Service Bulletin

Bulletin Number: **SB 21-350**

Release Date: **March 16, 2021**

Distribution: **All Heil Dealers, Heil Technical Services, Heil Customer Care**

Subject: **Pre-2021 Half/Pack® and Pre-2021 Half/Pack® (featuring Odyssey® Controls): Cortex Controller™ Required Firmware and Program Update**

NOTE: READ THIS BULLETIN IN ITS ENTIRETY BEFORE BEGINNING ANY REPAIR WORK.

This Service Bulletin provides instructions on how to perform the required update of the Cortex Controller™ (CR0233) on Heil units listed below. This update improves data reliability for Connected Collections™ and corrects a boot up problem that some Cortex Controllers experience in cold weather.

When filing a Warranty claim, submit the claim as a Campaign rather than a Machine or Part Claim. The Body Serial Number should flag that there is an active campaign on the unit.

1. PLANNING INFORMATION

A. Products Affected

This Service Bulletin applies to all 2018+ Half/Pack and 2018+ Half/Pack (featuring Odyssey Controls) units with a published delivery date before **February 1, 2021**.

B. Compliance

Each Dealer must perform these tasks as outlined in this Service Bulletin for each unit identified above in the Products Affected section no later than **May 31, 2021**. The tasks outlined in this Service Bulletin must be performed by a qualified technician.

C. Manpower

The labor effort required to accomplish the tasks in this Service Bulletin is shown in **Table 1**.

Table 1. Manpower

TASK	ESTIMATED MAN HOURS
Update Cortex Controller™ Firmware and Programming	1.5

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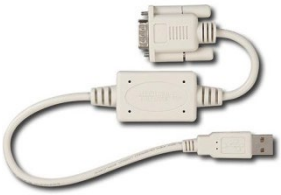
D. Tools, Materials and Parts Needed

The tools, materials and parts necessary to perform the programming are outlined in **Table 2** and **Table 3**.

Table 2. Tools and Materials for On-Unit Programming

ITEM	IMAGE	PART NUMBER	APPLICATION
Personal Protective Equipment	None	Commercially available	Safety protection as required by your employer. At a minimum, safety glasses are required.
Downloader Program	None	Contact Heil Technical Services	Allows program to be downloaded to Cortex Controller™
Cortex Controller™ Firmware and Program (As Required for Specific Unit)	None	Contact Heil Technical Services	Firmware and Program for Cortex Controller™
Cortex Controller RS232 Serial Programming Cable		263-1678	Programming the Cortex Controller Note: This programming cable requires a USB to RS232 Serial Adapter, Part Number 108-8619, to connect to your PC unless your PC has a RS232 Serial Port connection.
USB to RS232 Serial Adapter		108-8619	Connecting a PC without a RS232 Serial Port connection to the Cortex Controller RS232 Serial Programming Cable (Part Number 263-1678)
Laptop Computer	None	N/A	Program download and transfer to controller
InSight™ Diagnostic Display Program (when equipped)	None	Contact Heil Technical Services	USB Flash Drive (Jump Drive) that contains .IFM (7" and 12" display firmware) and .BUP (backup file used to load application program) files

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2. PREPARING THE UNIT AND WORK AREA

To update programming on the Cortex Controller™, the unit's ignition must be on and the controller must have power. **For that reason, normal Lock-Out/Tag-Out procedures are not possible. However, it is imperative that ALL safety precautions are followed prior to and during programming the controller.** Clear the area around the unit of all unnecessary people and equipment. It is strongly recommended that the truck be quarantined from other units and uninvolved personnel outside the shop area for the programming procedure.

A. Prepare the Unit and Work Area

Before programming the controller, you must set up the unit.

(1) Clear the area around the unit of all unnecessary people and equipment. It is strongly recommended that the truck be quarantined from other units and uninvolved personnel outside the shop area for the programming procedure.

(2) Carefully follow these steps:

(a) Place the unit's transmission in Park and turn the engine OFF.

(b) APPLY the parking brake. Make sure the parking brake works properly and do not let the unit move.

(c) Chock all wheels.

(d) Turn the ignition switch to ON. Move the switches of the hydraulic controls to their full ranges of motions. This relieves the pressure in the cylinders.

(e) Turn the ignition switch to OFF.

(f) When ready to program the controller, turn the ignition ON so that the controller is powered, but DO NOT start the engine.

(g) While programming the unit, make sure that uninvolved personnel remain away from the unit.

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3. CORTEX CONTROLLER™ PROGRAM UPDATE

On the InSight™ Diagnostic Display, navigate to “Outputs”. Update to the most current program version. See Section 3.C.

A. Document the Original Program Number, Revision and Unit Option Settings

(1) To identify the program versions, press the Service button on the display Home Screen. This will display the Inputs Screen. See **Figure A**.

Figure A. Display Home Screen

(2) On the Inputs Screen, use the directional arrows to scroll down through the variable list. The Program Numbers and Revision levels will be at the bottom of the list.

(3) Document the Original Program Number, Revision and Unit Option Settings. See **Figure B**.

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Figure B. Display Inputs Screen

B. Set Up a Connection from the PC to the Controller

Most modern computers lack a RS232 Serial Port connection, so you will likely need a USB to RS232 Serial Adapter (Part Number 108-8619) to connect the PC to the RS232 Serial Programming Cable (Part Number 263-1678). The RS232 Serial Programming Cable then connects to the Cortex Controller wiring harness inside the cab of the unit.

Follow the steps below to set up the interface to the PC.

(1) Unzip the DOWNLOAD_V061500.zip file and install the DOWNLOAD.msi Download Program.

(2) If not previously installed, load the driver for the USB to RS232 Serial Adapter also from the FTP “Tools” folder or from the supplied disc that came with the cable if not purchased from Heil.

(3) Once the driver is loaded, connect the USB to RS232 Serial Adapter to the RS232 Serial Programming Cable.

(4) To determine the COM port to which the USB to RS232 Serial Adapter driver has been loaded, perform the following steps. This information is used in a later step.

(a) Open Windows Device Manager: Start Button | Control Panel | Hardware and Sound | Device Manager.

(b) Open the branch “Ports (COM & LPT)”.

(c) The installed driver (i.e. ifm CANview-USB) is followed by the related COM-Port, i.e. COM6.

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C. Update the Controller Firmware and Controller Program (Download to Controller)

On the InSight™ Diagnostic Display, navigate to "Inputs". If the listed display and controller programs are older than what is shown below, update to the most current program version shown in the tables below. The latest controller software programs can be downloaded from the Heil Dealer Library: https://www.heil.com/heil-library/.

CORTEX CONTROLLER™ SOFTWARE PROGRAM VERSIONS	
UNIT NAME	PROGRAM VERSION
Pre-2021 Commercial Half/Pack®	109-0308-20210202
Pre-2021 Residential Half/Pack® (featuring Odyssey™ Controls)	109-0306-20210202
Pre-2021 Commercial Half/Pack® (featuring Odyssey™ Controls)	109-0307-20210202

(1) LED Indicator on Controller

The controller has an indicator LED (light) on each side near the connector. Below are the possible controller states:

- **OFF** – no power to the controller
- **GREEN FAST FLASH** (i.e. ca. 2 HZ or more) – power to the controller but no firmware or program installed.
- **SOLID GREEN** – firmware installed but no program in the controller or the program is installed and the controller is not running.
- **BLUE SLOW FLASH** – the programming is installed on an 80 I/O controller and the firmware is installed on both sides. When the programming is successfully loaded to the controller at the end of this procedure, the controller indicator LED (light) should be in this controller state.
- **SOLID YELLOW** – the program has been loaded, however, there is an issue with the body variables. Controller will need to be reprogrammed utilizing the Controller-Application Recovery process.

(2) Program Download to Controller

Perform the following steps to download the program to the controller.

(a) Open the Downloader Program from the desktop. The program will open a window shown in **Figure 2**.

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Figure 2. Downloader Program

(b) Connect the programming cable to your computer or laptop. If the controller is mounted in the vehicle, the other end of the cable should be connected to the P3A connector in the truck cab. On an ASL unit, the cable should be connected to the P3 connector. For benchtop programming, the cable should be connected to the RS232 connector.

If the controller is to be programmed on the bench, please refer to Section 4 below.

Note: Only download the program in the A side of the controller regardless of how many P3x connections there are. The program is downloaded into P3 (or P3A for non-ASL units or RS232 for benchtop programming).

(c) If the cable is connected directly to a serial connector, COM 1 should be the default port. If a USB to Serial converter is used, the COM port may vary, possibly COM 4 or 5. The Com port can be changed or verified by clicking interface in the toolbar and selecting RS232. This will cause a new window to appear. See **Figure 3**.

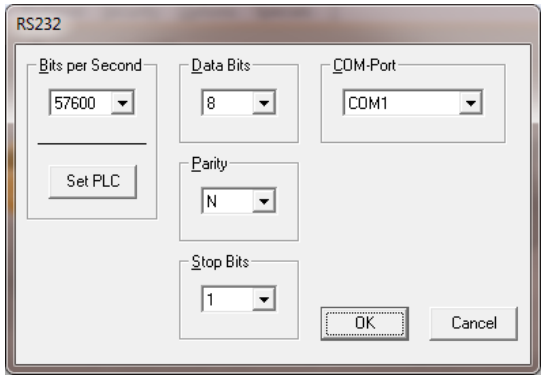

Figure 3. COM Port Selection

(d) Select the **COM** port in the upper-right corner. Once the port has been changed/verified to match what you determined in Step 2.C.(4), select **OK**.

(e) To download a program to a unit, click the **"Download"** button. A file open window will appear. Select the appropriate file from the computer and select open. See **Figure 4**.

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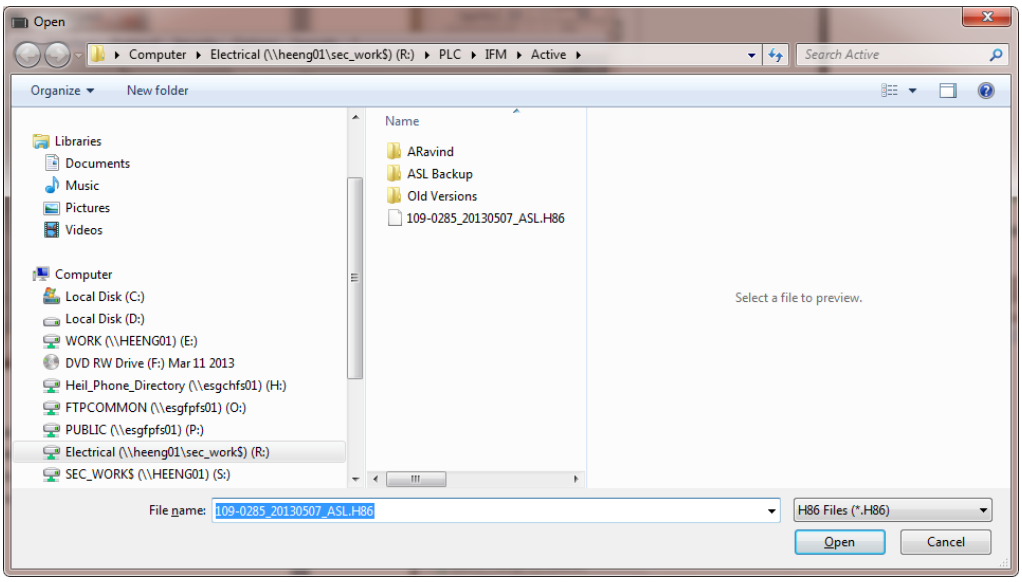

Figure 4. Select the Program from the PC

(f) Once open is selected, the downloader will connect to the controller and begin loading the application. A blue status progress bar will begin to move across the lower-right corner of the downloader window. See **Figure** .

Figure 5. Blue Status Progress Bar at Lower-Right Corner of Screen

(g) Once the program has loaded the entire application, a download successful window will appear.

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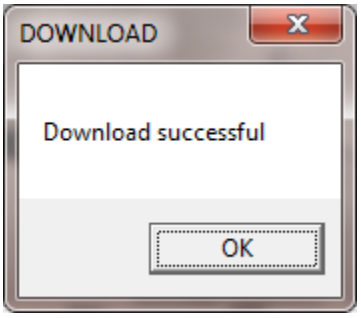

Figure 6. Download Successful Notification Window

(h) Click the **"RUN"** button on the downloader window. The controller will be placed in **RUN** mode and the status running window will appear. See **Figure 7** and **Figure 8**.

Figure 7. Click "Run" on the Downloader Screen

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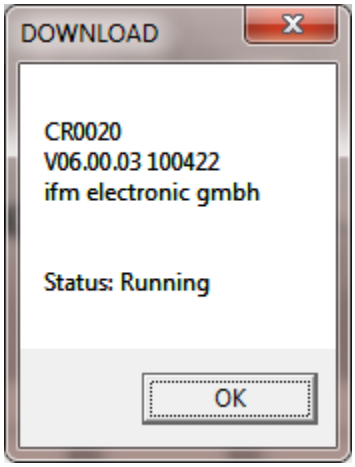

Figure 1. Dialog Window Showing That Program is Now Running

(i) Click "**EXIT"** to close the Downloader Program. See **Figure 9**.

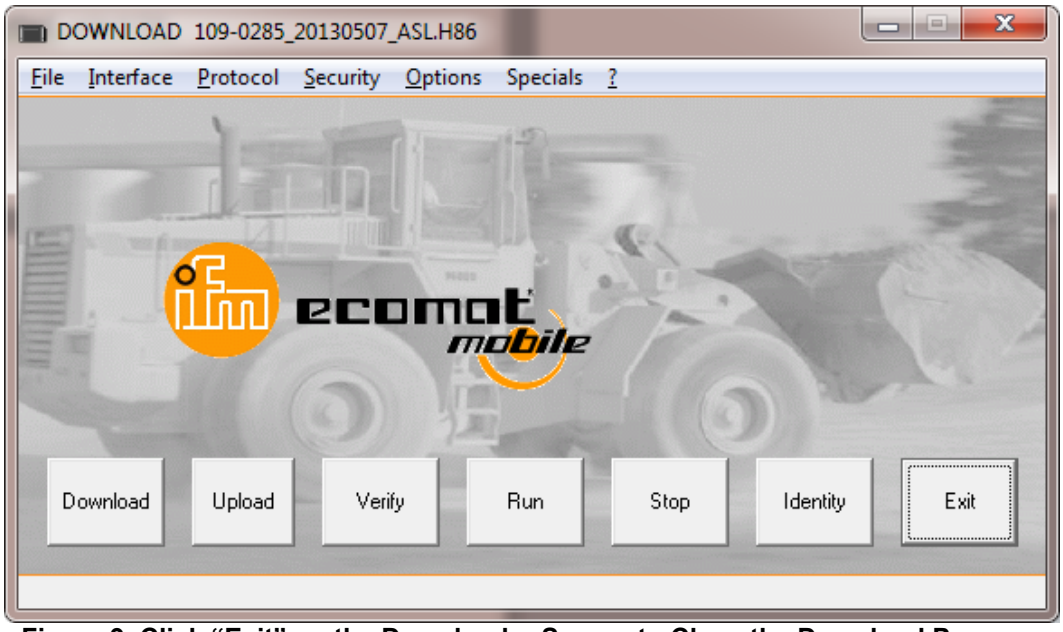

Figure 9. Click "Exit" on the Downloader Screen to Close the Download Program

Note: Once the program is installed and running, the LED on the controller should slowly flash green on a 40 I/O controller and slowly flashing blue on an 80 I/O controller.

(j) On the Inputs Screen of the display, use the directional arrows to scroll down through the variable list. Verify the updated Program Numbers and Revision levels.

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4. INSIGHT™ DIAGNOSTIC DISPLAY PROGRAM UPDATE

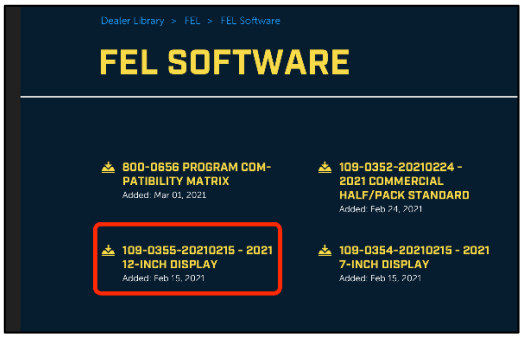
Whenever the Cortex Controller™ program is updated, the InSight™ Diagnostic Display program must also be updated (if equipped). Refer to **SB-18-290 InSight Diagnostic Display Program Update (Revision B)** for instructions on how to update the InSight™ Diagnostic Display program from a USB Flash Drive (Jump Drive).

INSIGHT™ DIAGNOSTIC DISPLAY SOFTWARE PROGRAM VERSIONS	
UNIT NAME	**PROGRAM VERSION**
Pre-2021 7” InSight™ Diagnostic Display	109-0309-20210202
Pre-2021 12” InSight™ Diagnostic Display	109-0310-20210202

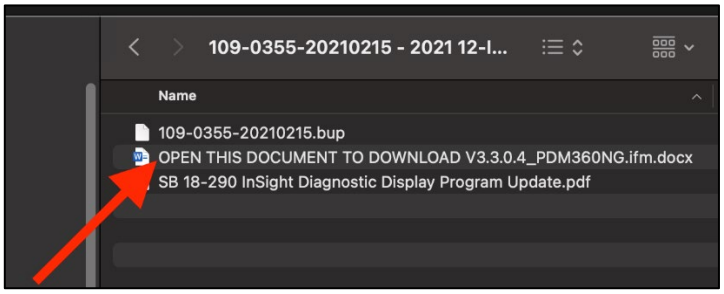
A. How to Download Display Program

(1) The latest display software programs can be downloaded from the Heil Dealer Library: https://www.heil.com/heil-library/.

(2) Download the appropriate display software program for your truck.



(3) Once finished downloading, open the downloaded folder, and open the Word document.



(4) When the Word document is opened, click on the URL, and the IFM file will begin to download.

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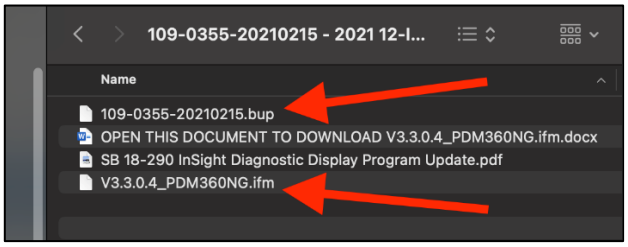
(5) Once the IFM file has downloaded, move the file into the downloaded display program folder.

(6) Now your display program folder is ready to be used to update your display.



5. RESTORE ORIGINAL OPTION SETTINGS AND RECALIBRATE UNIT

Refer to the Service Manual for instructions on how to recalibrate the unit.

6. TEST UNIT FUNCTIONS

Verify all unit functions are operating properly before removing the truck from quarantine and placing the truck back into route service. See the Heil Operation Manual for a full list of functions.

When filing a Warranty claim, submit the claim as a Campaign rather than a Machine or Part Claim. The Body Serial Number should flag that there is an active campaign on the unit.

To obtain reimbursement from Heil for re-work as a result of implementing this Service Bulletin, submit one completed Request For Credit (RFC) for each unit re-worked. Heil Dealers and Service Centers must file claims electronically using Heil's online warranty system. Labor will be reimbursed one and one-half (1.5) hours per re-worked unit on affected units listed in this Service Bulletin. All re-work must be completed by **May 31, 2021**.

If you have any questions regarding the information detailed in this Bulletin, please contact Heil Technical Service at 866.310.4345.

Heil Environmental Service Bulletin procedures are intended for use by professional technicians, NOT a "do-it-yourselfer." They are written to inform experienced technicians of conditions that may occur on some units, or to provide information that could assist in the proper servicing of a unit. Properly trained technicians have ***access to and are familiar with the applicable Heil Operation Manual and Heil Parts and Service Manuals*** *and have the equipment, tools, safety training, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the Bulletin instructions apply to your unit, or that your unit will have that condition. See your Heil Dealer to determine whether your unit may benefit from the information in this Service Bulletin.*

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