

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 October 2015. New kit numbers are provided in [Table 1](#) and instructions are revised to include EPA16 vehicles.*

General Information

IMPORTANT: This bulletin applies to EPA10, EPA13, and GHG14 vehicles with Detroit™ DD13, DD15 and DD16 engines.

The Virtual Technician (VT) HU generates diagnostic information to aid the Detroit Customer Support Center and the technician in diagnosing vehicle fault issues. The system creates sensor log files, captures fault codes, and sends alert messages and other advanced diagnostic information to the *Detroit Customer Support Center*. The VT 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 VT is located behind the sunglass holder on the passenger side of the overhead console, and is mounted to a bracket with hook and loop tape.

Parts

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

Kit		
Kit Number	Description (IMACS)	Description
A66-05597-000	KIT-VIRT TECH,RR/XT,24U	Coronado Pre-EPA16 Raised Roof and XT Roof Sleepers
A66-05599-000	KIT-VIRT TECH,MR/DC,24U	Coronado Pre-EPA16 Day Cab and Mid Roof Sleepers
A66-05598-000	KIT-VIRT TECH,RR/XT,24U	Coronado EPA16 Raised Roof and XT Roof Sleepers
A66-05600-000	KIT-VIRT TECH,MR/DC,24U	Coronado EPA16 Day Cab and Mid Roof Sleepers

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 dash panels, the trim pieces, and any other devices or panels necessary for harness routing. Refer to the *Coronado Workshop Manual* for instructions.
 - 2.3 Access the ground and ignition splice packs, located behind the lower center dash.
 - 2.4 Remove the ground and ignition splice pack lock and insert the wires from A06-81737-000.
 - 2.5 Insert the pink wire 81C from the A06-81737-000 harness to the ignition splice pack. Use any available cavity.
 - 2.6 Insert the black ground wire from the A06-81737-000 harness in the ground splice pack. Use any available cavity.
 - 2.7 Route the power wire 433 on the A06-81737-000 harness behind the dash to the bulkhead connector.
 - 2.8 Remove the white bulkhead connector on the frontwall.

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- 2.9 Remove the connector locks and insert the green wire 433 from the A06-81737-000 harness in cavity 37 (or any available cavity).
 - 2.10 Insert the green wire 433 of the A06-81778-000 harness in cavity 37 (or the corresponding cavity from previous step) of the engine-side bulkhead connector.
 - 2.11 Insert the other end of green wire 433 from the A06-81778-000 harness in PNDB cavity 3.
 - 2.12 Install both sides of the bulkhead connector on the frontwall. Connect the bulkhead connector.
- 3. Install the J1939 harness.**
- 3.1 Tape the two loose wires on the end of the A06-82302-000 harness, near the 2-pin J1939 backbone connectors. Make sure that the wires are insulated from contacting each other or other components. These wires are not used.
 - 3.2 Remove the 120-ohm terminating resistor from the J1939 backbone connector, located behind the center of the lower dash panel near the CPC.
 - 3.3 Install the 120-ohm terminating resistor to the 2-pin male connector on the A06-82302-000 harness.
 - 3.4 Connect the female connector from the A06-82302-000 harness to the backbone connector where the 120-ohm terminating resistor was originally removed.
 - 3.5 Route the A06-81737-000 and A06-82302-000 harness assembly across the dash to the passenger-side floor, then along the passenger door sill plate to the base of the B-pillar.
 - 3.6 Release the red terminal lock from the 8-pin connector of harness A06-81737-000.
 - 3.7 Insert one of the J1939 circuit pairs from harness A06-82302-000 into cavities 4 and 5 of the 8-pin connector of harness A06-81737-000 with the yellow wire in cavity 4 and the green wire in cavity 5.
 - 3.8 Insert the other J1939 circuit pair into cavities 6 and 7 of the 8-pin connector of A06-81737-000 with the yellow wire in cavity 6 and the green wire in cavity 7. Push the red terminal lock back into the connector.
 - 3.9 Connect the male 8-pin connector from the A06-82881-000 harness (A06-82881-001 for EP16 vehicles) to the female 8-pin connector from A06-81737-000 at the base of the passenger-side B-pillar.
 - 3.10 Route the A06-82881-000 harness assembly (-001 for EP16 vehicles) up the passenger-side B-pillar and across the top of the passenger door towards the overhead console.
 - 3.11 Connect the male 8-pin connector from the A06-82879-000 harness (A06-82879-001 for EP16 vehicles) to the female 8-pin connector from the A06-82881-000 harness (-001 for EP16 vehicles).
 - 3.12 Route the A06-82879-001 harness assembly (-001 for EP16 vehicles) through the overhead console to the overhead compartment behind the passenger sunglass holder where the virtual technician module will be installed.
 - 3.13 Secure all new wiring with cable ties at approximately 12 inch (30 cm) intervals.

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4. **Install the GPS antenna.** See [Table 2](#) for instructions based on the vehicle configuration.

Diagnostic LEDs			
Name	Color	Function	Action
Datalink1	Red	Red Flash (1Hz): 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	Red Flash (1Hz): J1939 connectivity. No J1939 activity detected (device is awake). Green Flash (1Hz): 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	Solid: GSM connection successful. One Flash: Initializing. Two Flashes: Acquiring time zone information. Three Flashes: 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*	Solid: Satellites acquired. One Flash at 1 Hz: Acquiring satellites.	Refer to J1939 Fault codes if a problem is suspected.
Status	Green	Solid: Engine running. One Flash at 1 Hz: Engine not running; no data to send. Two Flashes at 1 Hz: Data is available to be sent. Four Flashes at 1 Hz: GPS storage log is full.	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

5. **Install the Virtual Technician HU.**

- 5.1 Record the GPS ID, VIN, and ESN from the label on the back side of the new Virtual Technician HU.
- 5.2 Remove the passenger-side sunglass holder.
- 5.3 Connect the 4-pin connector from the A06-82879-001 (A06-82879-000 for pre-EP16 vehicles) harness to the VT.

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- 5.4 Connect the 10-pin connector from the A06-82879-001 (A06-82879-000 for pre-EP16 vehicles) harness to the VT.
- 5.5 Screw on the GPS antenna cable to the threaded GPS label connection.
- 5.6 Use hook and loop tape to adhere the VT to the overhead console.
6. **Verify the installation of the Virtual Technician HU.**
 - 6.1 Connect the batteries.
 - 6.2 If no LEDs light up with the ignition ON, diagnose supplied power and ground to the unit. See [Fig. 1](#) and [Table 3](#). There are seven LEDs visible on the VT module. Start the vehicle and drive to an open area, at least 40 feet (12 meters) away from any buildings. Park the vehicle and keep the ignition in the ON position. Apply the parking brake.
 - 6.3 Call the *Detroit Customer Support Center*. Make sure to have the vehicle serial number and the Virtual Technician GPS ID number available so that the new VT can be registered.
 - 6.4 Install the sunglass holder in overhead console.
 - 6.5 Install the instrument cluster, the trim piece from around 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.

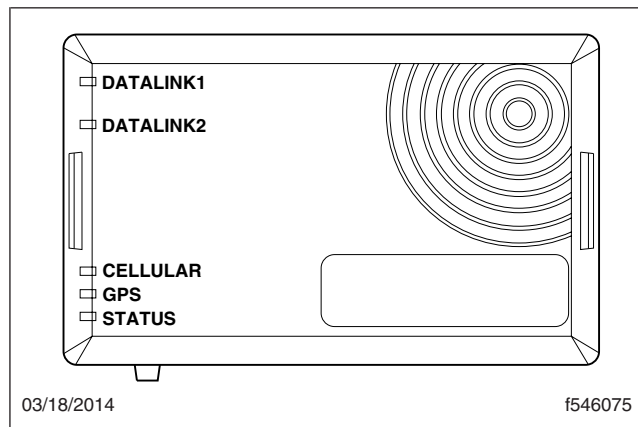


Fig. 1, Virtual Technician HU LEDs

Diagnostic LEDs			
Name	Color	Function	Action
DL1	Red	Red Blink (1Hz): J1708 connectivity (disabled). No J1708 activity detected (device is awake). Device is not wired for J1708 connectivity.	Red is the normal and expected state.

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Diagnostic LEDs			
Name	Color	Function	Action
DL2	Red and Green	<p>Red Blink (1Hz): J1939 connectivity. No J1939 activity detected (device is awake).</p> <p>Green Blink (1Hz): J1939 activity detected (device is awake) .</p>	Green blink is expected, if LED is blinking red diagnose J1939 connectivity issue at the terminals.
GSM	Green	<p>Solid: GPS connection successful.</p> <p>One Blink: Initializing.</p> <p>Two Blinks: Acquiring time zone information.</p> <p>Three Blinks: Attempting to make a GPS connection.</p>	<p>Solid is expected – if otherwise call the Customer Support Center for further instruction.</p> <p>NOTE: The VT must be in a 2G network service area.</p>
GPS	Green	<p>Solid: Satellites acquired.</p> <p>One Blink: Acquiring satellites.</p>	Refer to J1939 Fault codes if a problem is suspected.
Status	Green	<p>Solid: Engine running.</p> <p>One Blink: Engine not running; no data to send.</p> <p>Two Blinks: Data is available to be sent.</p> <p>Four Blinks: GPS storage log is full.</p>	Refer to J1939 Fault codes if a problem is suspected.
AUX	Red	<p>Solid: GSM Modem Comm. Error, or panic line is active.</p> <p>Two Blinks: Not Used.</p> <p>Three Blinks: GSM modem is not starting up.</p> <p>Four Blinks: SIM Card read error.</p> <p>Five Blinks: GSM CTS (clear-to-send) line is active.</p>	Refer to J1939 Fault codes if a problem is suspected.
Tamper	Red	Disabled	N/A

Table 3, Diagnostic LEDs

Warranty

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