ISSUE DATE:	1/24/2023
SERVICE BULLETIN SUBJECT:	ZX5AO1 Vehicle Controller Software Update
VINs or MODELS AFFECTED:	Service Specified Buses
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	SB-23-12
Labor Operation Code:	EN59Z

NOTICE! It is expected that this process may require up to one hour per bus. Please schedule appropriately to minimize vehicle downtime.

ZX5AO1 VEHICLE CONTROLLER SOFTWARE UPPDATE

Description:

This procedure describes the process for updating the Vehicle Controller software to the latest version.

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Summary of Software Changes:

Vehicle Controller:

- Charges on port b in all cases.
- Diagnostics added to be shown on dash.
- Selective CAN wake up: The VIC needs to wake for Port B messages only on CAN A (VCAN).
- Added Port B configuration.
- Pump RPM control was updated to allow for multiple pump configurations.
- Now disconnects internal ECU power from unnecessary functions during sleep.
- Previous caused feedback that woke up the BMS.

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Tools/Programs Required:

Tools Required:

- Laptop Computer
- Nexiq USB-Link 2

Programs Required:

- Proterra Diagnostics Tool

Software Files Required / Preparation:

IMPORTANT! NEVER access the software from the USB memory device, ALWAYS copy the software files to your computer hard drive and access the software from this location. Secure the bus with the Vehicle Master Disconnect in the rear ON.

Component	Part Number	Version
Vehicle Controller	063710	3.8.10

It is recommended that you copy the entire “service bulletin files” folder to your local machine in order to more effectively keep track of the software versions you are deploying:
\\bus.local\files\Engineering\Service Bulletins\Service Bulletin Files for SC-23-12

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VEHICLE SOFTWARE UPDATE PROCEDURE

Description:

This document contains the necessary information to update the Proterra Vehicle Integration Controller. This controller provides the electrical integration of ancillary systems on 800V models. It owns the vehicle operational state control, startup and shutdown, steering, pneumatics, thermal management, and brake interlock controls.

Tools/Programs Required:

Tools Required:

- Laptop Computer
- Nexiq USB-Link 2

Programs Required:

- Proterra Diagnostics Tool

Software Files Required / Preparation:

It is recommended that you download any files local to your machine. To program the vehicle controller, you will need a *.hex data file. This file will contain memory address and data information that will be written to the controller in order to update the user code space. This will not update the boot loader or other firmware files.

IMPORTANT! NEVER access the software from the USB memory device, ALWAYS copy the software files to your computer hard drive and access the software from this location.

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Preparing the Vehicle to be Programmed:

When programming a vehicle, it is critical that the low-voltage batteries remain connected throughout the process. Ensure that the LV batteries are fully charged before starting the process. If they are low, use the vehicle to recharge them buy turning on high-voltage or place the bus on a low-voltage charger for the duration of the process.

Connecting to the Vehicle:

1. Power up and login to the Proterra-Supplied laptop or a comparable PC that has the Proterra Diagnostics Tool software installed with a valid license.

2. Turn ON the 12/24V rear Vehicle Master Disconnect located at the curbside rear charge port access panel.

Vehicle Master Disconnect

3. Connect the Nexiq USB Link2 device to the laptop and to the OBDII Diagnostic Port located in the streetside wheel well box.

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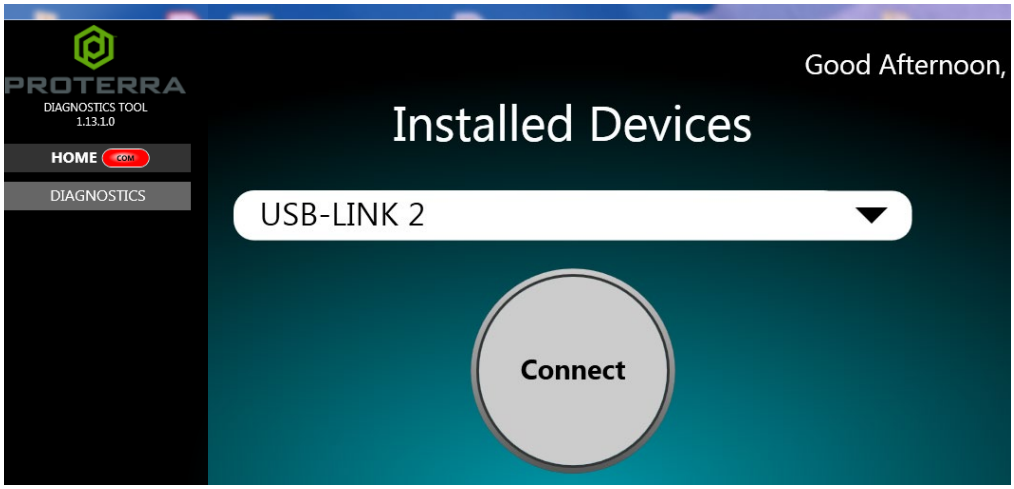
4. Turn on the “Hazzard” switch in the Driver’s Workplace.

5. On the laptop, double-click on the Proterra Diagnostics Tool software icon to start the software.

6. When the program opens, read and click “OK” for the high-voltage safety prompt.

7. On the Home tab, select the appropriate device from the drop down and click “Connect”.



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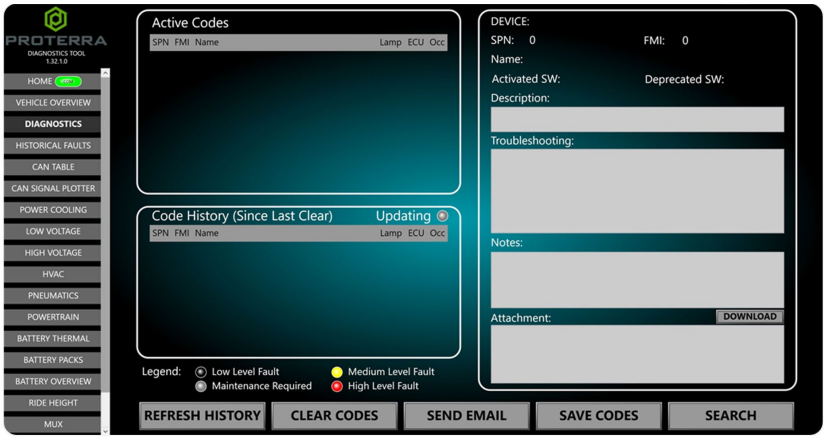
8. Once the diagnostic tool has connected to the vehicle, a VIN number and connection status will be displayed on the Home screen, and tabs available to navigate. If you do not see the Home Screen, check that the low-voltage batteries are connected and that the Nexiq tool is plugged in.
   NOTE: 800V Proterra vehicles are equipped with an automatic battery disconnect that will protect the low-voltage batteries from a deep discharge.

9. Before beginning the programming process, check the bus for existing faults by clicking on the "Diagnostics" button below and make a note of any found.



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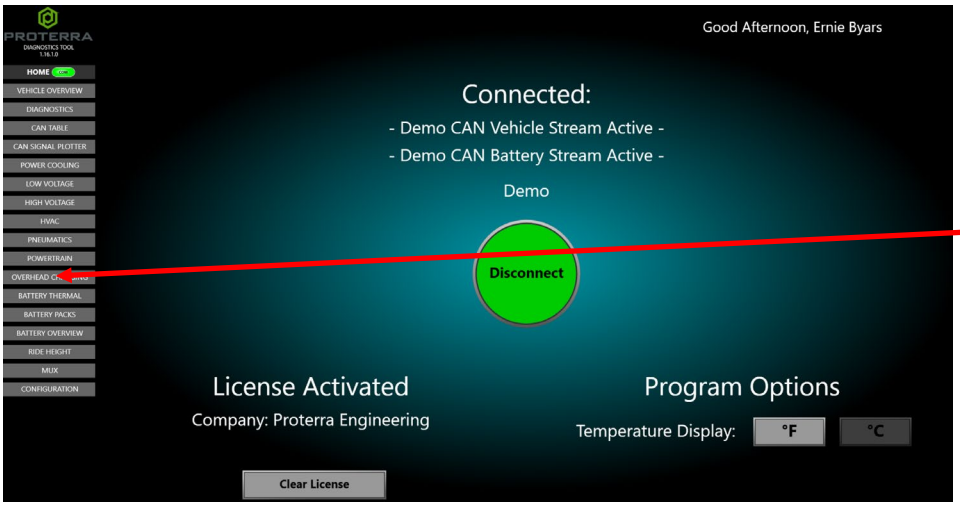
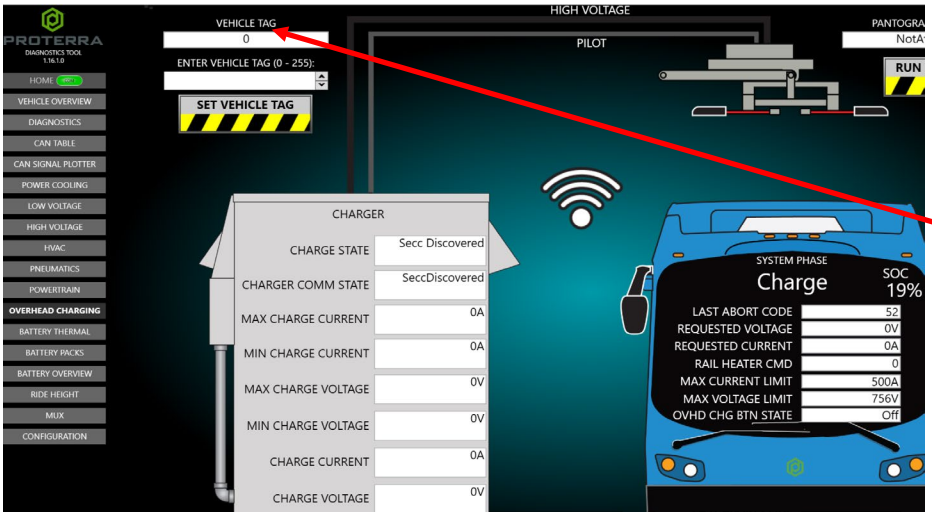
Update Using the Proterra Diagnostic Tool:

1. Click on the “Overhead Charging” button on the left side of the screen.
   NOTE: If the bus that you are working on is not capable of overhead charging, skip to step 3 below.



Click “Overhead Charging”

2. Record the value displayed in the “Vehicle Tag” data field. This will be re-entered into the controller after the software update.



Record Vehicle Tag

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3. Navigate to the CONFIGURATION tab in the left menu.

4. Select the option for Vehicle Controller “START FLASH”.
   NOTICE: The “INITIAL FLASH” button is only for offline programing of the Vehicle Controller with an Offline Programming Kit.

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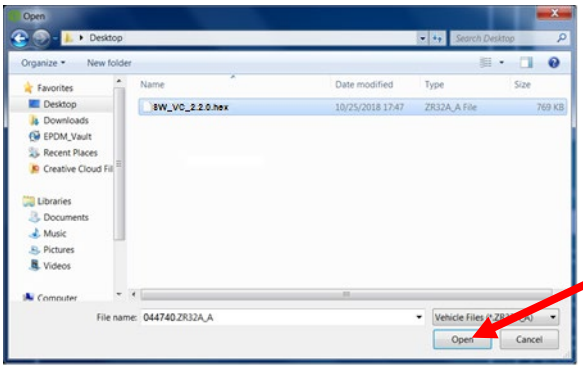
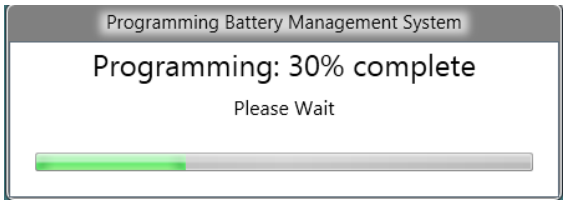
5. In the pop-up window, select the software flash file to load the controller. The correct file is named 063520_6_13_0.ZR32A_A.

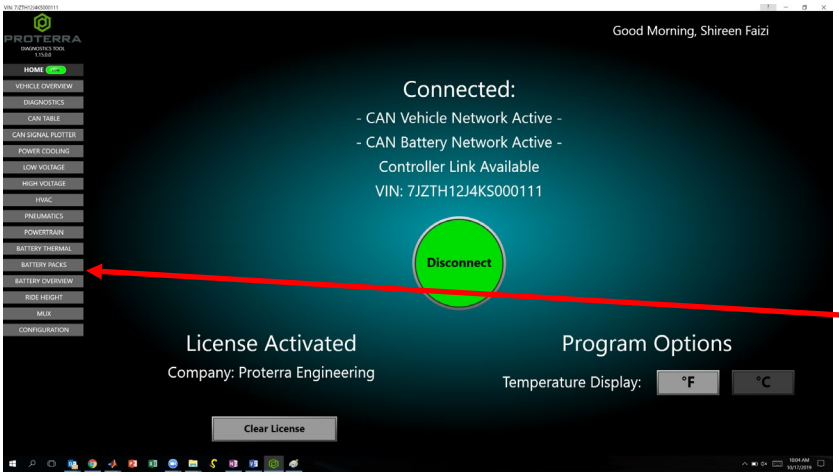


Select the file and Click Open

6. The Programming window will come up and may take a few minutes to complete.



7. Click on the “Overhead Charging” button on the left side of the screen.
NOTE: If the bus that you are working on is not capable of overhead charging, skip to step 10 below.



Click “Overhead Charging”

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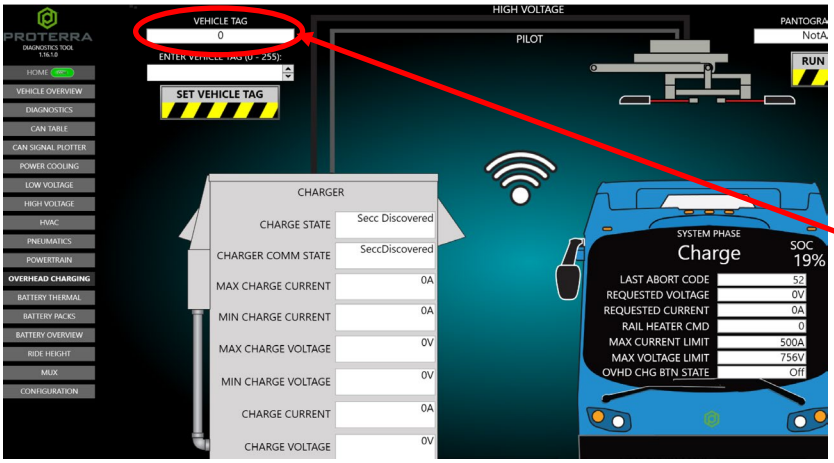
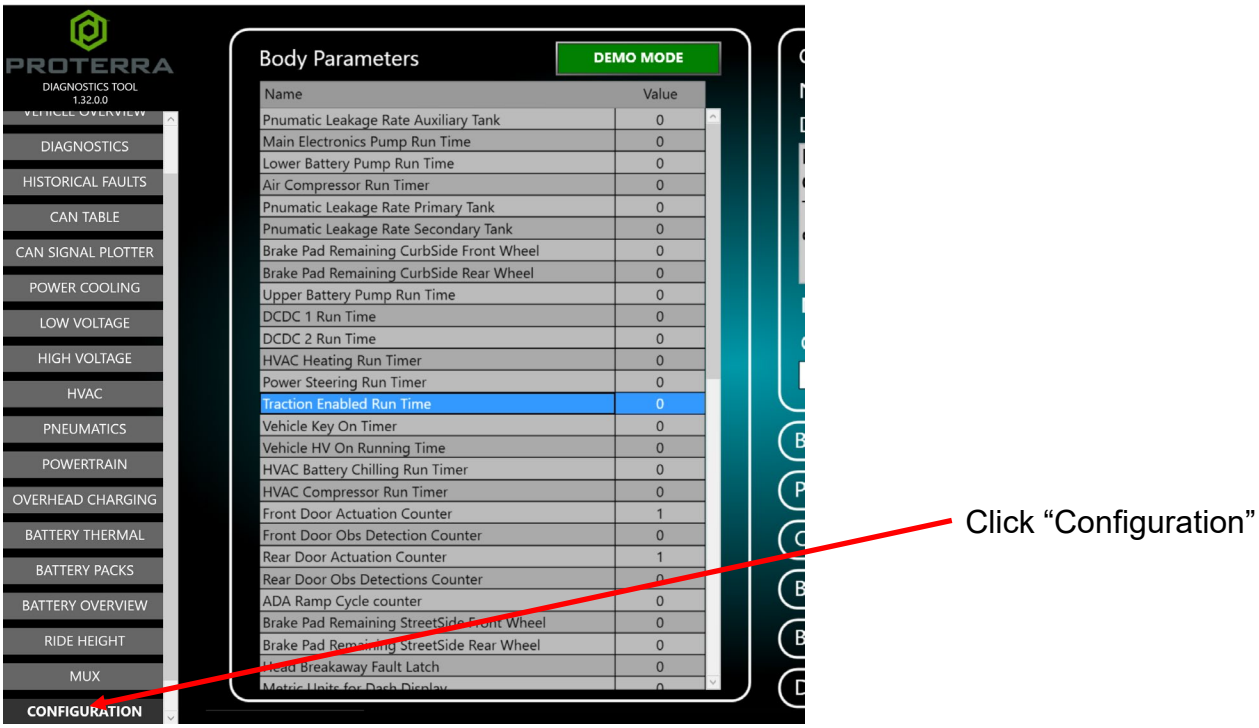
8. The following screen will appear. Enter the “Vehicle Tag” that you recorded previously into the field circled in red below. Click the button under the field. This will populate the “Vehicle Tag” into the field above and into the controller.



9. Click on the “Configuration” button at the bottom left of the screen.



10. Scroll through the list of “Body Parameters” on this screen.

11. Note the values listed for the following three parameters:
"EP _bo_RHSC_DoorOpenRqrdforKneel"
"EP _bo_EXLI_HazardlightsActiveWhenDoorsOpen"
"EP _bo_RHSC_AutoKneelWhenDoorsOpen"

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12. These parameters should all have a value of 0. If these parameters have any other value, use the Diagnostic Too to set them to 0.

13. Scroll through the entire list of Body Parameters. No Body Parameter should have a value of 238. If any Body Parameters have a value of 238, use the Diagnostic Tool to set the value to 0.

14. Turn OFF the 12/24V rear Vehicle Master Disconnect located behind the vehicle curbside rear charge port access panel, wait ten seconds, and then turn back to ON.

Vehicle Master Disconnect

15. Verify that the vehicle turns on with no faults and that it is capable of charging.

16. Return the vehicle to service.

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