

# TECHNICAL SERVICE BULLETIN

Subject	800vRR Vehicle Controller V4.10.2 and ESM V3.0.7 Update				
Issue Date	04/02/2024				
Service Bulletin Number	SC-24-009				
Models Affected	d Service Specified Vehicles				
Complete By	Next Service Opportunity				
Labor Operation Code	EN70Z				
Description	Software update for the 800vRRs Vehicle and Body Software to reduce the radiator fan current draw to 80%. Additionally fix a bug to properly route ESM faults away from the coolant light icon.				

	Labor Table					
	Operation	Technicians	Hours	Labor Time (T x H)		
1	Steps 1-30	1	.75	.75 Hours		
		Total Labor Time:		.75 Hours		

Contact the Phoenix Customer Service Team with any questions related to the following procedure.

864-438-0000 Service@phoenixmotorcars.com

# Parts Required:

066259	Service R	etrofit Kit, BUSCOM 3.0 Software Package, 800V RR-ZX5	Qty.	UOM
		SOFTWARE, VEHICLE CONTROLLER RR-ZX5 M580,		
	066257	v4.10.2	1	EA
	066269	SOFTWARE, ESM, 800V, 3.0.7	1	EA
			Qty.	UOM

# **Tools Required:**

•		
Phoenix Diagnostic Tool (PDT)	•	
• Laptop	•	
Nesiq USB Link2	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	
•	•	

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#### **Change Notes:**

Vehicle Controller:

Several calibrations, including those for radiator fan max speed and ambient temperature sensor fault detection were incorrect.

ESM:

Roadrunner Diagnostic lamp responses are modified to make it consistent with newer generations of vehicles.

Protect lamps were turned off as a part of the change.

Software Package Link: https://business-site-7460.my.salesforce.com/sfc/p/Ho000002fy70/a/ Ho00000vhSu/TOqfjrs9ilZaHgHpE4b0ug5434XhDZ5ymaukwJKuSXo

# Password: A9xmGDN5

**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.

Ensure prior software campaigns have been completed. Body Controller Software must be equal to or greater than V7.0.1. Charge Controller software version must be equal to or greater than V3.0.1.

# 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 lowvoltage charger for the duration of the procedure.

# **ESM Controller Update**

# Step 1:

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

#### Step 2:

Ensure the SW Package is on the computer's hard drive and unzipped if applicable. For this section the SW "066269 ESM HV BMS RoadRunner Bootloader 20240207 1147 FULL" is to be used.

#### Step 3:

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



Disconnect

# Step 4:

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



#### Step 5:

Press and hold the streetside wheel well WORK LIGHT switch until the work lights turn on.

#### Step 6:

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



#### Step 7:

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

#### Step 8:

On the Home tab, select the appropriate device from the drop down and click "Connect".



#### Step 9:

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.

Ø	Active Codes	DEVICE:
DIAGNOSTICS TOOL 1.32.10	SPN FMI Name Lamp ECU Occ	SPN: 0 FMI: 0 Name:
HOME 💮		Activated SW: Deprecated SW:
VEHICLE OVERVIEW		Description:
DIAGNOSTICS		
HISTORICAL FAULTS		Troubleshooting:
CAN TABLE		
CAN SIGNAL PLOTTER		
POWER COOLING	Code History (Since Last Clear) Updating (	
LOW VOLTAGE	SPN FMI Name Lamp ECU Occ	Notes:
HIGH VOLTAGE		Notes:
HVAC		
PNEUMATICS		
POWERTRAIN		Attachment: DOWNLOAD
BATTERY THERMAL		
BATTERY PACKS	Legend:      Low Level Fault	
BATTERY OVERVIEW	Legend:      Low Level Fault     Medium Level Fault     Maintenance Required     Diantenance Required	
RIDE HEIGHT	REFRESH HISTORY CLEAR CODES SEND E	MAIL SAVE CODES SEARCH
MUX	REFRESH HISTORY CLEAR CODES SEND E	MAIL SAVE CODES SEARCH

#### Step 10:

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.

#### Step 11:

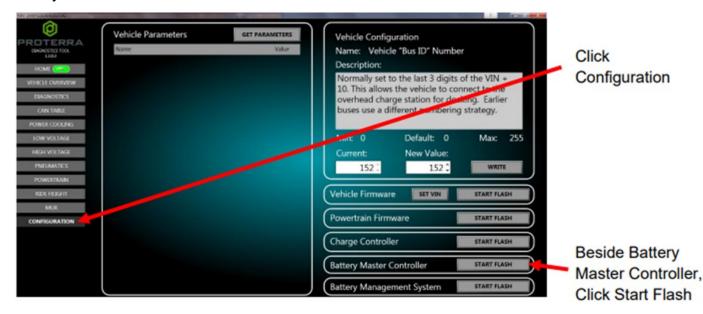
Navigate to the "Software Versions" tab and take a screenshot of the current software versions incase any issues arise.

#### Step 12:

Turn the bus High-Voltage Master Switch to Accessory at the Driver's Workplace and ensure the Dash screen is ON. Set the Hazard Switch to ON.

## Step 13:

Click on the "Configuration Tab" to open the Configuration screen and then click start flash on the "Battery Master Controller" section.



#### Step 14:

When prompted select file "066269

ESM\_HV\_BMS\_RoadRunner\_Bootloader\_20240207\_1147\_FULL" from your hard drive, select open.

#### Step 15:

The Proterra Diagnostic Tool will attempt to connect to the device.

NOTE: You may receive an error on the first attempt. If so, retry by clicking the ESM Controller Start Flash button again.



#### Step 16:

When the software update begins, the following screens will be displayed.



# Step 17:

Once the following screen displays the update is now complete.



## Step 18:

Close the Proterra Diagnostic Tool (PDT), turn off work light and cycle the buses power and verify no faults.

# Vehicle Controller Software Update

#### Step 19:

One again, ensure the LV batteries and laptop are charged.

#### Step 20:

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.

#### Step 21:

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



#### Step 22:

Turn OFF the bus High-Voltage Master Switch at the Driver's Workplace and ensure the Dash screen is OFF.

#### Step 23:

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



#### Step 24:

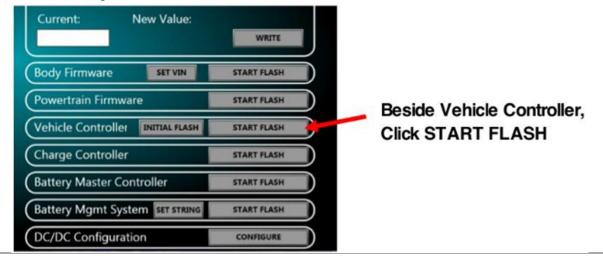
If vehicle is equipped with overhead charging, please use the Proterra diagnostic tool to navigate to the "Overhead Charging" page and record the vehicle tag number. This will be re-entered at the end

of this section.

0.0	1 0		0		
CON INSU	VERCLE SAG O ENTER VERICLE TAG (D- 255) SET VERICLE TAG				
CAR SIGNAL PLOTER POMER COCKING LOW VOLTAUE INCH VOLTAUE	CHARGE				Record Vehicle Tag
HINK PHEANTICS PONEITIAN	CHARGE STATE	Secc Discovered SeccDiscovered	R	SYSTEM PHASE Charge 19%	
OVERHEAD CHARGING	MAX CHARGE CURRENT	CA.	REQUESTE	BORT CODE 52 ID VOLTAGE 0V	
BATTERY PACKS	MIN CHARGE CURRENT	A	RAILH	D CURRENT DA EATER CMD 0	
BODE HEROHT	MAX CHARGE VOLTAGE	ov	MAX VOL	RENT LIMIT 500A LTAGE LIMIT 756V 6 BIN STATE Off	
CONTROLINATION	MIN CHARGE VOLTAGE	ov	OWHO CHIL	OIN STATE	
	CHARGE CURRENT	AO			
	CHARGE VOLTAGE	ov			

# Step 25:

Navigate to the "Configuration Tab" then Click Start Flash for the Vehicle Controller Sections.



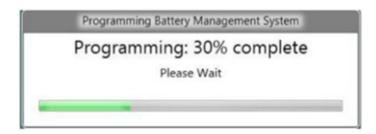
# Step 26:

When prompted select file "VIC\_v4.10.2.hex" from your hard drive, select open.

rganize ' New folder					🖽 + 🗔 🥥		
la Downloads 👒 ^	Name	Date modified	Type	Size			
To Documents 🖈	065679.hex	9/29/2023 11:53 AM	HEXFle	830 KB			
Pictures #							
Jacob 3DX File #							
BuSCoM 2.0 800-							
E2Ver1							
E2Ver2							Maria
Software							Max:
OneDrive						ilue:	
OneDrive - Person							MONTE
This PC							WRITE
E Apple iPhone							
Desktop						VIN	START FLASH
Te Documents							
Downloads							START FLASH
Music							START FEASI
Videos							START FLASH
Videos							START PLASH
×							START FLASH
							STAKT FLASH
File na	me: 065679.hex				<ul> <li>Hex Files (*.hex)</li> </ul>		
					Open Cancel		START FLASH
MUX	Anti-The	ft Securit EP_en_INLK_AntiT 4		0			
mva	EP bo Di	OOR CSF EP bo DOOR CSF 4		0	Battery Mgmt System 💶	STRING	START FLASH

#### Step 27:

The Programming window will come up and will take several minutes to complete. Its important to note do not switch screens or have any CAN tools to be running in the background.



#### Step 28:

Once the software update is complete navigate to the Overhead Charging screen and set the Vehicle Tag Number previously recorded.

#### Step 29:

Close the PDT, turn off work light, turn off the bus at the rear master switch located at the rear curbside access panel.

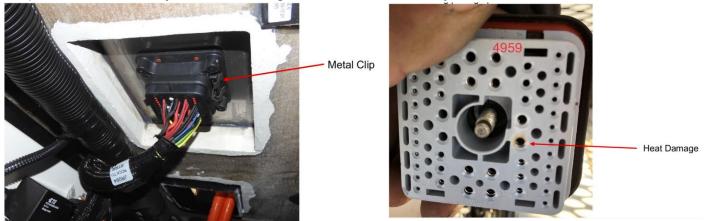
# Step 30 (Wiring Inspections):

Inspect each of the radiator fan terminals for any heat damage.



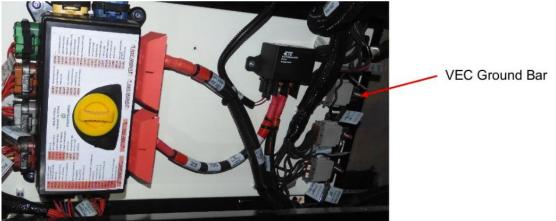
#### Step 31:

Inspect the rear 48 way for heat damage in the connector body.



#### Step 32:

Finally the power and ground must be checked at the rear VEC. Please disconnect the corresponding plugs for the radiator fan circuitry and check the connector and pins for heat damage. The common plugs will be PC341, PC342, and PC337 the grounds 1QC001, 2QC001, and 3QC001. Check you schematics to verify due to model and configuration differences



# Step 33:

If any heat damage is found please take photos and escalate the findings to the back office support team.