



Countries: BAHAMAS, BOLIVIA, BELIZE, CANADA, CHILE, TAIWAN, COLOMBIA, COSTA RICA, DOMINICAN REPUBLIC, ECUADOR, EL SALVADOR, TRINIDAD AND TOBAGO, UNITED STATES, URUGUAY, VENEZUELA, ARUBA, NICARAGUA, PERU, PUERTO RICO, Curaçao, GUAM, GUATEMALA, GUYANA, HAITI, HONDURAS, JAMAICA, KOREA, SOUTH KOREA, PANAMA

Document ID: IK2600008

Availability: ISIS, Bus ISIS, Fleet!SIS, Body Builder, NotSIR

Revision: 14

Major System: PROGRAMMING SUPPORT

Created: 4/12/2007

Current Language: English

Last Modified: 3/22/2017

Other Languages: [Français](#), [Español](#).

Author: Charles Schroeder

Viewed: 12172

[Less Info](#)

Hide Details

Coding Information

Copy Link 	Copy Relative Link 	Bookmark View My Bookmarks	Add to Favorites 	Print 	Provide Feedback 	Helpful 664	Not Helpful 513
----------------------	-------------------------------	--	-----------------------------	------------------	-----------------------------	---------------------------	-------------------------------

Title: How to Diagnose Electrical Problems with Diamond Logic® Builder

Applies To: All vehicles with a BCM or ESC Diagnose using a Session Add or Remove Features Changing Parameters

Change Log

Please refer to the change log text box below for recent changes to this article:

03/22/2017 - Added Figures 7-9 showing how to change features, parameters, and program those changes.
03/15/2017 - Added Figure 2a showing a session can be made from multiple features.
05/20/2015 - Changed layout. Updated screen shots. Updated diagnostic information.

Description

When diagnosing Body Controller issues, you must clearly understand how the complete system works. Verifying the Body Controller is powered up properly is critical. Then using the DLB feature, the inputs and interlocks must be checked and verified. If all inputs and interlocks are met, the resulting outputs need to be verified. Proper diagnostics must be performed to determine where the failure is.

You can also remove or add features, and adjust parameters for certain features to allow for desired operation in some instances. [Click Here](#) to jump to the section of the article related to Features and Parameters

Special Tools or Software

Tool Description	Tool Number	Comments
Diamond Logic Builder (DLB)		EZ-Tech Software
Fluke DVOM	ZTSE4357	Digital Multimeter
Electrical Tester	ZTSE4858	
180-Pin Breakout Box	00-00956-08	Breakout box allows for testing engine control module and body control module systems
Breakout Harness Kit	Multiple	Use breakout harness that is applicable to the system you are testing
Terminal Test Kit	77066-nav	Hickok Break-Out Tee Builder And Pin-Out Tool

Diagnostic Steps

Follow [IK0800092 - The First Check to make when troubleshooting any Body Controller or ESC Issue](#) to verify proper battery, ignition and accessory power and ground circuits to the Body Controller.

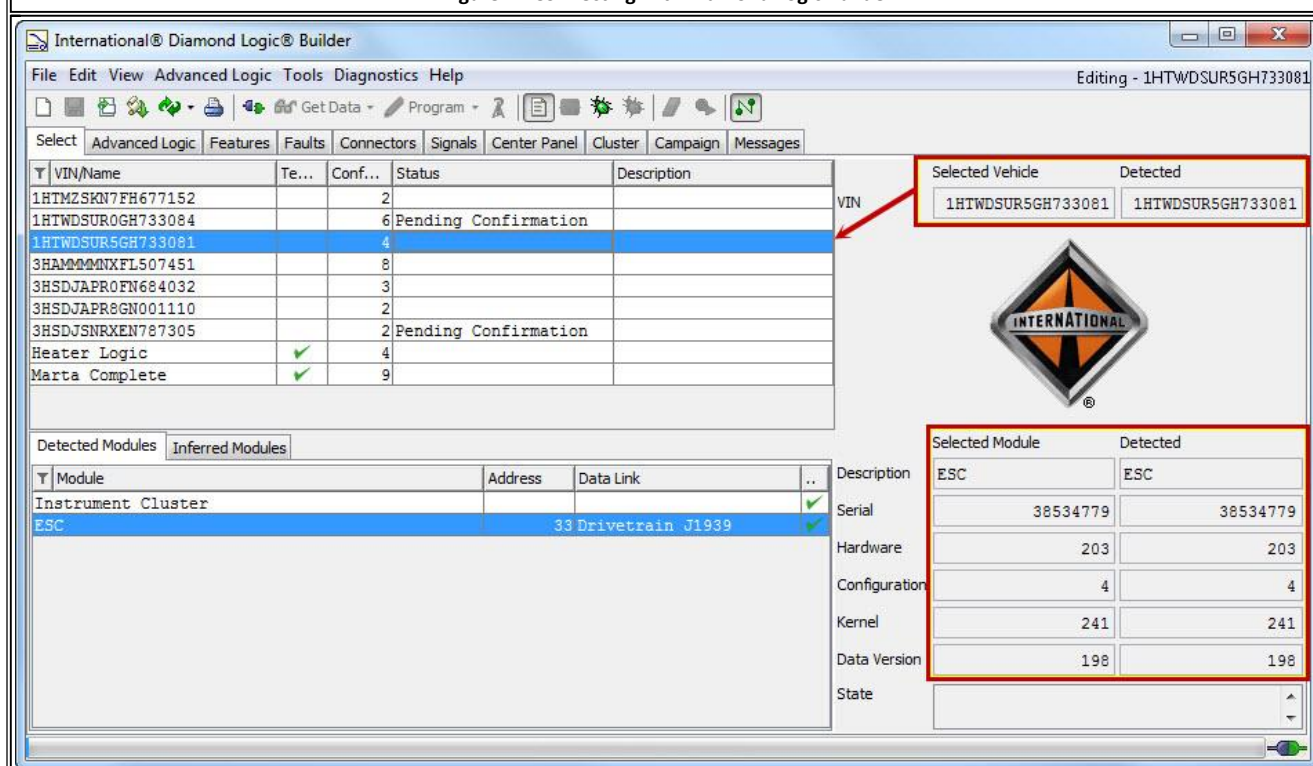
Check for any fault codes related to the complaint. Follow [IK2600036 - Retrieving Fault Codes](#) with DLB for assistance if needed.

Use the components tab of the [VIN Information Page](#) to find the 0595 feature the vehicle was built with.

NOTE:

Some vehicles use Advanced Logic. If you suspect the advanced logic is part of the issue follow [IK2600215 - Applying Advanced Logic Templates](#).

Figure 1 - Connecting with Diamond Logic Builder

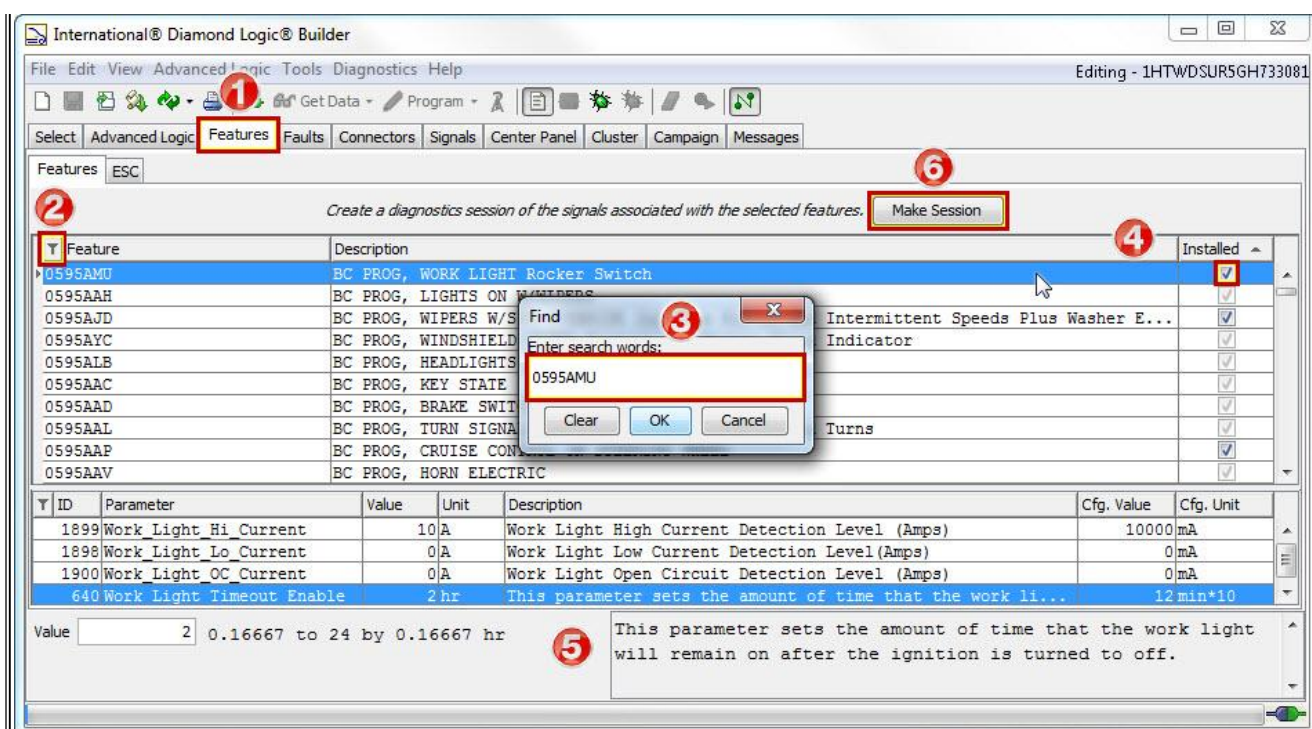


- Connect to the vehicle with the key off.
- Verify the Selected Module and Detected Module information matches as shown.

If the Selected and Detected Module do not match, the Body Controller will need to be programmed to the correct VIN to ensure all features and parameters are correct.

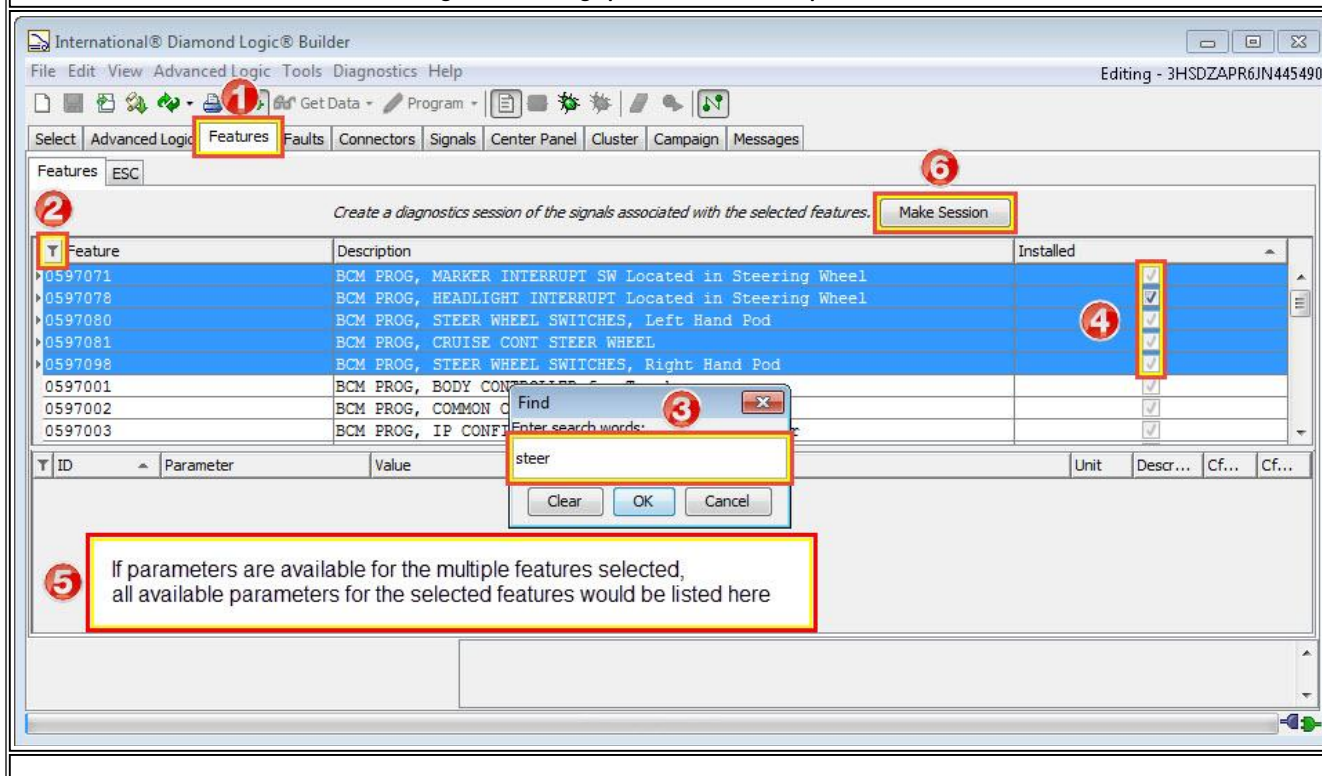
- Verify B+, IGN and ACC by following [IK0800092 - The First Check to make when troubleshooting any Body Controller or ESC Issue](#) if you have not already.

Figure 2 - Setting up a Session



1. Navigate to the Features tab
2. Click on the Filter Icon
3. Search for the 0595 code (or Keyword) and click OK.
4. Click on the desired feature as shown. Do not click on the check mark or the feature will be uninstalled.
5. Review feature parameters on the bottom half of the screen as needed to understand how the feature works.
 - You must have the feature selected. If no feature is selected, all parameters will be listed.
6. Click on the Make Session button. This will automatically navigate you to the Signals / Watched tabs as shown in Figure 3.

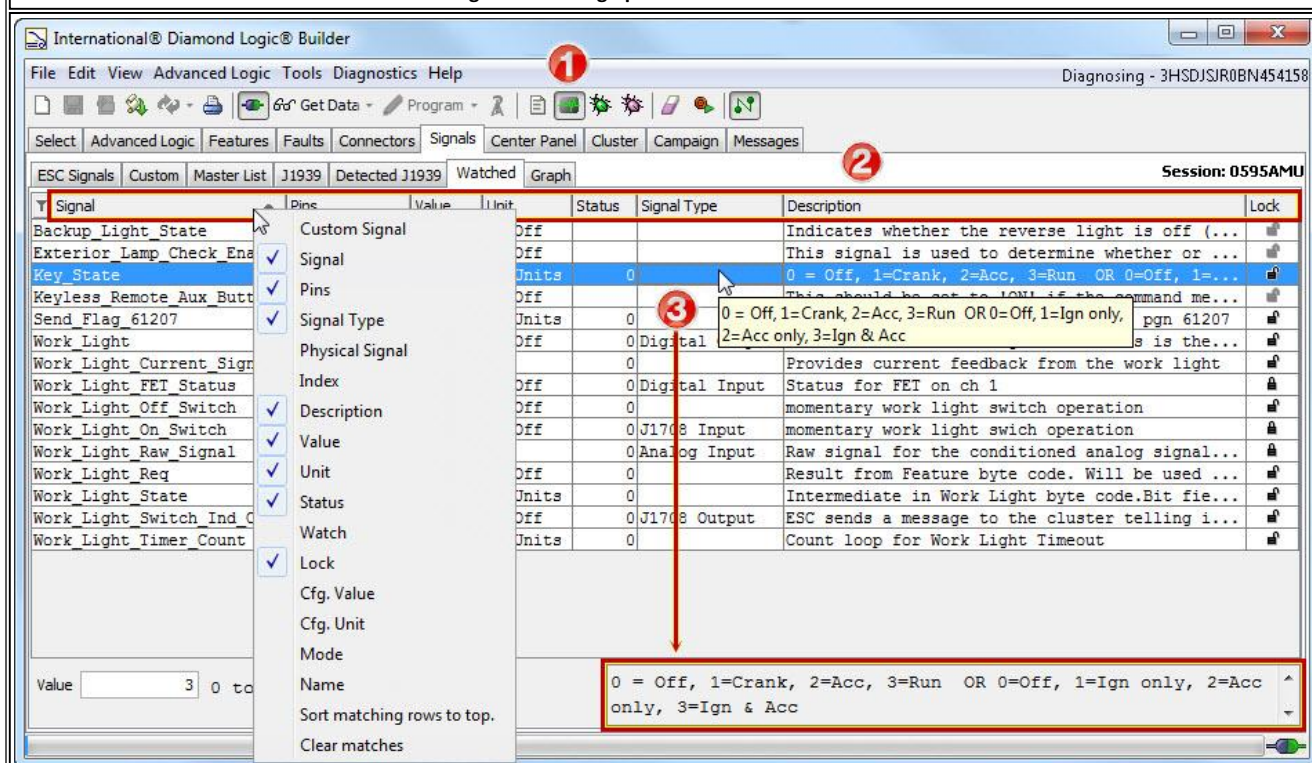
Figure 2a - Setting up a Session with Multiple Features



5 If parameters are available for the multiple features selected, all available parameters for the selected features would be listed here

1. Navigate to the Features tab
2. Click on the Filter Icon
3. Search for the 0595 code (or Keyword as shown) and click OK.
4. You can select multiple features to make a session that will include all selected features.
 - This example shows the multiple features for the steering wheel switches.
 - Another example would be selecting multiple PTO features that may be installed.
5. Review feature parameters on the bottom half of the screen as needed to understand how the feature works.
 - You must have the feature selected. If no feature is selected, all parameters will be listed.
 - If multiple features are selected, all parameters for the selected features will be listed
6. Click on the Make Session button. This will automatically navigate you to the Signals / Watched tabs as shown in Figure 3.

Figure 3 - Setting up Data Columns in a Session

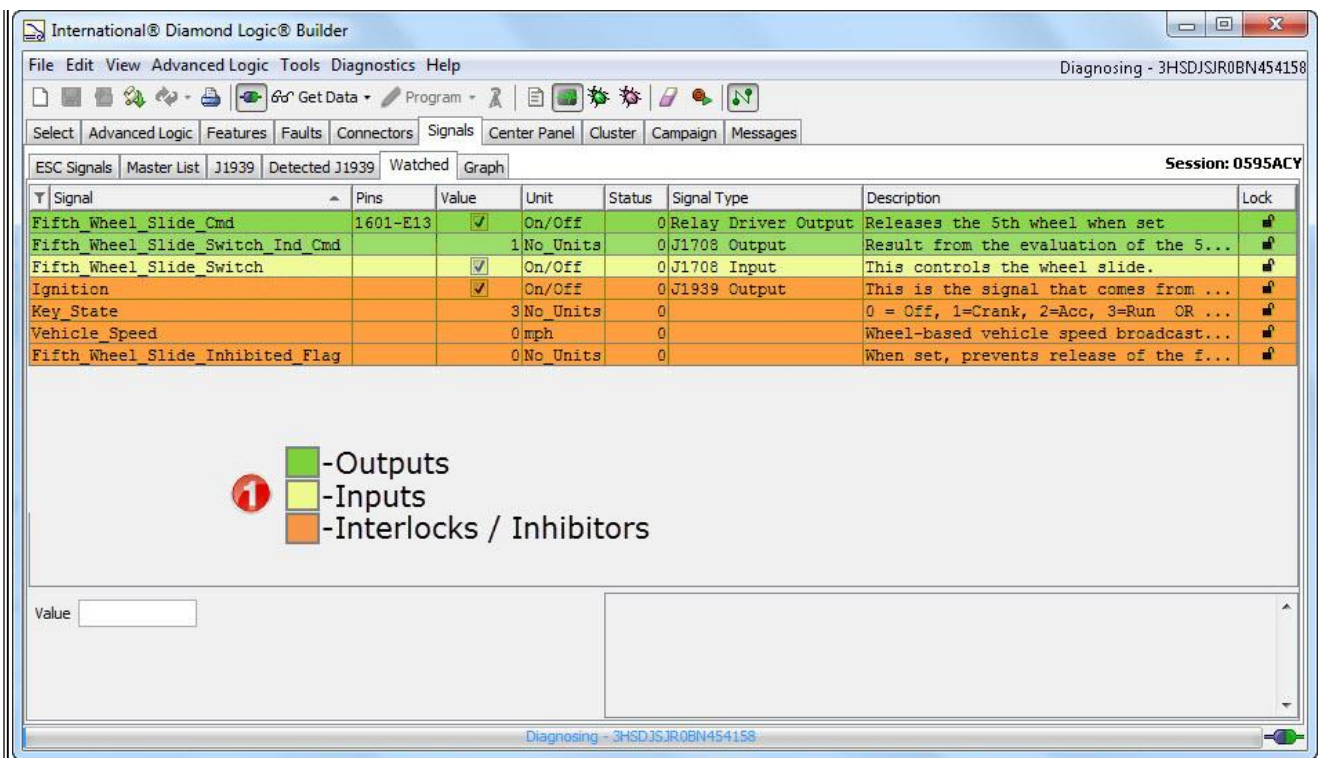


1. Put DLB in Diagnostic Mode.
2. Data Columns - ensure you are viewing the necessary data.
 - Right clicking in the data column row allows you to add or remove a data column.
 - You can drag the individual columns to arrange them. (Putting Value and Unit next to each other for example)
 - These data columns are required at a minimum.
 - **Signal** ◦ **Pins** ◦ **Value** ◦ **Unit** ◦ **Status** ◦ **Signal Type** ◦ **Description** ◦ **Lock**
3. Hovering over a row generates a pop up box that provides the full Description of a Signal
 - Clicking on a row will put the full Description of a Signal in the text box as shown

Reviewing the information in the Session

- Figure 4:
- Shows all Interlocks / Inhibitors are met.
 - The Parameters for this Feature show the Max allowed vehicle speed is 2 mph.
 - That is why Parameters must be reviewed as shown in Figure 2.
- The Input is being seen from the switch over the switch data link.
- As a result the Outputs are being sent from the Body Controller.

Figure 4 - Recognizing Interlocks/Inhibitors, Inputs, and Outputs



- Review the information in the session to understand the following:
 - Signals that will Interlock or Inhibit the feature from sending an output.
 - All Inputs required.
 - All expected outputs.

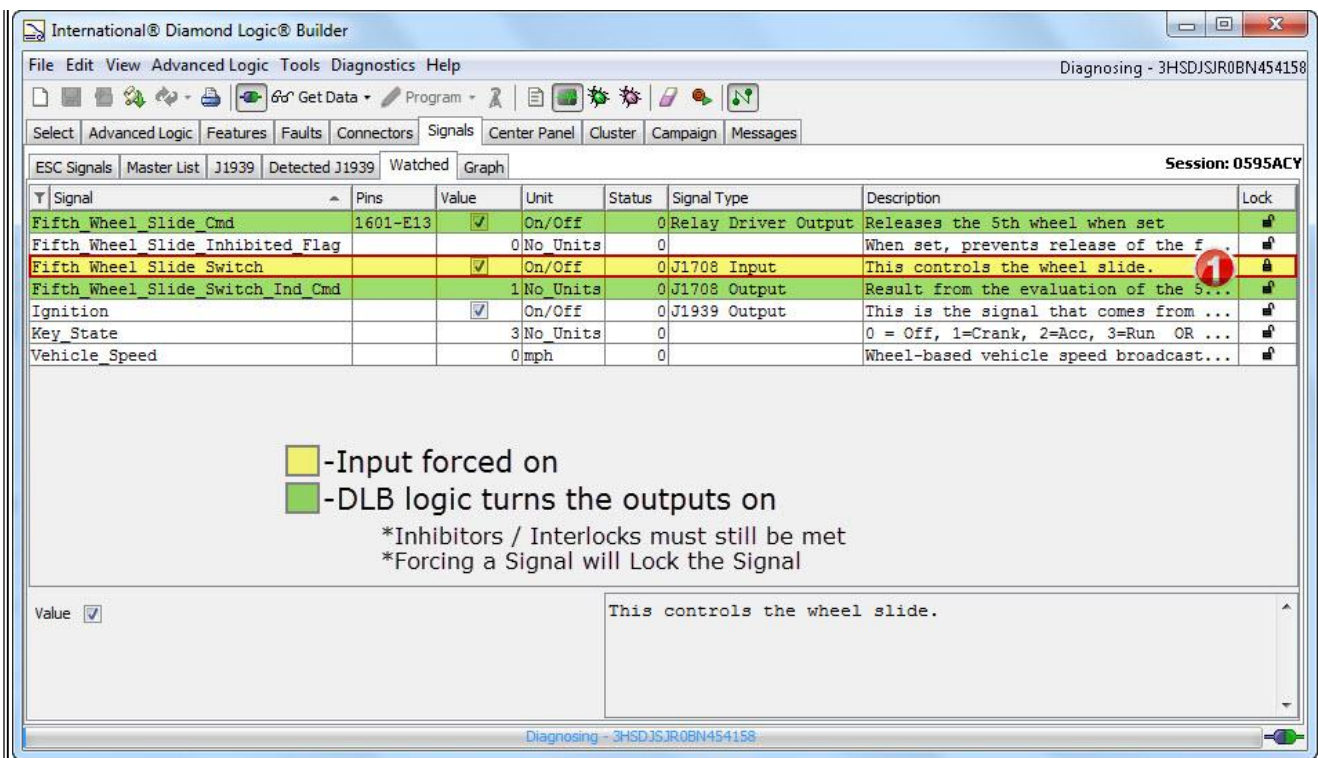
Troubleshooting when an input is not being recognized.

- Figure 5:
- The Input has been forced on. The Body Controller programming logic now views the switch as on.
 - The regular feature logic is then followed. All Interlocks / Inhibitors must be met in order for any Output commands to occur.

If the feature works and the Output occurs when the Input signal is forced on, the physical signal to the Body Controller must be checked.

- Verify the presence of the proper physical signal on the input wire.
 - Some signals are data link, so you must ensure that module is powered up properly to allow the signal to be sent.
 - A missing signal could be the cause of damaged wiring or terminals.
 - A missing signal could be the result of a wiring problem on a different wire, or a wire to another sensor on the same circuit.
 - Vref or ZVR to a Sensor for example.
- If the physical signal for the Input has been verified and the Body Controller does not recognize it, the Body Controller is at fault and should be replaced.

Figure 5 - Forcing an Input



1. Input forced on:

- Signal is now locked. The 1708 message is ignored until the Signal is unlocked.
- Unlock the Signal by clicking on the Lock icon, or by exiting Diagnose Mode.
- You will have to return to Diagnostic Mode to continue diagnosing.

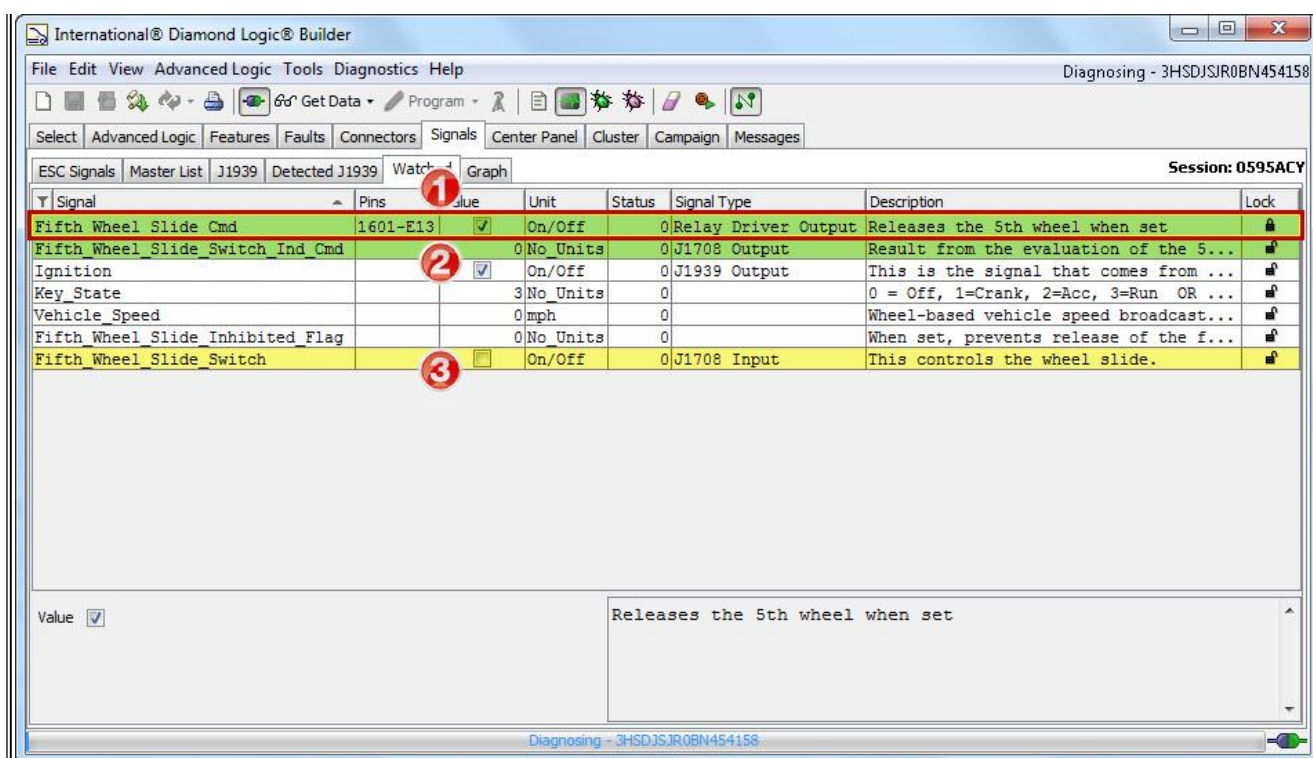
Troubleshooting when an output does not occur.

- Figure 6:
- The Output has been forced on. The Body Controller ignores all Inputs and Interlock / Inhibitors
- Only the Output that is Locked (On or Off) is being commanded by the Body Controller. All other Outputs continue to use normal programming logic.

If the Output does occur when the output signal is forced on, the Output is working, and another issue is preventing the Output from occurring.

- Missing Input
- Interlock / Inhibitor
- Fault Code
 - The Body Controller can force the Output with an Over Current fault for example.

Figure 6 - Forcing an Output



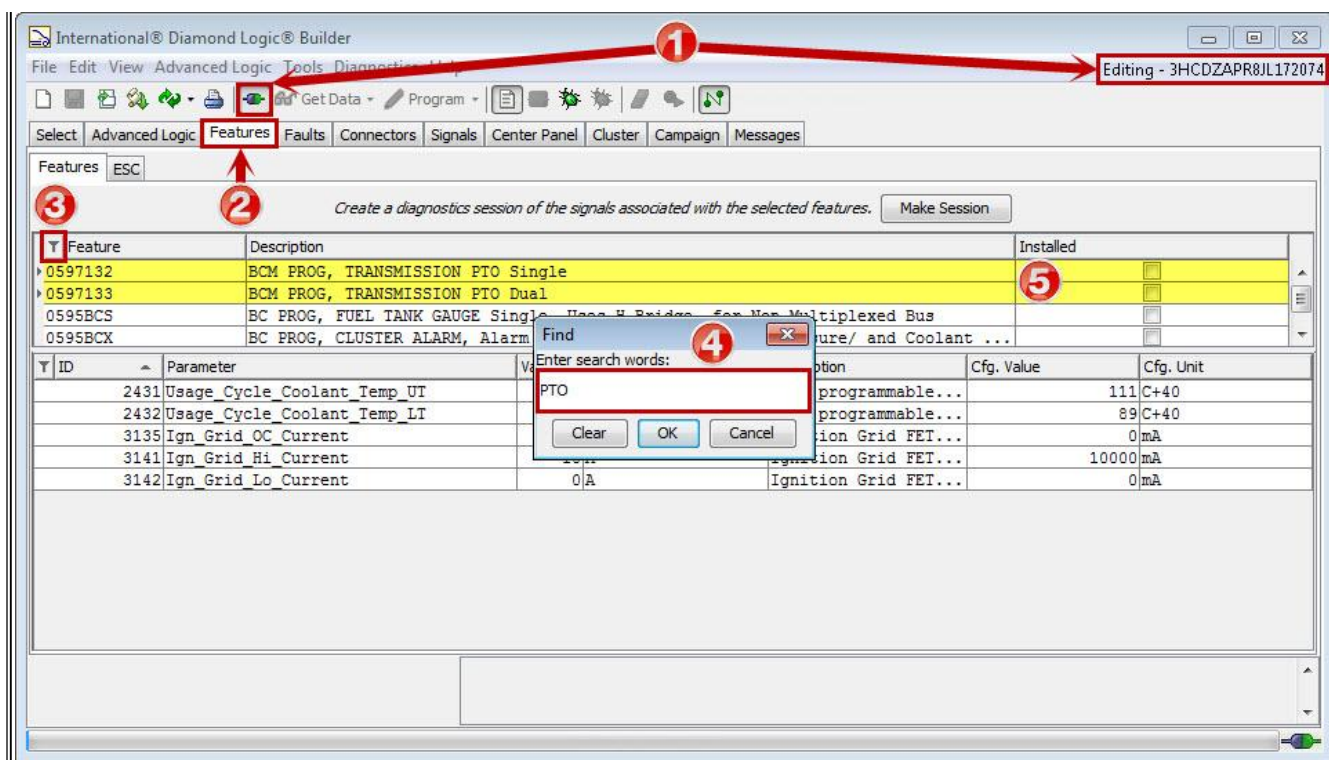
- Output forced on:
 - Signal is now locked. The Input will be ignored until the signal is unlocked.
 - Unlock the Signal by clicking on the Lock icon, or by exiting Diagnose Mode.
 - You will have to return to Diagnostic Mode to continue diagnosing.
- The Output for Fifth_Wheel_Slide_Switch_Ind_Cmd did not change value. There is no logical Input, so this Output is not used when the Fifth_Wheel_Slide_Cmd is forced on.
- The Input is ignored while this Output is being forced ON or OFF.

If the Output does not occur when the Output signal is forced on, there may be a wiring issue.

- Use the breakout box with the output wire disconnected to check the signal (voltage or ground) directly out of the Body Controller.
- Manually apply the signal (voltage or ground) to the signal wire to see if the component works. This can help verify the integrity of the wiring.

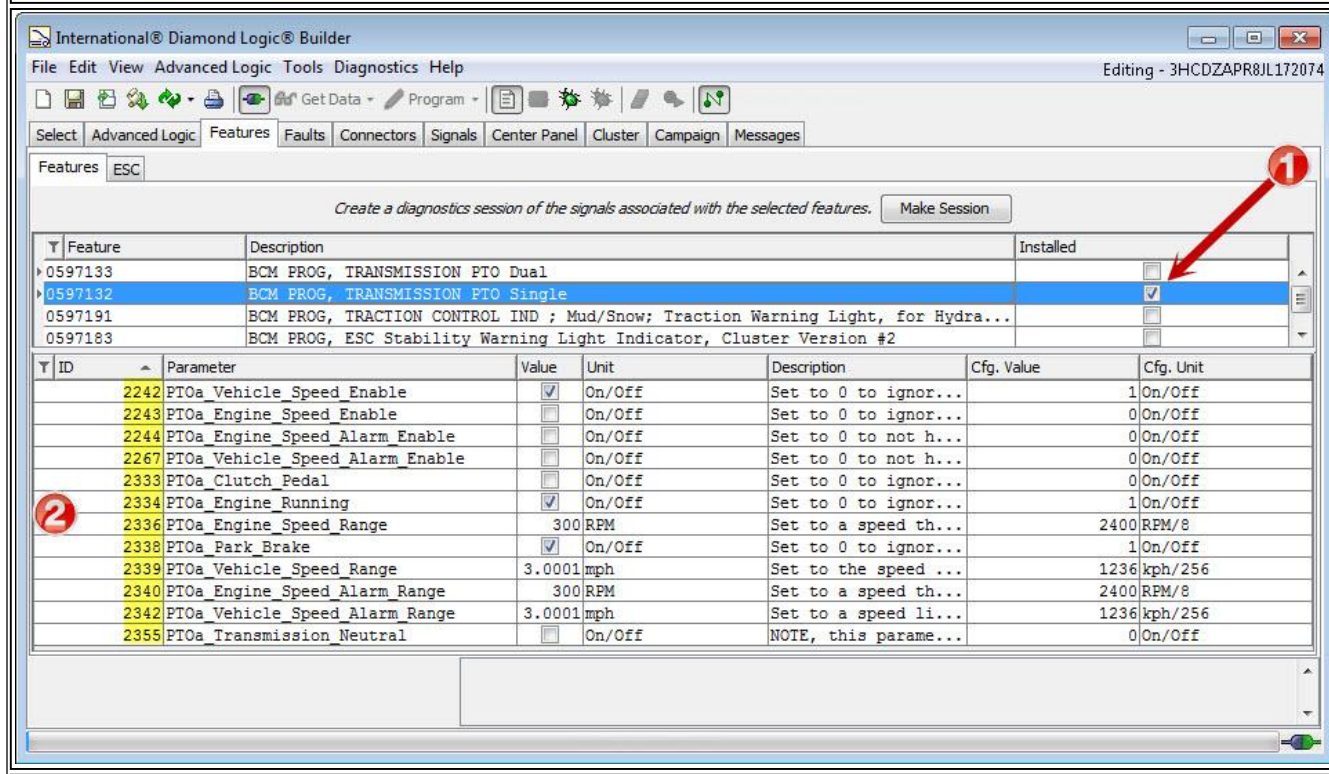
Changing Features or Parameters

Figure 7 - Add or Remove a Feature



1. Connect to the BCM, remain in Editing mode after connecting
2. Navigate to the Features Tab
3. Click the Filter Icon
4. Search by Feature Number or Keyword
5. Filtered results are brought to the top of the list

Figure 8 - Changing Parameters within a Feature

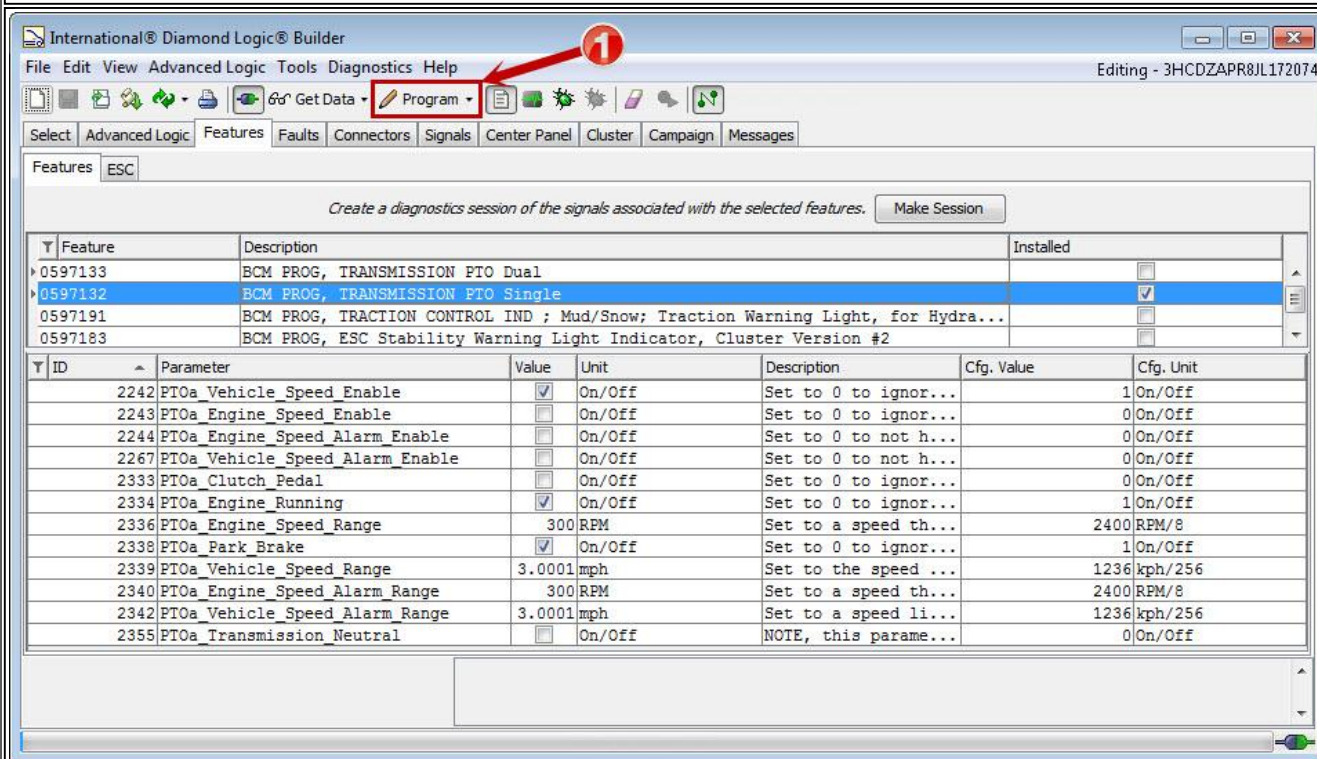


1. Clicking to add the checkmark will apply that feature (If your DLB role allows you to add/remove)
2. With the Feature selected, the Programmable Parameters will be listed on the bottom half of the screen

NOTE:

If your DLB role does not allow you to change a feature or parameter it will be greyed out

Figure 9 - Program Changes to the BCM



1. Program button (Programming is performed with the Key OFF)

NOTE:

If your DLB role does not allow you to program the button will be greyed out

Other Resources

- [DLB Quick Start Guide](#)
- [DLB User Manual Vol. 1 - Overview](#)
- [DLB User Manual Vol. 2 - Advanced Programming](#)

([Return to Top](#))

Hide Details

Feedback Information

Viewed: 12171
Helpful: 664
Not Helpful: 513

No Feedback Found