Report if one is available.
  - c. Select the *Email* ≥ button to attach and e-mail the playback file, Bendix® ACom® PRO<sup>™</sup> Diagnostic Report if available.

d. 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.

# Playing Back Previously Recorded Data

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

- 1. Select a log file of interest from the Vehicle History list or via the Vehicle History *File Open* button.
- 2. The playback tool bar appears.



**Playback Toolbar** 

- 3. The Vehicle Readiness, Fault Code Information and Key Data Points window are displayed.
- 4. The Application status bar is updated with the name of the playback file.
- 5. The playback toolbar functions as follows:
  - a. 🥙 Rewind to beginning of the playback file.
  - b. 🥑 Play. Begin file playback.
  - c. **Pause**. Pause file playback.
  - d. 🧶 Fast Forward playback.
  - e. Attach and E-mail playback file. This button displays the Compose E-mail dialog.
  - f. 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* with button from the main toolbar. The toolbar and all data views will close.
- 7. The Vehicle History window will re-open.

# 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.

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

## **Basic Recording**

- 1. While connected to the live vehicle data bus, select the *Record* with the main toolbar.
- 2. The data bus is recorded. "Record" displays in the lower right status bar.

## Stop Recording

- 1. To stop recording, click the *Stop Recording* with button on the main toolbar.
- 2. Recording stops.
- 3. The application prompts you to save the log file. Click Yes.
- 4. 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:\ACom PRO Logs\**.
- 5. The log file is saved to disk and can be played using the Playback feature.

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

# Automatic Recording

Upon making a live vehicle connection, Bendix® ACom® PRO<sup>™</sup> 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.

Log files are saved to the computer's hard drive in location configured in "Setting Up Preferences". The default is:

### C: \ACom PRO Logs\Automatic\

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

# NextStep<sup>™</sup> Bendix

The  $NextStep^{\text{TM}}$  Bendix O button on the main toolbar allows you to view troubleshooting information, wiring diagrams and step-by-step repair procedures for all reported Bendix faults as long as the computer has a reliable internet connection.

- 1. While connected to a heavy-duty vehicle, select the *NextStep™ Bendix* <sup>™</sup> button on the main toolbar.
- 2. If any reported faults are supported, then the NextStep<sup>™</sup> window appears. The Overview contains general information for the selected fault condition.

aultCode: 17-	8 FMI: N/A				-		
OVERVIE		TROUBLESHOOTING TASKS	PRINT HISTORY		Class	Faults	
Fault C	Code 17-8 Right	Additional Axle PMV	THIS FIXED I	т	۲	ectional	
Config	uration Error				0	EM	
		ECU) is a member of a family of three aked heavy-duty and medium-duty tr	· · · · · · · · · · · · · · · · · · ·	improve the	Appli	cations	
The E     inten	Bendix Electronic Stability F ded path and provides Yaw	Program (ESP®) Controller analyzes	s the vehicle's motion compared f gram (RSP) capabilities. When n	to the driver's ecessary, the	H 🔰 D P E	rint	
	m reduces the engine thro n to the intended direction.	ttle and applies the brakes at one or	more of the wheel ends to help t		ອ 🚽	x Terms	
durin comr	g acceleration, and aids lat	n Control (ATC) Controller provides s teral stability while driving through cu s control unit to provide Engine Torqu al wheels.	urves. The Bendix® ATC Control	ler	Service D	1.1	
detec	t wheel slip or wheel lock-	system (ABS) ESP® Controller uses up during braking. The system intervi lse the brake pressure to optimize co	enes when needed, using Press	ure Modulator	CI	3 ose	
		🔊 Hid	DE 🛇				
Status	ults Vehicle Values Component	nt	Description		ode FMI	Count	
tive	EC-80 ESP + ABS		tion Error (SPN 800 FMI 13)	17-8	N/A	40	
tive	EC-80 ESP + ABS		gnal Low at Drive Off (SPN 790 FMI 9)	3-2	N/A	40	1
	EC-80 ESP + ABS	Battery Voltage Too Low	(SPN 168 FMI 4)	6-1	N/A	13	
active							
active tive	AutoVue® FLC20™ Camera	Internal Error or Calibrat	tion Not Complete (SPN 630 FMI 2)	19	N/A	6	

NextStep<sup>™</sup> Overview

NOTE: Internet access is required for access to Noregon's NextStep<sup>™</sup> NET Service Information.

- 3. To view information for a different fault, select the fault from the Supported Faults list.
- 4. Select the Wiring tab to view wiring diagrams for the selected fault.

- 🔁 NextStep FaultCode: 17-8 FMI: N/A OVERVIEW WIRING Clear Faults << THIS FIXED IT Ċ, Check the Wiring 1. Check the Wiring **Bi-Directiona** 2. Check the · Required Tools/Equipment OEM Connectors for Bendix® ACom® PRO™ or JPRO® Professional Ø Application Corrosion or Damage н Conditions: 3. Check for Other DE Print **Devices Inhibiting** · With Bendix® ACom® PRO™ or JPRO® Professional connected J1939 Ø A-Z · With key OFF Comm nication Industry Terms 4. Verify the ECU 1 Configuration 1. Inspect the J1939 wiring for reversed wiring or damage such as 5. Verify the Repair Service Data Sheets Cut wiring Chafing 0 Reversed circuits Close HIDE Supported Faults Vehicle Values Status Component Description Code FMI Count Active EC-80 ESP + ABS AA Right PMV Configuration Error (SPN 800 FMI 13) 17-8 N/A 40 Active Steer Axle Right WSS Signal Low at Drive Off (SPN 790 FMI 9) N/A EC-80 ESP + ABS 3-2 40 Inactive EC-80 ESP + ABS Battery Voltage Too Low (SPN 168 FMI 4) 6-1 N/A 13 Internal Error or Calibration Not Complete (SPN 630 FMI 2) Active AutoVue® FLC20™ Camera 19 N/A 6 CONLCOD EM See main Fault Grid to view all current faults
- 5. Select the Troubleshooting Tasks tab to view step by step troubleshooting steps.

NextStep<sup>™</sup> Troubleshooting Tasks

- 6. Select the R&I tab to view removal and installation instructions. A troubleshooting step may direct you to follow an R&I procedure.
- 7. Select the Vehicle Values tab to view fault related data.
- 8. Select the *Clear Faults* **T** button to verify the repair procedure by forcing the ECU to re-evaluate the fault condition.
- 9. Select the *Bi-Directional* <sup>Select</sup> button to access Bendix® ACom® PRO<sup>™</sup> Diagnostics Bi-Directional features as instructed by the troubleshooting tasks.

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

- 10. Select the *Applications* <sup>™</sup> button to access Bendix® ACom® PRO<sup>™</sup> Diagnostics Application Portal.
- 11. Select the *Print* Sutton to print the current displayed information.
- 12. Select the Industry Terms 🚈 button to view definitions for common industry terms.
- 13. Select the Service Data Sheets 🔛 button to open the installed troubleshooting guide for the selected component.

# **EOL** Test

The EOL (End of Line) 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<sup>™</sup> Advanced Single-Channel Trailer ABS, TABS-6<sup>™</sup>

Multi-Channel Trailer ABS, or TABS-8<sup>™</sup> Trailer ABS unit, select the EOL Test If 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.

within limits. The tests will run in the order listed	vert      vert     vert      vert      vert      vert      ve
<ul> <li>ECU Information Installation Configuration Installation Angle Axle Load Battery Voltage ABS Indicator Lamp S-C Sensor S-D Sensor Pressure Sensor P-21 Modulator ScratchPad</li> </ul>	ECU Information ECU Type Part Number Software Version Serial Number Configuration Axle Control Mode Tire Size in rpm Front Axle Group Rear Axle Group EOL Completed ECU Configured Run Test
Next Stop	Repeat

**EOL Test Customization Screen** 

 See <u>EOL Test</u> for more information about the individual tests as well as the EOL Test as a whole.

# **Bendix Diagnostics**

Bendix Diagnostics provides access to component specific diagnostic information screens. This can include:

- ABS Monitor
- TPMS Diagnostics
- Event History
- CPC Configuration Layout

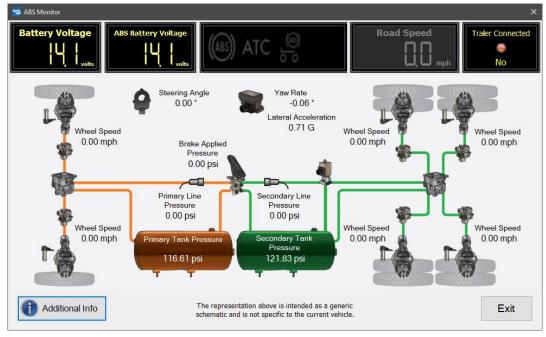
# **ABS Monitor**

The Bendix ABS Monitor provides an at-a-glance assessment of the health of the related ABS pneumatic and electrical 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.

10	ABS Mo	pnitor	×
	1	Modulator Valves control the air pressure to each affected brake during an ABS function.	
	T	, The Brake Modulator Valve Test should be performed during diagnosis of any common brakin complaints, such as: pulling brakes, long stops, or low brake pedal.	ıg related
	٥	Steering Angle Sensor measures degrees of actual steering wheel rotation as an input to t control module for stability control functions.	the ABS
	T	Calibration of this sensor is required after disconnection or replacement of steering system components.	
		Traction Control Valve is part of the Automatic Traction Control system that regulates brak pressure when wheel slip is detected.	e
	I_	Wheel Speed Sensors are responsible for measuring wheel rotation speed and relaying that information to the ABS system.	st
		Yaw/ Lateral Acceleration Sensor measures both the Yaw Rate and the Lateral Accelerative vehicle.	tion of
		A positive Yaw Rate value means a counterclockwise spin. A negative value means a clockwis	æ spin.
		A positive Lateral Acceleration value means left side slide. A negative value means right side s	slide.
		Calbiration of this sensor is required after disconnection.	
		E	Exit

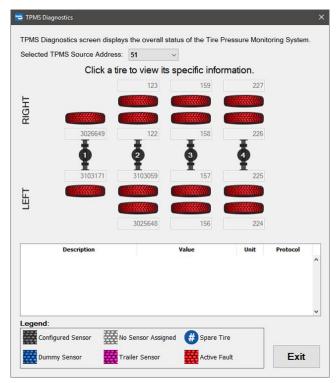
**ABS Monitor Additional Info** 

# **TPMS Diagnostics**

The Bendix TPMS Diagnostics displays the number and arrangement of tire sensors managed by the TPMS Controller. Clicking on a tire image will display the specific information for the selected tire sensor.

When there are multiple TPMS Controllers on a connection, a drop down control will be displayed. Select the desired component Source Address to view its information.

NOTE: The number and arrangement of axles reported may not match the physical truck layout.



#### **TPMS Diagnostics**

# **Event History**

The Bendix Event History screen provides a detailed historical record of events reported by components that support this type of information. 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.

DTC	Events Info	Events ESP Counters Event Counters							
	Component	Description	Count	Power Up Time	Vehicle Velocity	Event Stamp	Event Specific Data	Latitude/Lon	Date Time
Þ	EC-80 ESP+ ABS	All faults cleared by diagnostic tool	1	< 10 s	0 mph	16 power cycles			
	EC-80 ESP+ ABS	Event History Cleared	1	10 s - 15 m	0 mph	0 engine hours			

**Event History** 

## **TPMS Save Info Events**

Selecting a TPMS solution from the Component drop down box will enable *Save Info Events*, which allows saving the TPMS Info Events to a local file for Bendix Support.

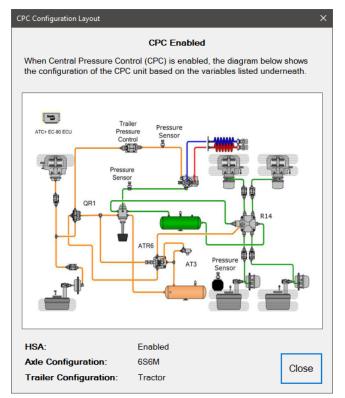
Selecting *Save Info Events* will open a Save As dialog, allowing the file to be saved to the desired directory location.

	nt History Events									>
	Component	Description	Count	Power Up Time	Vehicle Velocity	Event Stamp	Event Specific Data	Latitude/Lon	Date Time	
•	SmarTire™ Next GEN TPMS	Sensor fault deared (Sensor ID:3025648, Axle:2, Wheel:1)	1		N/A	Run Time: Ign: 8, Min: 10				ľ
	SmarTire™ Next GEN TPMS	Sensor fault cleared (Sensor ID:3103059, Axle:2, Wheel:2)	1		N/A	Run Time: Ign: 8, Min: 4				
	SmarTire™ Next GEN TPMS	Sensor fault cleared (Sensor ID:3026649, Axle:1, Wheel:2)	1		N/A	Run Time: Ign: 8, Min: 2				
	SmarTire™ Next GEN TPMS	Sensor fault cleared (Sensor ID:3103171, Axle:1, Wheel:1)	1		N/A	Run Time: Ign: 8, Min: 0				
	SmarTire™ Next GEN TPMS	Smart antenna no reception cleared	1		N/A	Run Time: Ign: 8, Min: 0				
	SmarTire™ Next GEN TPMS	Sensor fault in rolling (Sensor ID:3103059, Axle:2, Wheel:2)	1		N/A	Run Time: Ign: 7, Min: 258	Fault Age: 36 min			
	mponent: narTire‴ Nex	kt GEN TPMS ~ History	Refi		ave Info vents				Close	

**TPMS Save Info Events** 

# **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** 

# **OEM Application Portal**

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

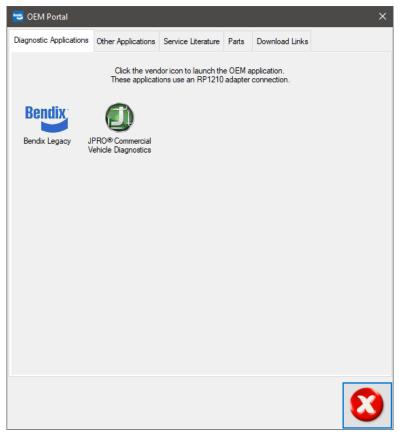
- OEM Applications
- Service Literature
- Parts website links
- Links for downloading 3<sup>rd</sup> party applications

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

Launch an OEM Application by clicking on the application Icon (i.e.<sup>™</sup>). If there are multiple applications available for the OEM, a dialog will be presented allowing for the selection of the desired application. If Bendix® ACom® PRO<sup>™</sup> 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, Bendix® ACom® PRO<sup>™</sup> Diagnostics will reconnect to the data bus.



#### **OEM Portal Diagnostic Applications**

The Service Literature tab contains links to OEM service literature websites. Several of the available websites require their own user accounts to access the information.

# Parts **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.

# **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 Bendix® ACom® PRO<sup>™</sup>® Diagnostics. This window displays a consolidated view of the entire vehicle across data buses. The window is divided into three panels that provide useful information.

- The top portion of the window displays overall vehicle health information.
- 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 ECU image will have a red exclamation point if active faults are reported by that ECU. The Vehicle/Component Information area is also updated to display information pertaining to the selected component.
- The Vehicle Information area at the bottom of the Vehicle Readiness window displays the VIN, manufacturer, model, model year and unit number if the vehicle node is selected, or component-specific information if a component is selected.



### **Vehicle Health**

The Vehicle Health indicator assists in diagnostics by displaying high priority issues. Clicking on a vehicle issue will open the most appropriate diagnostic aid. Several issues are monitored in order to determine the overall vehicle health.



Vehicle Health Indicator

#### <u>No J1939 Data</u>

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

The diagnostics aid for the No J1939 Data issue is the Connector Info screen.

#### Active Bendix Faults Present

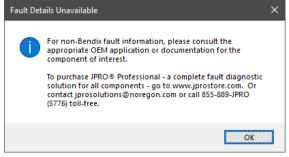
If there are any active Bendix faults present on the vehicle, then this issue will be displayed. If all the active Bendix faults are cleared or fixed (made inactive), then this issue will disappear.

When clicked NextStep<sup>™</sup> Bendix will be launched to display troubleshooting information for the active Bendix faults.

## Active Other OEM Faults Present

If there are any active non-Bendix 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.

The diagnostic aid for the Active Other OEM Faults Present is the following message.



**Active Other OEM Faults Present** 

### 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 <u>Consumable Fluids</u> 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.

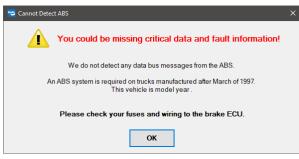
If the battery voltage is consistently above the threshold for 15 seconds or more, the issue will disappear.

The diagnostics aid for the *Battery Voltage Low* issue is <u>Data Monitor's</u> "Power Diagram" tab which displays all reported voltage data.

### Cannot Detect ABS

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

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



**Cannot Detect ABS** 

# Fault Code Information

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. Additional information is displayed for the selected vehicle/component and fault at the bottom of the Fault Code Information window.

Full fault support is provided for all Bendix components. Standard SAE support is provided for all other vehicle components.

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

Status	/ Component /	Description		Lookup Code	/ FMI /	Count	t
Active	AutoVue® FLC20™ Camera	Internal Error or Calibration Not Complete (SPN 630 FMI 2)		19	<u>N/A</u>	6	
Active	AutoVue® FLC20™ Camera	Vehicle Calibration Not Complete (SPN 630 FMI 2)		59	<u>N/A</u>	6	
Active	EC-80 ESP + ABS	AA Right PMV Configuration Error (SPN 800 FMI 13)		17-8	N/A	40	-
Active	EC-80 ESP + ABS	Steer Axle Right WSS Signal Low at Drive Off (SPN 790 FMI 9)		3-2	N/A	40	
Active	SafetyDirect® Web Portal Processor	Right Speaker has an Open Circuit (SPN 1703 FMI 5)		161	<u>N/A</u>	6	
Active	SafetyDirect® Web Portal	Left Speaker has an Open Circuit (SPN 1704 FMI 5)		163	N/A	7	•
ear Clic	STEP" k to Launch lextStep™		Malfur	ction Red Stop	Amber Warning	PROT	

Heavy Duty Fault Code Information

Click in on a fault Description with a hyperlink to view the definition of the industry terms used in that fault description.



**Industry Terms Popup Window** 

# **Electrical Fault Information**

	Power Diagram	Temperature	Switches	Status Indicators	Pressure	Percent Electric	al Data Group	S				
						Key Sv	vitch Voltag	e			Cummins X15	
	Click on a	n ECU in	nage fo	r 🛛	13.95	<b>v</b> (	$\odot$		Switched			
ľ	dditional v	oltage in	format	ion.	J1939 (Hi	gh)	¥.	<b>F</b>	N/A			
				Sc	ource: Transr	mission	ÎI I		N/A			
							T T					
		-	Cummins	X15						×		
			Description				1	Parameter Value	Units	Network Speed		
		► B	ey Switch Bi	attery Potential			1	lot Available	volts	J1939 (High)		
				ntial (Voltage)			1	13.90	volts	J1939 (High)		
		4	Alternator Po	tential (Voltage)			١	lot Available	volts	J1939 (High)		
											ton Endurant Seri	es
										Close		
										Close		
					10120 4	_						
					1939 (High						PACCAR CEC	U3
				So Please verify	ource: Engine actual batte	e ry voltage.						
								Switch	ned	N/A		
۲.												

Click on the souther to view reported electrical data related to the fault.

**Electrical Fault Additional Information** 

# **TPMS Fault Information**

Click on the <sup>(1)</sup> button in the fault grid for TPMS faults to view all the TPMS sensors reporting the fault.

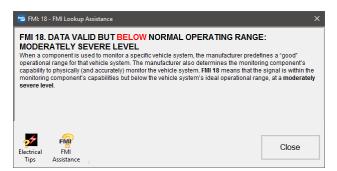
	Status /	Component /	Description	Lookup / Code	/	Count
0	<u>Active</u>	SmarTire™ Next GEN TPMS	Tire Pressure Second Level Pressure Low	SPN 241	1	N/A
D	<u>Active</u>	SmarTire™ Next GEN TPMS	Tire Pressure First Level Pressure Low	SPN 241	<u>18</u>	N/A

#### **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: Active	×
ACTIVE This status indicates that the fault is a currently active diagnostic trouble code. The con enable this fault are currently present and must be repaired to disable the fault code.	ditions required to
A fault code with this status can be cleared with a diagnostic tool but will immediately be cause of the code has not been corrected.	reported again if the
Important Some ECUS may incorrectly report an Inactive status alongside other conflicting statuse Emissions Active, Permanent, or Pending and will cause fault statuses to cycle like an i more detailed information see <u>CYCLING FAULT STATUS</u> .	
Detrical Fault Status Tips Assistance	Close

**Fault Status Lookup Assistance** 

### **Clearing Faults Functions**

Use the Clear Faults 🗮 button to clear all active and inactive faults.

To clear faults only from a specific Bendix component, select the component from the Vehicle Tree and use the *Clear Faults* button. This will clear all active and inactive faults from the selected Bendix component only.

▲ 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.

### Click to Launch NextStep™

Click the *Click to Launch NextStep*<sup>™</sup> STEP<sup>™</sup> button to access the best troubleshooting information Bendix® ACom® PRO<sup>™</sup> Diagnostics has available for the current selected Bendix fault.

NOTE: Internet access is required for NextStep<sup>™</sup> Bendix to access Noregon's NextStep<sup>™</sup> NET Service Information.

If the selected fault is supported by NextStep<sup>™</sup> Bendix, then a window where you can view troubleshooting information, wiring diagrams and step-by-step repair procedures for the selected fault and all other reported faults supported by NextStep<sup>™</sup> Bendix will be displayed. See <u>NextStep<sup>™</sup> Bendix</u> for more information.

If the component or fault is not supported by NextStep<sup>™</sup> Bendix, or an internet connection is not available, then Bendix® ACom® PRO<sup>™</sup> Diagnostics will open the installed troubleshooting manual for the fault's component.

# Launching OEM Applications

Launch a 3rd party (OEM) diagnostic application by clicking on the application lcon (i.e.  $\clubsuit$ ). 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 Bendix® ACom® PRO<sup>™</sup> continues to execute. If Bendix® ACom® PRO<sup>™</sup> 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, Bendix® ACom® PRO<sup>™</sup> 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, or ServiceMaxx from Bendix® ACom® PRO™ Diagnostics. The user must reconnect manually after closing these applications.

# Key Data Points

The Key Data Points window displays specific data items targeted to the component currently selected in the Vehicle Readiness window. Various Key Data Point collections exist for the following components: Bendix components, engines, and transmissions. The Bendix components Key Data Point collection is also used for the vehicle selection.

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. Data points for which no data is available are grayed out or disabled.

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 status of each of five lamps is shown:

**Parking Brake Status:** Switch signal which indicates when the parking brake is set. Usually, the switch actuated by the operator's park brake control, whether a pedal, level or other control mechanism.

Malfunction Indicator Lamp: Signals an emissions-related fault code is active.

**Protect Lamp:** Signals a fault code or condition from a vehicle system that is not usually related to an electronic subsystem, such as "Oil temperature too high".

**Red Stop Lamp:** Signals a fault code is severe enough to stop the engine.

**Amber Warning Lamp:** Signals a fault code with a vehicle system but is not severe enough to disable the vehicle.

Each Lamp Status can be shown as: **Off** (least severe), **Flashing**, or **Steady On** (most severe).

### Data Points for Bendix Tractor Components

When a vehicle or Bendix tractor component is selected in the vehicle readiness window, the following are the displayed data points: Wheel Speeds, odometer, vehicle lamps, ABS system lamps, Intellipark switches with diagnostic flash codes, road speed, battery voltage, ABS battery voltage, and primary and secondary brake pressures.



**Key Data Points** 

Intellipark switches are displayed for the components detected on the vehicle. The 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.

# **Data Points for Bendix Trailer Brakes**

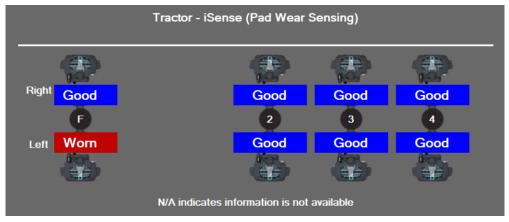
When a TABS component is selected the following data points are displayed: trailer MID address, wheel speeds, total trailer distance, battery voltage, and ABS trailer lamp status.



**Trailer Key Data Points** 

## Data Points for Bendix iSense (Pad Wear Sensing)

When an iSense (Pad Wear Sensing) component is selected, the reported pad wear life status is displayed.



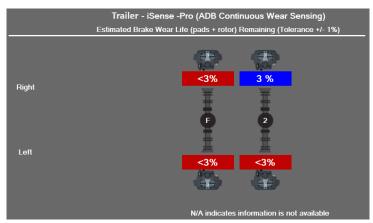
Key Data Points iSense

When a Bendix iSense – Pro (ADB Continuous Pad Wear Sensing) component is selected, the estimated brake wear life (pads plus rotor) remaining is displayed.



Key Data Points iSense - Pro

When a Trailer iSense – Pro (ADB Continuous Wear Sensing) component is selected, the estimated brake wear life (pads plus rotor) remaining is displayed.



Key Data Points Trailer iSense - Pro

# **Data Points for Bendix TPMS**

When a TPMS component is selected the tire temperature and tire pressure for detected sensors is displayed. Blue axle numbers indicate Spare Tire sensors.



**Key Data Points TPMS** 

#### Data Points for an Engine Component

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.

#### Data Points for a Transmission Component

Transmission input speed, transmission output speed, transmission fluid temperature, gear selected, gear obtained, and battery voltage.

## **Data Monitor**

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

The Data Monitor group's messages into related categories by tabs located at the top of the Data Monitor window. Many of these tabs use graphical representations for displaying parameter values.

- 1. Select *Data Monitor* 🔲 button on the main toolbar.
- 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.

		All	•	×	Search	Data Monitor
Sele	cted	Description	Parameter Value	Units	Component /	/ Network Speed
•		Transmission Driveline Engaged	Disengaged		15.0L ISX1	J1939 (High)
		Transmission Selected Gear	Not Available		15.0L ISX1	J1939 (High)
		Transmission Actual Gear Ratio	16.00		15.0L ISX1	J1939 (High)
		Transmission Current Gear	N		15.0L ISX1	J1939 (High)
		Transmission Range Selected	Not Available		15.0L ISX1	J1939 (High)
		Transmission Range Attained	Not Available		15.0L ISX1	J1939 (High)
		Transmission Torque Converter	Not Available		15.0L ISX1	J1939 (High)
		Transmission Shift in Process	Not Available		15.0L ISX1	J1939 (High)
		Transmission Output Shaft Spe	ed Not Available	rpm	15.0L ISX1	J1939 (High)
		Percent Clutch Slip	Not Available	%	15.0L ISX1	J1939 (High)
		Engine Momentary Overspeed	Take no action		15.0L ISX1	J1939 (High)
		Progressive Shift Disable	Take no action		15.0L ISX1	J1939 (High)
		Input Shaft Speed	Not Available	rpm	15.0L ISX1	J1939 (High)
		Nominal Friction - Percent Torq	e 7.00	%	15.0L ISX1	J1939 (High)
		Engine's Desired Operating Spe	1300	rpm	15.0L ISX1	J1939 (High)
		Engine's Desired Operating Spe	125.00		15.0L ISX1	J1939 (High)
		Estimated Engine Parasitic Loss	0.00	%	15.0L ISX1	J1939 (High)
		Aftertreatment 1 Exhaust Gas	Not Available	lb/hr	15.0L ISX1	J1939 (High)
		Aftertreatment 1 Intake Dew P	Not exceeded the dew point		15.0L ISX1	J1939 (High)
		Aftertreatment 1 Exhaust Dew	Not exceeded the dew point		15.0L ISX1	J1939 (High)
		Aftertreatment 2 Intake Dew P	Not Available		15.0L ISX1	J1939 (High)
		Aftertreatment 2 Exhaust Dew	Not Available		15.0L ISX1	J1939 (High)

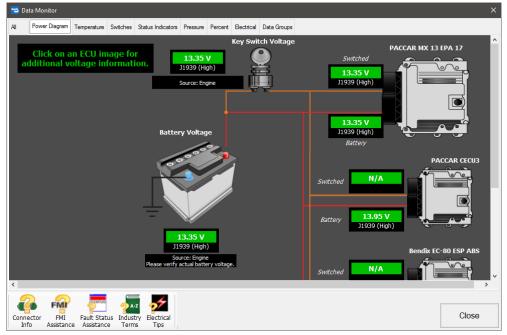
#### **Data Monitor All Tab**

- 3. Other Data Monitor tabs include: Power Diagram, 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.

NOTE: Power Diagram is not available for Trailer connections.

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 red in the grid display. Data associated with inactive faults will be highlighted in yellow.

Description	Parameter Value	Units	Network Speed
Key Switch Battery Potential	13.30	volts	J1939 (High)
Battery Potential (Voltage)	13.30	volts	J1939 (High)
Alternator Potential (Voltage)	Not Available	volts	J1939 (High)

**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. Bendix 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.

Data items that are available on the current vehicle will be displayed when the named group is selected in the Data Group dropdown.

	ata Group	*Tractor Brake Sensors	•	×	Search	Data Monitor
5	Selected	Description	Parameter Value	Units	Component /	Network Speed
•		Front Axle, Left Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Front Axle, Right Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Rear Axle, Left wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Rear Axle, Right Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Front Axle Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Front Axle, Left Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
Γ		Front Axle, Right Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
Γ		Rear Axle #1, Left Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
Γ		Rear Axle #1, Right Wheel Spe	0.00	mph	EC-80 ESP + ABS	J1939 (High)
Γ		Rear Axle #2, Left Wheel Speed	0.00	mph	EC-80 ESP + ABS	J1939 (High)
Γ		Rear Axle #2, Right Wheel Spe	0.00	mph	EC-80 ESP + ABS	J1939 (High)
		Steering Wheel Angle	65.72	degrees	EC-80 ESP + ABS	J1939 (High)
		Wheel Speed Steer Axle Left	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
		Wheel Speed Steer Axle Right	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
Г		Wheel Speed Drive Axle Left	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
Г		Wheel Speed Drive Axle Right	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
Γ		Wheel Speed Add Axle Left	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
Γ		Wheel Speed Add Axle Right	0.00	mph	EC-80 ESP + ABS	15765 (CAN)
Γ		Steering Angle Sensor Value	0.00	degrees	EC-80 ESP + ABS	15765 (CAN)
Γ		Yaw Rate Sensor Value	-0.06	degrees	EC-80 ESP + ABS	15765 (CAN)
		Lateral Acceleration Sensor Value	0.05	meters/sec^2	EC-80 ESP + ABS	15765 (CAN)
		Brake Primary Line Pressure	0.00	psi	EC-80 ESP + ABS	15765 (CAN)

**Data Monitor Data Groups Tab** 

11. 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.

**NOTE: Pre-defined Data Groups cannot be edited.** 

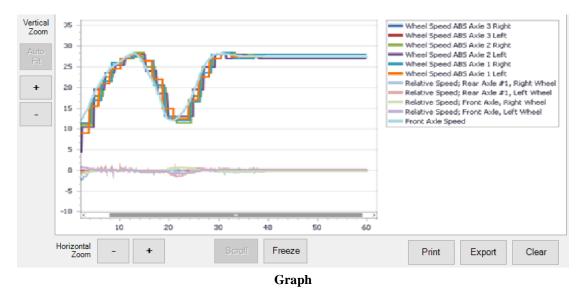
×	>	р	rameters to Gro	😑 Add Para
_			lame	Group Na
				ATC
			ip Name	New Group
	Add			I
		Cancel	ОК	
		Cancel	OK	1

**Add Parameters to Group** 

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

The Graph window is available from the Data Monitor screen and displays various data items and parameters in a constantly updating graph format, allowing you to view trending information.



- 1. Select parameters of interest in the Data Monitor.
- 2. Click on the Graph Million .
- 3. The Graph window is displayed.
- 4. The data items you selected will be plotted on the graph over time.
- 5. To customize the display:
  - a. Hover the cursor over the graph to see the value plotted.
  - You can zoom each axis of the graph independently by clicking either the + or button.
  - 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 <u>Connector Info window</u>, displaying information about active communications for a live vehicle connection, and providing connector pinouts for diagnosing communication issues.

## **FMI Assistance**

The *FMI Assistance* for button will open a window containing extended FMI descriptions to aid technicians understanding of fault code FMI meaning.

n FMI Assistance	×
FMI 0. DATA VALID BUT ABOVE NORMAL OPERATIONAL RANGE: SEVERE When a component is used to monitor a specific vehicle system, the manufacturer predefines a 'good' operational range for that vehicle system. The manufacturer also determines the monitoring component's capability to physically (and accurately) monitor the vehicle system. FMI or means that the signal is within the monitoring component's capabilities but <b>above</b> the vehicle system's ideal operational range, at the most severe level.	^
FMI 1. DATA VALID BUT BELOW NORMAL OPERATIONAL RANGE: SEVERE When a component is used to monitor a specific vehicle system, the manufacturer predefines a "good" operational range for that vehicle system. The manufacturer also determines the monitoring component's capability to physically (and accurately) monitor the vehicle system. FMI means that the signal is within the monitoring component's capabilities but below the vehicle system's ideal operational range, at the most severe level.	
FMI 2. DATA ERRATIC, INTERMITTENT OR INCORRECT The manufacturer has predetermined an acceptable rate of change possible for a real world condition such as, but not limited to, temperature or pressure changes. FMI 2 is used for any data that is changing at a rate outside of this predetermined range and is not actually possible. This is caused by improper operation of the measuring component or the circuit that connects it to a control module. The data parameter may be displayed as an Error value.	
FMI 3. VOLTAGE ABOVE NORMAL OR SHORTED TO HIGH SOURCE FMI 3 is used when a voltage signal has been detected above the operational limits predefined by the manufacturer - OR - a voltage signal remains high even when the ECM commands it to low. In either situation, the associated data parameter may be displayed as an Error value.	
FMI 4. VOLTAGE BELOW NORMAL: SHORTED TO LOW SOURCE FMI 4 is used when a voltage signal has been detected below the operational limits that are predefined by the manufacturer - OR - a voltage signal remains low even when the ECM commands it to high. In either situation, the associated data parameter may be displayed as an Error value.	
FMI 5. CURRENT BELOW NORMAL: OPEN CIRCUIT FMI is used when a current signal has been detected below the operational limits that are predefined by the manufacturer - OR - a current signal remains off even when the ECM commands it to on. In either situation, the associated data parameter may be displayed as an Error value.	
FMI 6. CURRENT ABOVE NORMAL: GROUNDED CIRCUIT	~
Close	

#### **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.

ault Status Assistance	×
CYCLING FAULT STATUS While informittent faults may cycle from one status to another, some ECUs may incorrectly report an <b>inactive</b> status alongside other conflicting statuses such as <b>Active</b> . Emissions <b>Active</b> , <b>Permanent</b> . or <b>Pending</b> . Because faults received via J1939 are reported using separate datalink messages, each representing a specific status, this may result in seeing fault statuses cycle between an invalid inactive status and other valid statuses (Active, Emissions Active, Permanent, or Pending).	^
To confirm a cycling issue Select the suspected fault. If the fault grid lamps illuminate while the fault is selected, then the fault is reporting that it is causing Lamps and should be considered <b>Active</b> . Also, valid <b>Inactive</b> statuses should not cycle unless an intermittent electrical fault is occurring. Review the suspect components data in Data Monitor to confirm an intermittent electrical issue.	
ACTIVE This status indicates that the fault is a currently active diagnostic trouble code. The conditions required to enable this fault are currently present and must be repaired to disable the fault code.	
A fault code with this status can be cleared with a diagnostic tool but will immediately be reported again if the cause of the code has not been corrected.	
INACTIVE This status indicates that the fault is a previously active diagnostic trouble code. The conditions that triggered this fault are currently NOT present.	
A fault code with this status can be cleared with a diagnostic tool and will remain cleared if the cause of the fault has been corrected. NOTE: Inactive fault codes with a high occurrence count may be intermittently occurring and may need to be diagnosed before clearing the fault.	
EMISSIONS ACTIVE This status indicates that the fault is a currently active, emissions-related diagnostic trouble code. Faults with this status usually illuminate the Maltunction Indicator Lamg (MIL). Specific regulations may allow the MIL to not be illuminated for some emissions-related diagnostic trouble codes.	
A fault code with this status can be cleared with a diagnostic tool but will immediately be reported again if the cause of the code has	~
Close	

**Fault Status Assistance** 

## Lookup Code Assistant

The *Lookup Code Assistant* substant 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.

		ference multiple failure code types for various Beno uivalent term used in each ECU's Service Data
Sheet.	onnig abro donnoo aro oq	
ECU	ACom PRO Term	SD Sheet Equivalent
EC80	Lookup code	Bendix Blink Code Equivalent(s)
EC60	Lookup code	Bendix Blink Code Equivalent(s)
FLR-20	Lookup code	DTC
FLR-21	Lookup code	DTC
FLC20	Lookup code	DTC
TPMS	Lookup code	SPN
DIU	Lookup code	Code
SDP3	Lookup code	Error Code
3G Camera	Lookup code	Error Code

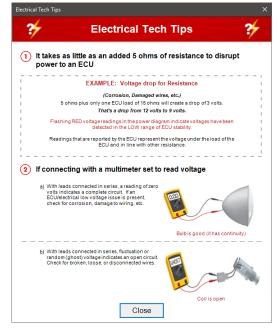
Lookup Code Assistant

# **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** 

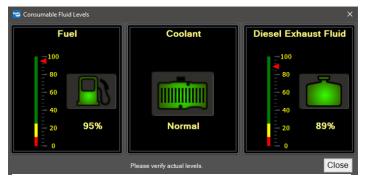
# **Consumable Fluids**

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 fluids types:

- Coolant
- Diesel Exhaust Fluid
- Engine Oil
- Engine Oil Reservoir
- Fuel
- Hydraulic Brake Fluid
- Transmission Oil
- Washer Fluid





**Consumable Fluids** 

- 1. Select the *Consumable Fluids* button on the main toolbar. The button image will change to indicate fluid level status:
  - o Normal 🕮
  - o Low ៉
  - 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.

# **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* window.

2. The Bus Statistics window is displayed and begins monitoring bus communications immediately.

-	Bus Statistics							×
		Description	Source Address	Total Messages	Msg/Sec	Usage		
+	~ 🕕 CAN 1	- 250K baud						
	v 🕒 💷	939 (Channel 1)	All Sources	102947	299.00	18 %		1
	ý	15.0L ISX1	0	88035	254.00	86 %		-
		EC-80 ESP+ ABS	11	6191	18.00	6 %		
		Intellipark™ Electronic Park Brake System	80	320	1.00	0 %		
	()	I-Shift Transmission	3	1355	4.00	1 %		-
	4	Information Display	23	5464	16.00	5 %		-
		Vehicle ECU	17	191	0.00	0 %		
		Lighting Control Module	55	1355	4.00	1 %		-
		AutoVue® FLC20™ Camera	232	12	0.00	0 %		-
	-	Wingman® FLR21™ Radar Sensor	42	12	0.00	0 %		-
	•	SafetyDirect® Web Portal Processor	209	12	0.00	0 %		-
	v 🛑 15	765 (CAN 1)					-	
		EC-80 ESP+ ABS	11					
	-	Intellipark™ Electronic Park Brake Svstem	90					-
E	lapsed Tim	e: 5:47		Additional Info	Reset	Sto	p Close	



NOTE: CAN Error Frame data is only available when using a DLA+ 3.0, DLA+ 2.0, DLA+, or Nexiq adapter.

- 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

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).

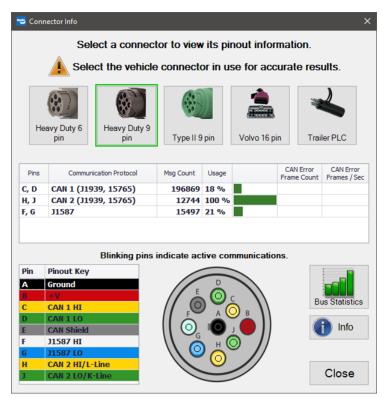
NOTE: Can Error Frame data is only available with using a DLA+ 3.0, DLA+ 2.0, DLA+ or Nexiq adapter.

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 <u>Bus Statistics</u> button to view additional information about data bus communications.

# **Bi-Directional Features for Bendix**

Bi-Directional allows you to run tests and perform calibrations on the vehicle. This is only available if the current connected vehicle has Bendix components.

The following tests and calibrations are available to be run:

Bi-Directional Test or Calibration	Supported On
ABS Air Bag Pressure Test	EC-60 Advanced braking systems EC-80 ESP braking systems
ABS Configuration	EC-60 and EC-80 braking systems
ABS Engine Limiting Test	EC-60 Premium or Advanced braking systems EC-80 ATC or ESP braking systems
ABS Indicator Lamp Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
ABS Pressure Test	EC-60 Advanced braking systems EC-80 ESP braking systems
ABS Self Config Test	EC-60 braking systems EC-80 ABS or ATC braking systems
ATC Configuration	EC-80 ATC or ESP braking systems
AutoVue 3G Configuration	AutoVue® 3G LDW System
Axle Load Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Battery Voltage Test (Tractor)	EC-60 and EC-80 braking systems
Battery Voltage Test (Trailer)	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Blindspotter Configuration	Blindspotter® Radar
Braking System Switches Test	EC-60 and EC-80 braking systems
Camera Snapshot Test	AutoVue® FLC20™ Camera
Cartridge Lifetime Prediction Reset Test	EAC (EC-80 Integrated) EAC (Standalone)
Cartridge Reset Test	eAPU2 iAPU

Bi-Directional Test or Calibration	Supported On
Chuff Test	TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
<u>Clear Stored Events and</u> <u>Videos</u>	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (3G and 5G)
Dashboard Lamp Tests	EC-60 and EC-80 braking systems
DIU Configuration	Driver Interface Unit
Door Switch Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Drag Torque Test	EC-60 Premium or Advanced braking systems EC-80 ATC or ESP braking systems
ECU Configuration	TABS-6™ Multi-Channel (MC) Trailer ABS
ECU Reset Test	EC-60 and EC-80 braking systems
ESP Lamp Test	EC-80 ESP braking systems
General Output Functions Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Indicator Component Test	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (5G)
Installation Angle Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Installation Configuration Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Lamp Component Tests	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (5G)
LDW Configuration	AutoVue® FLC20™ Camera
Lift Axle Control Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Lift Axle Sensing Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
Lift Lower Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS

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Bi-Directional Test or Calibration	Supported On
Low Pressure Warning Service Test	TABS-6™ Advanced Single-Channel Trailer ABS TABS-8™ Trailer ABS
Maintenance Mode	Intellipark Systems
<u>Modulator Valve (Chuff)</u> <u>Tests</u>	EC-60 and EC-80 braking systems
Oil Change Reset Test	eAPU2 iAPU
Output Component Tests	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (3G and 5G)
P-21 Delivery Test	TABS-6™ Multi-Channel (MC) Trailer ABS TABS-8™ Trailer ABS
P-21 Modulator Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
P-22 Delivery Test	TABS-6™ Multi-Channel (MC) Trailer ABS
P-22 Modulator Test	TABS-6™ Multi-Channel (MC) Trailer ABS
Pressure Sensor Test	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
Pressure Trimming and Coil Polarity Test	Active Steering components
Radar Service Alignment	Wingman® FLR25™ Radar
Safety Direct Event Configuration	SafetyDirect® Web Portal Processor (3G and 5G)
Safety Direct Event Selection Configuration	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (3G and 5G)
<u>S-C Sensor/S-D Sensor</u> <u>Tests</u>	TABS-6 <sup>™</sup> Advanced Single-Channel Trailer ABS TABS-6 <sup>™</sup> Multi-Channel (MC) Trailer ABS TABS-8 <sup>™</sup> Trailer ABS
<u>S-E Sensor/S-F Sensor</u> <u>Tests</u>	TABS-6™ Multi-Channel (MC) Trailer ABS
SDP3 Configuration	SafetyDirect® Web Portal Processor (3G and 5G)
SDP5 Configuration	SafetyDirect® Web Portal Processor (5G)
SDP5 System Configuration	SafetyDirect® Web Portal Processor (5G)
Speaker Volume Configuration	AutoVue® 3G LDW System SafetyDirect® Web Portal Processor (3G and 5G)
SPTAC Calibration	AutoVue® FLC20™ Camera

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Bi-Directional Test or Calibration	Supported On
Startup Chirp Volume	SafetyDirect® Web Portal Processor 3G version 21.19 and above
	SafetyDirect® Web Portal Processor (5G)
Steering Angle Test and	EC-60 Advanced braking systems
Calibration	EC-80 ESP or ATC+ with EV Support braking systems
Tire Inflation System Test	TABS-6™ Advanced Single-Channel Trailer ABS
	TABS-6™ Multi-Channel (MC) Trailer ABS
	TABS-8™ Trailer ABS
TPMS Ambient Sensor Configuration	All SmarTire™ TPMS solutions
TPMS Backup and Restore	All SmarTire™ TPMS solutions
TPMS Configuration	All SmarTire™ TPMS solutions
TPMS Lamp Display Configuration	SmarTire™ Standard and NextGen TPMS solutions
TPMS Parameters	All SmarTire™ TPMS solutions
TPMS Scratchpad	SmarTire™ NextGen TPMS solutions
TPMS Signal Strength Test	All SmarTire <sup>™</sup> TPMS solutions (except for Standard TPMS models 200.0213, 200.0216, and 200.0219)
TPMS Statistics	SmarTire™ NextGen TPMS solutions
TSR Configuration	AutoVue® FLC20™ Camera
Wheel Speed Chart Test	All braking systems reporting wheel speed values
Wheel Speed Window Test	All braking systems reporting wheel speed values
Wiggle Test/Performance Issue Monitoring	EC-60 and EC-80 braking systems
Wear Sensing	TABS-6™ Multi-Channel (MC) Trailer ABS
Wingman FLR Configuration	Wingman® FLR20™/FLR21™ Radar
	Wingman® FLR25™ Radar
	Vorad VS500 Radar
Wingman Fusion Blindness Adjustment	Wingman® FLR21™ Radar
Yaw Rate and Lateral Accel.	EC-60 Advanced braking systems
Test and Calibration	EC-80 ESP braking systems

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## **Bi-Directional Test Selection**

Selecting the Bi-Directional button silver 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		×
	Available Tests	
Bendix EC-80 ESP+ ABS	ABS Configuration	^
Bendix AutoVue® FLC20**	ABS Engine Limiting Test	
Camera	ABS Pressure Test	
	ATC Configuration	
Bendix Blindspotter® SLR Side Object Radar Sensor	Battery Voltage Test	
	Braking System Switches Test	
Bendix SafetyDirect® Web Portal Processor	Dashboard Lamp Tests	
	Drag Torque Test	
Bendix SmarTire <sup>™</sup> Next GEN TPMS	ECU Reset Test	
	Enable Dyno Mode	
Bendix Wingman® FLR21 <sup>™</sup> Badar Sensor	Modulator Valve (Chuff) Tests	
	Steering Angle Test and Calibration	
	Wheel Speed Chart Test	
	Wheel Speed Window Test	×
	ABS Configuration allows the user to change various ABS ECU parameter values for various configurations.	
	connection for Bi-Directional functionality. Start Closed dures using a wireless connection is <b>not supported</b> .	se

**Bi-Directional Test Selection** 

# ABS / Brake Tests

## ABS Air Bag Pressure Test

The ABS Air Bag Pressure Test is available on:

- ✓ EC-60 Advanced braking systems
- ✓ EC-80 ESP braking systems

This test provides pressure ranges for determining the health of the tractor air bag.

- 1. Select the ABS Air Bag Pressure Test and press Enter or the Start button.
- 2. The test dialog will be displayed.

3S Air Bag Pressure Test						×
Instructions & Data	Graph					
The ABS Air Bag Pressu	re test che	cks the air pressure of t	he tractor airbag.			
The vehicle must	t not be o	onnected to a trailer o	r not loaded for a	courate pressu	re readings	
	t not be t	onnected to a trailer o	Thor loaded for a	courate pressu	re reduings.	
The Air Bag pressure sh	ould be <b>be</b>	etween 0 psi and 150	psi.			
Values outside of this ra	nan raquir	a increastion of the pirch	a and connected b			
Values outside of this ra	nge require	e inspection of the air b	ag and connected n	oses.		
	Description	1	Value	Units	Protocol	
* Airbag Pressure			45.32	psi	15765 (CAN)	~
* Battery Potential (Voltage	)		14.05	volts	J1939 (High)	
* Primary Sensor			116.99	psi	15765 (CAN)	
* Secondary Sensor			121.99	psi	15765 (CAN)	_
			1	1		
						_
					Exit	

**ABS Air Bag Pressure Test** 

- 3. Observe the Airbag Pressure data value and compare against the specified acceptable pressure range. Click the *Graph* tab at any time to view a graph of the monitored data values.
- 4. When done, press the *Exit* button to return to the test selection dialog.

## **ABS Configuration**

The ABS Configuration test is available on:

✓ EC-60 and EC-80 braking systems

This test allows the editing of ABS system parameters.

1. Select ABS Configuration and press Enter or the Start button.

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2. The test dialog will be displayed.

arameters where the Update Value	column is not highlighted ca	nnot be directly edited,	but change in respo	nse to e	diting the A	BS Type para	meter
est Preconditions							
Key On Engine Off (KOEO)							
Name	Update Value	Current Value	Original Value	Min	Max	Units	
ABS	opuate value	Current value	Original value	1-1011	Max	UTILS	
Configuration Additional Axle		(6s/6m) Additional Axle	(6s/6m) Additional Axle				
Engine Retarder Control		Retarder Datalink	Retarder Datalink				_
Rail Mode		Disabled	Disabled				
Tire Size (RPM)							
Steer Axle		495	495	395	549	RPM	
Drive Axle		495	495	395	549	RPM	
Additional Axle		495	495	395	549	RPM	
ATC							
ATC Control		Brake and Engine	Brake and Engine				
Traction Control Switch		ATC Disable	ATC Disable				
ESP Configuration							
Yaw Control		Disabled	Disabled				
RSP		Disabled	Disabled				

#### **ABS Configuration**

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the Exit button to return to the test selection dialog.

#### ABS Engine Limiting Test

The ABS Engine Limiting Test is available on:

- ✓ EC-60 Premium or Advanced braking systems
- ✓ EC-80 ATC or ESP braking systems

This test checks if the ABS system can raise and lower torque limits on a running engine.

1. Select the ABS Engine Limiting Test and press Enter or the *Start* button.

BS Engine Limiting Test				×
The ABS Engine Limiting Test checks to see if the ABS system car safety feature that assists braking and stability systems.	n successfully limit engine	e torque. To	rque limiting is a	
Engine RPM should be set at <b>high idle</b> (usually 1000-1300 RPM) f Limiting commands and Torque Increase commands and measure				
Success: Engine Speed reduces in response to Torque Limiting o commands.	commands and increases	in response	e to Torque Increa	se
Failure: Engine Speed fails to change in response to either of the	commands.			
Test Preconditions   Key On Engine Running (KOER)  Data Graph				
Description	Value	Units	Protocol	
* Actual Engine - Percent Torque	5.00	%	J1939 (High)	^
* Engine Demand - Percent Torque	6.00	%	J1939 (High)	-
* Engine Speed	647	rpm	J1939 (High)	-
* Nominal Friction - Percent Torque	7.00	%	J1939 (High)	
Test Status				
1:32:58 PM: Test status messages written to this rolling log.			Exit	

**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:

- ✓ EC-60 Advanced braking systems
- ✓ EC-80 ESP braking systems

This test checks ABS system air pressure values when the brake pedal is pressed and released.

1. Select the ABS Engine Limiting Test and press Enter or the *Start* button.

Instructions & Data	Graph					
The ABS Pressure Test reported brake pressure					0	)
When the brake pedal is	s not press	ed the pressu	res should be betweer	n -2 psi and 2 ps		
When the brake pedal is	s proceed t	ha nrassuras s	hould be <b>between 80</b>	nsi and 150 nsi	Info	
	o presseu c	ne pressures a	situate be between oo	p31 and 150 p31	•	
Click the Additional Info	button for s	pecific diagnos	stic information based o	n the reported br	ake	
Click the Additional Info pressure reading.	button for s	pecific diagno:	stic information based o	n the reported br	ake	
pressure reading.						
pressure reading.	Description		Value	e Units	Protocol	
pressure reading. * Battery Potential (Voltage	Description		Value 14.00	e Units	Protocol J1939 (High)	^
Pressure reading. * Battery Potential (Voltage * Brake Application Pressure	Description		Value 14.00 0.00	volts	Protocol J1939 (High) J1939 (High)	^
Pressure reading. * Battery Potential (Voltage * Brake Application Pressure * Primary Sensor	Description		Value 14.00 0.00 116.99	e Units volts psi psi	<ul> <li>Protocol</li> <li>J1939 (High)</li> <li>J1939 (High)</li> <li>15765 (CAN)</li> </ul>	^
pressure reading. * Battery Potential (Voltage * Brake Application Pressure	Description		Value 14.00 0.00	volts	Protocol J1939 (High) J1939 (High)	^

**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.

Additional Info	×
ABS Pressure Test Additional Info:	
When the brake pedal is not pressed the pressures should be between -2 psi and 2 ps	L
For values outside this range check: · Possible sensor damage. · Sensor circuit problems.	
When the brake pedal is pressed the pressures should be between 80 psi and 150 psi.	
For values <b>&lt; 80 psi</b> check: · Compressor for proper operation and leaks. · Air supply lines for leaks, blockages, or foreign contamination. · Treadle valve operation.	
For values > 150 psi check: · Malfunctioning high pressure relief valve. · Incorrect governor operation.	
Exit	

**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 or ATC braking systems

This test performs an automatic self-configuration of the ABS ECU based on all installed and detected components and sensors.

- 1. Select the ABS Self Config Test and press Enter or the Start button.
- 2. The test dialog will be displayed.

ABS Self Config	×
The self-config test will allow a technician to perform an automatic self configuration. The ECU will communicate with other vehicle modules, wheel speed sensors, and pressure modulator valves installed and configure itself accordingly.	
Test Preconditions	
Key On Engine Off (KOEO)	
Press Start button to begin ECU Self-Configuration	
Start	

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	$\times$
?	Are you sure you wish to execute self configuration? The previous configuration will be lost.	
	<u>Y</u> es <u>N</u> o	

**ABS Self Config Confirmation** 

- 4. The configuration process will begin. All controls on the test dialog will be disabled and a progress bar will be displayed. When configuration is completed a successful status message will appear and the controls will be enabled.
- 5. When done, press the *Exit* button to return to the test selection dialog.

## **ATC Configuration Test**

The ATC Configuration Test is available on:

✓ EC-80 ATC or ESP braking systems

This test allows editing of ATC parameters for EC-80 braking systems.

- 1. Select the ATC Configuration Test and press Enter or the *Start* button.
- 2. The test dialog will be displayed.

ATC Configuration	×
ATC Configuration allows the user to change various Al various configurations.	BS ECU parameter values for
The current settings are shown below. To change a set click Write Configuration.	tting, enter or select values and
ATC Control	Brake and Engine $\checkmark$
Traction Control Switch	ATC Disable 🗸
Write Configuration	Exit

**ATC Configuration** 

- 3. Select the new values and click *Write Configuration* button to have the new values sent to the vehicle.
- 4. When done, press the Exit button to return to the test selection dialog.

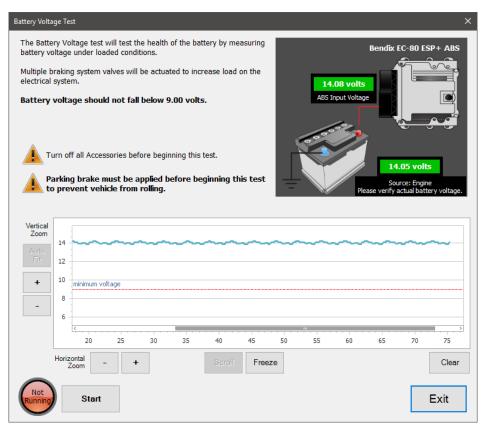
## **Battery Voltage Test**

The Battery Voltage Test is available on:

✓ EC-60 and EC-80 braking systems

This test checks the health of the battery by measuring voltage levels under loaded conditions.

- 1. Select the Battery Voltage Test and press Enter or the Start button.
- 2. The test dialog will be displayed.



**Battery Voltage Test** 

3. Select the *Start* button to begin the test. Multiple braking system valves will be actuated at the same time to increase load on the electrical system. Vertical lines will appear on the graph to indicate the start and end of the test. Observe the graphed battery voltage.

NOTE: The parking brake must be set before running this test. Simultaneous actuation of the braking system valves can cause the vehicle to freely roll during test duration.

4. Select the *Stop* button at any time to stop the test. The test will automatically stop after a few seconds.

5. When done, press the *Exit* button to return to the test selection dialog.

#### Braking System Switches Test

The Braking System Switches Test is available on:

✓ EC-60 and EC-80 braking systems

This test provides the ability to troubleshoot multiple switches that are part of the ABS system by toggling the selected switch and observing the effect on the vehicle.

- 1. Select the Braking System Switches Test and press Enter or the *Start* button.
- 2. The test dialog will be displayed.

Braking System Switches Test	×
The Braking System Switches tests are used to determine if the circuit for the selected switch is operation activating the selected switch and observing its effect on the vehicle.	onal by
Select a test below, then click "Next" to view its instructions and related data items.	
Switches:	
Brake (Stop Light) Switch Manual Enable/Disable ATC Switch Hill Start Aid Switch Off Road ABS Switch	
Test Description:	
Select a Switch to see its test description.	
Next	xit

**Braking System Switches Test** 

NOTE: The specific switches available for selection is 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 & Data Graph				
Brake (Stop Light) Switch				
<ol> <li>Press the brake pedal.</li> <li>Verify that the brake pedal status belov</li> <li>Release the brake pedal.</li> <li>Verify that the brake pedal status belov</li> </ol>				
Success: Brake pedal status reported by the B	ECU matches the actual brake pe	dal position.		
Description	Value	Units	Protocol	
* Battery Potential (Voltage)	14.00	volts	J1939 (High)	<u>^</u>
* Brake Switch	Brake pedal released	Voits	J1939 (High)	- ^
				~
Back			Exit	

**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

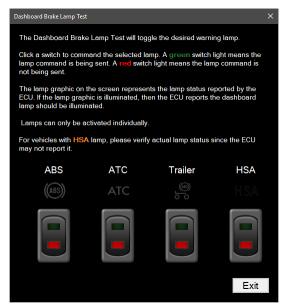
The Dashboard Brake Lamp test is available on:

✓ EC-60 and EC-80 braking systems

This test provides the ability to test the dashboard warning and information lamps related to the braking system.

1. Select Dashboard Brake Lamp Tests and press Enter or press Start Button.

2. The Dashboard Lamp Test dialog will be displayed.



**Dashboard Brake Lamp Test Dialog** 

NOTE: If lamp status of a lamp is not available, the lamp test for that corresponding lamp will be disabled.

- 3. Click the button under the desired lamp. Observe the light change on the truck dashboard. Repeat for all lamps of interest.
- 4. When done, press the *Exit* button to return to the test selection dialog.

## **Drag Torque Test**

The Drag Torque Test is available on:

- ✓ EC-60 Premium or Advanced braking systems
- ✓ EC-80 ATC or ESP braking systems

This test raises and lowers torque limits and tests how the engine responds.

1. Select the Drag Torque Test and press Enter or the *Start* button.

ag Torque Test				>
The Drag Torque Test checks if the stability system can control the e system safety feature that reduces wheel slip on a driven axle due to down-shifting or retarder braking. This inertia is overcome by increa	o driveline inertia on low-t			у
This test will send torque limiting commands and torque inccrease o	ommands and measure t	he difference	in engine speed.	
Success: Engine speed reduces in response to torque limiting comn commands.	nands and increases in re	esponse to to	rque increase	
Failure: Engine speed fails to change in response to either of the co	mmands.			
<ul> <li>test.</li> <li>Test Preconditions</li> <li>Key On Engine Running (KOER)</li> </ul>				
Data Graph Description	Value	Units	Protocol	
* Actual Engine - Percent Torque	5.00	%	J1939 (High)	~
* Engine Demand - Percent Torque	6.00	%	J1939 (High)	
* Engine Speed	649	rpm	J1939 (High)	
* Nominal Friction - Percent Torque	6.00	%	J1939 (High)	
Test Status				~
1:16:52 PM: Test status messages written to this rolling log.				
Running Start			Exit	

**Drag Torque Test** 

- 3. Select the *Start* button to initiate the test. Test Status will display the commands as they are sent to the engine. A difference in engine speed and torque values can be observed as well as a change in engine sound. Click the *Graph* tab at any time to view a graph of the monitored data values.
- 4. Select the *Stop* button to stop the test at any point. The test will automatically stop after it has performed an increase and decrease cycle twice. The braking system will reset when the test ends which can be observed by audible clicking from the brake modulator valves.
- 5. When done, press the Exit button to return to the test selection dialog.

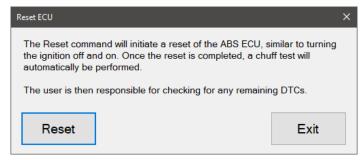
## ECU Reset Test

The ECU Reset Test is available on:

✓ EC-60 and EC-80 braking systems

This test resets the brake ECU, similar to turning the ignition off and on. During the reset any braking system related dashboard lamps will flash. Once the reset is completed, a chuff test will automatically be performed.

1. Select the ECU Reset Test and press Enter or the Start button.



**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.

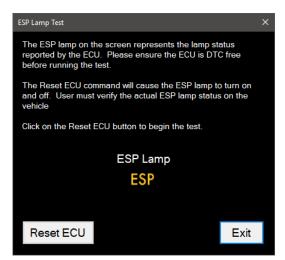
## ESP Lamp Test

The ESP Lamp Test is available on:

✓ EC-80 ESP braking systems

This tests if the dashboard Enhanced Stability Program (ESP) lamp is functioning properly by commanding the lamp to change status. User must verify that the dashboard ESP lamp changes to match the test commands.

- 1. Select the ESP Lamp Test and press Enter or the Start button.
- 2. The test dialog will be displayed.



**ESP Lamp Test** 

- 3. Click *Reset ECU* to cause the ESP lamp to turn off and on. This will also reset the braking system which can be observed by audible clicking from the brake modulator valves. Compare the ESP Lamp status reported by the ECU to the dashboard ESP lamp.
- 4. When done, press the *Exit* button to return to the test selection dialog.

## Maintenance Mode

The Maintenance Mode test is available on:

✓ Intellipark systems

This test puts the Intellipark ECU into maintenance mode, which locks the ECU to its current state and disables all advanced features.

NOTE: When enabled, Intellipark will remain in maintenance mode when exiting this test. Maintenance mode can be disabled by performing this test again, cycling the ignition, or when steer axle wheel speeds are detected.

- 1. Select Maintenance Mode and press Enter or the Start Button.
- 2. The test dialog will be displayed.

Maintenance Mode	×
Maintenance Mode will lock the Intellipark system to its current state and disables all advanced features. Example: if Intellipark is set to un-parked and Maintenance Mode is enabled, the vehicle will remain un-parked until Maintenance Mode is disabled.	
() When enabled, Intellipark will remain in Maintenance Mode when exiting this test.	
Make sure the key is on, the vehicle is stationary, and all wheels are chocked.	
Clicking Disable will exit Maintenance Mode. The Intellipark ECU will automatically exit Maintenance Mode when the ignition is cycled or if steer axle wheel speeds are detected.	3
Check the box if wheels are chocked.	
Enable Exit	

**Intellipark Maintenance Mode** 

#### NOTE: Vehicle must be secured from rolling before enabling maintenance mode.

- 3. Click the checkbox to confirm that the vehicle's wheels have been chocked. The *Enable* button will become available.
- 4. Click *Enable* to set maintenance mode to the Intellipark's current state. Maintenance mode will remain enabled even after this test dialog is closed, allowing other tests and maintenance procedures to be performed.
- 5. Maintenance mode will remain enabled until this test is run again to disable maintenance mode. Maintenance mode will automatically disable if the ignition is cycled or if steer axle wheel speeds are detected.
- 6. When done, press the *Exit* button to return to the test selection dialog.

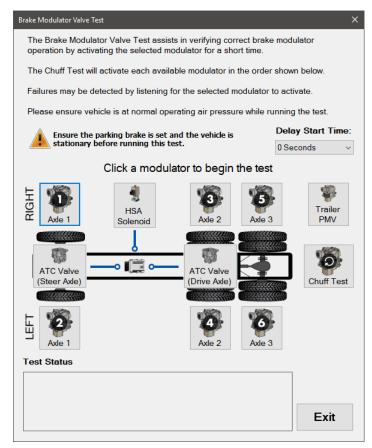
## Modulator Valve (Chuff) Test

The Modulator Valve (Chuff) test is available on:

✓ EC-60 and EC-80 braking systems

This test assists in verifying correct brake modulator operation by activating the selected modulator for a short time. Ensure the vehicle is at normal operating air pressure while running the test.

- 1. Select the Modulator Valve (Chuff) Test and press Enter or the *Start* button.
- 2. The test dialog will be displayed.



Modulator Valve (Chuff) Test

NOTE: The modulator valves displayed is dependent on the ABS system ECU and the number of physical brake modulator valves installed on the vehicle.

- 3. If desired, select a delay start time. This allows you to leave the computer and get closer to the modulator valve, so you can better hear the actuations.
- 4. Select the modulator to test. You should hear a clicking or chuffing sound indicating successful actuation. While the test is running the selected button will have a green background and all other modulator buttons will be disabled. The Test Status window will update to indicate progress. Click the selected button again to stop the test early.
- Selecting the *Chuff Test* button will activate all modulators in the order indicated. The application will actuate each valve in sequence. You should hear a clicking or chuffing sound indicating a successful actuation. The Test Status window will update to indicate progress.
- 6. The braking system will reset after each modulator test ends which can be observed by audible clicking from the brake modulator valves.
- 7. When done, press the *Exit* button to return to the test selection dialog.

## **Steering Angle Test and Calibration**

The Steering Angle Test and Calibration is available on:

- ✓ EC-60 Advanced braking systems
- ✓ EC-80 ESP or ATC+ with EV Support braking systems

This test allows for verification of steering angle sensor functionality and provides recalibration ability if necessary.

- 1. Select the Battery Voltage Test and press Enter or the Start button.
- 2. The test dialog will be displayed.

Steering Angle Test and Calib	ration				×
Steering Angle Test	Graph	Calibration			
SAS Test Information	on:				
The Steering Angle test movement of the steerin				(SAS) against the physica	al
	This test v			o the ABS control module nment, as well as sensor	for
			ation and steering sy placement of steering	stem alignment are g system components.	
Failure to perf inoperability!	orm calib	ration can res	ult in Stability Control	System malfunction o	r
-120 -100 	-80 -60       \$	-40 -20           Steering Angl	0 20 40 60                 ▼ e: 0.00 degrees	80 100 120	

**Steering Angle Test and Calibration** 

3. The *Steering Angle Test* tab guides the user through the diagnostic steps for ensuring proper steering angle alignment.

Select the *Graph* tab to view a graph of the monitored steering angle.

Select *Calibration* to run the recalibration procedure which relearns the current steering angle position as 0 degrees.

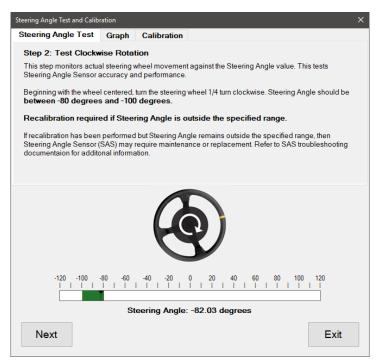
4. To begin the Steering Angle Test, select the *Next* button. Step 1 of the procedure provides instructions to verify straight ahead position of the steer axle wheels compared to the steering wheel. The green area on the steering angle number line shows the acceptable target range.

Steering Angle Test and Calib	ration						×
Steering Angle Test	Graph	Calibration					
Step 1: Verify Strai	ght Ahead	I					
The ideal "Straight Ahe degrees (+/- 10 degr							
Move the steering whee centered and the Steeri							
If the Steer Axle wheels is not between -10 de required.							
If the steering wheel is c Steer Axle wheels are n rerun.							
-120 -100	-80 -60 	-40 -20 	0 20 	40 	60 80 	100 	120 I
	S	teering Angle	e: 0.00	degrees			
Next							Exit

Steering Angle Test Verify Straight Ahead

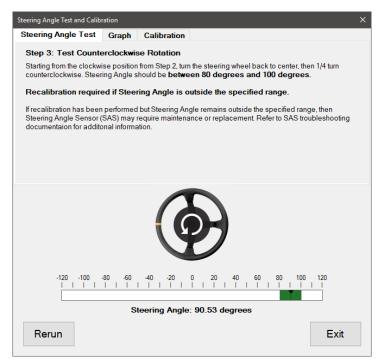
5. Select the *Next* button to continue.

6. 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** 

- 7. Click the Next button to continue.
- 8. 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.



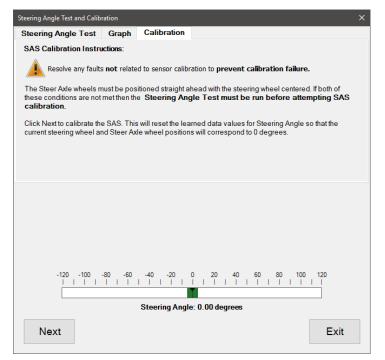
**Steering Angle Test Counterclockwise Rotation** 

- 9. Selecting Rerun will return to step 1 of the Steering Angle Test.
- 10. To perform Steering Angle Calibration, select the *Calibration* tab. Click *Next* to begin the calibration test.

Steering Angle Test and Calib	ration				×
Steering Angle Test	Graph	Calibration			
SAS Calibration Inform	nation:				
This test recalibrates the	Steering A	ngle Sensor (SA	S), which measures o	driver steering d	lirectional input.
This sensor must be rec Replacement of Ste After maintenance of Adjustment of whee After an accident the ABS ECU replacem	ering Angle or repair wo I alignment at may have	e sensor rk on steering lin or wheel track	kage, steering gear, o		anism
Performing cal Stability Contro			the Steering Angle r inoperability!	e Test can res	ult in
-120 -100 	-80 -60 	-40 -20	I I T I T I T	50 80 100 	120 
		Steering Ang	e: 0.00 degrees		
Next					Exit

**Steering Angle Calibration** 

11. 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** 

12. 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 Angl	le Test and Calib	ration						×
Steering /	Angle Test	Graph	Calibration					
SAS Cali	bration:							
				d related faults cl possibly replaced.	<b>eared</b> . If an S	AS relat	ed fault	
Faults:								
Status	Comp	onent	De	scription	Code	FMI	Count	
Active	Brakes		Steer Axle Right Off	WSS Signal Low at Drive	3-2	N/A	40	
Active	Brakes		AA Right PMV Cor	nfiguration Error	17-8	N/A	40	
Inactive	Brakes		Battery Voltage T	oo Low	6-1	N/A	13	
	-120 -100	-80 -60	-40 -20 (		60 80 10 	00 120 		
			Steering Angle	e. 0.00 degrees				
Star	rt						Exit	

**Steering Angle Calibration** 

- 13. When the test is completed a *Calibration Successful* message will be displayed. Click *OK* to dismiss this message.
- 14. When done, press the Exit button to return to the test selection dialog.

#### Wheel Speed Chart Test or Wheel Speed Window Test

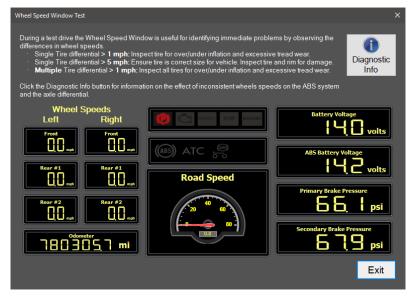
The Wheel Speed Window test is available for any tractor and trailer braking system that report wheel speed data.

This test can be used to verify and test wheel speed sensors and confirm fault codes before and after a repair or replacement.

1. Select Wheel Speed Chart Test or the Wheel Speed Window Test and press Enter or press *Start* Button.

neel spe	eed sensor	he Wheel Spee signal values of Info button for	over time. Thi	s can include	e intermitter		Diagnosti Info
Vertical Zoom Fit +	9						
	0 Horizontal Zoom	- +	20	30 Scroll	Freeze	40	50 61 Clear
Graph	0 Horizontal	- +	20			40 Units	
Graph	0 Horizontal Zoom Descriptio	- +			Freeze		Clear
	0 Horizontal Zoom Descriptio Front Axle	- +			Freeze Value	Units	Clear
	0 Horizontal Zoom Descriptio Front Axle Front Axle	- +			Freeze Value 0.00	Units	Clear Protocol J1939 (High)
	0 Horizontal Zoom Front Axle Front Axle Rear Axle	- + e, Left Wheel Speed	l		Freeze           Value           0.00           0.00	Units mph mph	Clear Protocol J1939 (High) J1939 (High)
	0 Horizontal Zoom Front Axle Front Axle Rear Axle Rear Axle	- + e, Left Wheel Speed c, Right Wheel Speed	l		Value           0.00           0.00	Units mph mph mph	Clear Protocol 31939 (High) 31939 (High) 31939 (High)
	0 Horizontal Zoom Front Axle Front Axle Rear Axle Rear Axle Wheel Spe	- + e, Left Wheel Speed e, Right Wheel Speed r, Left wheel Speed r, Right Wheel Speed	l		Value           0.00           0.00           0.00           0.00	Units mph mph mph mph	Clear Protocol J1939 (High) J1939 (High) J1939 (High) J1939 (High)

#### Wheel Speed Chart Test



Wheel Speed Window Test

- 3. Lift the suspect axle(s) to allow free spinning wheel(s). While looking at the test screen, spin the wheel(s) to check for changes in the graph or digital readout to match the wheel being spun.
- 4. Click *Diagnostic Info* to view additional diagnostic information related to wheel speed readings.
- 5. Press *Exit* button when ready to exit this test and return to the test selection dialog.

### Wiggle Test / Performance Issue Monitor

The Wiggle Test / Performance Issue Monitor is supported on:

✓ EC-60 and EC-80 braking systems

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 Selectio	n X
This test assists in diagnosing loose electrical connection Select a data group to monitor. If you do not see an applic group in Data Monitor. Wiggle a sensor or wiring harness or operate the vehicle	able data group, exit the test and create a custom
Select Data Group *Tractor Brake Sensors Monitor Related Faults	Alerts and Thresholds Any numeric data item which drifts more than <b>10%</b> from its initial value will alert by a red highlight. Any change in faults or non-numeric data will also alert by a red highlight.
Next	Cancel

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" was checked on the Group Selection window, then in the bottom of the window will be all currently reported related faults.

			Data I	tems					
	Description	Valu	e Units	Protocol	Start Value	Low	Hig	h	Τ
Airbag Pressure		45.32	psi	15765 (CAN)					^
Front Axle Speed		0.00	mph	J1939 (High)					
Front Axle, Left Whe	el Speed	0.00	mph	J1939 (High)					
Front Axle, Left Whe	el Speed	0.00	mph	J1939 (High)					
Front axle, right whe	el speed	0.00	mph	J1939 (High)					
Front Axle, Right Wh	eel Speed	0.00	mph	J1939 (High)					
Lateral Acceleration S	ensor	-13.99	meters/sec^2	15765 (CAN)					
Primary Sensor		116.99	psi	15765 (CAN)					
Rear Axle #1, Left W	heel Speed	0.00	mph	J1939 (High)					-
Rear Axle #1, Right \	Wheel Speed	0.00	mph	J1939 (High)					-
Rear Axle #2, Left W	heel Speed	0.00	mph	J1939 (High)					-
Rear Axle #2, Right \	Wheel Speed	0.00	mph	J1939 (High)					-
Dear avle left wheel	meed	0.00	moh	11030 (High)					
			Related	Faults					
Status	Component			Description	ı	Code	FMI	Count	Т
Active	Brakes		Steer Axle Right WSS Si	gnal Low at Drive Off		3-2	N/A	40	1
Active	Brakes		AA Right PMV Configura	tion Error		17-8	N/A	40	-
Active	Brakes		Battery Voltage Too Lov	1		6-1	N/A	13	

Wiggle Test / Performance Issue Monitoring

- 5. Select the *Start* button to begin monitoring the data and faults for changes.
- 6. Wiggle a sensor or wiring harness or operate the vehicle and watch for alerts to trigger in the monitored data.

Any numeric data item which drifts more than **10%** from its initial value will alert by a red highlight.

Any change in faults or non-numeric data will also alert by a red highlight.

- 7. Select *Reset* to reset all alerts and initial values for monitoring.
- 8. Select *Change Data Group* to perform the test using a different set of data.
- 9. Select Close when done.

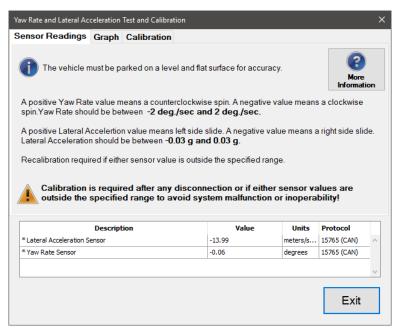
#### Yaw Rate and Lateral Accel. Test and Calibration

The Yaw Rate and Lateral Accel. Test and Calibration is available on:

- ✓ EC-60 Advanced braking systems
- ✓ EC-80 ESP braking systems

This test checks the calibration of the Yaw Rate/ Lateral Acceleration sensor when the vehicle is stationary. It also provides the ability to recalibrate the sensor if its values are found to be out of bounds.

1. Select the Yaw Rate and Lateral Accel. Test and Calibration and press Enter or the *Start* button.



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.

				×
Sensor Readings Graph Calibration				
This test recalibrates the Yaw Rate/Lateral Accel slide to identify loss-of-control situations. This sensor must be recalibrated in response to a Replacement of Yaw Rate/Lateral Accelerat After an accident that may have damaged th ABS ECU replacement	any of these situations: tion Sensor			
Different generations of yaw rate/lat Replace sensors with the exact same		nsors are no	t compatible	-
Description	Value	Units	Protocol	
Description * Lateral Acceleration Sensor	Value -13.99	onics	Protocol 15765 (CAN)	~
-		onics		^
* Lateral Acceleration Sensor	-13.99	meters/s	15765 (CAN)	^ ~

Yaw Rate and Lateral Acceleration Calibration Instructions

5. Click the Start button to begin the recalibration.

Yaw Rate and Lateral Acceleration	Test and Calibration				×
Sensor Readings Graph	Calibration				
The vehicle must be p Resolve any faults no				ion failure.	
This will reset the learned data vehicle position will correspon		and Lateral Accelera	ation so that	the current	
A Yaw Rate of 0 deg./sec.					
A Lateral Acceleration of 0.00	g.				
				1	
Descript		Value	Units	Protocol	
* Lateral Acceleration Sensor Value		0.71	meters/s	15765 (CAN)	
* Yaw Rate Sensor Value		-0.06	degrees	15765 (CAN)	_
					~
Start				Exit	
oun					

Yaw Rate and Lateral Acceleration Calibration Preconditions

6. When recalibration begins the test information will be replaced with a faults display for related braking system faults. When calibration is completed a success message will be displayed. Click *OK* to dismiss this message.

				ill be recalibrated and rela need to be inspected and			leared.	lf
Faults:	iddit roupp	5010, 1101			, poosibily rop	avea.		
Status	Com	ponent		Description	Code	FMI	Count	
Active	Brakes		Steer Axle R	ight WSS Signal Low at Drive Of	f 3-2	N/A	40	~
Active	Brakes		AA Right PM	V Configuration Error	17-8	N/A	40	1
Active	Brakes		Battery Volta	age Too Low	6-1	N/A	13	~
Active	Brakes		Battery Volta	age Too Low	6-1	N/A	13	
Active	Brakes	Descript		age Too Low Value	6-1 Units	N/A Protoc		~
	Brakes Acceleration S	•		-		Protoc	xol	~
	Acceleration S	•		Value	Units	Protoc	col CAN)	~

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.

# Air Treatment Systems Tests

## **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.

- 1. Select Cartridge Lifetime Prediction Reset Test and press Enter or the Start Button.
- 2. The test dialog will be displayed.

EAC Cartridge Lifetime Prediction Reset	×
This test resets the Cartridge Lifetime Prediction (CLP), along with Wetness Level and Total Air Delivered. Cartridge Lifetime is a value from 0% (expired, replacement required) to 100% (fresh cartridge).	Additional Info
At 15% Life Remaining - Catridge Lifetime Replacement due soon.	
At 0% Life Remaining - Immediate Cartridge Replacement necessary.	
For specific instructions regarding replacing the air dryer cartridge, see AD-HFi Service Data She	et SD-08-12046.
Cartridge Lifetime Remaining: 50%	
The CLP reset should only be performed after a new <b>Bendix Puraguard</b> oil coalescing cartridge has been installed. Resetting the CLP without changing the cartridge can lead t water in air system.	
Reset	Exit

**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. Click *Exit* to close this screen.

EAC Cartridge Lifetime Prediction	_		×
Cartridge Lifetime Prediction Reset Information:			
The CLP Reset should only be performed after a new air dryer cartridge has been i the CLP without changing the cartridge can lead to moisture and water in air system		ed. Res	etting
Cartridge Lifetime Remaining (SPN 13073) indicates between 100% for a fresh cart an expired cartridge. After CLP Reset is performed, Cartridge Lifetime Remaining w			
For specific instructions, see AD-HFi Service Data Sheet SD-08-12046.			
The following faults are the ones related to Cartridge Lifetime Prediction and the ar	ctions	to take	
Cartridge maintenance prediction pre-worn alert (Flash Code 30-1), SPN	5216	10, FMI	15:
This indicates the cartridge is approaching its lifetime limit (15% lifetime remaining Cartridge may be replaced and CLP Reset run.	g or le	ss).	
Cartridge maintenance prediction nominal alert (Flash Code 30-2), SPN 52	2610,	FMI 16	:
This indicates the cartridge has reached its lifetime limit or 0% lifetime remaining. replaced and CLP Reset run.	Cartri	idge mu	st be
Cartridge maintenance prediction over-worn alert (Flash Code 30-3), SPN	1 521	610, FM	I O:
This indicates that the cartridge has been in service beyond its service lifetime. Thi indicates there may be water in the air system. Check reservoirs for water via drai service accordingly. Cartridge must be replaced and CLP Reset run.			s and
		Exit	

**Cartridge Lifetime Prediction Reset Test Additional Info** 

5. When done, press the *Exit* button to return to the test selection dialog.

#### Cartridge Reset Test

The Cartridge Reset Test is available on:

- ✓ eAPU2
- ✓ iAPU

The Cartridge Reset Test provides the ability to reset the cartridge wear index measurement value to 0% after a new air dryer cartridge has been installed.

- 1. Select Cartridge Reset Test and press Enter or the Start Button.
- 2. The test dialog will be displayed.

Cartridge	Reset	×
cartridge	ridge Reset is used to reset the cartridge wear index value a replacement. The Cartridge Wear Reset Index is provided a h cartridge) to 100% (expired cartridge).	
80	<ul> <li>79% – Normal to low Cartridge wear.</li> <li>90% – Cartridge replacement due soon.</li> <li>100% – Immediate Cartridge replacement necessary.</li> </ul>	Additional Info
	Cartridge Wear Reset Index:	
	0%	
Re	set	Exit

**Cartridge Reset Test** 

3. Select *Reset* to begin the test. A warning message that the existing cartridge must be replaced before running this test is displayed. When ready to perform the test, select the

OK button. The test will complete, resetting the cartridge wear index measurement value.

4. When done, press the *Exit* button to return to the test selection dialog.

## Oil Change Reset Test

The Oil Change Reset Test is available on:

- ✓ eAPU2
- ✓ iAPU

The Oil Change Reset Test will reset the oil change period calculation after an oil change has been performed..

- 1. Select Oil Change Reset Test and press Enter or the Start Button.
- 2. The test dialog will be displayed.

Oil Change Reset	×
This routine is intended to reset the oil change period calculation in the workshop if oil change period function indicates the necessity of the change for the off-engine compressor.	
Please ensure that vehicle is at standstill during Oil Change Period reset.	
Reset	

**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.

# Driver Assistance Systems (DAS) Tests

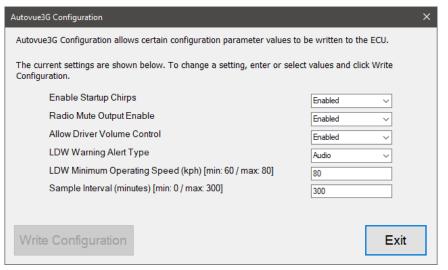
## AutoVue 3G Configuration

The AutoVue 3G Configuration Test is available on:

✓ AutoVue® 3G LDW System

This test allows the editing of configuration parameters.

1. Select AutoVue 3G Configuration and press Enter or the *Start* button.



AutoVue 3G Configuration

- Select a new value in one or more rows of the grid. Click Write Values button to have the new values sent to the vehicle. Once the programming is complete the Current Value column values will be updated and the Restore Original button will become enabled.
- 4. When done, press the Exit button to return to the test selection dialog.

#### **Blindspotter Configuration**

The Blindspotter Configuration is available on:

✓ Blindspotter® Radar

This test allows viewing the parameter values for the Blindspotter radar.

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.

Name	Update Value	Current Value	Original Value	Min	Max	Units
Configuration						
nable Auto Baud Rate		Yes	Yes			
Set J1939 baud rate		250KB	250KB			
egacy mode		Yes	Yes			
lazard Lamp Suppression		No	No			
ixed CCVS Acceptance Address		255	255	0	255	
ensor Location		Right Side	Right Side			
xtra CAN target messages		Disabled	Disabled			
OV Speed Threshold		20 mph	20 mph			
1939 Base Source Address		144	144	0	255	

#### **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:

✓ AutoVue® FLC20<sup>™</sup> Camera

This test commands the camera to take a snapshot and downloads the image for viewing to ensure proper camera alignment, focus, and visibility.

1. Select Camera Snapshot Test and press Enter or the *Start* button.

Camera Snapshot Test X
The Camera Snapshot Test will download a single image frame from the camera for diagnostic purposes. The downloaded image should be evaluated to <b>ensure the camera is aimed properly, in-focus, and free of</b> <b>obstruction.</b>
This download will take approximately five minutes. Click 'Get Image' to begin image download.
Get Image Reset Zoom + - Save Image Exit

**Camera Snapshot Test** 

 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:

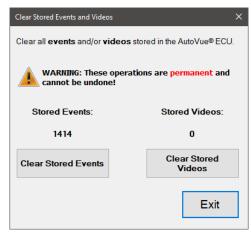
- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect<sup>®</sup> Web Portal Processor (3G and 5G)

This test allows the clearing of any events or videos stored in the AutoVue® ECU. Clearing events or videos is permanent and cannot be undone.

1. Select the Clear Stored Events and Videos test and press Enter or the Start button.

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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.

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.

4. When done, press the Exit button to return to the test selection dialog.

## **DIU Configuration**

The DIU Configuration is available on:

✓ Driver Interface Unit

This test allows the editing of configuration parameters.

1. Select DIU Configuration and press Enter or the Start button.

Name	Update Value	Current Value	Original Value	Min	Max	Units
Minimum Volume Percentage	-	30	30	0	100	%
Minimum Volume Retained		Yes	Yes			
2 Second Alert Tone		Yes	Yes			
1 Seconds Alert Tone		Yes	Yes			
Headway Alerts When Breaking: (Range Adjust For Wingman)	•	Disabled	Disabled			
Collision Alert When Braking		Disabled	Disabled			
Wingman Advanced Alerts		Enabled	Enabled			
LDW Audio Support		Disabled	Disabled			
Right Speaker Diagnostics		Disabled	Disabled			
Blackout Mode		Low	Low			

**DIU Configuration** 

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

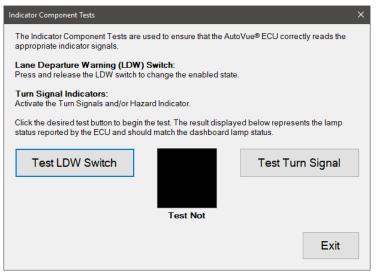
## **Indicator Component Tests**

The Indicator Component Tests are available on:

- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect<sup>®</sup> Web Portal Processor (5G)

This test is used to ensure the ECU is correctly reading input from the following indicator components: Lane Departure Warning (LDW) switch, and the Turn Indicators.

1. Select the Indicator Component Test and press Enter or the Start button.



**Indicator Component Tests** 

- 3. This test verifies the ECUs ability to correctly read indicator signals. Select *Test LDW Switch* to begin reading the status of the lane departure warning switch. Toggle the physical LDW switch in the vehicle cab and observe the test to see if the change in status is reported. Click *Stop Test* to stop monitoring the LDW status.
- 4. Select *Test Turn Signal* and observe the test while using the turn signals to see if the change in status is reported. The Hazard light switch can also be toggled. Click *Stop Test* to stop monitoring the turn signals.
- 5. When done, press the Exit button to return to the test selection dialog.

## Lamp Component Test

The Lamp Component Tests are available on:

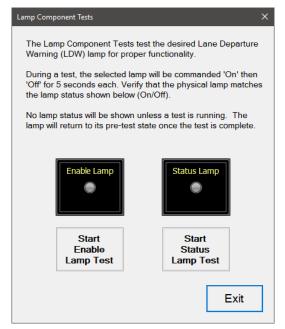
- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect® Web Portal Processor (5G)

The Lamp Component Test tests proper functionality of the Lane Departure Warning Enable/Disable lamp and the Status Lamp.

1. Select the Lamp Component Test and press Enter or the Start button.

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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:

✓ AutoVue® FLC20<sup>™</sup> Camera

This test allows editing of configuration parameters.

1. Select LDW Configuration and press Enter or the Start button.

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2. The test dialog will be displayed.

arameters where the <b>Update Value colu</b> or LDW Sensitivity, both sides should be value of 20 cm is Normal sensitivity, 40	set equal.					
Name	Update Value	Current Value	Original Value	Min	Max	Units
_DW						
DW		Enable	Enable			
DW Minimum Operating Speed		60	60	60	100	km/h
DW Sensitivity (Left Side)		10	10	5	120	cm
DW Sensitivity (Right Side)		5	5	5	120	cm
DW + Blindspotter 2 Integration		Disable	Disable			

#### **LDW Configuration**

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

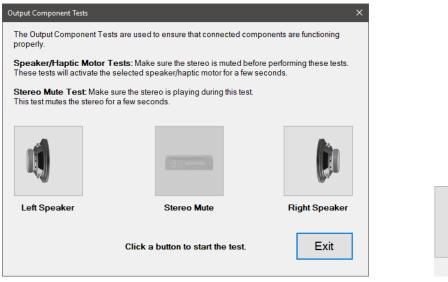
#### **Output Component Tests**

The Output Component Tests are available on:

- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect<sup>®</sup> Web Portal Processor (3G and 5G)

This test checks for proper functionality of connected alert systems, including: Speaker Feedback, Haptic Feedback, and Stereo Mute.

1. Select the Output Component Test and press Enter or the Start button.



**Output Component Tests** 



- 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:

✓ Steering Assist components

This test will reset the pressure values to zero and should only be performed when the steering wheel angle is zero.

1. Select Pressure Trimming Test and press Enter or the Start button.

ressure Trimming and Coil Polarity Test <b>Procedure 1 of 2:</b> The Pressure Trimming pro steering wheel angle. It will then measure the p memory.				×
Make sure the key is ON, engine is OFF, The Steering Wheel Angle should be Description		ossible within	1 +/-5 degree	s.
Engine Speed	701	rpm	J1939 (High)	~
Parking Brake Switch	Parking brake set		J1939 (High)	-
Steering Wheel Angle	-1.80	degrees	J1939 (High)	-
	I			~
Running Start			Exit	

**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.

Pressure Trimming and Coil Polarity Test				×
<b>Procedure 2 of 2:</b> The Coil Polarity procedure we pinning to the connector and correct direction. The direction.				
Make sure the key is ON, engine is RUNN	<b>ING</b> , and parking brake is <b>SET</b> .			
Description	Value	Units	Protocol	
Engine Speed	701	rpm	J1939 (High)	$\sim$
Parking Brake Switch	Parking brake set		J1939 (High)	
Steering Wheel Angle	-1.80	degrees	J1939 (High)	_
				$\sim$
Running Start			Exit	
Otart			LAIL	

#### **Coil Polarity Procedure**

5. 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<sup>™</sup> Radar

This test allows the user to align the FLR25 radar to the vehicle. After beginning the test, the vehicle must be driven 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.

- 1. Select Radar Service Alignment and press Enter or the *Start* button.
- 2. The test dialog will be displayed.

FLR25 Radar Service Alignment	×
The FLR25 Radar Service Alignment provides a means to ensure the proper alignment of the FLR25. The intended use case being when a radar unit is replaced on a truck in service.	
Click Start to begin the Radar Service Alignment test. The vehicle must be driven for approximately 15 minu until alignment is successful.	tes
This test must remain connected to the vehicle for the full duration of the alignment test drive	
The test may take up to 60 minutes based on driving and road conditions. If alignment is not complete after minutes, call 1-800-AIR-BRAKE, option 2 for assistance.	60
Test Preconditions	
🔮 Key On Engine Running (KOER)	
Start Exit	

**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.

If alignment has not completed after 60 minutes of driving, the test will end with alignment unsuccessful. Call the displayed support number for assistance.

4. 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<sup>®</sup> Web Portal Processor (3G and 5G)

This test allows the user to configure triggers and parameters for safety events.

1. Select Safety Direct Event Configuration and press Enter or the *Start* button.

arameters where the Update Value colun	an is highlighted vellow	w can be changed by se	lecting or entering	1 the desir	ed value		
•				•	eu value.		
arameters where the <b>Update Value colun</b>	in is not highlighted c	annot be directly edi	ted and are read-on	ly.			
							1
Name	Update Value	Current Value	Original Value	Min	Max	Units	
ECU Setup							Ĥ
SafetyDirect Event Reporting		Enable	Enable				
SD Event Collection							
Record Time Before Event Trigger		10	10	0	10	seconds	
Record Time After Event Trigger		10	10	0	10	seconds	
SD Manual Event Video Length		180	180	0	180	seconds	
SD Event Triggers							
lard Braking Force		1	1	0.1	1	g	
Severe Hard Braking Force		1	1	0.1	1	g	
Excessive Turning Force		1	1	0.1	1	g	
Severe Excessive Turning Force		1	1	0.1	1	g	
- Following Distance Time		60	60	0	60	seconds	-
Following Distance Duration		180	180	0	180	seconds	
Severe Following Distance Duration		3600	3600	0	3600	seconds	
5D Severe Lane Mark No. Track Time		255	255	0	255	minutes	
/ehicle Speeding Limit		250	250	30	250	kph	
Pooding Trigger		2000	2000	0	2000		Ŧ

**Safety Direct Event Configuration** 

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

### Safety Direct Event Selection Configuration

The Safety Direct Event Selection Configuration test is available on:

- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect® Web Portal Processor (3G and 5G)

This test allows the user to configure beep and video events.

1. Select Safety Direct Event Selection Configuration and press Enter or the *Start* button.

arameters where the <b>Update Value c</b>	olumn is highlighted yellov	<b>v</b> can be changed by <b>se</b>	lecting or entering	, the desire	ed value.		
arameters where the <b>Update Value c</b>	olumn is not highlighted c	annot be directly edit	t <b>ed</b> and are read-on	ly.			
Name	Update Value	Current Value	Original Value	Min	Max	Units	
Notification Beep							4
Excessive Curve Speed		Disable	Disable				
Excessive Braking		Enable	Enable				
Distance Alert		Disable	Disable				
Forward Collision Warning		Enable	Enable				
Collision Mitigation Braking		Disable	Disable				
ESC		Enable	Enable				
RSC		Disable	Disable				
Vehicle Speeding		Enable	Enable				
Video Recording							
Excessive Curve Speed		Disable	Disable				
Excessive Braking		Enable	Enable				
Distance Alert		Disable	Disable				
Forward Collision Warning		Enable	Enable				_
Collision Mitigation Braking		Disable	Disable				
ESC		Enable	Enable				
ncc		Disable	Disable				

Safety Direct Event Selection Configuration

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

### **SDP3 Configuration**

The SDP3 Configuration Test is available on:

✓ SafetyDirect<sup>®</sup> Web Portal Processor (3G)

This test allows the editing of configuration parameters.

1. Select SDP3 Configuration and press Enter or the Start button.

SDP3 Configuration		×
SDP3 Configuration allows certain configuration parameter	values to be written to the ECU.	
The current settings are shown below. To change a setting Configuration.	enter or select values and click Write	
Warning: Configured hardware are expected by the syster properly connected to the system <i>BEFORE</i> enabling the cor fault.		
Enable Startup Chirps	Disabled ~	1
Enable Radio Mute Discrete Output	Disabled ~	1
Video Input Camera Type	FLC20 V	
LDW Switch Type	CAN FF01 ~	1
Alert Type	Audio ~	1
Audio Sound Type	Default ~	1
TPMS Sampling Interval (minutes) [min: 0 / max: 300]	25	1
		1
Write Configuration	Exit	

**SDP3** Configuration

- 3. Select a new value in one or more dropdown boxes. Click *Write Configuration* to have the new values sent to the vehicle. Once the programming is complete the values in the dropdown boxes will be updated.
- 4. When done, press the *Exit* button to return to the test selection dialog.

# **SPD5 Configuration**

The SDP5 Configuration Test is available on:

✓ SafetyDirect<sup>®</sup> Web Portal Processor (5G)

This test allows the editing of configuration parameters.

- 1. Select SDP5 Configuration and press Enter or the Start button.
- 2. The test dialog will be displayed.

SDP5 Configuration	×
SDP5 Configuration allows certain configuration setup para	meter values to be written to the ECU.
The current settings are shown below. To change a setting Configuration.	g, enter or select values and click Write
Warning: Configured hardware are expected by the syste properly connected to the system <i>BEFORE</i> enabling the con fault.	
Enable Startup Chirps	Enabled ~
Enable Radio Mute Discrete Output	Off ~
Video Input Camera Type	FLC20 V
LDW Switch Type	CAN FF01 ~
Alert Type	Audio
Audio Sound Type	Rumble Strip ~
DVR Options	DVR Disabled ~
Cellular Enable	Enabled ~
Read SafetyDirect Event Video Storage Count [min: 0 /	0
max: 65535] TPMS Sampling Interval (minutes) [min: 0 / max: 300]	25
Write Configuration	Exit

**SDP5** Configuration

- 3. Select a new value in one or more dropdown boxes. Click *Write Configuration* to have the new values sent to the vehicle. Once the programming is complete the values in the dropdown boxes will be updated.
- 4. When done, press the *Exit* button to return to the test selection dialog.

### SPD5 System Configuration

The SDP5 System Configuration Test is available on:

✓ SafetyDirect<sup>®</sup> Web Portal Processor (5G)

This test allows the editing of system configuration parameters.

- 1. Select SDP5 System Configuration and press Enter or the *Start* button.
- 2. The test dialog will be displayed.

SDP5 System Configuration	×
SDP5 System Configuration allows certain system configura	tion values to be written to the ECU.
The current settings are shown below. To change a setting, Configuration.	, enter or select values and click Write
Warning: Configured hardware are expected by the systen properly connected to the system <i>BEFORE</i> enabling the corr fault.	
FLC Camera	Enabled ~
DFC Camera	Enabled ~
MPC2 Camera	Enabled ~
CTP OBC	Enabled ~
Private CAN	Disabled ~
Power Backup: Backup Battery	Disabled ~
Use Only CTP for Data Offloading	Disabled ~
Power Backup: Supercaps	Disabled ~
Write Configuration	Exit

**SDP5** System Configuration

- 3. Select a new value in one or more dropdown boxes. Click *Write Configuration* to have the new values sent to the vehicle. Once the programming is complete the values in the dropdown boxes will be updated.
- 4. When done, press the *Exit* button to return to the test selection dialog.

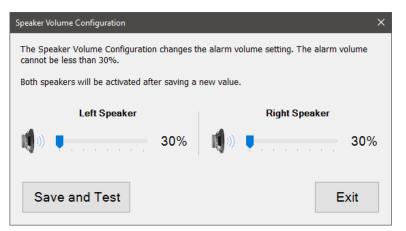
### **Speaker Volume Configuration**

The Speaker Volume Configuration test is available on:

- ✓ AutoVue® 3G LDW System
- ✓ SafetyDirect<sup>®</sup> Web Portal Processor (3G and 5G)

This test allows calibration of the lane departure warning volume for both Left and Right speakers.

1. Select the Speaker Volume Configuration Test and press Enter or the Start button.



**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:

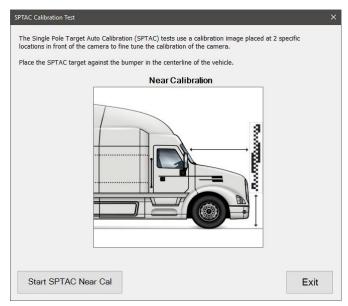
✓ AutoVue® FLC20<sup>™</sup> Camera

This test allows calibration of the vehicle mounted camera by imaging a target placed at 2 specific locations.

- 1. Select the SPTAC Calibration Test and press Enter or the Start button.
- 2. The test dialog will be displayed.

**SPTAC Calibration Test Current Settings** 

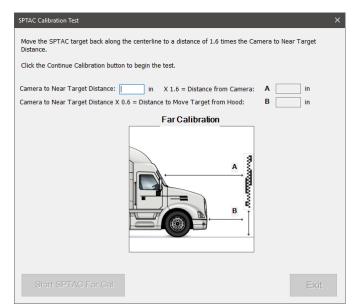
3. The current calibration information is displayed. Select *Start SPTAC Calibration* to begin the recalibration procedure.



**SPTAC Near Calibration** 

- 4. The SPTAC target must be setup before beginning the calibration. Click *Start SPTAC Near Cal* to begin the recalibration process.
- Once near calibration has completed the Far Calibration instructions will be displayed. A calculator is provided to locate the far position for the SPTAC target. Press Tab or click outside the calculator box to enable the *Start SPTAC Far Cal* button.

Click *Start SPTAC Far Cal* to begin the recalibration process. A successful calibration message will be displayed when the process is complete. The screen will change to display the current calibration settings.



**SPTAC Far Calibration** 

6. 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<sup>®</sup> Web Portal Processor 3G version 21.19 and above
- ✓ SafetyDirect® Web Portal Processor 5G

This test sets the left and right chirp volumes.

- 1. Select Startup Chirp Volume Setting and press Enter or the Start button.
- 2. The test dialog will be displayed.

Startup Chirp Volume Setting	x
Startup Chirp Volume Setting allows changes	to the Left and Right Startup Chirp Volumes.
Left Startup Chirp Volume Medium ~	Right Startup Chirp Volume
Save	Exit

**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:

✓ AutoVue® FLC20<sup>™</sup> Camera

This test allows editing of configuration parameters.

- 1. Select TSR Configuration and press Enter or the *Start* button.
- 2. The test dialog will be displayed.

TSR Configuration	×
The TSR Configuration allows configuration of Traffic Sign Recognition (TSR	) settings.
The current settings are shown below. To change a setting, enter or select Configuration.	values and click Write
TSR	Enabled 🗸
TSR OverSpeed Alert (mph) [min: 0 / max: 157]	158
TSR OverSpeed Alert and Action (mph) [min: 0 / max: 157]	158
Source Address for the Country Select message [min: 0 / max: 247]	140
Write Configuration	Exit

**TSR** Configuration

- 3. Select a new value in one or more rows of the grid. Click *Write Configuration* button to have the new values sent to the vehicle.
- 4. When done, press the *Exit* button to return to the test selection dialog.

### Wingman FLR Configuration

The Wingman FLR Configuration test is available on:

- ✓ Wingman® FLR20<sup>™</sup>/FLR21<sup>™</sup> Radar
- ✓ Wingman® FLR25<sup>™</sup> Radar
- ✓ Vorad VS500 Radar

This test allows editing of configuration parameters.

- 1. Select Wingman FLR Configuration and press Enter or the Start button.
- 2. The test dialog will be displayed.

ngman Configuration: Wingman Service Name	ACB/CMT/Fusion Auto Detec	t Current Value	Original Value	Min	Max	Units
eneral Settings						
CC Lateral Mounting Offset		-140.625	-140.625	-500	500	mm
tationary Object Warning		On	On			
virect TSC1 Control		Off	Off			
ighway Departure Braking		Warning and Braking Off	Warning and Braking Off			
СС Туре		Not Available	Not Available			
lulti Lane AEB		Off	Off			
CC Type Engine Mismatch		Off	Off			
DA Alerts / Following Distance Settings						
ollowing Distance Alert Table		1	1	1	9	
lomentary FDA		Off	Off			

Wingman FLR Configuration

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current** Value column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

#### Wingman Fusion Blindness Adjustment

The Wingman Fusion Blindness Adjustment test is available on:

✓ Wingman® FLR21<sup>™</sup> Radar

- 1. Select Wingman Fusion Blindness Adjustment and press Enter of the Start button.
- 2. The test dialog will be displayed.

/ingman Fusion Blindness	Adjustment		>
The Wingman Fusion sensitivity level.	Blindness Adjustment test will a	llow the user to adjust the rada	ar's blindness
Test Preconditions		Current E	lindness Setting
🛷 Key On Engine (	Key On Engine Off (KOEO)		imum Sensitivity
New Blindness Setti	ng:		
Minimum Sensitivity	Normal Sensitivity	High Sensitivity	Max Sensitivity
Save			Exit

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.

# Tire Pressure Monitoring System (TPMS) Tests

# **TPMS Ambient Sensor Configuration**

The TPMS Ambient Sensor Configuration test is available on:

✓ All SmarTire<sup>™</sup> TPMS solutions

This test allows enabling of the TPMS Ambient Sensor and setting the sensor ID.

- 1. Select TPMS Ambient Sensor Configuration and press Enter or the *Start* button.
- 2. The test dialog will be displayed

PMS Ambient Sensor Configuration							×
The TPMS Ambient Sensor Configur and assigning the sensor ID. The sensor ID can be found printed of Learn By Hand Tool allows the ha automatically written to the TPMS con ID is learned.	on the physical sensor. and tool to be used to u	pdate the ambie	nt sensor ID. The	updated s	sensor ID wi	ill be	
Name	Update Value	Current Value	Original Value	Min	Max	Units	
Global Settings							
Altitude Compensation		On	Off				
Ambient Application Configuration							
Ambient Pressure Source		Wireless Sen	Wireless Sen				
Ambient Sensor ID Code		Disabled	Error	1	26843		
Ambient Condition Enable		On	Off				
Ambient Pressure Enable		On	On				
Ambient Sensor Fault Enable	_	On	On				-
Write Values	store Original	Learn By H	land Tool			Exit	

**TPMS Ambient Sensor Configuration** 

3. The ambient sensor enabled status and sensor ID can be edited manually if source is set to Wireless Sensor. Select *Write Values* to write all updated information to the ECU.

The ambient sensor can also be updated by selecting *Learn By Hand Tool* <sup>¶</sup> to update with the SmarTire<sup>™</sup> hand tool. The new sensor Id will be automatically written when it is read by the hand tool and the sensor will be enabled.

The *Restore Original* button will become enabled after any change has been written to the ECU.

4. 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<sup>™</sup> TPMS solutions

This test allows configuration settings to be saved to a local file and/or loaded onto a TPMS ECU.

1. Select the TPMS Backup and Restore and press Enter or the Start button.



**TPMS Backup and Restore** 

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.

Select *Load Settings* to update the currently connected ECU with the configuration information from a previously saved file. An open file dialog will appear. Navigate to the desired file and click *OK* to begin writing the configuration information to the ECU.

### NOTE: For compatibility rules see <u>TPMS Backup and Restore Compatibility</u>.

4. When done, press the *Exit* button to return to the test selection dialog.

# **TPMS Configuration**

The TPMS Configuration test is available on:

✓ All SmarTire<sup>™</sup> TPMS solutions

This test allows full configuration of TPMS sensors, including defining the number of axles and the number of tires per axle. It also provides multiple options for relearning tire sensor information.

1. Select TPMS Configuration and press Enter or the *Start* button.

TPMS	Configuration					×
usin	g one of the availa		·		lesired field or by	Allow Axle Configuration
Clic	k Additional Info fo	or specific instruction	ons on all available	controls.		A
						Add Axle
	Normal ~	Normal ~	Normal ~	Normal ~	Spare Tire 🗸	
L		203	303	51	503	Remove Axle
RIGHT						
R						
	101	202	302	50	502	Learn By Hand Tool
	ő	2	5	4	5	۹r
	I	I	F	I		Learn By Pressure Change
	3103171	201	301	49	501	
E						Swap Sensor IDs
LEFT		200	300	48	500	
	Make Dual	Make Single	Make Single	Make Single		Learn All Using: Hand Tool
Cold	I Inflation Pressure			5	2/	Pressure Change
Coic	114.58	114.58	114.58	114.58	114.58	Learn All
	114.00	114.30	114.30	114.30	111.50	Sensors
	Write Value	es Rea	d From ECU		Additional Info	Exit

**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.

Tire Sensor Id can also be relearned by clicking on a tire and using one of the available command buttons.

- a. Click *Learn By Hand Tool* <sup>I</sup> to update the selected tire with the SmarTire<sup>™</sup> 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.
- 4. Click *Swap Sensor Ids* to move the existing sensor Ids between any 2 selected tires.
- 5. To relearn all tire sensors select an available method and click Learn All Sensors. All tire sensors will be numbered, the first tire in order will be selected, and a timer displays. When the tire sensor Id has been updated using the selected method the next sensor in order will be selected. This will continue until all tire sensors have been updated.

a. Prior to relearning the sensors, a warning message will be displayed; click Yes to continue the relearning process.

TPMS	Configuration					×
	ate wheel sensor lds b g one of the available c		code printed on the	sensor in the d	esired field or by	Allow Axle Configuration
Click	Additional Info for sp	ecific instruction	is on all available o	ontrols.		Configuration
	Perfor	m action on	selected tire t	o learn its se	ensor ID.	Add Axle
E	Normal V	203	Normal V 1 303	Normal 51	Spare Tire v 503	Remove Axle
RIGHT		16	14	13	<b>10</b>	Learn By Hand
	310	Sensor	Learn in proc		195 sec 5	Learn By Learn By Pressure Change
LEFT		2	<b>4</b> <b>5</b> 300	6 7 48	<b>8</b> <b>9</b> 500	Swap Sensor IDs
	Make Dual	Make Single	Make Single	Make Single	Make Single	Learn All Using: Hand Tool Pressure Change
Cold	Inflation Pressure (psi	)				
	114.58	114.58	114.58	114.58	114.58	Cancel Learn All Sensors
	Write Values	Read	I From ECU	0	Additional Info	Exit

**TPMS Configuration Relearn All Sensors** 

6. 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 of its current configuration information to be forgotten.

Clicking *Add Axle* will add a new axle control. Click *Make Dual* to set the axle to 2 tires per side. Selecting *Make Single* will change the axle to 1 tire per side. The new axle's sensor information must be assigned before clicking *Write Values* to update the TPMS system.

7. Clicking *Read From ECU* will cause any unsaved changes to be lost as the current configuration to be reread from the ECU.

8. 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 Co	onfiguration	×
Lege	end: Enfigured Sensor I Resor Assigned I Spare Tire	
	Dummy Sensor Trailer Sensor Active Fault	
	Spare Tire indicates a tire is not physically installed on an axle. Only the last (right-most) axle on the TPMS Configuration screen can be designated with the Spare Tire Axle Type.	
Ŵ	Allow Axle Configuration enables full configuration of TPMS sensor layout. This includes designating spare tires, number of wheels on an axle, and the number of axles.	
	Add Axle adds a new axle control to TPMS Configuration. By default the new axle will be single wheel Normal type.	
0	Remove Last Axle will remove the right-most axle from TPMS Configuration.	
	Learn By Hand Tool allows the hand tool to be used to update the selected wheel's sensor Id. Sensor Id's learned in this way are automatically written to the ECU.	
	Learn By Pressure Change causes the selected wheel to listen for pressure changes. When the pressure change is detected the sensor Id will be automatically updated.	
9	Swap Sensor Ids allows the user to select 2 wheels, switching their sensor Ids.	
0	Learn All Sensors requires the user to choose a learn method: Hand Tool or Pressure Change. The procedure will begin with the Left front wheel (inner wheel if it is dual) and will proceed counterclockwise around the vehicle. For dual wheels the inner wheel is always first, followed by the outer wheel.	
	Write Values will update the ECU with any new, unsaved configuration values. If an axle was removed that axle's information will be cleared from the ECU.	
	Read From ECU resets the TPMS Configuration screen by re-reading all of the current ECU settings.	
	Exit	

**TPMS Configuration Additional Info** 

9. 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<sup>™</sup> Standard and NextGen TPMS solutions

This test allows selection of the TPMS lamp display.

- 1. Select TPMS Configuration and press Enter or the Start button.
- 2. The test dialog will be displayed.

TPMS Lamp Display Confi	guration	×			
The TPMS Lamp Display Configuration window allows the user to update lamp display output configuration.					
Select option for the Lamp Display and click <b>Update</b> to save.					
Lamp Display:	LED ~				
Update	Exit				

**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 SmarTire<sup>™</sup> TPMS solutions

This test allows editing of configuration parameters.

- 1. Select TPMS Parameters and press Enter or the Start button.
- 2. The test dialog will be displayed.

arameters where the Update Value colun	nn is highlighted yellow	can be changed by <b>sele</b>	cting or entering	the desire	ed value.	
arameters where the Update Value colun	nn is not highlighted ca	nnot be directly edite	<b>d,</b> but change in res	ponse to e	diting the ABS	Type parameter
Name	Update Value	Current Value	Original Value	Min	Max	Units
Global Settings						
First Alert Level		15	15	5	50	
Temperature Compensate FAL		On	On	0	1	
Second Alert Level		20	20	5	50	
Temperature Compensate SAL		Off	Off	0	1	
High Temperature		8	8	30	120	С
Altitude Compensation		On	On	0	1	
Ambient Sensor ID Code		1200	1200	0	42949	
Auto Learn Setting		Single Tire	Single Tire	0	2	
Trailer Learn		Off	Off	0	1	
Exclusive Trailer		Off	Off	0	1	
Exclusive Trailer ID		0	0	0	99999	
Tire Condition Pressure Mode		Absolute	Absolute	0	1	
Sensor Fault Time Programming						
Sensor Fault Time Rolling Mode		5	5	1	255	
Custom Stationary Sensor Fault Time		On	On	0	1	
Sensor Fault Time Stationary Mode		0	0	1	255	
Custom Ambient Sensor Fault Time		On	On	0	1	
Consor Foult Time for Ambient Consor		25	25	-	255	

**TPMS Parameters** 

- Select a new value in one or more rows of the grid. Click *Write Values* button to have the new values sent to the vehicle. Once the programming is complete the **Current Value** column values will be updated and the *Restore Original* button will become enabled.
- 4. When done, press the *Exit* button to return to the test selection dialog.

# **TPMS Scratchpad**

The TPMS Scratchpad is available on:

✓ SmarTire<sup>™</sup> NextGen TPMS solutions

This test allows users to read and/or write text stored on the TPMS controller. The OEM scratchpad displays read-only identification data for the ECU. The Fleet scratchpad allows technicians to view or update maintenance information.

- 1. Select the TPMS Scratchpad and press Enter or the Start button.
- 2. The test dialog will be displayed.

TPMS Scratchpad	×
The TPMS Scratchpad feature allows the user controller. OEM scratchpad data is read-only, a	
Fleet Scratchpad	OEM Scratchpad
Vehicle VIN (10 chars max)	OEM Name
9999999999	BENDIX
Maintenance Date (10 chars max)	OEM Plant
2021-06-16	MEXICO
Technician <i>(10 chars max)</i>	Date of Manufacture
Technician	10-10-2010
Security PIN <i>(4 digits)</i>	Vehicle VIN
5555	00000000
Maintenance Notes (50 chars max)	OEM Notes
Maintenance notes.	TEST
×	~
	E.uk
Update	Exit

**TPMS Scratchpad** 

- 3. Data read from the TPMS controller is displayed. Fleet scratchpad entries may be updated; any unsaved changed will be highlighted. Click *Update* to write changes to the ECU.
- 4. When done, press the *Exit* button to return to the test selection dialog.

### **TPMS Signal Strength Test**

The TPMS Signal Strength Test is available on:

 ✓ All SmarTire<sup>™</sup> TPMS solutions (except for Standard TPMS models 200.0213, 200.0216, and 200.0219)

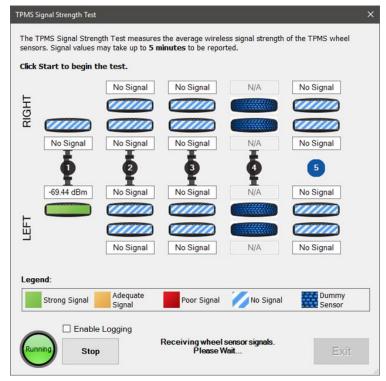
This test allows testing and logging of signal strength between the TPMS control unit and each connected tire sensor.

1. Select the TPMS Signal Strength Test and press Enter or the *Start* button.

TPMS Signal Strength Test	×
The TPMS Signal Strength Test measures the average wireless signal strength of the TPMS wheel sensors. Signal values may take up to <b>5 minutes</b> to be reported.	
Click Start to begin the test.	
Legend:	
Strong Signal Adequate Signal Poor Signal No Signal Sensor	
Enable Logging	
Running Start Exit	

**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** 

4. When done, press the *Exit* button to return to the test selection dialog.

### **TPMS Statistics**

The TPMS Statistics Test is available on:

✓ SmarTire<sup>™</sup> 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.

- 1. Select TPMS Statistics and press Enter or the Start button.
- 2. The test dialog will be displayed.

Mileage Statistics	Sensor Fault Oc	currences		
Descrip	tion	Value	Units	Protocol
Statistic, Miles driven with I	Dual Tire Imbalance	0.00	mi	J1939 (High)
Statistic, Miles driven with I	Extreme Low Pressur	136.63	mi	J1939 (High)
Statistic, Miles driven with I	ligh Pressure Active	0.00	mi	J1939 (High)
Statistic, Miles driven with I	High Temperature Ac	0.00	mi	J1939 (High)
Statistic, Miles driven with I	ow Pressure Active	136.63	mi	J1939 (High)
Statistic, Miles driven with !	Sensor Fault Active	136.63	mi	J1939 (High)
Statistic, Total Miles		136.63	mi	J1939 (High)

**TPMS Mileage Statistics** 

The *Mileage Statistics* tab displays accumulated distance the vehicle has traveled with different statuses enabled. *Sensor Fault Occurrences* displays the fault occurrence count for all affected axles and tire sensors.

3. Clicking the *Reset* button will display a confirmation message. Click Yes to reset the currently selected tab.

	since the last Re on will clear lea	set action. med values for the currently selected	d tab.
	·		
Vileage Statistics			
Tire Po	sition	Occurrence Count	
Axle: 2, Wheel: 2		2	
Axle: 2, Wheel: 1		2	_
Axle: 3, Wheel: 2		2	
Axle: 3, Wheel: 1		2	
Axle: 4, Wheel: 2		2	
Axle: 4, Wheel: 1		2	
Axle: 4, Wheel: 3		2	
Axle: 4, Wheel: 4		2	
Axle: 3, Wheel: 3		2	
Axle: 3, Wheel: 4		2	
Axle: 2, Wheel: 3		2	
Axle: 2, Wheel: 4		2	_
Avlar 1 Mbaali 2		n	×

**TPMS Sensor Fault Occurrences** 

NOTE: Resetting statistical data is a permanent operation that cannot be undone.

4. When done, press the *Exit* button to return to the test selection dialog.

# **Trailer Brakes Tests**

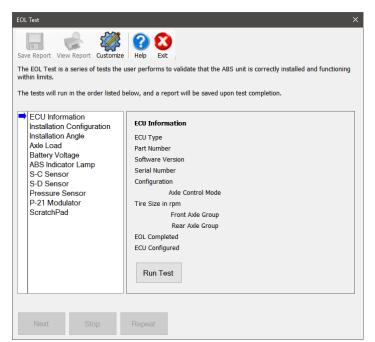
# EOL Test

The EOL (End of Line) Test is available on:

- ✓ TABS-6<sup>™</sup> 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.

- 1. Select EOL Test 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	×					
The EOL Test is a series of tests to validate that the ABS unit is correctly installed and functioning within limit. Once all test steps are completed, the user will save a report consisting of the results of the EOL Test.						
ECU Information must be completed first, and Scratchpad must be the last step. Tests that are greyed out are required and cannot be un-selected. All other tests are optional.						
Select the desired test step and use the Up or Down arrows to change the ord	ler.					
<ul> <li>ECU Information</li> <li>Installation Configuration</li> <li>Installation Angle</li> <li>Axle Load</li> <li>Battery Voltage</li> <li>ABS Indicator Lamp</li> <li>S-C Sensor</li> <li>S-D Sensor</li> <li>Pressure Sensor</li> <li>P-21 Modulator</li> <li>SorratchPad</li> </ul>	1 U					
Save Configuration	Next					

**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.

Click the *View Report* button to view the EOL Report, which contains ABS data items and test information.

- 6. Clicking the *Help* **?** button will open the User Guide.
- 7. When done, press *Exit* to return to the main form.

### **ABS Indicator Lamp Test**

The ABS Indicator Lamp Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The ABS Indicator Lamp Test provides the ability to test the trailer ABS indicator dashboard lamp. This test is available as part of the EOL Test and from Bi-Directional test selection.

1. Select the ABS Indicator Lamp Test and press Enter or the Start button.

ABS Indicator Lamp Test	×
This test illuminates the lamp and then extinguishes the lamp. Please verify proper ABS Indicator Lamp operation on trailer. Click 'Run Tes to begin.	
Run Test Exit	

**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 Indicator Lamp Test	×
This test illuminates the lamp and then extinguishes the lamp. Please verify proper ABS Indicator Lamp operation on trailer. Click 'Run Test to begin.	
ABS Indicator will be switched on for five seconds. Ensure that the lamp is lit.	
ABS Indicator is now switched off. Ensure that the lamp is not lit.	
Did the ECU respond correctly? 🗸 X	
Stop	

**ABS Lamp Indicator Test Confirmation** 

- 5. Select the checkmark button to indicate that the ECU responded correctly. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 6. When done, select the *Exit* button to return to the test selection dialog.

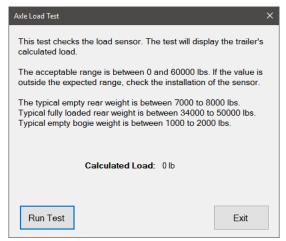
# **Axle Load Test**

The Axle Load Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Axle Load Test provides the reading of the axle load sensor with an expected range of 0 to 60,000 lbs. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select the Axle Load Test and press Enter or the Start button.
- 2. The test dialog will be displayed.



**Axle Load Test** 

- 3. Select *Run Test* to begin. The Calculated Load will update with the current Axle Load. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

### **Battery Voltage Test**

The Battery Voltage Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Battery Voltage Test checks the battery voltage with and without the modulators energized, and then displays the voltage reading. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select the Battery Voltage Test and press Enter or the Start button.

Battery Voltage Test		×
The test measures the battery volta energizing all modulators while disp value in each phase.		
Step:	Voltage:	
1. Before energizing modulators	0.00	
2. During energizing modulators	0.00	
3. After energizing modulators	0.00	
Run Test	Exit	

**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	×
The test measures the battery voltage be energizing all modulators while displayir value in each phase.	
Step:	Voltage:
1. Before energizing modulators	12.436 volts
2. During energizing modulators	12.401 volts
3. After energizing modulators	12.19 volts
Are the battery voltages accept	able? 🗸 X
Stop	Exit

**Battery Voltage Test Confirmation** 

- 4. Select the checkmark button to indicate the voltages are acceptable. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

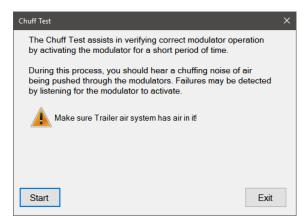
### **Chuff Test**

The Chuff Test is available on:

- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Chuff Test assists in verifying correct brake modulator operation by activating the modulator for a short period of time. Ensure the vehicle is at normal operating air pressure while running the test.

1. Select the Chuff Test and press Enter or the Start button.



**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.

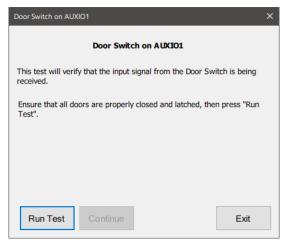
# **Door Switch Status Test**

The Door Switch Status Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Door Switch Status Test verifies the input signal from the Door Switch is being received. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select the Door Switch Status Test and press Enter or the Start button.
- 2. The test dialog will be displayed.



**Door Switch Test** 

- 3. Verify the doors are closed and latched, then select *Run Test* to begin. Follow the test instructions, opening the doors when requested and clicking *Continue*.
- 4. The ECU verifies the doors are open and the test passes. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### **ECU Configuration**

ECU Configuration is available on:

✓ TABS-6™ Multi-Channel Trailer ABS

ECU Configuration allows technicians to set parameters and configurations of the ECU.

- 1. Select ECU Configuration and press Enter or the Start button.
- 2. The test dialog will be displayed, showing the current ECU settings.

Clicking the Help button will open this User Guide document.

ABS Configura	tion	Speed Sensor and Lift Axle Locati	ons	
ABS	2S/2M ~	Right - "Curb-Side"		
Control	Side ~		S-C	
Vehicle Data				
Trailer Type	Semi-Trailer 🗸		Ratti 122	
Number of Axle(s	) 1 Axle 🗸	Ð	• 22	
Wheel Parame	Tone Tire Size (Rev per Mile)		Pat G	
Single/Double T		Left - "Road Side"	S-D	
Odometer (mile	es)		1	
Odometer	100	Speed Sensor S-C, S-D		
Trip Odometer	8	Control / Monitor Lift Axle 1		
Reset Trip O	dometer?	Control / Monitor Lift Axle 2		
Service Distance	391	Axle Spacing (in)	260	

**ECU Configuration** 

- 3. Clicking the *Modify* button allows ECU configurations and parameters to be changed.
- 4. The ABS Configuration tab allows changing the ECU type, number of axles supported, tire parameters, and odometer information.

The configuration diagram will update to reflect the current settings. Related parameters like sensor location, lift location, and axle spacing may be defined.

	tion	Speed Sensor and Lift Axle Locati	ions	
ABS	2S/2M ~	Right - "Curb-Side"		
Control	Side ~		S-C	
Vehicle Data			S.m.	
Trailer Type	Semi-Trailer ~		P22	
Number of Axle(s	) 1 Axle ~		P22	
Number of Adde(s	17000 \$	$\oplus$	Φ	
Wheel Parame	ters Tone Tire Size Ring (Rev per Mile)		P21 E 87 <b>41</b> D	
Rear Axle(s)	100 ~ 507 -			
Single/Double T	re Double v	Left - "Road Side"	S-D	
Odometer (mil	es)		1	
Odometer	100	Speed Sensor S-C, S-D	1 1 1	
Trip Odometer	8			
	dometer?	Control / Monitor Lift Axle 1 Control / Monitor Lift Axle 2		
Reset Trip O		Control 7 montal ElitPate 2		
Reset Trip O	391			

**Modify ABS Configuration** 

5. The Load and Sensor Configuration tab allows users to change sensor settings, load of the Bogie, and width of the wheel track.

Lateral Acceleration Sensing type is set to "External" only when External Sensor #1 is set to "Lateral Accelerometer." This allows the "Sensor distance from King Pin" value to be defined.

Load Sensing type is based on either the External Sensor #1 or #2 value. If either External Sensor is set to "Load," the sensing type will be set to "External" and the "Load Input, Empty" and "Load Input, Fully Loaded" values may be defined.

If either External Sensor is set to any other value, the sensing type will be set to "Internal." This allows the "Air Bag Pressure, Empty" and "Air Bag Pressure, Fully Loaded" values to be defined.

External Sensor #1:	Late	eral Acceleromete >	Sensing Type	External v
External Sensor #2:	Not	ne v	Sensor Distance from King Pin (in)	217 🗧
Bogie Load			Load Sensing	
Rear Axle Group			Sensing Type	Internal ~
Jniform Axle Load Distri	bution	Yes	Air Bag Pressure, Empty (psi)	15.5 🔹
Rear, Empty (Ibs)		17637 79997	Air Bag Pressure, Fully Loaded (psi)	84.0 -
Rear, Fully Loaded (lbs)		79997		
Axle:	1 2	3	Load Estimation	
Maximum Axle Load:	26665 26665	26665	Load Estimation	Enabled ~
Miscellaneous			Reset Load Estimation on park	Enabled ~
Miscellaneous Wheel Track Width (in)		82.7	Reset Timer (sec)	120 🤤
			Load / P42	Disabled ~
Lift Axle(s)		2.	3 Load / P42 Threshold (psi)	65.3 🗘
			Load / P42 WL Indicator	Disabled ~

**Modify Load and Sensor Configuration** 

6. 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.

TRSP			TRSP Parameters	
TRSP Enabled	Yes		TRSP Sensitivity	Increased level 2
Module Offset from Center Line (in)	0.0	0	Step 1 Enabled	Yes
Module Offset from Center Line	Center	~	1	
ECU Orientation	180 Degrees C	cw 🗸		
vong macan die Values off th	ie trisk page a	re cor	rect before saving the value	es to the ECU!
rony wax an die Values on in	е ткъч раде а	re cor	rect before saving the value	es to the ECU!

Modify Trailer Rollover Stability (TRSP)

 The Auxiliary IO tab allows users to define the type and function of the available Aux IO pins. Select the desired type of "Input" or "Output," then select the desired Function Name. A checkbox will appear in the Capacitive column for all Output functions.

NOTE: AUXIO1 and AUXIO2 will have the same type (Input or Output) if either is updated.

The Input functions section allows "Input" functions to be assigned to specific pins.

A tab of related parameters will be added to the Auxiliary function parameters section for every function that supports them. These parameters must be set to ensure proper function of the ECU.

Auxiliary Fu Pin	Туре		Function Name		Capacitive		
					Capacitive		
AUXI01	Input	~	iLPWE	~			
AUXIO2	N/A	×	Disabled				
AUXIO3	Output	~	Vout	~			
AUXI04	N/A	~	Disabled				
AUXIO5	N/A	~	Disabled				
AUXIO6	N/A	~	Disabled				
Input Functio	ons					Function Parameters	
Pin	Туре		Function Name		LPWE		
SENS IN1	N/A	~	Disabled		Inverted N	Mode	Yes
SENS IN2	N/A	~	Disabled			ning Lamp	
Input E	N/A	~	Disabled			at standstill	Yes 3
Input F	N/A	~	Disabled		LPWE Sp	eed (mph)	J .

**Modify Auxiliary IO** 

- 8. When all configuration and parameter changes have been made and verified, click the *Write* button to write them to the ECU. A progress bar will be displayed. You may hear a clicking or chuffing sound from the ECU as the updates are written. When configuration is complete, a success status popup is displayed.
- 9. When done, select the Exit button to return to the main form.

### **ECU Information Test**

The ECU Information Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The ECU Information Test provides information regarding the TABS ECU such as ECU type, part number, software version, serial number, configuration, tire size, EOL Completion status, and if the ECU is configured. This test is only available inside of the EOL Test dialog and does not appear in the Bi-Directional test selection.

- 1. Select EOL Test on the main form toolbar.
- 2. Select the tests to be ran and the order to perform them in, then select Next.
- 3. The ECU Information screen will appear.

EOL Test		×
The EOL Test is a series of tests the u within limits.	Customize ser performs to validate that the ABS unit is correctly installed and functioning slow, and a report will be saved upon test completion.	
ECU Information Installation Configuration Installation Angle Axle Load Battery Voltage ABS Indicator Lamp S-C Sensor S-D Sensor Pressure Sensor P-21 Modulator ABS on AUXIO1 ScratchPad	ECU Information ECU Type Part Number Software Version Serial Number Configuration Axle Control Mode Tire Size in rpm Front Axle Group Rear Axle Group EOL Completed ECU Configured	
Next Stop	Repeat	

ECU Information Test Inside EOL Test Screen

- 4. Select *Run Test*. ECU Information will be gathered and displayed on screen. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the main form.

### **General Output Functions Test**

The General Output Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS

✓ TABS-8<sup>™</sup> Trailer ABS

The General Output Test allows for confirmation that the output functions assigned to an Input/Output (I/O) pin is functioning properly. There are multiple I/O functions that are held under this General Output Test.

TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS, AUXIO1, AUXIO2, AUXIO4, and AUXIO6 pins allow output functions to be tested.

TABS-6<sup>™</sup> 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<sup>™</sup> Trailer ABS, AUXIO1 is the only I/O pin that allows output functions to be tested. SE and SF do not allow output functions.

Supported I/O functions:

- ✓ SP Speed Pulse
- ✓ ISS Integrated Speed Switch
- ✓ SAL Steering Axle Lock
- ✓ ABS Anti-Lock Braking System
- ✓ RSP Roll Stability Program
- ✓ RSP Step 1 Roll Stability Program Step 1 (TABS6 MC only)
- ✓ ADL Auxiliary Design language (TABS6 SC and TABS8 only)
- ✓ Vout Voltage Out (TABS6 SC and TABS8 only)
- ✓ DL Dome Lamp
- ✓ oTIS Output Tire Inflation System (TABS6 SC and TABS8 only)
- ✓ oLPWE Output Low Pressure Warning Emergency (TABS6 SC and TABS8 only)
- ✓ oLPWS Output Low Pressure Warning Service (TABS6 SC and TABS8 only)
- ✓ oRD Output Rear Dump (TABS6 SC and TABS8 only)

This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select the General Output Test.
- 2. The test dialog will be displayed. The pin under test will be displayed in the title.

SP on AUXIO1	×
SP on AUXIO1	
Press "Run Test" to start test.	
Run Test Exit	

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<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Installation Angle Test reads the installation angle from the Lateral Acceleration Sensor. The vehicle must be stationary on level ground before performing this test. The expected installation angle range is +/- 5 degrees. This test is only available inside of the EOL Test dialog and cannot be selected in the Bi-Directional menu.

- 1. Select Installation Angle Test and press Enter or the Start button.
- 2. The Installation Angle screen will appear.

Installation Angle Test	×
This test checks the lateral acceleration sensor ins because the test is performed on a stationary vehi ground level the expected range is -5.00 to +5.00	cle which is on
If the value is outside of the expected range, check of the sensor/ECU.	the installation
Installation Angle: ### degrees	
Run Test	Exit

**Installation Angle Test** 

- 3. Select *Run Test*. The installation angle will be read and displayed on screen. A successful status message will appear, and the Repeat button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

#### Installation Configuration Test

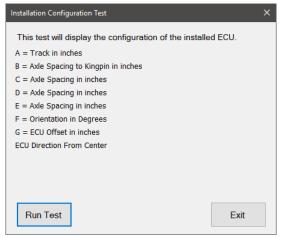
The Installation Configuration Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Installation Configuration Test verifies that the TABS unit is properly installed on the trailer. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Installation Configuration Test and press Enter or the *Start* button.

2. The Installation Configuration screen will appear.



**Installation Configuration Test** 

- 3. Select *Run Test.* The installation configuration information will be gathered and displayed on screen, with a diagram of the ECU. A confirmation label asking if the ECU responded properly appears. Select the checkmark button to indicate the ECU responded correctly. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

### Lift Axle Control Test

The Lift Axle Control Test is available on:

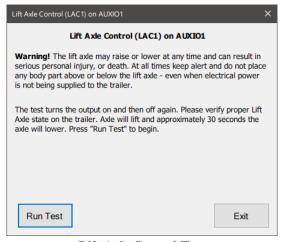
- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

#### **NOTE: Supports LAC1 and LAC2**

The Lift Axle Control Test ensures the lift axle can be lifted and lowered on command. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Lift Axle Control Test.

2. The Lift Axle Control screen will appear.



Lift Axle Control Test

- Select *Run Test*. The lift axle will raise itself, then lower itself 30 seconds later. A confirmation prompt appears on screen asking the user if the ECU responded properly. Select the checkmark button to confirm it responded properly.
- 4. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

#### Lift Axle Sensing Test

The Lift Axle Sensing Test is available on:

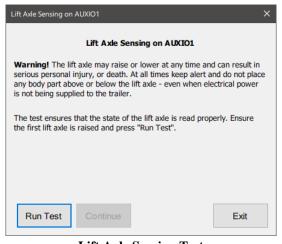
- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

#### **NOTE: Supports LAS1 and LAS2**

The Lift Axle Sensing Test ensures that the ECU is properly reading the current state of the lift axle. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Lift Axle Sensing Test and press Enter or the Start button.

2. The Lift Axle Sensing screen will appear.



Lift Axle Sensing Test

- 3. Lift the axle and select *Run Test*. Next, lower the axle and select *Run Test*. The ECU confirms it read both messages properly. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

### Lift Lower Test

The Lift Lower Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Lift Lower Test verifies that all wiring and switches are properly installed to the trailer supply line by checking the air supply into the supply line. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select Lift Lower Test.
- 2. The Lift Lower screen will appear.

Lift Lower on AUXIO1	×
Lift Lower on AUXIO1	
Warning! The lift axle may raise or lower at any time and serious personal injury, or death. At all times keep alert ar any body part above or below the lift axle - even when ele is not being supplied to the trailer.	nd do not place
The test ensures that the lift axle will lower when a switch Ensure that the switch is on (air on the emergency line for switch or electrical switch in the open position) and press	the pressure
Run Test Continue	Exit

Lift Lower Test

- 3. Ensure there is air supplied to the supply line and select *Run Test*. Follow the instructions on screen. Ensure there is no air supplied to the supply line and select *Continue*.
- 4. The ECU confirms the air supply was properly supplied. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### Low Pressure Warning Emergency Test

The Low Pressure Warning Emergency Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Low Pressure Warning Emergency Test checks the Low Pressure Warning Emergency Circuit. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select Low Pressure Warning Emergency Test and press Enter or the Start button.
- 2. The Low Pressure Warning Emergency screen will appear.

Low Pressure Warning Emergency Test on SF	×
Low Pressure Warning Emergency Test on SF	
This test will check the Low Pressure Warning Emergency Circuit.	
NOTE: This sequence is for a normally open pressure switch. If using a normally closed pressure switch, then the test will be reversed for the open and closed positions.	
Make sure the red emergency circuit is pressurized to 100 psi minimum and press "Run Test".	
Run Test Continue Exit	

Low Pressure Warning Emergency Test

- 3. Ensure the red emergency circuit is pressurized to 100 PSI and select *Run Test*.
- 4. Follow the instructions on screen by releasing the air to return to 0 PSI and selecting *Continue*. The ECU confirms the emergency circuit was properly pressurized and depressurized. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the Exit button to return to the test selection dialog

### Low Pressure Warning Service Test

The Low Pressure Warning Service Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Low Pressure Warning Service Test checks the Low Pressure Warning Service Circuit. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select Low Pressure Warning Service Test and press Enter or the Start button.
- 2. The Low Pressure Warning Service screen will appear.

Low Pressure Warning Service on AUXIO1 X
Low Pressure Warning Service on AUXI01
This test will check the Low Pressure Warning Service Circuit.
NOTE: This sequence is for the normally open pressure switch. If using a normally closed pressure switch, then the test will be reversed for the open and closed positions.
Make sure the service system resevoir is pressurized to 100 psi minimum and press "Run Test".
Run Test Continue Exit

Low Pressure Warning Service Test

- 3. Ensure the red emergency circuit is pressurized to 100 PSI and select Run Test.
- 4. Follow on screen instructions: pressurize the circuit to 50 PSI or lower and select *Continue*.
- 5. The ECU confirms the emergency circuit was properly pressurized. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 6. When done, select the *Exit* button to return to the test selection dialog.

### **P-21 Delivery Test**

The P-21 Delivery Test is available on:

- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The P-21 Delivery Test checks the P21, P4, and P42 delivery pressures when brakes are applied and released.

1. Select P-21 Delivery Test and press Enter or the *Start* button.

2. The P-21 Delivery screen will appear.

9-21 Delivery Test	×
Output Pressure	
P4 Control Pressure:	0.12
P21 Delivery Pressure:	0.13
P42 Air Suspension Pressure:	0.10
Measured pressures are +/- 3 ps	i.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.
Verify the trailer air system has a	ir in it, then press Run Test.

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<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel (MC) Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The P-21 Modulator Test checks the P21 and P4 pressures when brakes are applied and released. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select P-21 Modulator Test and press Enter or the Start button.

2. The P-21 Modulator screen will appear.

P-21 Modulator Test	×
Output Pressure in psi:	
P4 Control Pressure:	
P21 Brake Chamber:	
Control and Delivery pressures are +/- 3.00 psi.	
Run Test	Exit
Truit 1051	
D 31 M - JL-4 T4	

P-21 Modulator Test

- 3. Ensure the trailer air system has air in it and select Run Test.
- 4. Follow the on screen instructions, applying the brake when required to verify the P21 and P4 pressures. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### **P-22 Delivery Test**

The P-22 Delivery Test is available on:

✓ TABS-6™ Multi-Channel Trailer ABS

The P-22 Delivery Test checks the P22, P4, and P42 delivery pressures when brakes are applied and released.

- 1. Select P-22 Delivery Test and press Enter or the *Start* button.
- 2. The P-22 Delivery screen will appear.

Output Pressure	
Jucput Pressure	
P4 Control Pressure:	0.07
P22 Delivery Pressure:	0.13
P42 Air Suspension Pressure:	0.12
/erify the trailer air system has a	air in it, then press Run Test.
/erify the trailer air system has a	air in it, then press Run Test.
/erify the trailer air system has a	air in it, then press Run Test.
/erify the trailer air system has a	ir in it, then press Run Test.
/erify the trailer air system has a	ir in it, then press Run Test.

**P-21 Delivery Test** 

- 3. Ensure the trailer air system has air in it and select *Run Test*.
- 4. Follow the on-screen instructions, applying the brake when required to verify the P22 and P4 pressures. After each pressure is checked, select the *Next* button to continue the test. When all pressures have been checked, the test passes, and a successful status message will appear.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### **P-22 Modulator Test**

The P-22 Modulator Test is available on:

✓ TABS-6™ Multi-Channel Trailer ABS

The P-22 Modulator Test checks the P22 and P4 pressures when brakes are applied and released. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select P-22 Modulator Test and press Enter or the Start button.
- 2. The P-22 Modulator screen will appear.

P-22 Modulator Test	×
Output Pressure in psi:	
P4 Control Pressure:	
P22 Delivery Pressure	
Measured pressures are +/- 3 psi.	
Make sure trailer air system has air in it and press 'Run Test'.	
Run Test Ex	it

P-22 Modulator Test

- 3. Ensure the trailer air system has air in it and select Run Test.
- 4. Follow the on screen instructions, applying the brake when required to verify the P22 and P4 pressures. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### **Pad Wear Test**

The Pad Wear Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Pad Wear Test confirms an open circuit signal is received if the Pad Wear sensor is worn through. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

- 1. Select Pad Wear Test and press Enter or the Start button.
- 2. The Pad Wear screen will appear.

Pad Wear on SE	×
Pad Wear on SE	
This test will confirm that the open circuit signal is received if the Pad Wear sensor is worn through.	
Locate and remove the shorting cap on the Pad Wear sensor harness and press "Run Test".	
Due Tank Constant	
Run Test Continue Exit	

**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 becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### **Pressure Sensor Test**

The Pressure Sensor Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Pressure Sensor Test checks the P21, P42, and P4 pressures when brakes are applied and unapplied. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Pressure Sensor Test and press Enter or the Start button.

2. The Pressure Sensor screen will appear.

Pressure Sensor Test	×
Output Pressure in psi:	
P4 Control Pressure:	
P42 Airbag Pressure:	
P21 Brake Chamber:	
Control and Delivery pressures are +/- 3.00 psi.	
Run Test	Exit
~ ~ ~ ~ .	

**Pressure Sensor Test** 

- 3. Ensure the trailer air system has air in it and select Run Test.
- 4. Follow test instructions to apply the service brakes, confirm the P4 pressure rises to at least 10 PSI, and select *Continue*. Next, release the service brakes and select Continue.
- 5. The ECU confirms the P21, P42, and P4 pressures return to approximately 0 PSI. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 6. When done, select the *Exit* button to return to the test selection dialog.

### S-C Sensor/S-D Sensor Tests

The S-C and S-D Tests are available on:

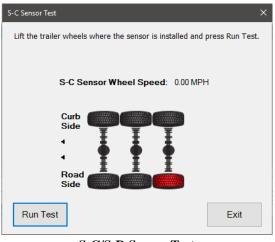
- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The S-C and S-D Tests verifies that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside of the EOL Test dialog and in the Bi-Directional menu.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

1. Select S-C or S-D Sensor Test and press Enter or the Start button.

2. The Sensor Test screen will appear.



S-C/S-D Sensor Test

- 3. Select *Run Test*. Spin the wheel indicated by the red highlighted wheel on the onscreen graphic. The ECU will apply the brakes to stop the wheel. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

### S-E Sensor/S-F Sensor Tests

The S-E and S-F Tests are available on:

✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS

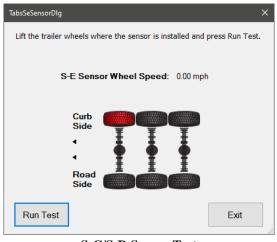
#### **NOTE: Supports 4 sensor configuration only**

The S-E and S-F Tests verifies that the wheel sensor is properly mounted and is functioning as it should. These tests are available both inside of the EOL Test dialog and in the Bi-Directional menu.

NOTE: This test will perform an ECU Reset when loaded to ensure proper operation.

1. Select S-E or S-F Sensor Test and press Enter or the *Start* button.

2. The Sensor Test screen will appear.



S-C/S-D Sensor Test

- 3. Select *Run Test*. Spin the wheel indicated by the red highlighted wheel on the onscreen graphic. The ECU will apply the brakes to stop the wheel. A successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

### Scratchpad Test

The Scratchpad Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8™ Trailer ABS

The Scratchpad Test allows the user to enter information that will be saved to the ECU. This test is only available inside of the EOL Test dialog and cannot be selected in the Bi-Directional menu.

- 1. Select EOL Test on the main form toolbar.
- 2. Select the tests to be ran and the order to perform them in, then press Next.

3. Pass all tests to reach the Scratchpad, which is always the final test.

EOL Test			×
Save Report View Report Help	below, and a report will be s	cle and EOL test data to be entered or modified	
	Write		
Next Stop	Repeat		

Scratchpad Test Inside EOL Test Screen

- 4. Data read from the ECU is displayed. Information may be updated or added. Select Write to write changes to the ECU.
- 5. The Scratchpad information is written to the ECU. There will be a green label on the bottom of the screen that states "Scratchpad Passed". The *Repeat* button will enable, as well as the *Save Report* and *View Report* buttons on the top of the EOL Test form.

### **Tire Inflation System Test**

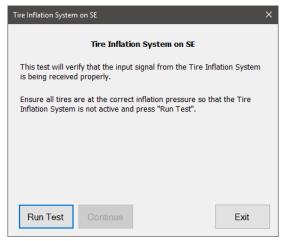
The Tire Inflation System Test is available on:

- ✓ TABS-6<sup>™</sup> Advanced Single-Channel Trailer ABS
- ✓ TABS-6™ Multi-Channel Trailer ABS
- ✓ TABS-8<sup>™</sup> Trailer ABS

The Tire Inflation System Test verifies that the input signal from the Tire Inflation System is being received. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Tire Inflation System Test and press Enter or the *Start* button.

2. The Tire Inflation System screen will appear.



**Tire Inflation System Test** 

- 3. Ensure all tires are at the correct inflation pressure and select *Run Test*. Follow instructions to release the air from the Tire Inflation System circuit and select *Continue*.
- 4. The ECU confirms the Tire Inflation System circuit is functioning properly. The test passes and a successful status message will appear and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 5. When done, select the *Exit* button to return to the test selection dialog.

### Wear Sensing Test

The Wear Sensing Test is available on:

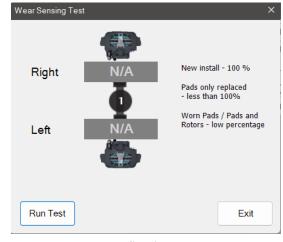
 ✓ TABS-6<sup>™</sup> Multi-Channel Trailer ABS with minimum software version of TCWG.730.88

NOTE: This test is only available for single axle trailers with QWS on SENS IN 1 and 2.

The Wear Sensing Test checks the remaining pad wear life and reports the value as a percentage. This test is available both inside of the EOL Test dialog and in the Bi-Directional menu.

1. Select Wear Sensing Test and press Enter or the Start button.

2. The Wear Sensing Test screen will appear.



Wear Sensing Test

- Select *Run Test* to read the remaining pad wear life values, which are displayed as percentages. A confirmation message will be displayed, asking if the values are correct. Clicking the checkmark will show a successful status message, and the *Repeat* button becomes enabled. Select the *Repeat* button to perform the test again.
- 4. When done, select the *Exit* button to return to the test selection dialog.

# **Other Main Toolbar Options**

# Exit 🕴

Select the F4 key or the *Exit* button to end your session and quit the application.

### Help 🕐

### 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.

same wireless network. Please consult the adapter Use			r and PC must also be on the
DLA+ Wireless User's Manual	1	DLA+ 2.0 Wirele	ss User's Manual
A connection must be established between your PC and Wireless Configuration Tool.	the JPRO® DLA+ Wi	reless or DLA+	2.0 Wireless Adapter using the
Launch JPRO® DLA+ Wireless Configuration Tool	Launch J	PRO® DLA+ 2.0	Wireless Configuration Tool
) Click the "Search" button on the toolbar.	/ JPROB DLA+Wireless	Configuration Tool	
) The Adapter name will be displayed.	Search Configure Adapte	er via USD Select Adapter	MAC Address
<ul> <li>Highlight the desired adapter and click the "Select Adapter" button. A checkmark will appear beside the desired adapter.</li> </ul>	CHCRNDC32-0915	192.159.2.10	30-20-44-84 00-15
Close the Wireless Configuration Tool window by clicking the "X" button in the top right corner.			
	Ready		
) If you will be using more than one Wireless Adapter, the connection. JPRO can launch the Wireless configuration			
Would you like JPRO to help you select the correct adapt	ter upon each connect	tion?	

**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 Bendix® ACom® PRO™

Select the *About Bendix*® *ACom*® *PRO*<sup>™</sup> button to view information about the application version, component versions, and web links. Click System Info for detailed information about your PC configuration that may be needed for technical support personnel.

## What's New 🍄

Select the *What's New* button to view the What's New document which contains an overview of all features available in the Bendix® ACom® PRO<sup>™</sup> Diagnostics application. This option requires Adobe Acrobat Reader.

### Support – Submit Issue 🌵

Selecting the *Submit Issue* button will open an internet browser to the Noregon Bendix® ACom® PRO<sup>™</sup> Diagnostics 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 Bendix® ACom® PRO<sup>™</sup> 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 <u>Data Monitor</u> or the <u>NextStep</u> window.