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Coding Information

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Title: Body Controller Updates for 500k Baud

Applies To: All vehicles with 500k baud data link

Change Log

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

08/02/2016 - Added Body Controller Reference information for baud rates. Added RTC battery part number based on feedback.

07/13/2016 - Article Created.

Description

Overview of the recent updates to the Body Controller (BCM) on 500k baud data link equipped vehicles.

- Basic Overview
- Data Link Terminal Information
- Grid Control Information
- Real Time Clock (RTC) Battery

Basic Overview

Figure 1 - Gen 4 BCM	Figure 2 - Gen II BCM



- The Gen 4 BCM is the correct service part for all vehicles equipped with a Body Controller. The Gen 4 BCM is backwards compatible with trucks that were built with Gen II BCMs
- The same diagnostics are used on a Gen 4 BCM
- [IK2600008](#) - How to Diagnose Electrical Problems with Diamond Logic® Builder using a Session
- [IK0800092](#) - The First Check to Make When Troubleshooting Any Body Controller or ESC Issue

Data Link Information

500k Baud Vehicles will have a GREEN diagnostic connector. The green connector has 500k and 250k data link wiring present.

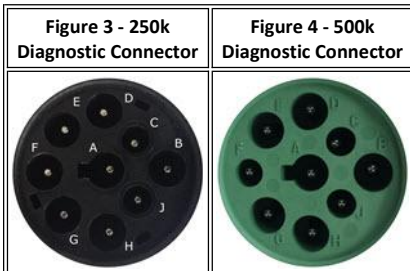


Figure 5 - 500k Baud Data Link Connector at the BCM on a 500k Vehicle

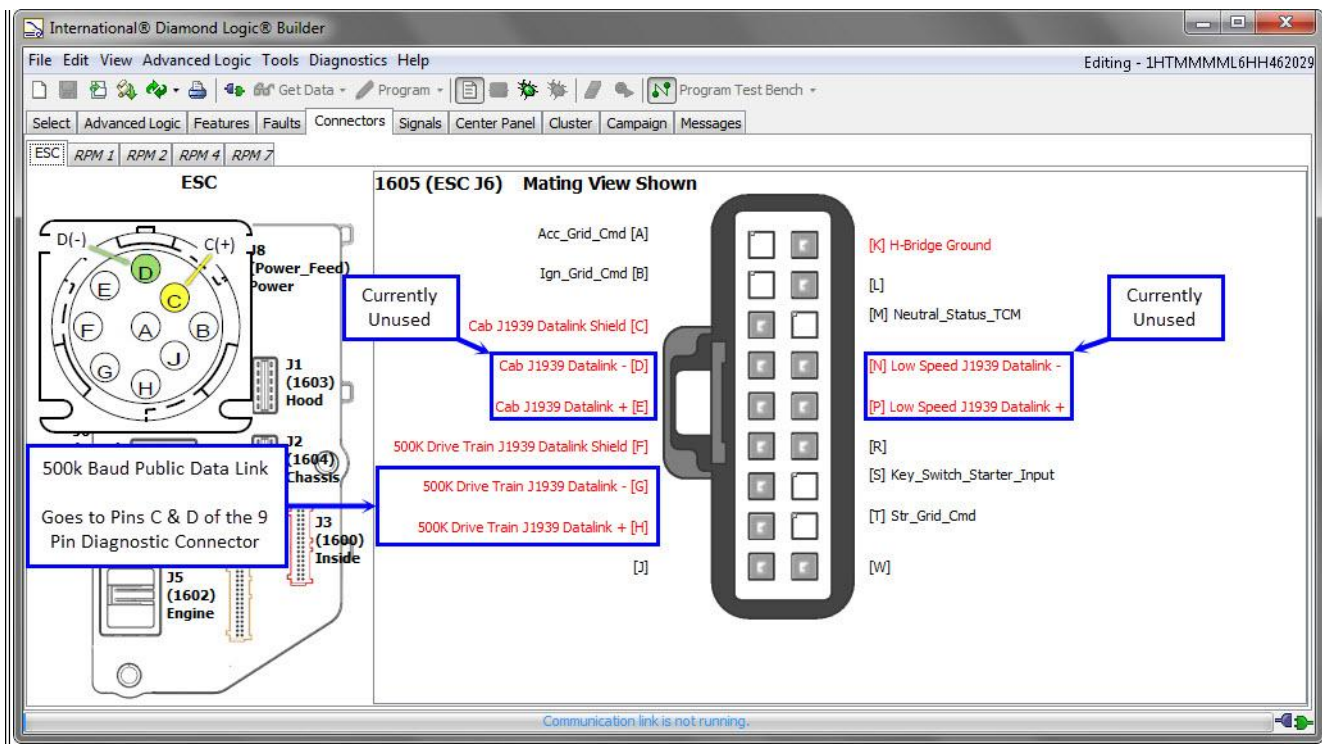


Figure 6 - 250k Baud Data Link Connector at the BCM on a 500k Vehicle

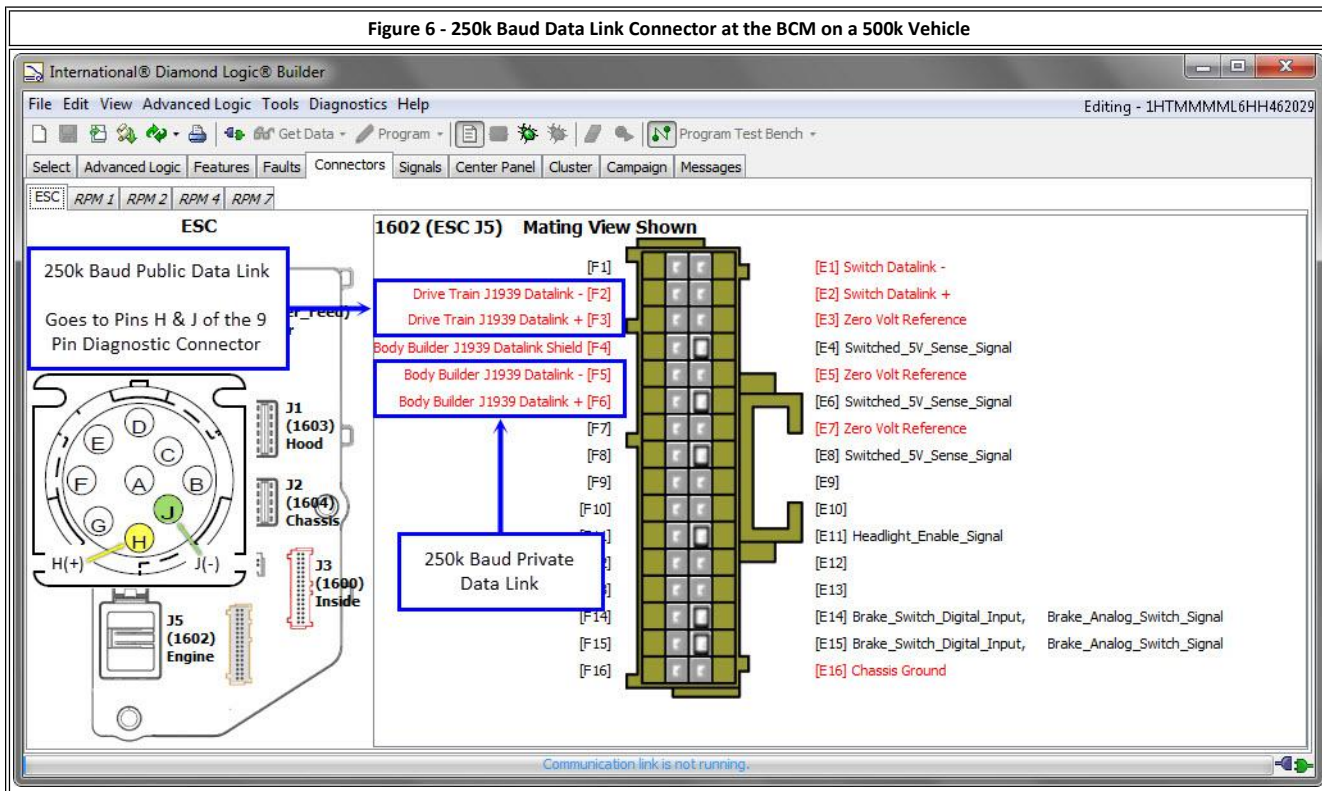


Figure 7 - Programmed 500k BCM Installed on a 250k Vehicle

This is the result of installed a BCM programmed at 500k into a 250k baud vehicle.

- DLB was able to connect
- Red X is shown on ESC
- No module information is detected

Module	Address	Data Link	In Con...	Description
ESC		33 Drivetrain J1939	✗	Serial
Instrument Cluster		23 Drivetrain J1939	✓	Hardware
Body Controller		33 Drivetrain J1939	✓	Configuration

Selected Module	Detected
ESC	
Serial	38193595
Hardware	202
Configuration	2
Kernel	242
Data Version	224
State	

- All Body Controllers are shipped blank and can be programmed to 500k or 250k.
- This issue would only occur if you are using a module that was already programmed.

Grid Control

The BCM controls the power circuits for Ignition, Accessory and Cranking.

Accessory Grid Control output:	1605-A	Maximum Current: 20 Amps
Ignition Grid Control output:	1605-B	Maximum Current: 10 Amps
Starter Grid Control output:	1605-T	Maximum Current: 10 Amps

Signal	Pins	Unit	Signal Type	Description
Acc_Grid_Cmd	1605-A	On/Off	Digital Output	Accessory Grid Power Output Command signal. (Output of Virtual F...
Ign_Grid_Cmd	1605-B	On/Off	Digital Output	Ignition Grid Power Output Command signal. (Output of Virtual Fu...
Str_Grid_Cmd	1605-T	On/Off	Digital Output	Starter Grid Power Output Command signal. (Output of Virtual Fus...

Below are the only conditions the Body Controller should observe for Key_Switch_State:

- Accessory Only
- Ignition and Accessory (Key on Engine Off or Key On Engine Running)
- Ignition and Starter input (Crank) - (Accessory signal is removed during cranking)

If any other combinations of key switch state are observed a fault will be set. If the Accessory circuits are undercurrent or overcurrent a fault will be set. The Body Controller will not supply power to the output when overcurrent or undercurrent faults are active. You must troubleshoot the output wiring.

NOTE:

Do not diagnose these faults when *INACTIVE* without a driver complaint

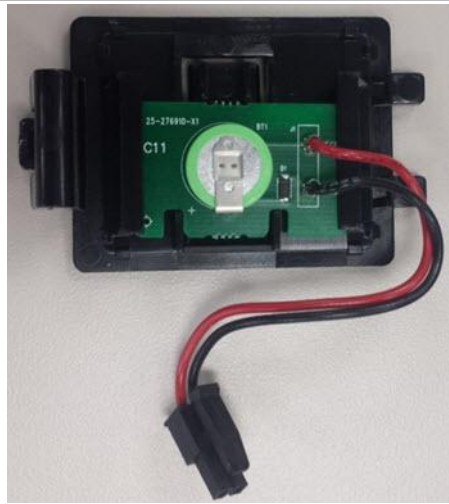
Faults apply to Gen 4 Body Controllers with 500k Baud Only			
SPN	FMI	Module and Source Address (SA)	Description
520981	14	Body Controller (33)	Only Ignition input is being detected (status of Key_Switch_State = 1)
520982	5	Body Controller (33)	Accessory Grid Undercurrent
520982	6	Body Controller (33)	Accessory Grid Overcurrent
520983	14	Body Controller (33)	Only Starter input is being detected (status of Key_Switch_State = 4)
520984	14	Body Controller (33)	Starter input and Accessory input are detected (status of Key_Switch_State = 6)
520985	14	Body Controller (33)	Starter input, Accessory input, and Ignition input are detected (status of Key_Switch_State = 7)

Real Time Clock (RTC) Battery

500k baud vehicles utilize the BCM for Real Time Clock (RTC) functionality.

- The RTC battery is integrated in the circuit board and cannot be removed
- If the RTC battery fails, it will set fault code 516824-1 and a service battery will need to be installed
- The service battery plugs into the circuit board
- The RTC battery part number is 2514328C91

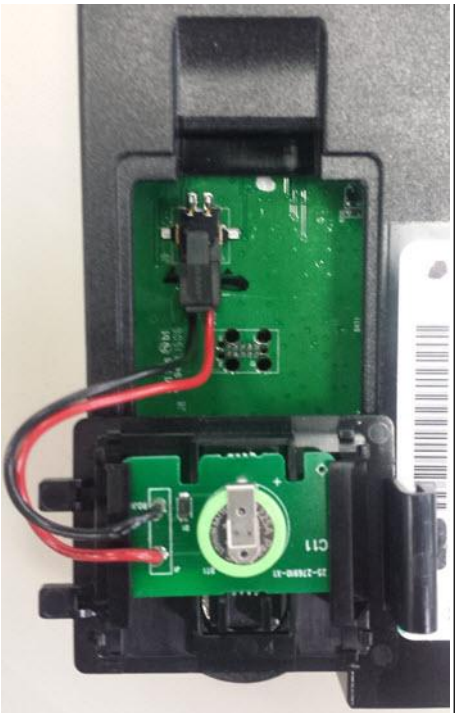
Figure 7 - Service Battery



- RTC Service Battery

Figure 8 - Battery Cover Removed

Figure 9 - Service Battery Installed

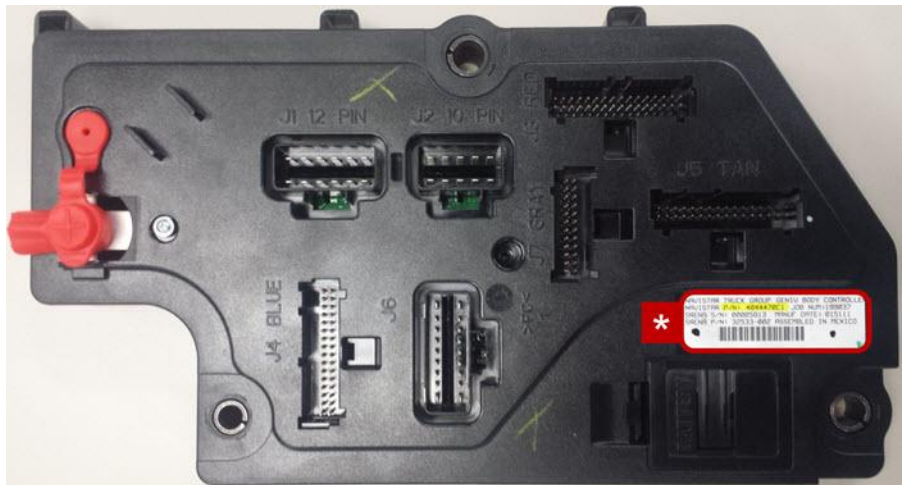


- If the battery needs to be serviced, remove the battery cover to locate the connector the service battery plugs into.

- The service battery plugs into the circuit board as shown.

BODY CONTROLLER REFERENCE
GENERATION 4

THERE ARE TWO VERSIONS OF THE GENERATION 4 BODY CONTROLLER. HERE'S HOW TO IDENTIFY THEM:



NAVISTAR TRUCK GROUP GENIV BODY CONTROLLER
 NAVISTAR P/N: 4044470C1 JOB NUM:
 SRENA S/N: 00000000 MANUF DATE: 000000
 SRENA P/N: 00000-0000 ASSEMBLED IN MEXICO
 SERVICE PART *

4044470C1

NAVISTAR TRUCK GROUP GENIV BODY CONTROLLER
 NAVISTAR P/N: 4044470C4 JOB NUM:
 SRENA S/N: 00000000 MANUF DATE: 000000
 SRENA P/N: 00000-0000 ASSEMBLED IN MEXICO
 SERVICE PART *

4044470C4

- Early release, installed on early 2015 vehicles.
- Communicates at 250k baud
- Capable of communicating with 2015 model year vehicles and older.

- Current version of Generation 4 Body Controller.
- Can communicate with 250k baud and 500k baud data links.
- Can be installed on current model year and older vehicles.

COMMUNICATION BAUD RATE



250k



500k

COMMUNICATION BAUD RATE



		PLUG		
				A vehicle with a BLACK receptacle can communicate at 250k baud .
RECEPTACLE				A vehicle with a GREEN receptacle can communicate at both 250k / 500k baud (when properly programmed).
				When connecting an <i>Electronic Service Tool</i> (EST) to the vehicle: <ul style="list-style-type: none"> • A BLACK plug on an interface cable will only connect with a BLACK receptacle. • The GREEN plug on an interface cable will connect to both BLACK and GREEN receptacles.
		250k	250k 500k	

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