

Updating HVAC ECU Software to Fix Front HVAC Evaporator Freezing and Improve Espar Heater Cool Down

54-338

FLA COE
FLB COE
FLD Conventional
Business Class
FLC 112 Conventional

Century Class Conventional
Argosy
Cargo
Columbia
122SD and Coronado

Business Class M2
Cascadia
108SD/114SD
> New Cascadia

**Freightliner
Service Bulletin**

Description of Revisions: *This bulletin replaces the version dated 03/03/2021. Information on software versions and the number of software updates needed has been updated.*

General Information

New Cascadia vehicles with sleeper cabs may become extremely cold when in A/C mode, which can lead to reduced airflow as a result of internal ice buildup at the evaporator.

Conditions that contribute to the front evaporator freezing include:

- Engine at 900 rpm and above, typically noticed when vehicle is moving at 60 mph (97 km/h) or more.
- Air conditioning in recirculation mode; the front evaporator may freeze in ECO mode but it will take much longer.
- Blower motor operating at 50% power or above.
- Temperature control knob turned to the full cold setting.
- Ambient temperature approximately 86°F (30°C) or above.
- Humidity at 75% or higher.

There are also issues with the durability of the Espar D5 heater system when paired with the battery parked HVAC system (BPHS). This can be improved by applying "cool down" software to the parked electronic control unit (ECU) HVAC_P01T.

The front evaporator freezing issue is addressed by the new software available for the front ECU HVAC_F01T and auxiliary ECU HVAC_R01T.

This software is now available and should be installed. The software is backwards compatible for all ECUs. Each vehicle will require the software updates listed.

For vehicles without a BPHS or ParkSmart unit, install the software listed below. If a newer version of the software listed is available, install that.

Software for Vehicles Without a BPHS or ParkSmart Unit		
Controller	Flashware Item	Dataset Item
F01T	001 448 14 28 001	001 448 05 28 001
R01T	001 448 07 28 001	001 448 08 28 001

Table 1, Software for Vehicles Without a BPHS or Parksmart Unit

For vehicles with a BPHS, install the software listed below. If a newer version of the software listed is available, install that.

Software for Vehicles With a BPHS		
Controller	Flashware Item	Dataset Item
F01T	001 448 14 28 001	001 448 05 28 001
R01T	001 448 07 28 001	001 448 08 28 001
P01T	000 448 70 28 007	N/A

Table 2, Software for Vehicles With a BPHS

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For vehicles with a ParkSmart unit, install the software listed below. If a newer version of the software listed is available, install that.

Software for Vehicles With a ParkSmart Unit		
Controller	Flashware Item	Dataset Item
F01T	001 448 14 28 001	001 448 05 28 001
R01T	001 448 07 28 001	001 448 08 28 001
P01T	000 448 68 28 003	N/A

Table 3, Software for Vehicles With a ParkSmart Unit

After the HVAC_P01T software has been updated, drivers may notice the Espar combustion chamber fan and coolant pump running for approximately three minutes after the Espar D5 heater has turned off.

General Information

There are two different procedures for programming chassis ECUs with DiagnosticLink:

- Updating functioning vehicle chassis ECUs by uploading the parameters of the vehicle's ECUs to the server and then downloading these parameters with the updated software.
- Overwriting the parameters and software installed on the ECU with the most recent parameter sets and software from the server by directly using 'Program Device.'

This service bulletin will use the second procedure to program the HVAC ECUs.

Procedure

1. Park the vehicle on a level surface, shut down the engine, and apply the parking brakes. Chock the tires.
2. Connect the vehicle to DiagnosticLink. Ensure DiagnosticLink is updated to the latest version (8.13 at the time of publication) or newer. To update DiagnosticLink, select 'Tools' from the top menu and then select 'Update' from the dropdown menu. See [Fig. 1](#).

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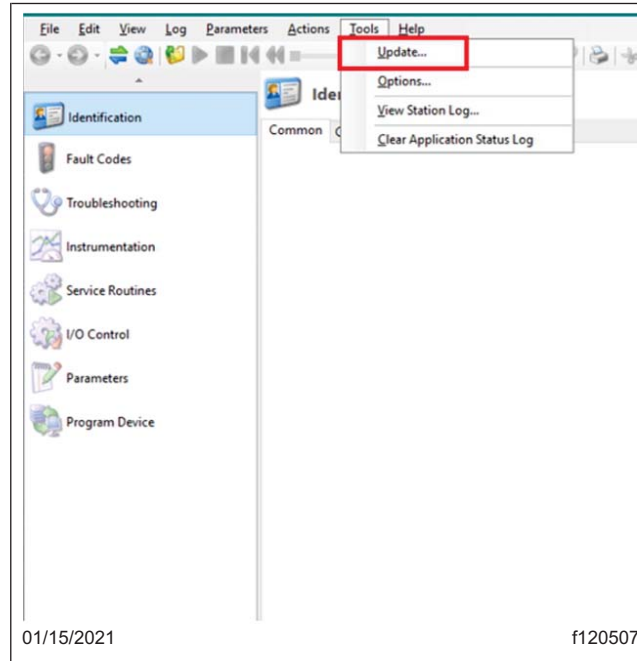


Fig. 1, Updating DiagnosticLink to the Latest Version

2.1 When programming, we recommend configuring DiagnosticLink to connect only to 'Default' ECUs.

To make this change in DiagnosticLink:

- Select 'Tools' from the top menu, and then select 'Options' from the drop down menu.
- Find and select the 'Connection' tab. See [Fig. 2](#).
- Select the 'Select Defaults' button on the right side of the window, then select 'Apply.'

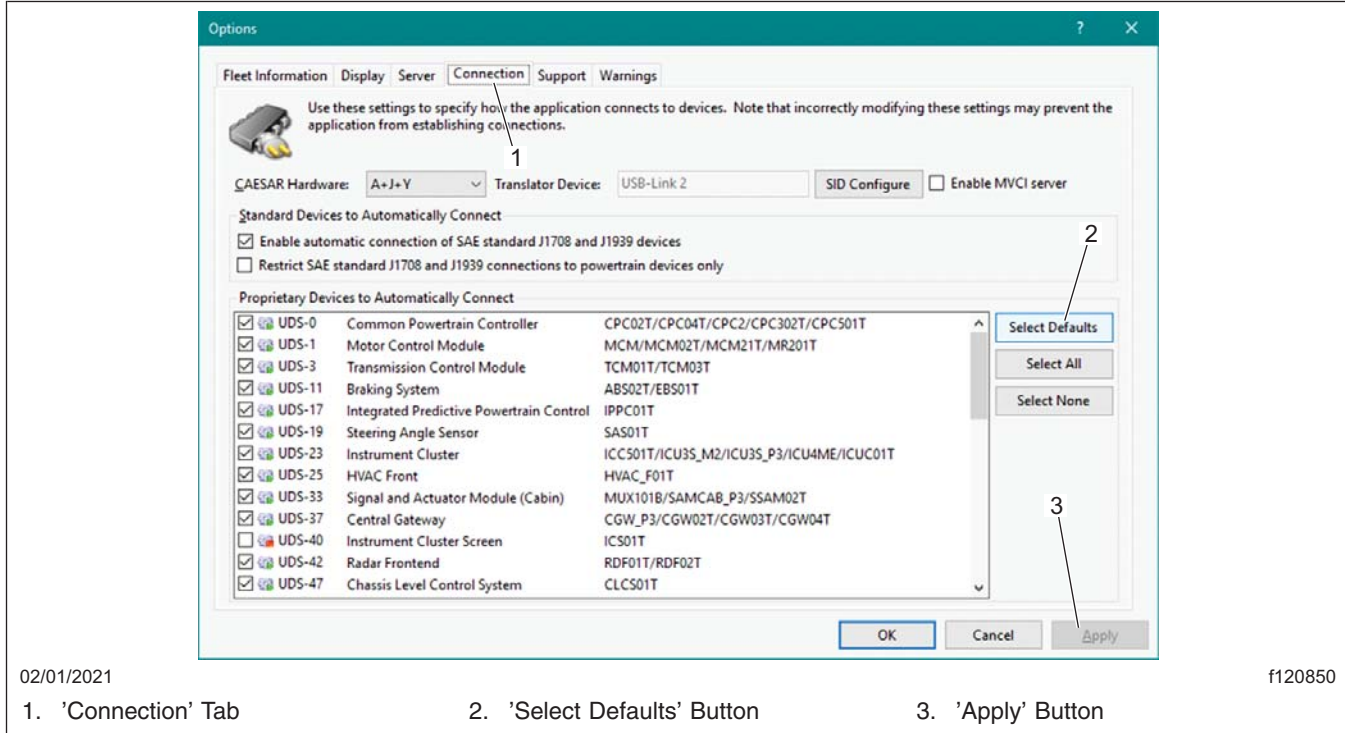


Fig. 2, Configuring DiagnosticLink to Connect to Default ECUs

3. Address any pre-existing conditions or fault codes.

NOTE: In DiagnosticLink an ECU is called a 'device.'

4. Select 'Program Device' from the upper left-hand side of the window. See **Fig. 3**.

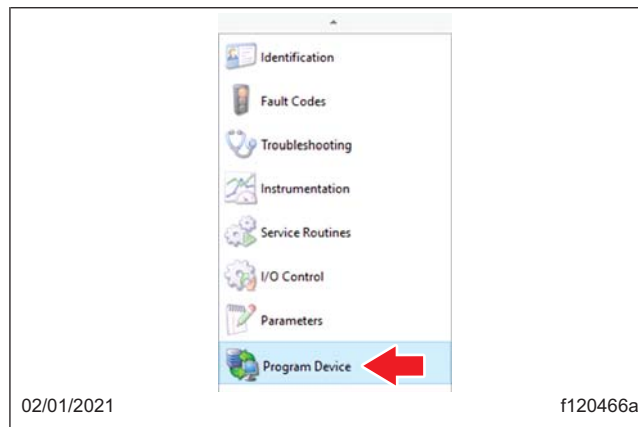


Fig. 3, Selecting Program Device (ECU)

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- Remove any 'Request Pending' downloads and serial numbers in the main window by selecting the 'Request Pending' list item(s) and then selecting the 'Remove' button on the right-hand side of the window. Do not select 'Remove All,' selecting 'Remove All' deletes all data pending upload. See Fig. 4.

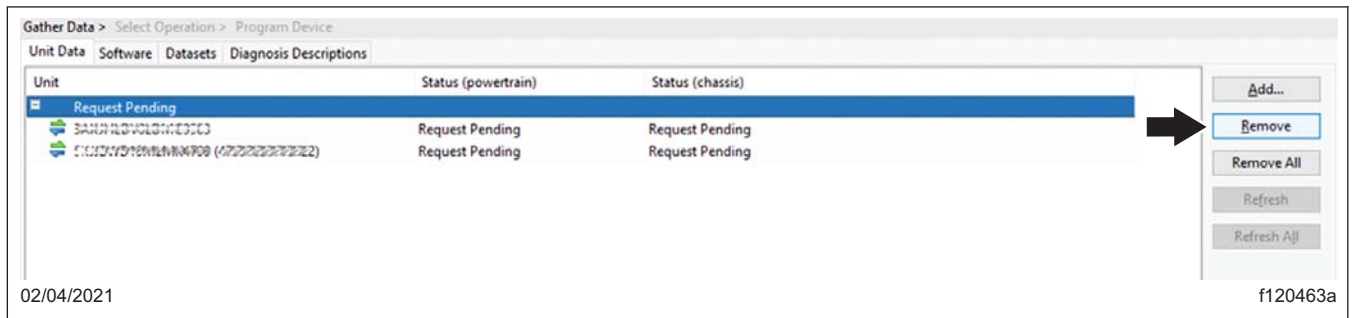


Fig. 4, Removing Pending Requests

- Use your DTNACconnect information to connect to the server. Your sign-in to the server will remain active until DiagnosticLink is closed.
- Select 'Add' to add a download request for the vehicle by entering the vehicle identification number (VIN). See Fig.5.

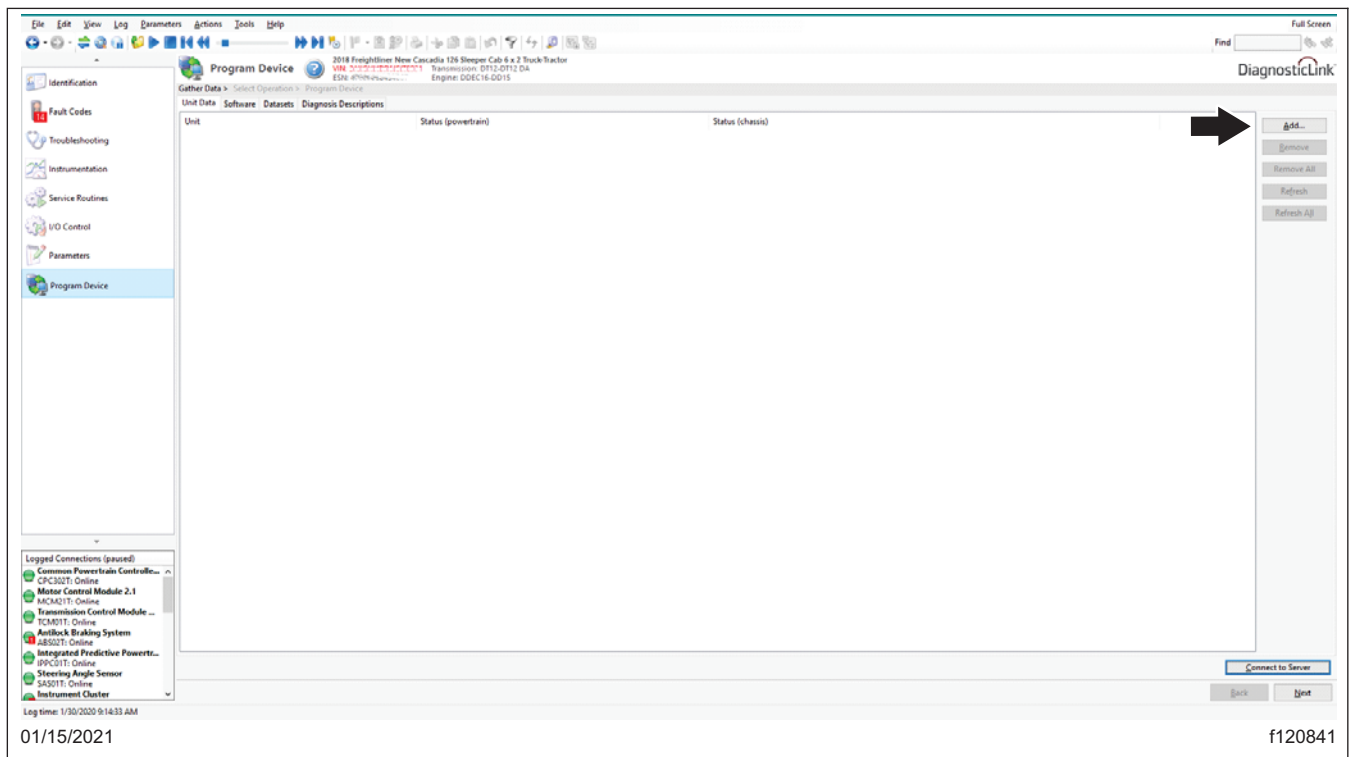


Fig. 5, Adding the VIN to Download Updated Server Data

- Make sure the correct VIN is populated in the window, then select 'OK.' See Fig. 6.

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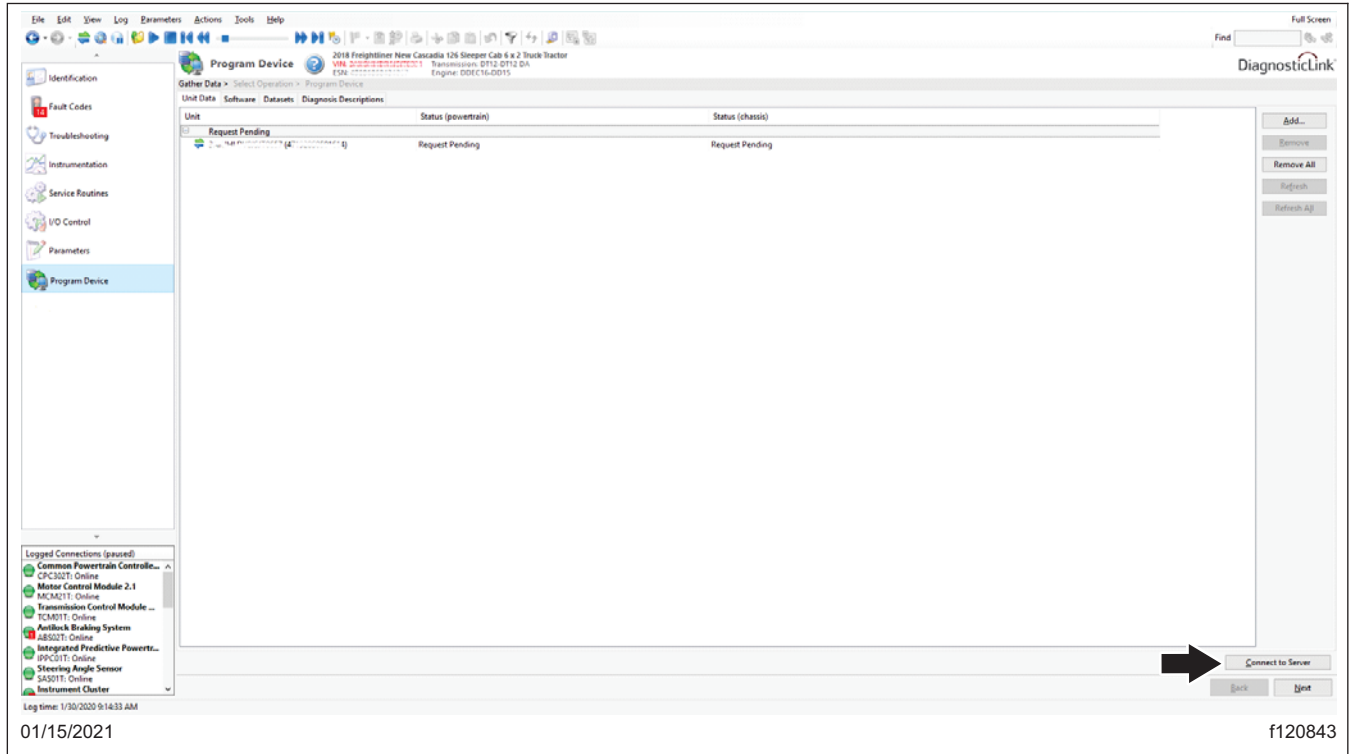


Fig. 7, Downloading Updated Vehicle ECU Software

10. Once the data has been downloaded, select 'Next.' See Fig. 8.

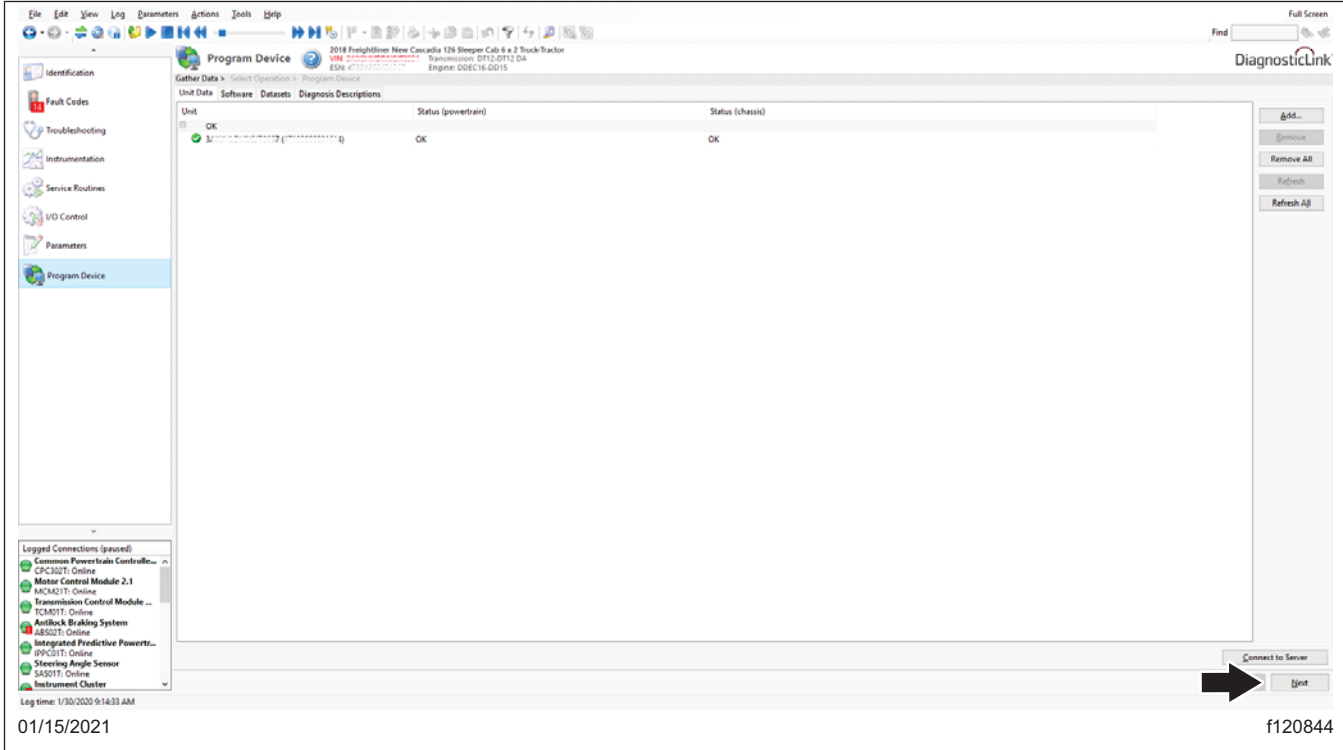


Fig. 8, Selecting Next

NOTE: 'Latest' is the last service record (may be older software) and 'Newest' is the most up to date software available for the installed hardware. If the last service record is the most up to date software available, no 'Newest' record will be provided.

11. Select either the HVAC_F01T ECU, HVAC_R01T ECU, or HVAC_P01T ECU to program, select the VIN, and select 'Newest' if available.

If 'Newest' is not available, the selected ECU has the most up to date software. If this is the case, select the second ECU to program, select the VIN, and select 'Newest.'

Select 'Next.' See [Fig. 9](#)

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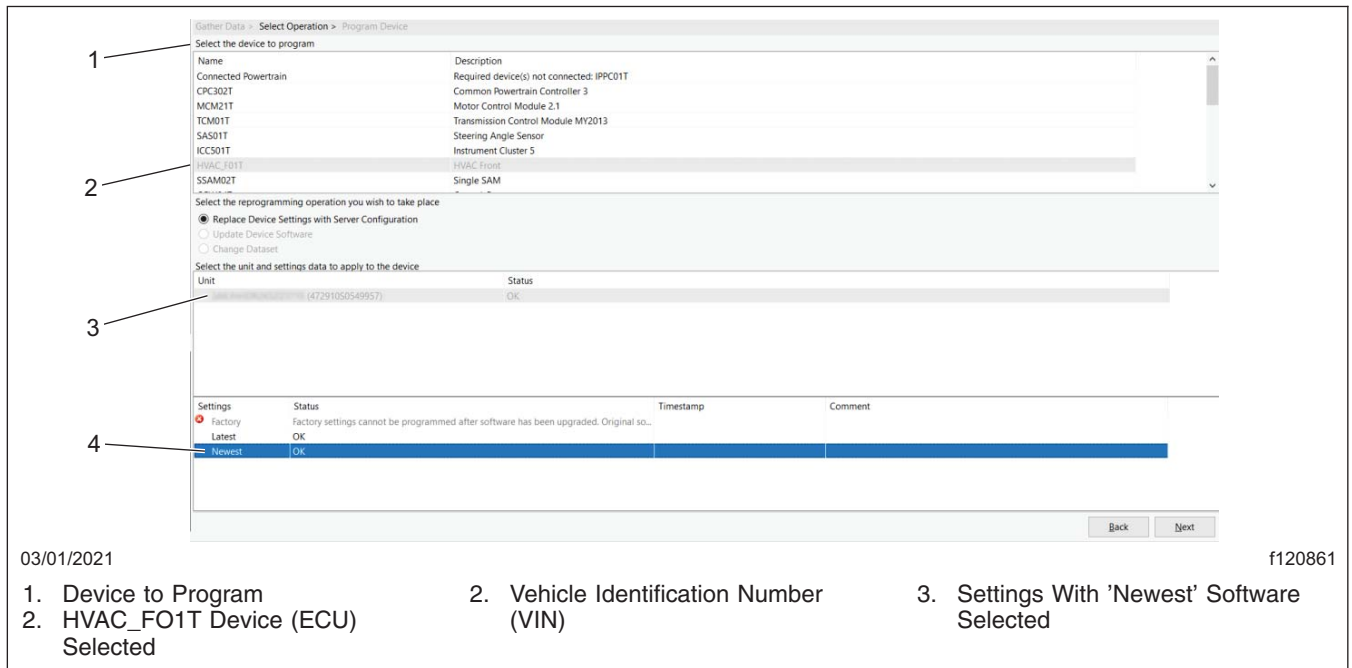


Fig. 9, Selecting ECU to Program, VIN, Software Version

12. If the ECU currently installed has a different part number than what is stored on the server, the pop-up note shown in **Fig. 10** may appear. If this happens, select OK and continue to the next step.

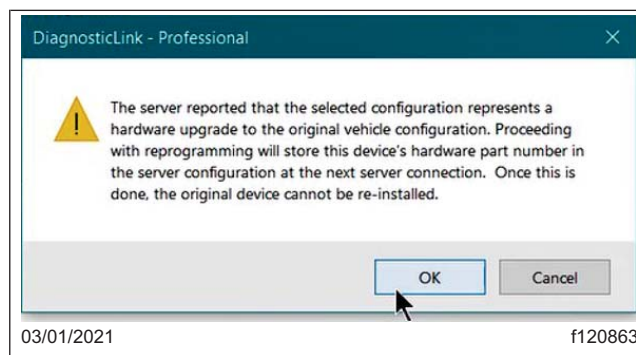


Fig. 10, Device (ECU) a Different Part Number Pop-Up

13. Review and verify the ECU selected, the software version being installed ('Target' software number)¹, and the hardware part number. See **Fig. 11**. Then select 'Start' to program the ECU.

The software will be downloaded and written to the selected ECU.

¹ This version number should be the number listed in the General Information section or newer.

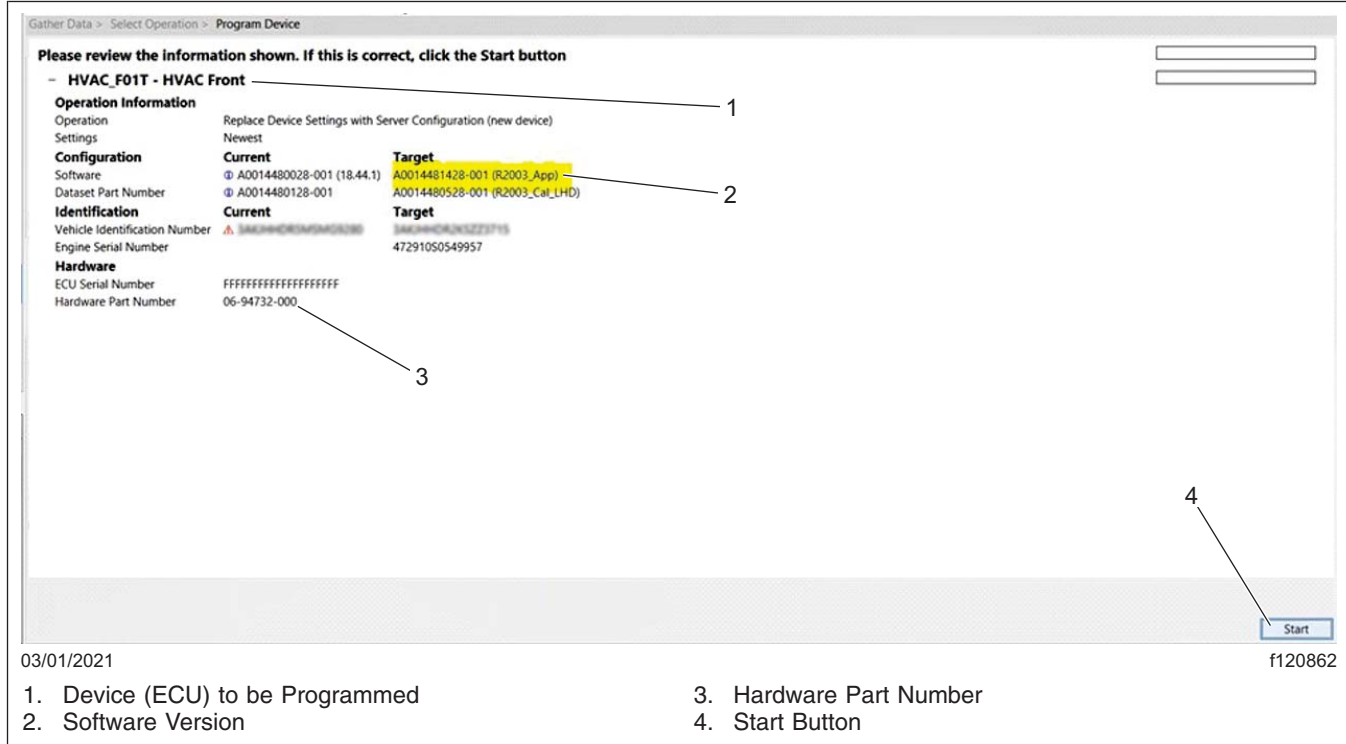


Fig. 11, Programming the ECU

14. When programming is complete, the page will display the message 'The device was successfully programmed.' Select 'Finish.'

NOTE: The HVAC_F01T ECU together with the HVAC_R01T ECU *or* the HVAC_F01T ECU together with the HVAC_RO1T ECU and HVAC_PO1T ECU need to be updated. Make sure to complete **all** required updates for the vehicle. For each ECU that needs to be updated, select the VIN on the main screen and return to step 11.

15. After the programming is finished, select 'Connect to server' to complete the software update process.

IMPORTANT: After a programming, some fault codes may become active and some ECUs may not auto-connect. Cycling the ignition may clear the faults and connect the ECUs.

16. Turn the ignition to the OFF position, unplug from the diagnostic port and close and restart DiagnosticLink. Wait one minute.

16.1 Cycle the ignition three times, waiting 30 seconds between key OFF and key ON.

NOTE: This action will enable Intelligent Predictive Powertrain Control (IPPC) to start communicating on Roll Call, and eliminate codes for the IPPC not communicating.

16.2 Turn the key to the ON position for the fourth time and connect the vehicle to DiagnosticLink.

17. Clear inactive faults and troubleshoot any active faults.

17.1 If the ICUC configuration fault is active (SPN 523023 FMI 31), select the 'Actions' menu and scroll down and select 'Instrument Cluster Automatic Configuration.'

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- 17.2 Verify that the menu selection at the bottom of the window is 'Auto-config ECU List' and select 'Start.'
18. When the programming of all HVAC ECUs has been updated, and if required, the ICU has been configured, turn the ignition to the OFF position, unplug from the diagnostic port, and close DiagnosticLink.

Warranty

This procedure is warrantable only if the described condition exists and the repair is performed within the applicable base or extended coverage warranty period. If a failure is not found, this procedure is considered preventive and warranty does not apply.

Normal warranty applies. See [Table 4](#) for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

OWL VMRS Codes and Labor Allowance					
Primary Failed Part	Component Code	Cause Code	SRT Code	Description	Time: Hours
HVAC Controller	001-001-261	93	703-5009A	HVAC CONTROLLERS, FCU, ACU, & PCU, PROGRAM UP TO 3 MODULES PER INSTRUCTIONS (SB54-338)	0.8hrs

Table 4, OWL VMRS Codes and Labor Allowance