

FLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 Conventional

Century Class Conventional  
Argosy COE  
Cargo  
Columbia

122SD and Coronado  
> Business Class M2  
Cascadia  
> 108SD/114SD

**Freightliner  
Service Bulletin**

**Description of Revisions:** *This bulletin replaces the version dated July 2016. The changeover date is included in [Table 1](#).*

## General Information

The Virtual Technician (VT) HU generates diagnostic information to aid the customer and the technician in diagnosing vehicle fault issues. The system creates log files, captures fault codes, and sends alert messages and other advanced diagnostic information to the Detroit Customer Support Center. The Virtual Technician utilizes GPS navigation, GSM (cellular telephone) communication, and a J1939 connection for databus monitoring. Virtual Technician does not require any driver input to function. The unit is located behind the passenger-side dash panel.

Virtual Technician does not require any driver input to function. The VT is located behind the top right of the dash.

## Parts

See [Table 1](#) for the kit used in this procedure.

Kit		
Kit Number	Description (IMACS)	Description
A66-05541-000	KIT-VIRTUAL TECHNICIAN,M2,PRE-EPA16	Virtual Technician Kit - M2 or 108SD/114SD, vehicles built before January 1, 2016.
A66-05542-000	KIT-VIRTUAL TECHNICIAN,M2	Virtual Technician Kit - M2 or 108SD/114SD, vehicles built on January 1, 2016, and later.

**Table 1, Kit**

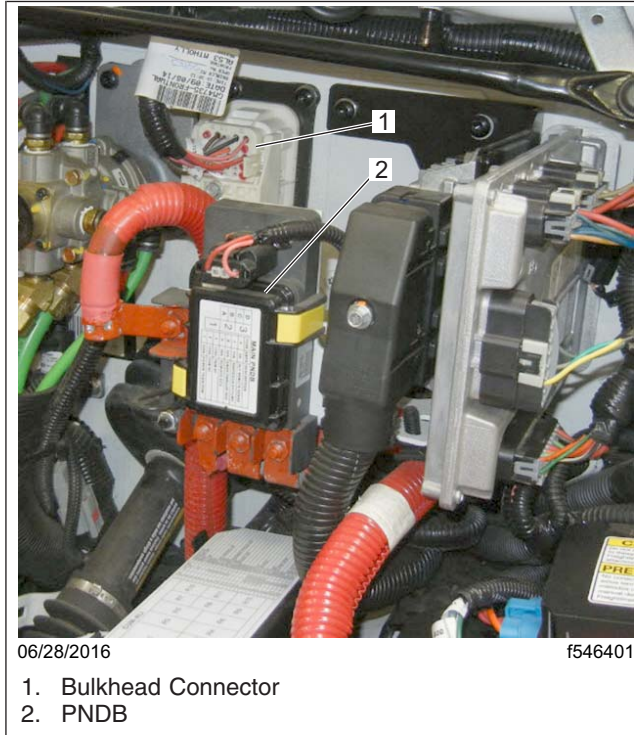
## Installation Instructions

1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the rear tires.
2. **Install the power and ground wiring.**
  - 2.1 Disconnect the negative cables from the batteries.
  - 2.2 Remove the instrument cluster, trim piece from around front side of dash, top dash cover panel, passenger side dash cover that has two vents, and any other devices or panels necessary for harness routing. Refer to the *Business Class M2 Workshop Manual* for instructions.
  - 2.3 Disconnect the bulkhead connector from the engine-side frontwall. See [Fig. 1](#).

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**Fig. 1, Vehicle Frontwall**

2.4 Feed wire A06-91061-000 into the conduit supplied in the kit. See [Fig. 2](#).

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**Fig. 2, Feeding Wire A06-91061-000 into the Conduit**

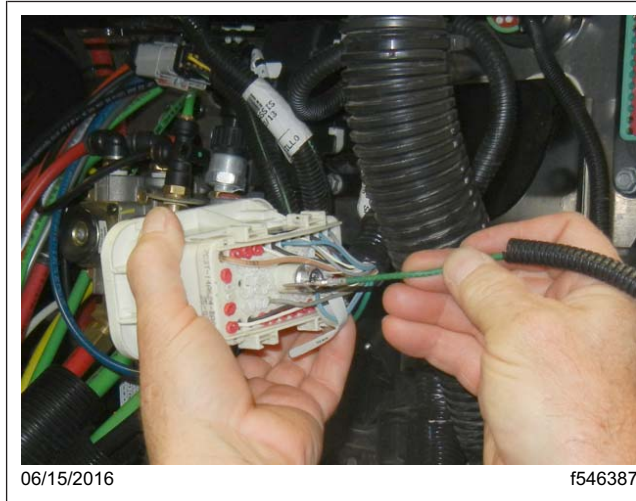
- 2.5 Remove the red terminal lock and insert the green wire 433 from the A06-83264-000 harness in cavity 32 (or any open cavity) of the dash side bulkhead connector.
- 2.6 Remove the red terminal lock from the engine-side bulkhead connector, and insert green wire 433 of the A06-83265-000 harness in cavity 32 (or the corresponding cavity from the previous step) on the engine side of the bulkhead connector. See **Fig. 3**. Make sure the wire snaps into place, then gently tug the wire to make ensure that it is securely seated in the connector.

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**Fig. 3, Inserting Wire A06-91061-000 in to the Bulkhead Connector**

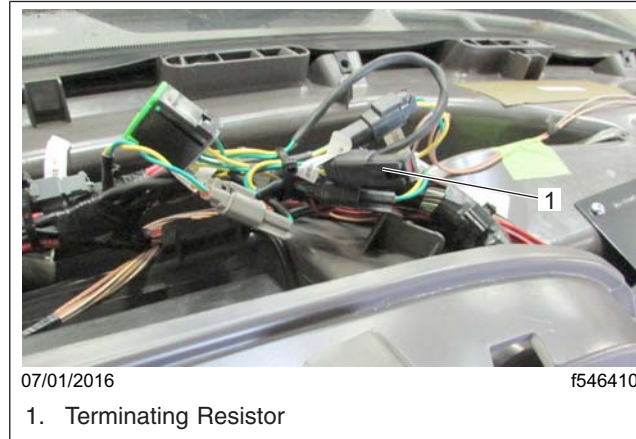
- 2.7 Insert the other end of wire 433 (green) from the A06-83265-000 harness in PNDB cavity 3, which is powered by fuse C. The PNDB is located on the frontwall next to the bulkhead module. See [Fig. 1](#).
  - 2.8 Install the red terminal locks on the bulkhead connectors, then connect both sides of the bulkhead connector on the frontwall.
  - 2.9 Secure wire A06-83265-000 to the frontwall harness with cable ties.
3. **Route and install the VT harness and install the databus connections for vehicles built before 1/1/16.**
- NOTE: For vehicles built on 1/1/16, and later, continue with step 4.
- 3.1 Feed the harness from the bulkhead connector, behind the driver instrument panel, to the center of the dash.
  - 3.2 Remove the terminating resistor from the databus connector of the top center dash J1939 connection system, and install the terminating resistor in the A66-06315 harness, then connect the harness into the databus connector. See [Fig. 4](#).

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**Fig. 4, Terminating Resistor on the Dash**

- 3.3 Continue with step 5.
4. **Route and install the VT harness and install the databus connections for vehicles built on 1/1/16, and later.**
  - 4.1 Feed the harness from the bulkhead connector to the passenger side of the dash.
  - 4.2 Locate the J1939 datalink splice pack.
  - 4.3 Remove the terminal lock from the splice pack.
  - 4.4 Install the yellow and green wires in the splice pack, making sure the green wire is inserted in the row with green wires (cavities G - M) and the yellow wire is inserted in the row with yellow wires (cavities A - F). The wires should be directly above/below each other.
  - 4.5 Install the terminal lock on the J1939 splice pack.
5. **Install the ignition and ground wires.**
  - 5.1 Locate circuit 81C and the ground splice packs. See [Fig. 5](#) . The Splice packs are located below the radio.



**Fig. 5, J1939 Datalink Connectors**

- 5.2 Remove the ground and ignition splice pack lock and insert the wires as follows.
  - 5.3 Insert the pink ignition wire in the ignition (81C) splice pack. Use any available cavity.
  - 5.4 Insert the black ground wire in the ground splice pack. Use any available cavity.
  - 5.5 Install the retainers in the splice packs.
6. **Install the Virtual Technician HU.**
- 6.1 Record the GPS ID from the label on the back side of the new Virtual Technician HU.
  - 6.2 Affix two strips of hook and loop tape on the back of the VT box. Remove the protective film from the adhesive, and press the VT box firmly to the bracket. See [Fig. 6](#).

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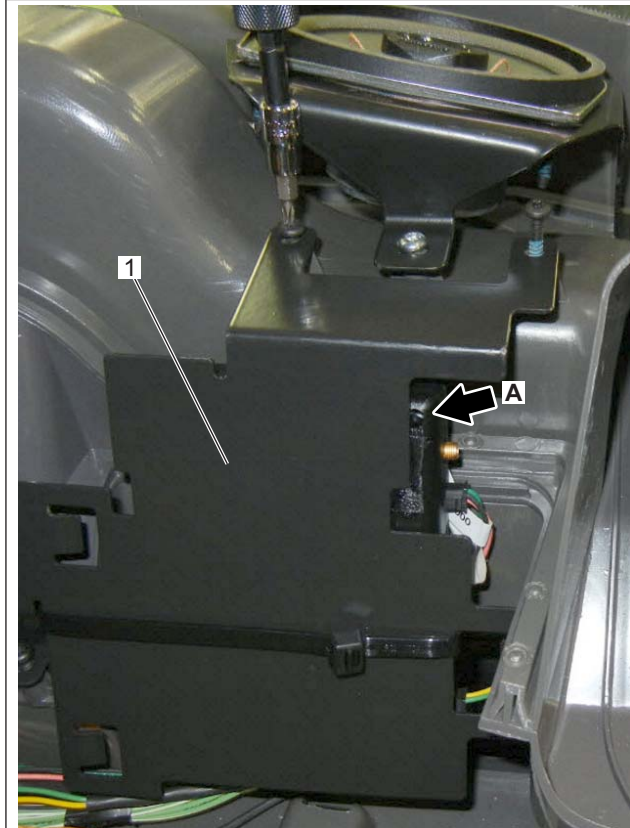
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**Fig. 6, Securing the VT HU to the Mounting Bracket**

- 6.3 Secure the Virtual Technician HU to the bracket with a cable tie. Tighten the cable tie securely.
- 6.4 Connect the 4-pin connector to the VT HU.
- 6.5 Connect the 10-pin connector to the VT HU.
- 6.6 With the VT HU facing in, position the bracket on the passenger-side dash, then install the three mounting screws in the pre-drilled holes. See [Fig. 7](#). Tighten the screws securely.



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A. The connectors for the VT HU are facing out, to allow access to the connectors.

1. Mounting Bracket

**Fig. 7, Installing the Virtual Technician Mounting Bracket**

**7. Verify the installation of the Virtual Technician HU.**

7.1 Connect the batteries.

7.2 If no LEDs light up with the ignition ON, diagnose supplied power and ground to the unit. See [Fig. 8](#) and [Table 2](#). There are five LEDs visible on the VT module.

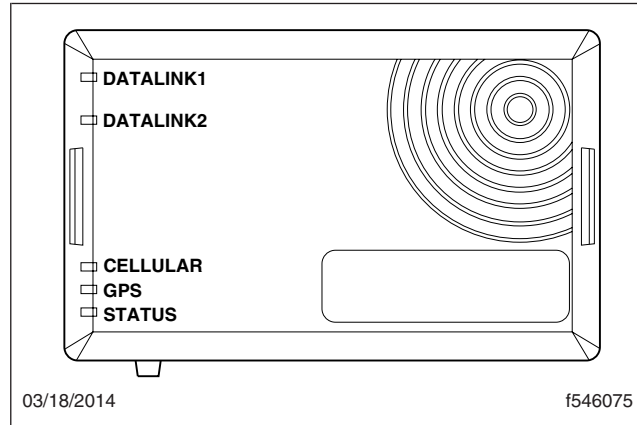


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**Fig. 8, Virtual Technician HU LEDs**

Diagnostic LEDs			
Name	Color	Function	Action
Datalink1	Red	<b>Red Flash (1Hz):</b> J1708 connectivity (disabled). No J1708 activity detected (device is awake). Device is not wired for J1708 connectivity.	Red is the normal and expected state.
Datalink2	Red and Green	<b>Red Flash (1Hz):</b> J1939 connectivity. No J1939 activity detected (device is awake). <b>Green Flash (1Hz):</b> J1939 activity detected (device is awake) .	Green flash is expected with the ignition ON; if the LED is flashing red, diagnose J1939 connectivity issue.
Cellular	Amber	<b>Solid:</b> GSM connection successful. <b>One Flash:</b> Initializing. <b>Two Flashes:</b> Acquiring time zone information. <b>Three Flashes:</b> Attempting to make a GSM connection.	Solid is expected – if otherwise call the Customer Support Center for further instruction.  NOTE: The VT must be in a network service area.
GPS	Green or Amber*	<b>Solid:</b> Satellites acquired. <b>One Flash at 1 Hz:</b> Acquiring satellites.	Refer to J1939 Fault codes if a problem is suspected.

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Diagnostic LEDs			
Name	Color	Function	Action
Status	Green	<p><b>Solid:</b> Engine running.</p> <p><b>One Flash at 1 Hz:</b> Engine not running; no data to send.</p> <p><b>Two Flashes at 1 Hz:</b> Data is available to be sent.</p> <p><b>Four Flashes at 1 Hz:</b> GPS storage log is full.</p>	Refer to J1939 Fault codes if a problem is suspected.

\* Lamp is colored green when an external GPS antenna is used. The lamp is amber when the unit is using the internal GPS antenna.

**Table 2, Diagnostic LEDs**

- 7.3 Install the instrument cluster, the trim piece from around the front side of the dash, the top dash cover panel, the passenger-side dash cover, and any other devices or panels necessary for harness routing.

## Warranty

This is an informational bulletin only. Warranty does not apply.