

New Dash Cluster in the All American and Vision Service Update #17-0814



AMETEK replace ACTIA and is backward compatible

Blue Bird recently released a new Instrument cluster for use in the All American and Vision product. The change was implemented in May of this year and we have already delivered some units with the updated cluster.

The updated cluster is more “user” friendly and offers:

- A large 4” LCD color screen which has capabilities of viewing input/output status, read parameters, ex. Ammeter, Engine Hours, Vehicle Speed, Economy Graphics, etc.
- The cluster has 3 soft touch display control buttons: Scroll, Select and Home more intuitive automotive operation.
- The DEF gauge is now a bar graph located next to the fuel gauge, which allows for a quick visual for the driver. The DEF gauge will go from Green to Yellow when the DEF reaches 15% or less and Red when reaches 5% or less.

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- Economy Graphics either graphical or numerical display.
- Idler Timer no longer overrides the odometer reading.
- Air Pressure gauges will be located in the left bottom corner of the display.
- Audible alerts – Sound is directed toward the driver, generating clearer sound. The volume has two levels that are adjustable in the configuration menu. The Two settings are Maximum and 80% of Maximum.
- The Ametek cluster is backwards compatible with the Actia and will be used when replacing Actia clusters going forward if they fail.

New York Bus Sales had previously provided “posters” which were released with Tech Tip #13-0923 and also laminated cards which were released with Service Update #16-01. Seeing as these were found to be useful, we have designed new posters and laminated cards which will be available shortly. There will be 3 separate versions depending on the engine: Diesel (FIGURE #1), Propane (FIGURE #2) or Gasoline (FIGURE #3). Once we have them in stock they will be available through your Sales Representative or Customer Support Representative.

We have also included a section out of the Driver Handbook which relates to the instrument cluster and BOTH the Actis and Ametek versions.

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THE "ALL NEW" 2017 BLUE BIRD PROPANE DASH

Become Familiar and Avoid Downtime!

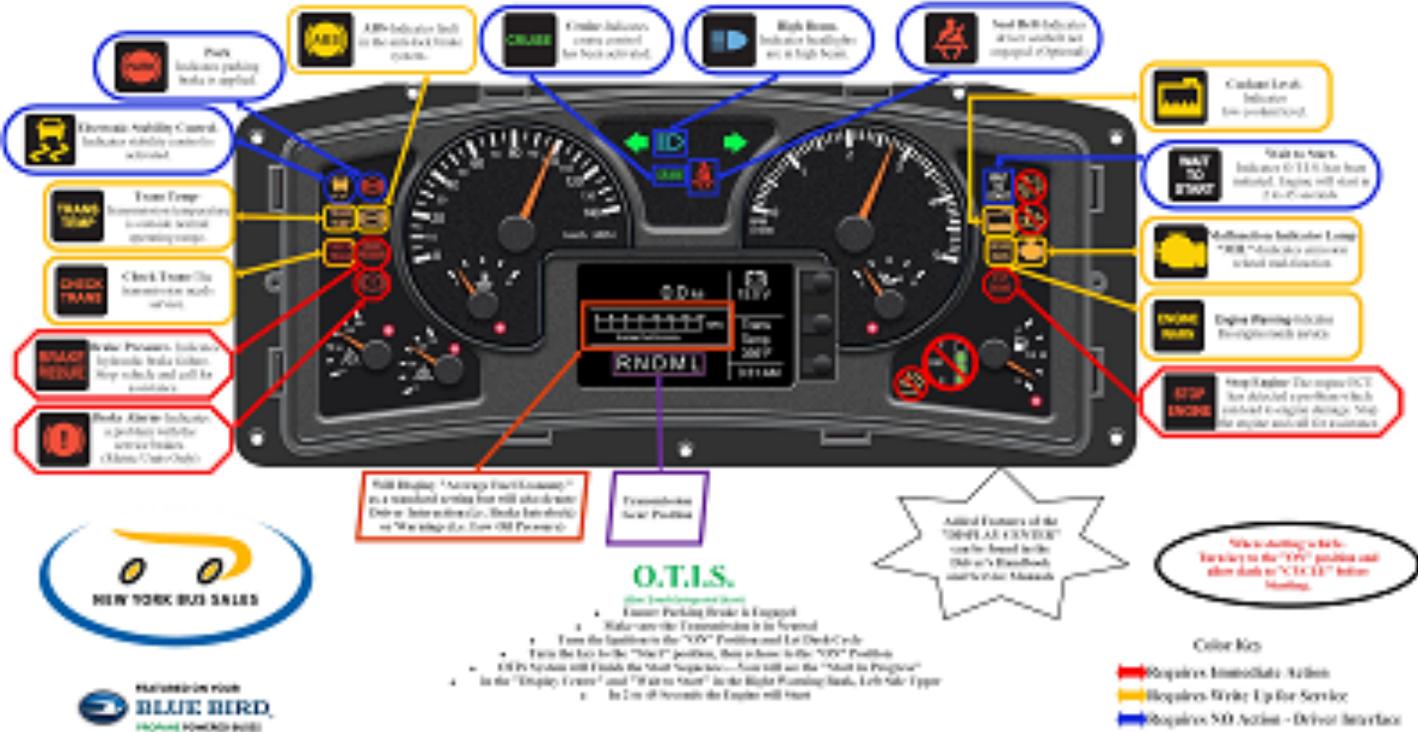


FIGURE #2

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THE "ALL NEW" 2017 BLUE BIRD GASOLINE DASH

Become Familiar and Avoid Downtime!



FIGURE #3

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CONTACT OUR SERVICE OR PARTS DEPARTMENT WITH ANY QUESTIONS

SERVICE

Chittenango: 800-962-5768
Daryl Wallace or Brian Lamaitis

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Dave Schaub

Albany: 866-867-1100
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Instrument Cluster

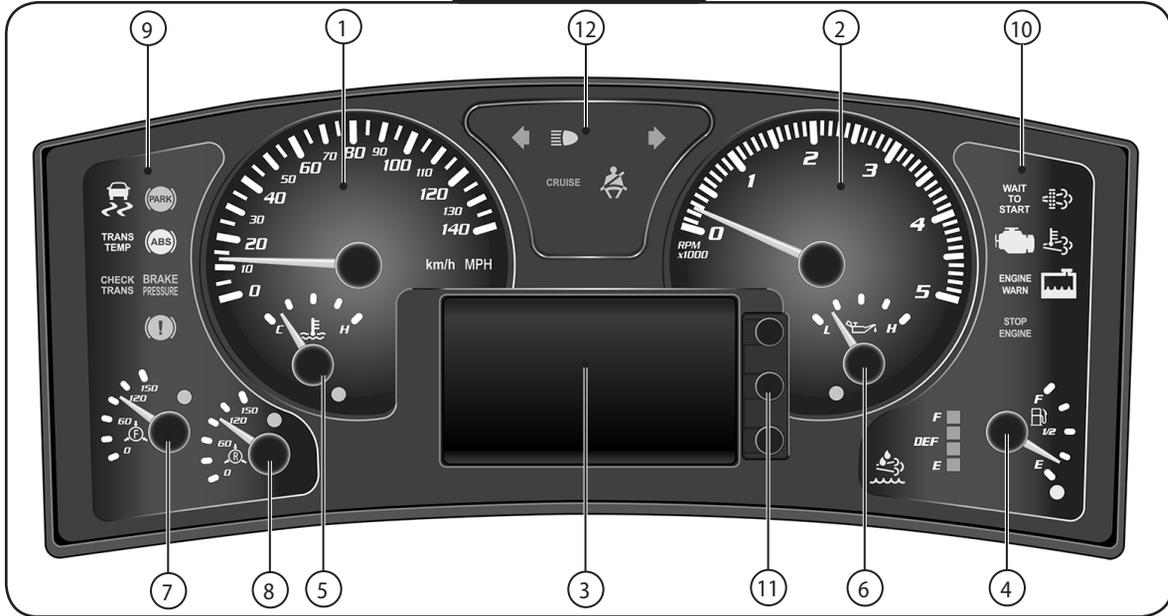
Instrument Cluster Overview and Identification

The instrument cluster is a single unit of all-electronic gauges and warning lights, which receive both analog inputs from such components as the fuel tank sender, oil pressure sensor; and digital signals from components such as the engine and transmission control modules. A centrally-located Message Display Center displays the odometer reading, error alerts, and service technician diagnostic information. If the bus is equipped with hydraulic brakes, the instrument cluster contains 5 gauges. Busses equipped with air brakes have two additional gauges indicating primary (front) and secondary (rear) air pressure.

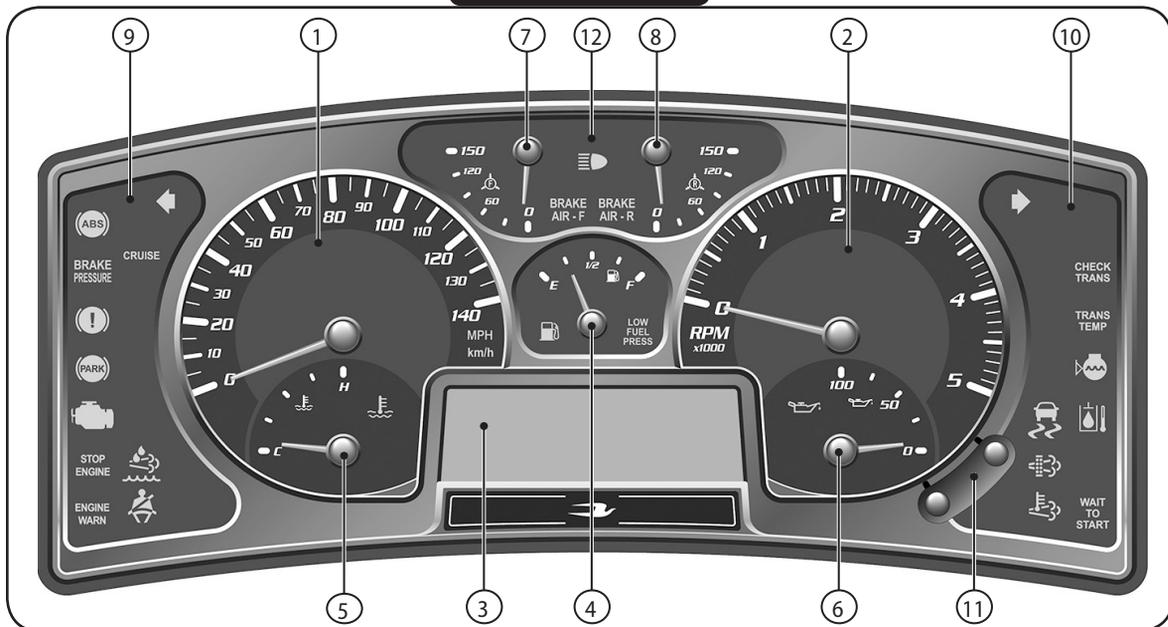
1. **Speedometer.** Indicates vehicle speed in miles/hour or kilometers/hour.
2. **Tachometer.** Indicates engine speed in revolutions per minute times 1000.
3. **Message Display Center.** Displays additional information to the vehicle operator. See **Message Display Center**.
4. **Fuel Gauge.** Indicates fuel level in tank. Fuel gauge includes illuminated Low Fuel Indicator. Low Fuel Indicator comes ON when fuel level drops below 12.5 percent and goes OFF when level exceeds 16 percent.
5. **Coolant Temperature Gauge.** Indicates engine coolant temperature and includes an engine coolant temperature warning indicator.
6. **Oil Pressure Gauge.** Indicates engine oil pressure and includes an oil pressure warning indicator.
7. **Front Air Gauge.** Indicates air pressure in front brake reservoir and includes a low air warning indicator. The low air indicator illuminates when pressure is equal to or less than 65 PSI and goes out when pressure is equal to or greater than 72 PSI.
8. **Rear Air Gauge.** Indicates air pressure in rear brake reservoir and includes a low air warning indicator. The low air indicator illuminates when pressure is equal to or less than 65 PSI and goes out when pressure is equal to or greater than 72 PSI.
9. **Left Warning Bank.** Cluster of indicator lamps. See **Warning Bank Indicators**.
10. **Right Warning Bank.** Cluster of indicator lamps. See **Warning Bank Indicators**.
11. **Message Display Center Control Panel.** Navigation buttons are used to toggle through the menus and to select items to display in the Message Display Center.
12. **Headlight Highbeam Indicator.**

Your Blue Bird bus comes equipped with either an Actia Instrument Cluster or an Ametek Dixon Instrument Cluster. Both instrument clusters have the same mounting points and electrical connections therefore are interchangeable. Although similar in appearance and function, the means by which you will navigate the menus will be different. Use the following illustrations to help identify your cluster. Then follow the appropriate set of instructions to navigate the cluster installed in your bus.

Ametek Dixon Instrument Cluster



Actia Instrument Cluster



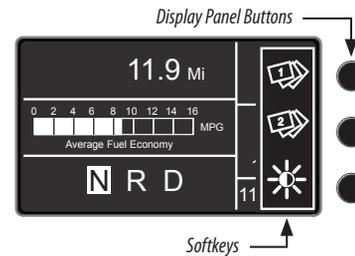
Ametek Display Center

The Ametek message display center is a color Liquid Crystal Display (LCD) located at the bottom center of the instrument panel. It provides vehicle information to the driver and diagnostic information to trained service technicians. The screen is divided into six different areas, each with their own responsibility for identifying vehicle information. Area 1 displays the odometer, trip 1 and trip 2. Area 2 Displays an alternate gauge, fuel economy and priority messages. The screen is divided into six different areas, each with their own responsibility for identifying vehicle information. Area 1 displays the odometer, trip 1 and trip 2. Area 2 Displays an alternate gauge, fuel economy and priority messages.

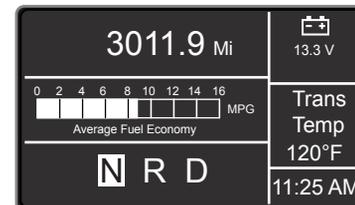


Ametek Message Display Center Layout

Navigating the display is done using the three buttons located to the right of the Drivers Display. They are identified as the top, middle and bottom buttons. While in the normal display screen momentarily pressing any of the buttons will display the softkeys. The softkeys will be displayed in a column adjacent to the three buttons. This provides a user-friendly navigation display used to identify the responsibility for each of the buttons which are used to change the information presented in the message center.



Area 1. Press the top button while the softkey is displayed to toggle between the Odometer, Trip Odometer 1 and Trip Odometer 2. Trip 1 or Trip 2 will be displayed in the top right corner of Area 1 identifying the selected trip display. While in the trip mode press and hold the top button to zero the trip odometer displayed. Press the top button again to display the Odometer.



Typical Drive Mode Screen Display

Area 2. The default display for Area 2 is Average Fuel Economy. An alternate display can be viewed by pressing the middle button while the softkey is displayed. This will toggle a set of alternate gauges and alternate fuel economy graphs that can be displayed. Display choices are Average Fuel Economy, Instantaneous Fuel Economy, Intake Manifold Temperature (IMT)*, Engine Hourmeter and Boost Pressure**. A Fuel Economy Statistics graph can also be displayed (in Area 1 and Area 2) when the park brake is set. This graph includes the Average Fuel Economy, Total Run Time, and Total Idle Time. Toggle to the display you want to view and it will stay in position until the next ignition cycle where it will default back to Average Fuel Economy.

* Buses equipped with Ford Engine will display Air Charge Temperature instead of IMT. GM Engine not available with IMT.
 ** Boost Pressure not available on Ford or GM engines.



Area 2 display will be replaced by a Priority Message when triggered. Some priority messages will flash forward to reverse video. Some priority messages can be acknowledged by pressing any of the three navigation buttons. When acknowledged, the display will return to previous display until being timed out, next ignition cycle or the trigger logic is not satisfied. Any lamp associated with the acknowledged priority message will remain lit until the fault is gone or the ignition is turned off. If multiple priority messages are triggered, the highest active priority message will be displayed.

Transmission Gear. The transmission gear position will be displayed in the lower left section of the Drivers Display. Allison transmissions will display either **N R D** or **P N R D** based on input signals from the transmission. Ford transmission will display **N R D**. Eaton Procision transmission will display **R N D M L**. For buses equipped with an Eaton Manual transmission the display will be empty.

Battery. The battery voltage is displayed in the battery area (top right corner of Drivers display). If the data is missing or out of range a “-V” will be displayed. If the option for an ammeter is present, the ammeter reading can be displayed below the voltage reading when configured “ENABLED” in the configuration menu (see Blue Bird Service Manual for Ametek instrument cluster configuration settings). The ammeter will display out of range as “**unda**” if the amperage is low and it will display “**ovra**” if the amperage is high.

Trans Temp Air. The area under battery voltage will display the Transmission Temperature. If the bus is equipped with an Eaton Manual transmission, this area will remain blank. If the bus is equipped with the applied air pressure option, the pressure readings for the Front and Rear service air pressure to the brake chambers will be displayed in PSI each time the service brakes are applied if configured (see Ametek instrument cluster configuration settings in the Blue Bird Service Manual). If your bus is equipped with hydraulic brakes and has air suspension, the applied air pressure to the suspension can be displayed if configured.

Clock. The time is displayed in the bottom right corner of the Drivers Display. It can be set to show a 24 hour or a 12 hour clock and the actual time can be adjusted using the Settings and Diagnostic menus. The 12 hour clock will display AM / PM next to the hours and minutes, but the 24 hour clock will not.

Ametek Priority Messages

- No Engine Communication
- No Transmission Communication
- No ABS Communication
- Vehicle Speed Error
- Engine / Fuel Door Open
- Brake Interlock
- Retarder Applied
 - * Stop Engine
 - * Engine Warning
- * Hi Transmission Temperature
 - * Low Oil Pressure
 - * High Engine Temp
 - * Low Coolant Level
 - * Turn Signal On
 - * Voltage Error
- * Water In Fuel (Diesel Only)
 - * Lift Not Stowed
- * Regen Needed (Diesel Only)
- * Hi Exhaust Temperature (Diesel Only)
 - * Alternator Failure
 - * Headlights On
 - * Range Inhibit
 - * Transmission Oil Life
 - * Transmission Oil Filter
 - * Transmission Service
- Low Transmission Oil Pressure
 - Auto Neutral
 - Clutch Abuse
 - Transmission Over Speed
 - * Wait for Trans Warm Up
 - Push Brake to Engage Gear
 - Start in Progress (Ford Only)
 - Missing Brake Input (N/A with GM Engine or Eaton Procision Transmission)

* (Messages Shown with Icon)

Ametek Warning Bank Indicators

The warning bank lights provide a visual indicator to the state of various systems in the bus. These function to either show the engagement of some chassis function or as a warning by illuminating when a gauge fails outside the operational parameters for that gauge. These are located within the specific gauge attributed to the fault. Indicators and their definitions are shown on the following page.

Warning bank lights may have an alarm associated with them. Some warning lights are accompanied by an audible alarm and or a message that is displayed in the LCD Message Display Screen. All warnings, with associated alarms/display messages, can be "acknowledged". If the user acknowledges the warning by pressing any of the three buttons, the display will go back to the previous screen and the alarm will stop, but the indicator lamp will remain active. The alarm/display will reoccur if fault still exists at the next ignition or in a predetermined time frame.

The Environmental Protection Agency (EPA) has strict guidelines which must be followed to maintain the emission standard for your engine. 2013 and 2016 emission standards concerning warning bank indicators which should be understood are as follows.

- The "Wait to Start" lamp must come ON and then go OFF before attempting to start the engine. *Failure to wait for the "Wait to Start" lamp to cycle ON and OFF may log engine fault codes causing the "Malfunction Indicator Lamp" (MIL) to illuminate, accompanied with an audible alarm. The MIL and audible alarm will remain ON until cleared. Cummins Insite™ diagnostic software can be used to clear the codes and reset the alarms or cycle the ignition from off position to start position three times consecutively. The "MIL" and alarm can be acknowledged using the top button on the instrument panel.*



Left Turn. Flashes with left turn signal.



High Beam. Headlights are in high beam.



Right Turn. Flashes with right turn signal.



Park. Indicates parking-brake is applied.



Cruise. Cruise control has been activated.



Wait to Start. Indicates engine intake is preheating. Wait until indicator goes off before starting engine.



ABS. Indicates fault in the anti-lock brakes system.



Seat Belt. Indicates driver seatbelt not engaged. (Optional)



Diesel Particulate Filter Lamp. "DPF" Indicates a need for regeneration.



Brake Pressure. Indicates hydraulic brake failure. Stop vehicle and call for assistance.



Diesel Exhaust Fluid. DEF warning light. *See Exhaust Chapter.*



Coolant Level. Indicates low coolant level.



Electronic Stability Control. Indicates stability control is activated.



Malfunction Indicator Lamp. "MIL" Indicates emission related malfunctions.



Stop Engine. The engine ECU has detected a problem which can lead to engine damage. Stop the engine and call for assistance.



Brake Alarm. Indicates a problem with the service brakes (Metric units only)



HEST. High Exhaust System Temperature. Indicates elevated exhaust temperature. *See Exhaust Chapter.*



Check Trans. The transmission needs service.



Trans Temp. The transmission temperature is outside normal operating range.



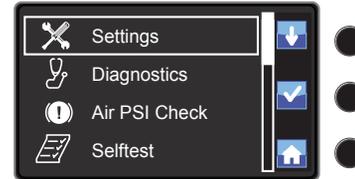
Engine Warning. The engine needs service.

Ametek Settings And Diagnostics

The Settings And Diagnostics menus allow the user to change certain features from their default settings and to use diagnostics to troubleshoot your vehicle.

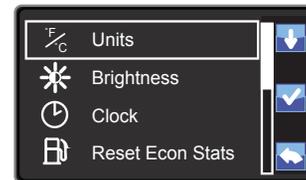
Access this menu by setting the Park Brake and then from the Drive Mode screen press the BOTTOM button and hold for more than 3 seconds or until the menu appears.

Press the top button to move or toggle the selection box through the list as indicated by the softkey arrows. The item in the selection box will be selected when the middle button is pressed (as indicated by the softkey checkmark). To return to the Drive Mode screen, press the bottom button as indicated by the softkey home or home screen. This menu will auto exit to the Drive Mode screen after a 10 second time-out with no activity. If Park Brake is released, the display will return to the Drive Mode screen.

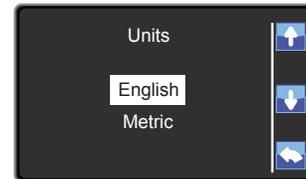


Settings

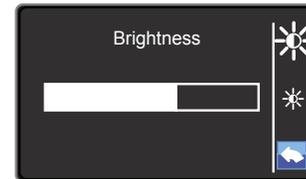
Selecting Settings will display a screen that is used to select Metric or English units, adjust cluster backlighting brightness, set the clock or reset the economy statistics. Pressing the top button will toggle to the next menu item. Pressing the middle button will select the highlighted item and pressing the bottom button will return to the previous screen.



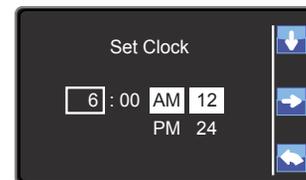
Units. Selecting Units will bring up a screen that is used to select displayed values in Metric or English units. This will change the Speedometer reading and units lamp on the cluster, display/menu items except Air which will always be displayed as PSI, and change which brake system fail lamp is used. Pressing the bottom button will exit to the previous screen.



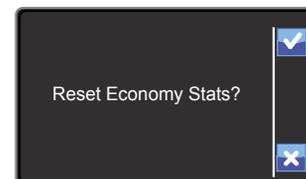
Brightness. Selecting the menu item Brightness will display a screen to allow setting the cluster backlighting brightness. Pressing the middle button will decrease brightness while pressing the upper button will increase brightness. The buttons can be held for progressive dimming. This menu will auto exit to the previous screen after 10 seconds time-out with no activity or the bottom button can be pressed.



Clock. Selecting the menu item Clock will allow the user to set the clock. "Hours" will be the first selection upon entering the screen and will be highlighted. Press the top button to adjust the hour setting. Pressing the middle button will cycle the current selection between minutes, AM/PM, and the 12/24 display mode. Once a selected item is highlighted, the upper button can be used to increase the setting. Hours and Minutes will increment, rolling over at 12 for hours and 59 for minutes. Pressing the bottom button will save the changes and return to the previous menu. If a selection is not made this menu will timeout to the previous menu after 15 seconds.



Reset Econ Stats. Selecting the Reset Econ Stats menu allows the user to reset the Fuel Economy and idle time statistics. This will reset the Average Fuel, Total Idle Time and Total Run Time to zero. If this menu choice is selected, the LCD will display the question "Reset Economy Stats?". Pressing the top button will reset the Econ Stats. Pressing the bottom button will return to the previous screen.





Diagnostics

Selecting the Diagnostics menu will display the following introduction screen allowing the selection of Engine, Transmission, Powertrain or ABS diagnostics. Pressing the bottom button will exit to the previous screen.

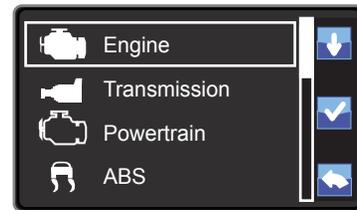
Engine Diagnostic. Selecting the Engine menu will display the engines DTC's (Diagnostic Trouble Codes) in a format dependent on engine type. Engine Type and number of active DTC's is located in the upper left corner. Press the bottom button to exit to the previous screen. Cummins will display as CMNS.

The Engine Diagnostics screen displays the Suspect Parameter Number (SPN) and the Failure Model Identifier (FMI) as received from the engine for active faults through the J1939 data communication line. The example graphic shown in the right side margin displays Cummins active DTC's and a brief text description of that fault. Ford Engines will display as NOT AVAILABLE in the Engine Diagnostics screen. See the Powertrain Diagnostics screen for Ford codes. GM propane engine screens will display J2012 DTC as received from the engine for faults via J1939 converted from the 1850 gateway.

Transmission Diagnostic. The Transmission menu displays DTC's as received from the transmission for active faults through the J1939 data communication line. This screen displays J2012 P-codes received from Allison transmissions using PGN 64906. Eaton Transmission screen displays J1939 DM1 faults. The example graphic shown in the right side margin displays Active Allison faults. The transmission manufacturer and number of active DTC's are located in the upper left corner. Press bottom button to return to previous screen. Allison displays as Allison. Eaton displays as EATON. Ford Transmission diagnostics displays as NOT AVAILABLE. See Powertrain Diagnostics screen for Ford codes.

Powertrain Diagnostics. The Powertrain menu displays DTC's as received from the Ford SRM gateway module. Active faults are received through the J1939 data communication line. This screen displays J2012 P-codes received from Ford SRM using PGN 64906. The powertrain manufacturer and number of active DTC's are located in the upper left corner. If Ford engine ID is displayed as FORD* Powertrain Diagnostics are not available. Press the bottom button to exit to the previous screen.

ABS Diagnostic. The ABS menu displays active ABS fault codes from the J1939 data communication line in the form of a Suspect Parameter Number (SPN) and Failure Mode Identifier (FMI). Brake system manufacturer name (Air=Bendix and Hydraulic=Wabco) and the number of active DTC's is located in upper left corner. Press bottom button to exit to previous screen.



CMNS Engine Diagnostics

DTC(30)	Description
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv

Allison Transmission Diagnostics

DTC(30)	Description
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv

Bendix ABS Diagnostics

DTC(30)	Description
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv
254-12	Main controller, safety controller
100-06	Pwr Amp, brk light shrt to gnd
70-10	Parking brake sys, long term supv

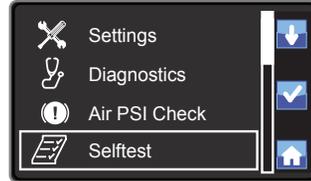
Air Brake PSI

Selecting this menu item will display the screen shown in the right margin that is used to perform Pre-trip Brake Inspections. This shows the Front and Rear brake system PSI. Pressing the bottom button will exit to the previous screen.

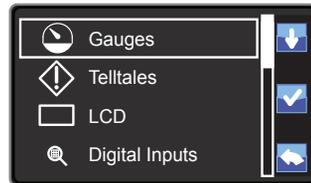


Selftest

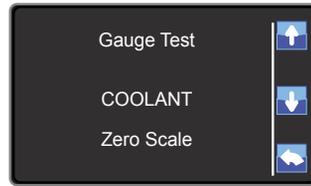
Selecting menu item Selftest in the Settings and Diagnostic menu will display the instrument selftest menu. Menu items include Gauges, Telltales, LCD, Digital Inputs, Analog Inputs and Software Version.



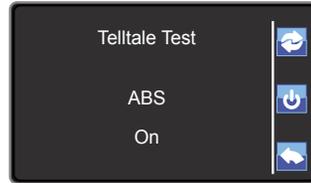
Gauge Test. When Gauges is selected, Gauge Test will be displayed and will indicate the gauge to be tested. The selected gauge will be driven through three positions from “Zero Scale” to “Mid Scale” to “Full Scale” pausing at each position indicated in the Gauge Test. This test will proceed through all the gauges and return to the menu. Pressing the middle and top buttons will change the selected gauge. Gauges may include Frt Air, Coolant, Speed, Tach, Rear Air, Oil Prs and Fuel Lv. Pressing the lower button will end the test and return to the previous menu.



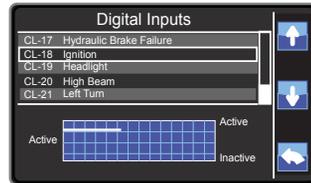
TelltaleTest. When Telltales is selected Telltale Test will be displayed and will indicated the telltale light to be tested. Each warning bank lamp will be turn on then off, displaying the status of the lamp. Check each telltale light against the Telltale Light Display. This test will go through all the warning lamps one at a time and then return to the menu. Pressing the lower button will end the test and return to the previous menu.



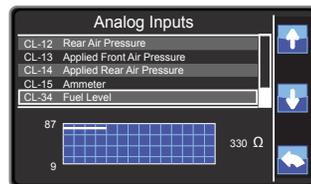
LCD Test. The LCD test is used to check that each of the pixels used to form the display is functioning. Each of the LCD pixels will display the following colors for 2 seconds each: RED, BLUE and GREEN. Pressing any of the three buttons will end the test and return to the previous menu.



Digital Inputs. The Digital Inputs display identifies the module connector pin number (CL-x) and the binary digital input status as received by the vehicle’s electrical system. A graph at the bottom of the display identifies the status of each of the inputs. Scoll through all of the status screens by using the up and down arrows. Press the bottom button to exit to the previous screen.



Analog Inputs. The Analog Inputs display identifies the connector pin number (CL-x) and the analog input signal (variable) status as received by the vehicle’s electrical system. Scroll through all the status screens by using the up and down arrows. Press the bottom button to exit to the previous screen.



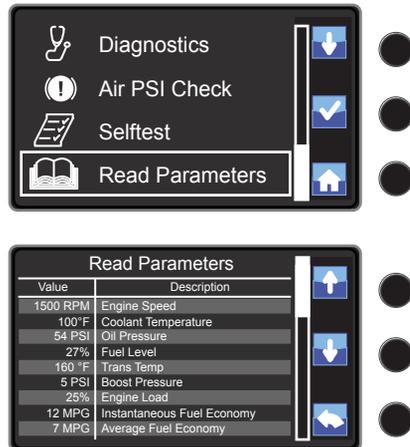
Software Revision. The Cluster LCD will display the software number and the current revision installed. Press bottom button to exit to the previous screen.





Read Parameters

When the Read Parameters is selected the display shows all of the converted real time values for the applications in a table form for vehicle troubleshooting. Scroll through the listing using the top and middle buttons. Pressing the bottom button will exit to the previous screen.



Ametek Parameters Available

- Engine Speed
- Coolant Temp
- Oil Pressure
- Fuel Level
- Transmission Temperature
- Boost Pressure
- Engine Load
- Instantaneous Fuel Economy
- Average Fuel Economy
- Intake Manifold Temperature*
- Engine Hours
- Vehicle Speed
- Battery Voltage
- Ammeter
- Front Air Pressure
- Rear Air Pressure
- DEF Level

*Ford Displays Air Charge Temp instead of Intake Manifold Temp

Configuration Menu

The instrument cluster has been set to operate from the factory, in a specific manner based on the components and features ordered. Some of these default settings can be changed to accommodate an individual bus or fleet operation. The configuration menu lists the items that can be turned on or off. These items can be enabled or disabled based on the features ordered and display preferences. Items are based on hardware and software installed and affects the clusters function, performance and accuracy of reported data. For details and operational guidelines for this menu refer to the Blue Bird Service manual available for your vehicle.