



PROTERRA



TECHNICAL SERVICE BULLETIN

ISSUE DATE:	12-17-2020
SERVICE BULLETIN SUBJECT:	Reno Odometer Retrofit
VINs or MODELS AFFECTED:	Service Specified Buses
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	SC-20-174
Labor Operation Code:	DI43Z

NOTICE! It is expected that this process will require 4 hours per bus. Please schedule appropriately to minimize vehicle downtime.

RENO ODOMETER RETROFIT

Retrofit Description:

This procedure updates the odometer and adds a CAN Gateway to the bus.

Tools/Parts Required

Tools and Supplies Required:

- Power Drill
- 6.5mm Drill Bit
- Side Cutting Pliers
- Wire Strippers
- Deutsch Crimp Tool
- Heat Gun
- Rivnut Tool with M4 Mandrel
- Laptop Computer
- Micro USB Cable
- Nexiq USB Link2 device

Kit Parts Required:

- 056164 RETROFIT KIT, DTCO GATEWAY INSTALLATION FOR ODO (Consisting of)
 - 000298 WASHER, M4 2 EA
 - 005598-002 SCREW, PAN, PHIL, STL, ZPL, CLASS 4.8, M4-.7X16X16 2 EA
 - 043330 GATEWAY, CUSTOMER CAN 1 EA
 - 018242 INSERT, AW SERIES, M4-0.7 6 EA
 - 016328-003 SCREW, SHC, SS, M4-0.7X12X12 4 EA
 - 001301 TERMINAL, SIZE 16, SOCKET, 16-20 AWGH 5 EA
 - 010050 TERMINAL, SOCKET, 20-16 AWG GOLD, DEUTSCH 3 EA
 - 012562 PLUG, DT 3WAY, RDS 1 EA
 - 002252 WEDGELOCK, 3 POSITION, FOR DT06-3S-E008 PLUG (CAN) 1 EA
 - 125-4898 HARNESS, DIGITAL TACHOMETER OVERLAY 1 EA
 - 008293 HEAT SHRINK, DOUBLE WALL, ADHESIVE, 1/8 4' STICK 1 FT

Additional Parts Required:

- 001912 CABLE TIE, 11.5 BLACK 292MM" 15 EA

Procedure:

Record Odometer Value:

1. Turn **ON** the 12/24V rear Vehicle Master Disconnect located behind the vehicle curbside rear upper access panel.
2. Turn **ON** the bus Master Switch at the Driver's Workplace and ensure the Dash screen shows **ACC**.



Master Switch "ACC"

3. Connect the Nexiq USB Link2 device to the laptop and to the appropriate OBDII Diagnostic Port.



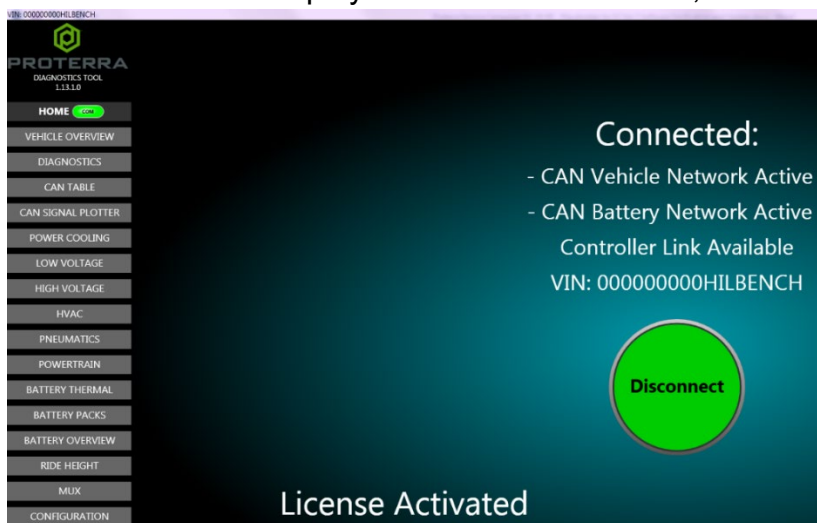
4. On the laptop, double-click on the Proterra Diagnostics Tool software icon to start the software.
5. When the program opens, read and click OK for the prompt.



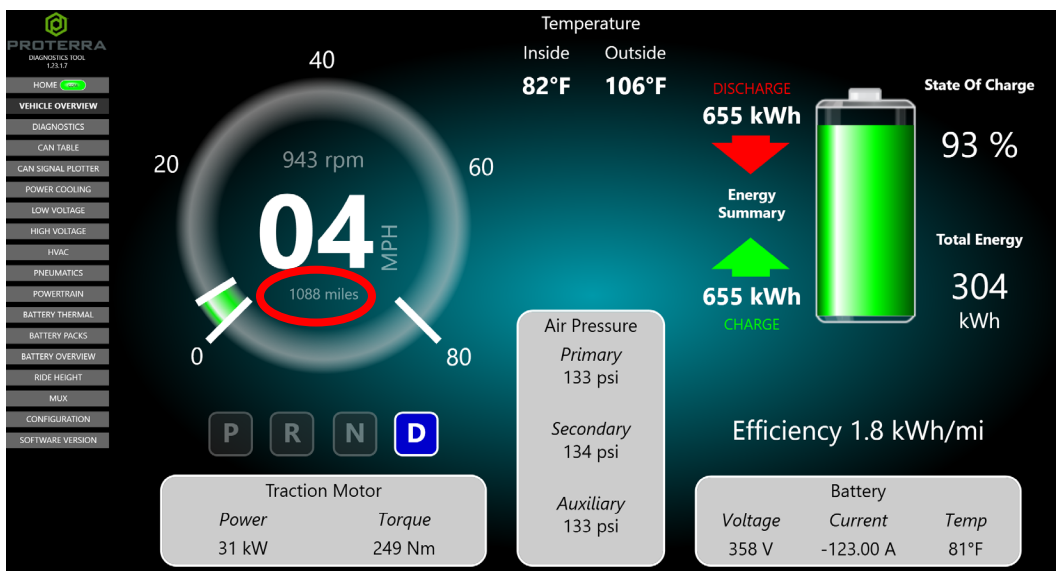
6. On the Home tab, select the appropriate device from the drop down and click “Connect”.



7. Once the diagnostic tool has connected to the vehicle, you will have a VIN number and connection status displayed on the home screen, and tabs available to navigate.

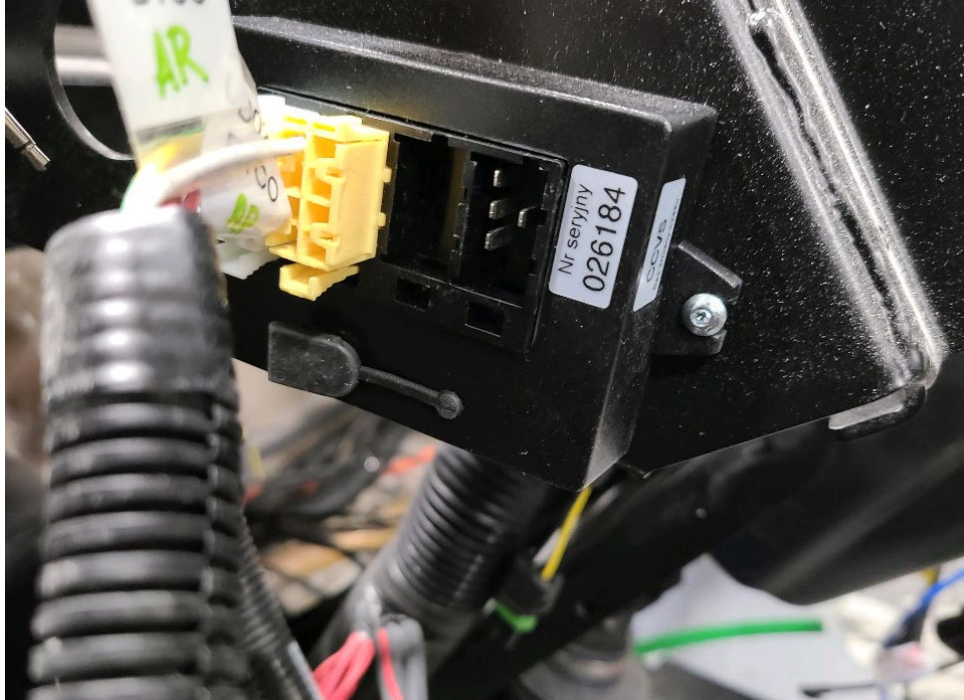


8. Navigate to the Vehicle Overview tab. Record the vehicle odometer value. Keep this value for verification at the end of the procedure.



Hardware Update:

9. Complete the Proterra approved Lockout/Tagout procedure to make the bus safe for work.
10. Using a T-30 Torx Driver, remove the overhead panel to access the Streetside of the front destination sign.
11. Locate the DTCO shown in the following photograph.



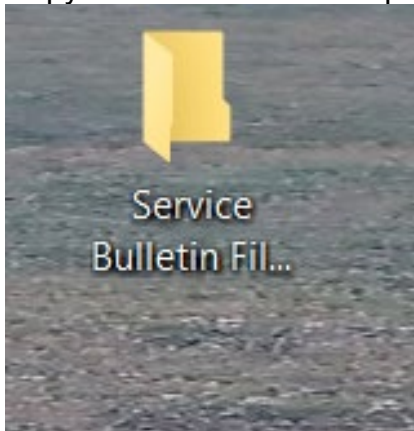
12. Disconnect the harness from the DTCO and remove the DCTO from the mounting bracket.
13. Working inside the ITS compartment in the Streetside Wheel Well Box, find a location on the ITS plate so that the DTCO and the new Gateway (043330) can be mounted in close proximity to each other.
14. Using the DTCO and Gateway (043330) as templates, mark the location for mounting both devices onto the ITS Plate. A total of six holes should be marked for drilling. The devices should be mounted in close proximity to each other.
15. Using a Power Drill with a 6.5mm Drill Bit, drill a hole in each marked location.
16. Using a Rivnut Tool with an M4 Mandrel, install an Insert (018242) into each hole.
17. Install the DCTO and Gateway (043330) using the Screws supplied in the kit.
18. Working in the overhead compartment where the DCTO was removed, locate the connectors labeled UC206A and UC206B.
19. Using a Pin Extractor, remove the terminals from connector PE300 on the new Harness (129-4948) from the kit.

20. Using Side Cutting Pliers, cut the wire in position A1 on UC026A.
21. Using Wire Strippers, strip the wire to accept a terminal.
22. Using Deutsch Crimpers, Install a Socket (001301) onto the end of this wire.
23. Install this Socket (001301) into Cavity 1 of Connector PE300 that was removed from the new Harness (129-4948).
24. Using Side Cutting Pliers, cut the wire in position A5 on UC026A.
25. Using Wire Strippers, strip the wire to accept a terminal.
26. Using Deutsch Crimpers, Install a Socket (001301) onto the end of this wire.
27. Install this Socket (001301) into Cavity 2 of Connector PE300 that was removed from the new Harness (129-4948).
28. Using Side Cutting Pliers, cut the wire in position A6 on UC026A.
29. Using Wire Strippers, strip the wire to accept a terminal.
30. Using Deutsch Crimpers, Install a Socket (001301) onto the end of this wire.
31. Install this Socket (001301) into Cavity 3 of Connector PE300 that was removed from the new Harness (129-4948).
32. Using Side Cutting Pliers, cut the wire in position A3 on UC026A.
33. Using Wire Strippers, strip the wire to accept a terminal.
34. Using Deutsch Crimpers, Install a Socket (001301) onto the end of this wire.
35. Install this Socket (001301) into Cavity 4 of Connector PE300 that was removed from the new Harness (129-4948).
36. Using Side Cutting Pliers, cut the wire in position B8 on UC026B.
37. Using Wire Strippers, strip the wire to accept a terminal.
38. Using Deutsch Crimpers, Install a Socket (001301) onto the end of this wire.
39. Install this Socket (001301) into Cavity 5 of Connector PE300 that was removed from the new Harness (129-4948).
40. Using Side Cutting Pliers, cut the wires in positions A4, A7, and A8 of UC206B.
41. Using a Heat Gun, seal the ends of these cut wires using Heat Shrink (008293).

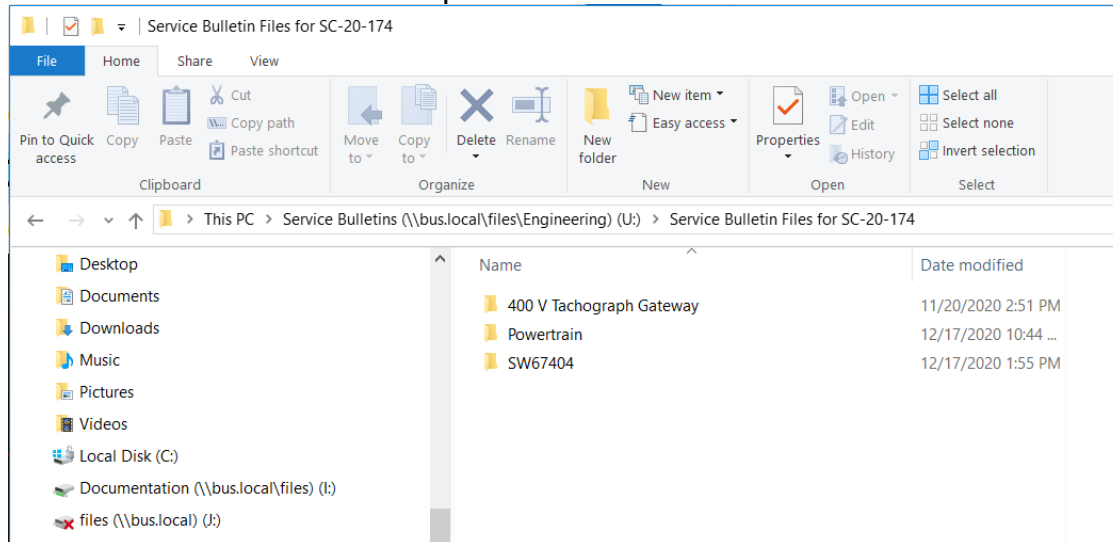
42. Connect the newly populated PE300 connector into JE300 on the new Harness (125-4898). Connector PE200 in on the larger portion of the Harness.
43. Route the free end of the larger portion of (125-4898) through the overhead compartments along with the Streetside Main Harness and ECAB Harnesses into the Streetside Wheel Well Box to the new location for the DTCO and Gateway (043330).
44. Connect PE202 and PE201 on the Harness (125-4898) to the Gateway (043330).
45. Connect UC026A_ and UC026B_ on the Harness (125-4898) to the DTCO.
46. Using Cable Ties, neatly secure the wiring.
47. Locate connector PE032 on the ECAB Harness.
48. Disconnect PE032 from the harness where it is connected.
49. Using a Pin Extractor, remove the pins in cavity's 7, 8, and 14 of PE032.
50. Install the pins on the smaller portion of Harness (125-4898) into cavities 7, 8, and 14 of PE032. The Yellow Wire should be installed in cavity 7. The Green Wire should be installed into cavity 8. And the Black Wire should be installed into cavity 14.
51. Using Side Cutting Pliers, cut the pins from the three wires that were removed for PE032.
52. Using Wire Strippers, strip the wires to accept a Socket (010050).
53. Using a Deutsch Crimp Tool, install a Socket (010050) onto each stripped wire.
54. Insert the Socket (010050) on the Yellow Wire into cavity A of the new Connector (012562).
55. Insert the Socket (010050) on the Green Wire into cavity B of the new Connector (012562).
56. Insert the Socket (010050) on the Shield Wire into cavity C of the new Connector (012562).
57. Secure the Sockets (010050) into the Connector (012562) using a Blue Wedgelock (002252).
58. Install this Connector (012562) into the open connection on the ICAN Splitter on Harness (125-4898). This should plug into the backbone portion of the splitter. This is the only connection that will accept a connector with the Blue Wedgelock (002252).
59. Route the free end of small portion of the Harness (125-4898) to the Gateway (043330) that was installed on the ITS Plate.
60. Plug in connector PE203 to the CAN0 Port on the Gateway (043330).
61. Neatly secure the wiring with Cable Ties (001912).

Gateway Programming:

62. Remove the Lockout/Tagout devices and power on the bus.
63. Connect the Laptop to the Proterra network.
64. Navigate to the following location: <\\bus.local\\files\\Engineering\\Service Bulletins\\Service Bulletin Files for SC-20-174\\>
65. Copy this folder the desktop of the laptop.

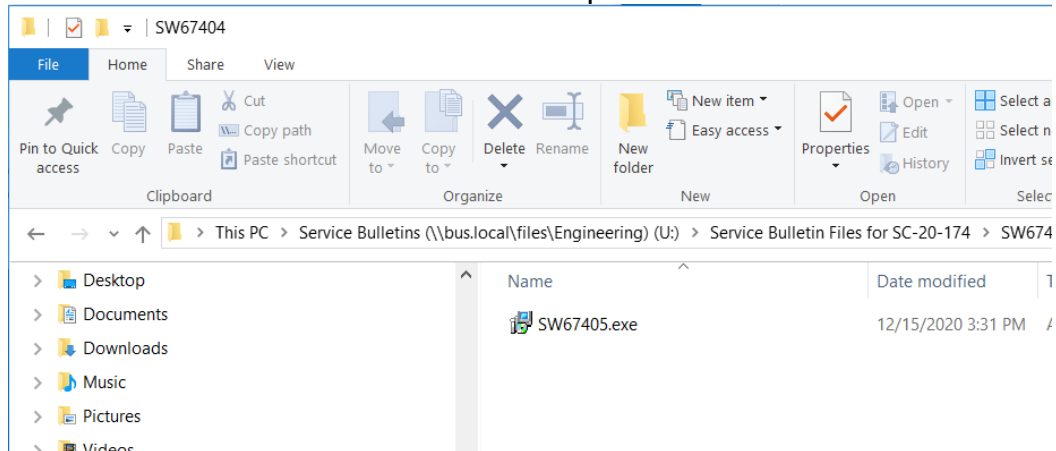


66. Double Click on this folder to open it.



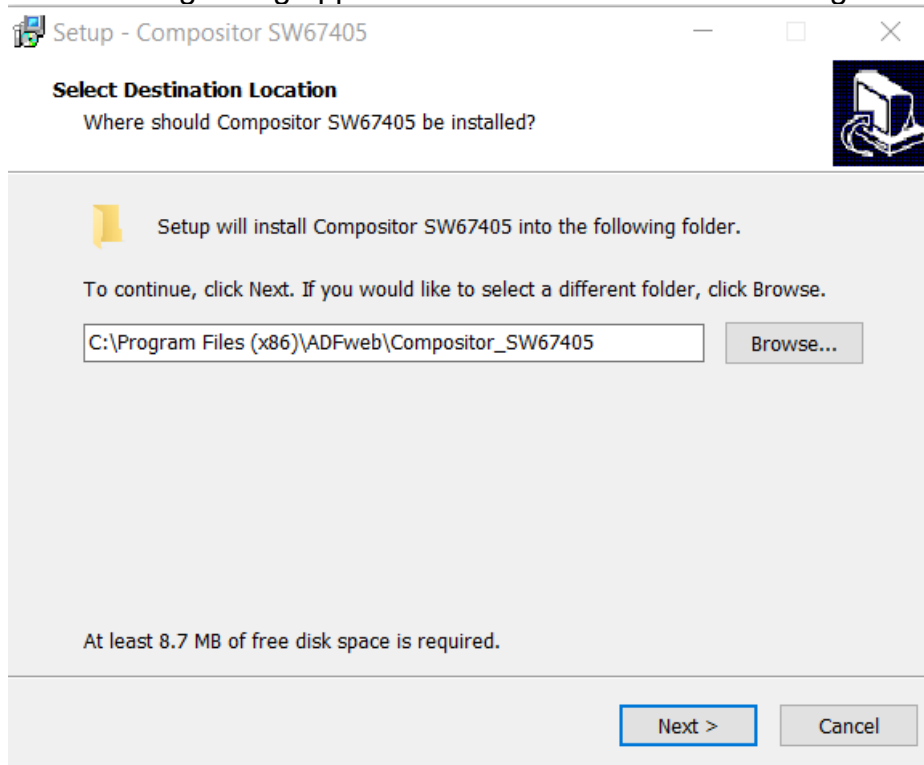
67. Programming of the Gateway requires that additional software be installed on the laptop. The software is in the folder named SW67404.

68. Double Click on the SW67404 folder to open it.

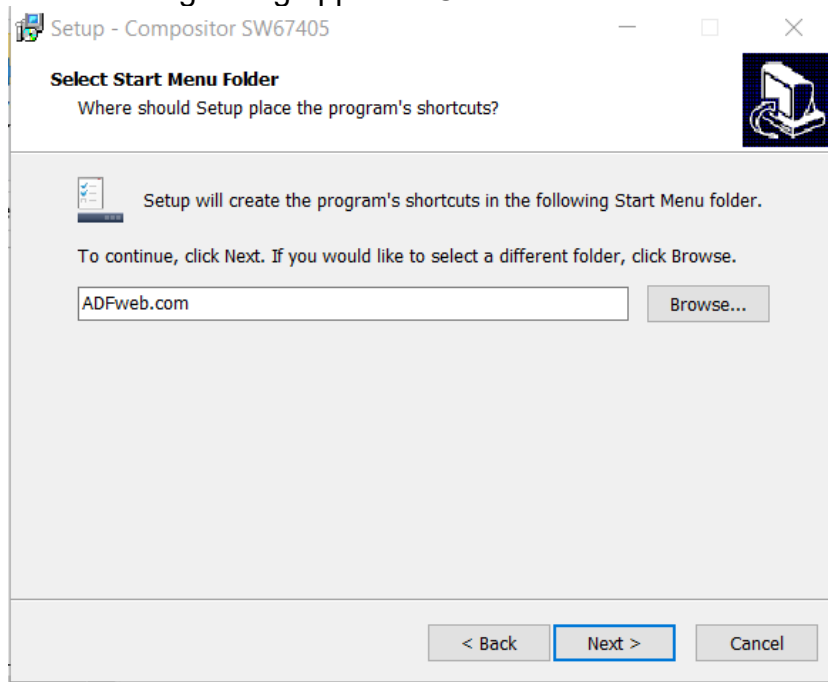


69. Double Click on the file named SW67404 to run it. Contact Proterra IT if you are unable to run this file due to permission issues.

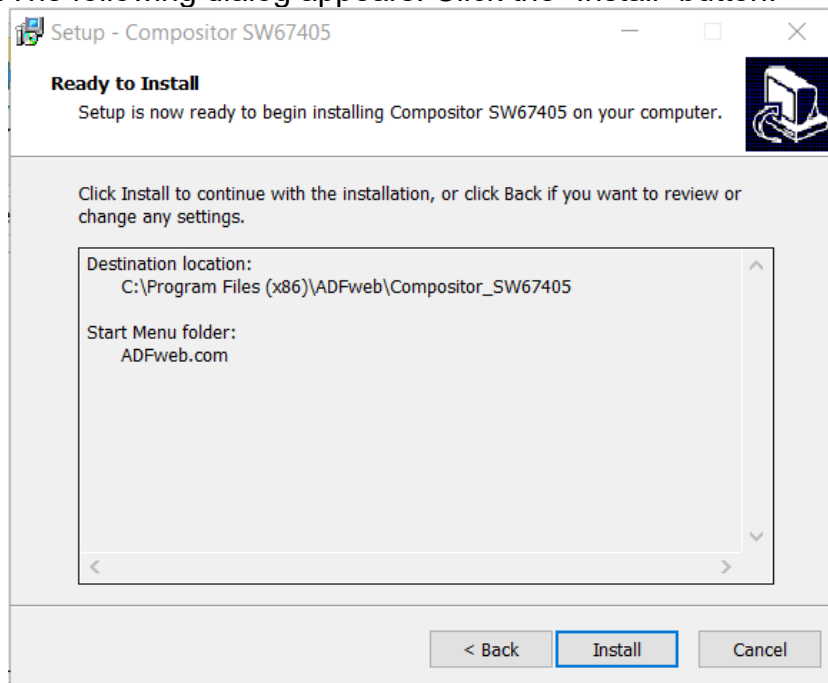
70. The following dialog appears. Click the “Next” button to begin the installation.



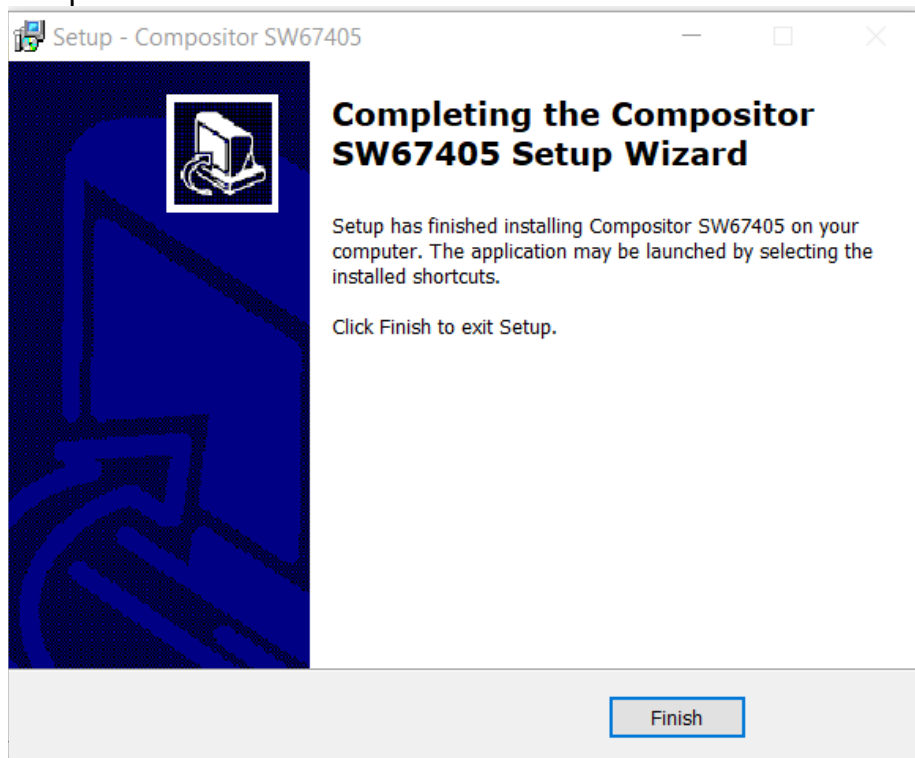
71. The following dialog appears. Click the “Next” button to continue the process.



72. The following dialog appears. Click the “Install” button.



73. When the installation is complete, the following dialog appears. Click the “Finish” button to complete the installation.



74. Connect the Laptop to the Gateway using the Micro USB Cable.

75. Copy the folder named “400 V Tachograph Gateway” in the desktop folder into the “Projects” folder on the Laptop. This folder is on the C: Drive of the Laptop, under Program files(x86)\Compositor_SW67405.

Name	Date modified	Type	Size
LANGUAGE	11/10/2020 3:07 PM	File folder	
Master			
Projects			
CAN_67405_Update			502 KB
Compositor	11/12/2020 12:11 ...	XML Document	1 KB
Compositor_CAN_CAN_Filter	4/20/2017 4:55 PM	Application	4,978 KB
unins000.dat	11/10/2020 3:07 PM	DAT File	7 KB
unins000	11/10/2020 3:07 PM	Application	1,172 KB
USB_67405_Update	9/21/2016 7:00 PM	Application	2,112 KB

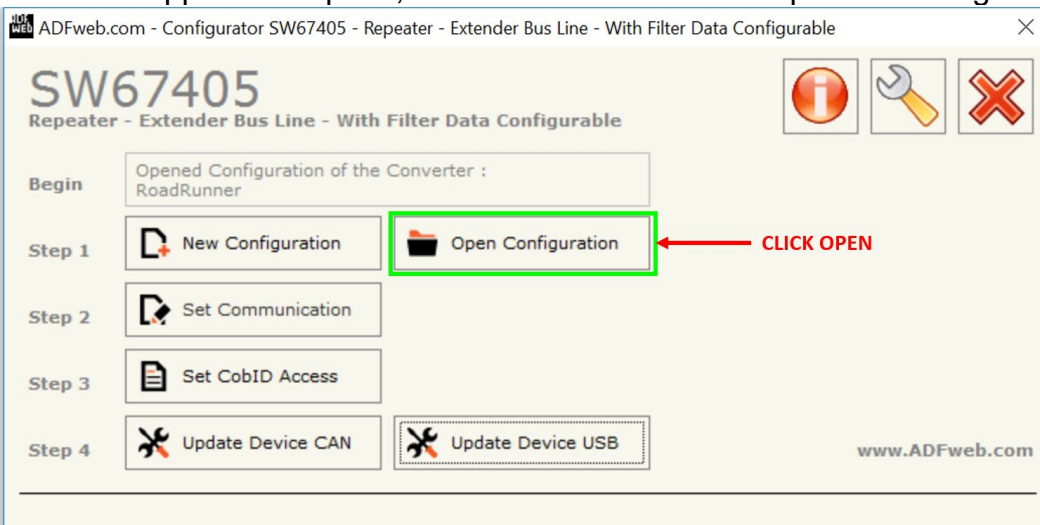
**COPY 400 V TACHOGRAPH GATEWAY
FILE INTO PROJECTS FOLDER**

76. Run the application shown in the following illustration in the Compositor_SW67405 folder.

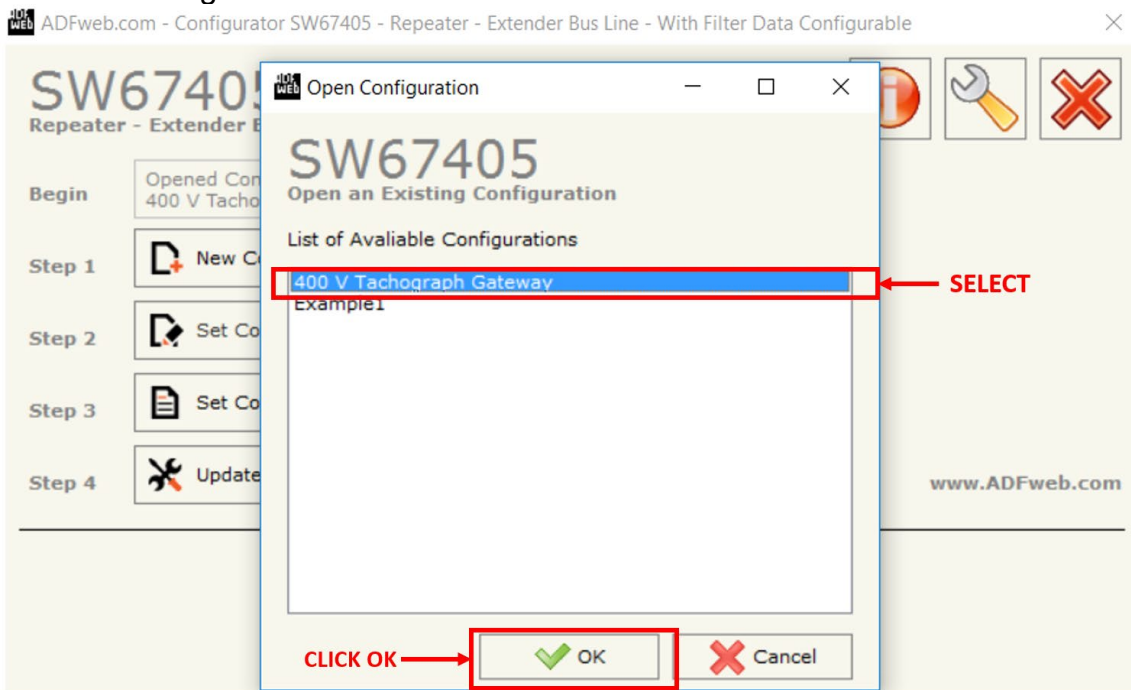
Name	Date modified	Type	Size
LANGUAGE	11/10/2020 3:07 PM	File folder	
Master	11/10/2020 3:07 PM	File folder	
Projects	11/12/2020 9:03 A...	File folder	
CAN_67405_Update	9/22/2016 12:35 PM	Application	502 KB
Compositor		XML Document	1 KB
Compositor_CAN_CAN_Filter		Application	4,978 KB
unins000.dat		DAT File	7 KB
unins000	11/10/2020 3:07 PM	Application	1,172 KB
USB_67405_Update	9/21/2016 7:00 PM	Application	2,112 KB

Run this application

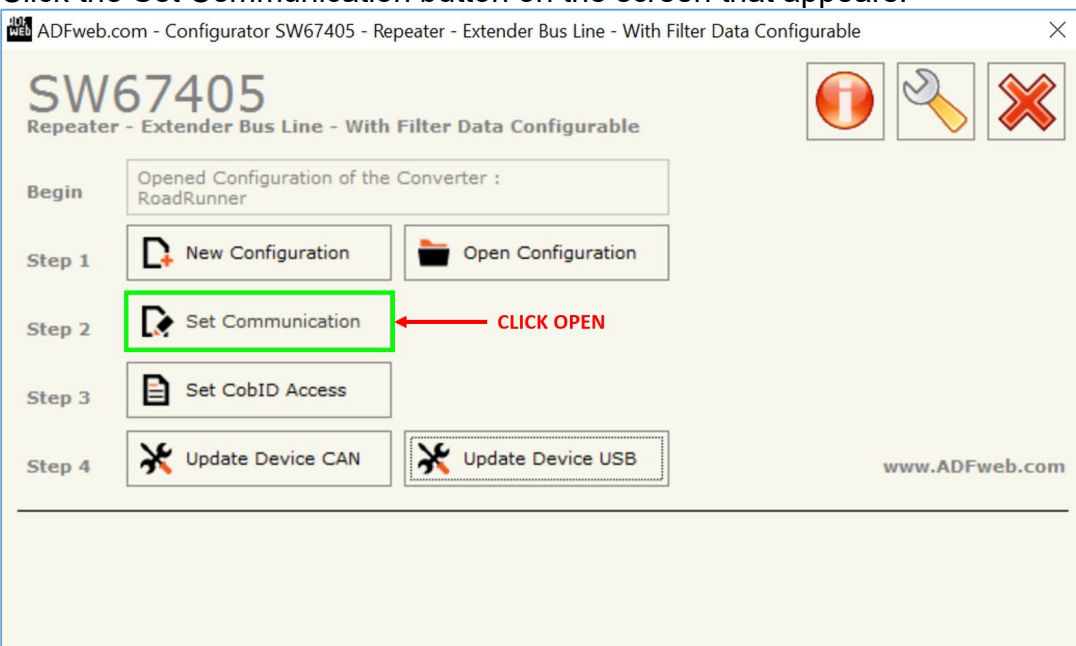
77. When the application opens, click the button shown to open the configuration tab.



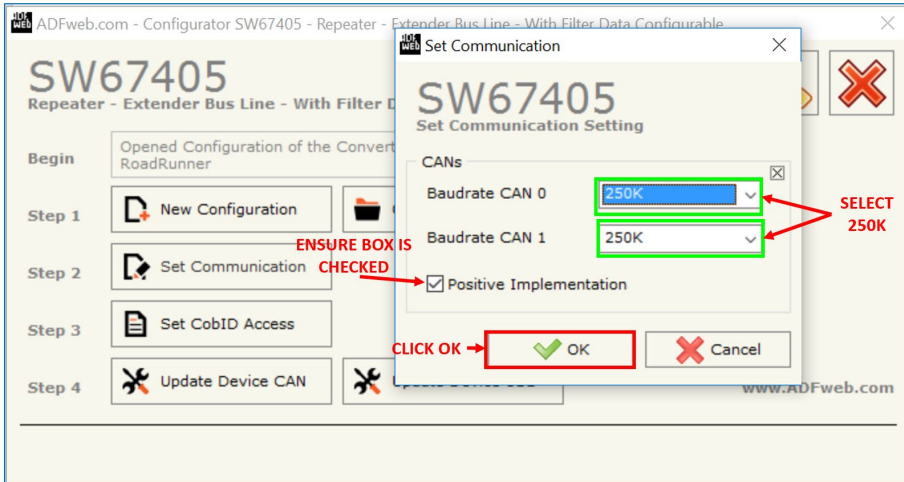
78. Click the configuration shown below and the OK Button.



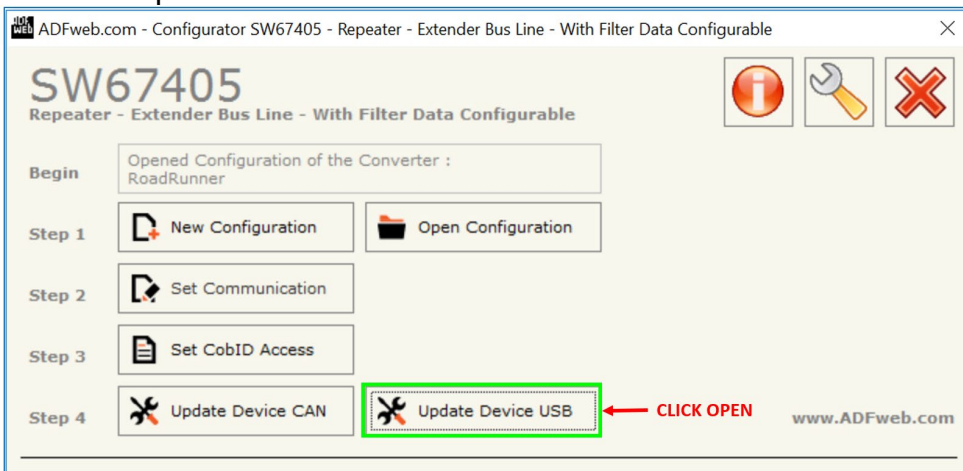
79. Click the Set Communication button on the screen that appears.



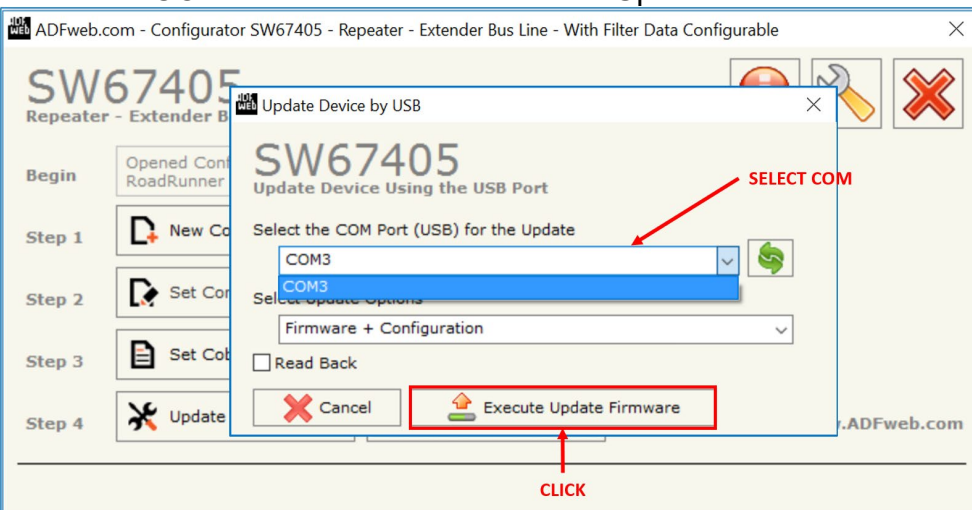
80. Set the Baud rates in the dialog box that appears. Check the box shown and click the OK Button.



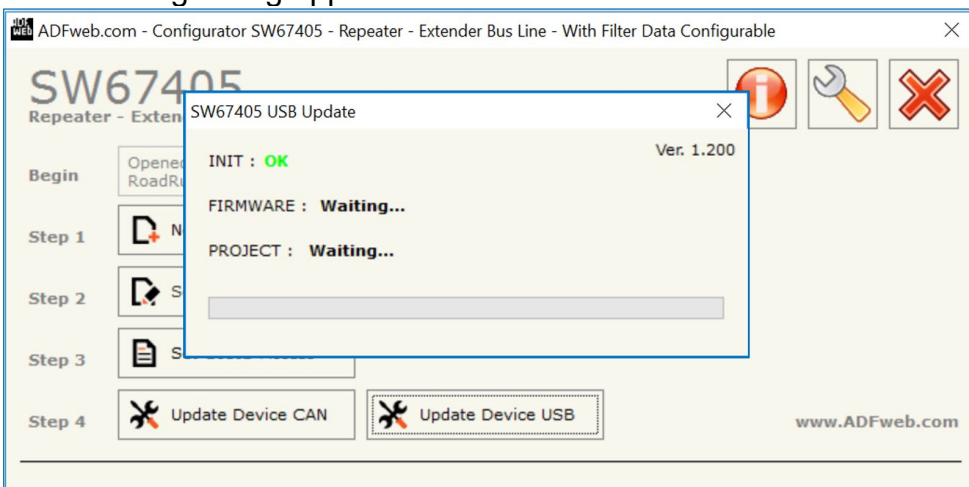
81. Click the Update Device USB button shown below.



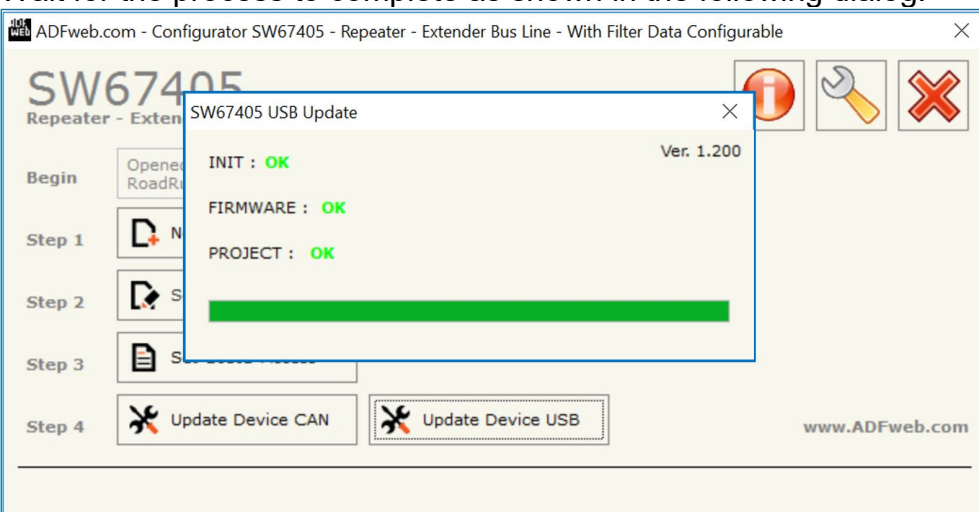
82. Select the COM Port and click the Execute Update Firmware Button shown below.



83. The following dialog appears.



84. Wait for the process to complete as shown in the following dialog.



85. Disconnect the Laptop and the Micro USB cable from the Gateway.

Update Powertrain Software

This procedure updates the Powertrain software version and maintains the Powertrain parameter configuration data across the flash download of new software.

86. Connect the Nexiq USB Link2 device to the laptop and to the appropriate OBDII Diagnostic Port.

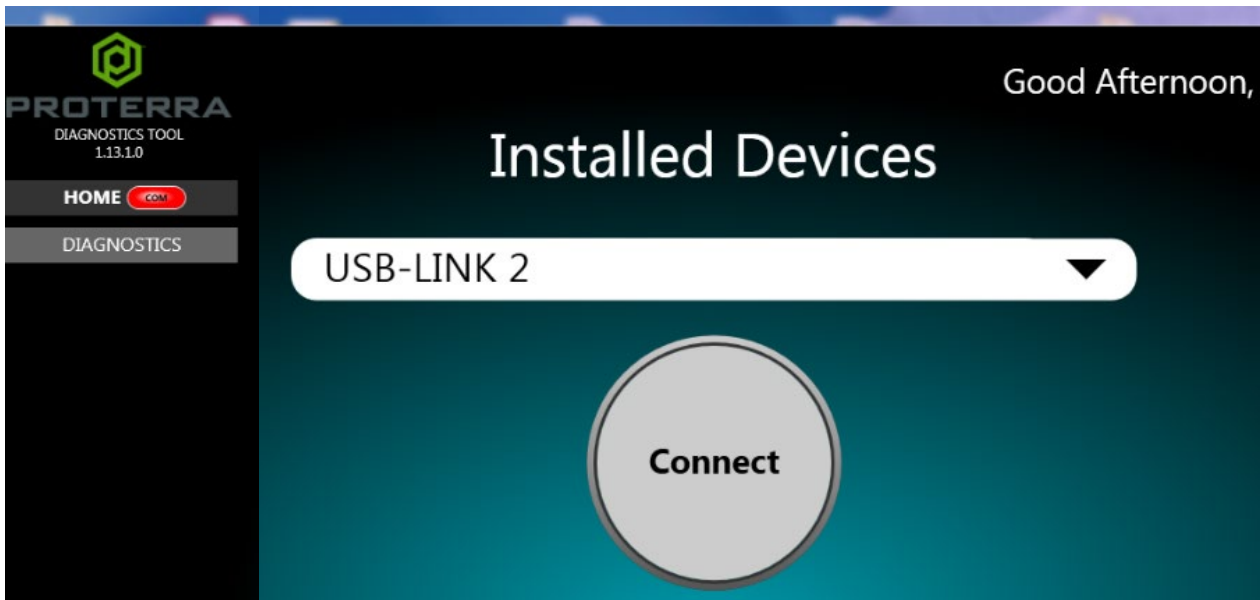


87. On the laptop, double-click on the Proterra Diagnostics Tool software icon to start the software.

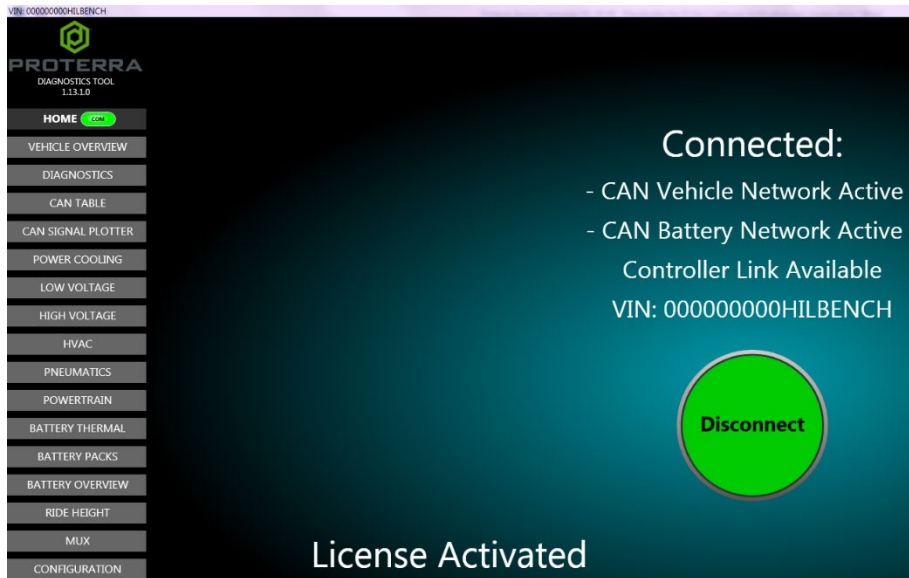


88. When the program opens, read and click OK for the prompt.

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



90. Once the diagnostic tool has connected to the vehicle, you will have a VIN number and connection status displayed on the home screen, and tabs available to navigate.



91. Ensure you have the latest software file 056133.hex in a known location on the service technician's computer (Folder or Desktop). This file is in the folder named Powertrain inside the Service Campaign Folder that was downloaded to the desktop.
IMPORTANT! NEVER access the software from a remote server or from a USB memory device, ALWAYS copy the software files to your computer hard drive and access the software from this location.
92. Turn **ON** the 12/24V rear Vehicle Master Disconnect located behind the vehicle curbside rear upper access panel.
93. Turn **ON** the bus Master Switch at the Driver's Workplace and ensure the Dash screen is **ACC**.



Master Switch "ACC"

94. After connecting to the vehicle using the Proterra Diagnostic tool at the **front OBDII Port (SSWW Box)**, navigate to the Configuration Tab.

95. Wait at least 10 seconds after starting the tool, then click the “Get Parameters” button at the top of the page.

- a. **NOTE:** This ensures that we have a backup copy of the original configuration parameters stored in a “zip” file, contained in the C:/Logs folder on your computer in case we need to refer to it later.

Body Parameters			IMPORT PARAMS	GET PARAMETERS
Name	Access Level	Value		
High Voltage Connection S	1	3		
Daylight Savings Time Activ	1	1		
Fire Detection System Lock	1	0		
Pnumatic Leakage Rate Aux	4	0		
Main Electronics Pump Run	4	127		
Lower Battery Pump Run Ti	4	0		
Air Compressor Run Timer	4	0		
Pnumatic Leakage Rate Pri	4	0		
DCDC Enable Swap	1	1		
Electric Doors Detected	1	0		
Collision Alert System Data	1	1		

96. Now we are ready to click the Powertrain Firmware “Start Flash” Button.

Current: New Value:

Body Firmware

Powertrain Firmware

Charge Controller

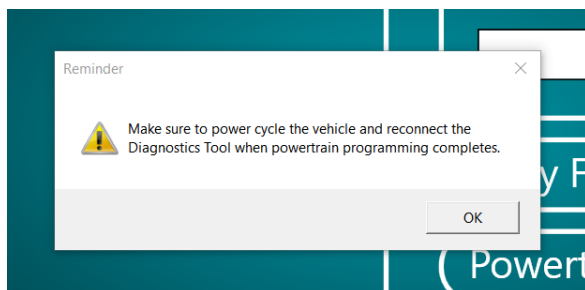
Battery Master Controller

Battery Management System

DC/DC Configuration

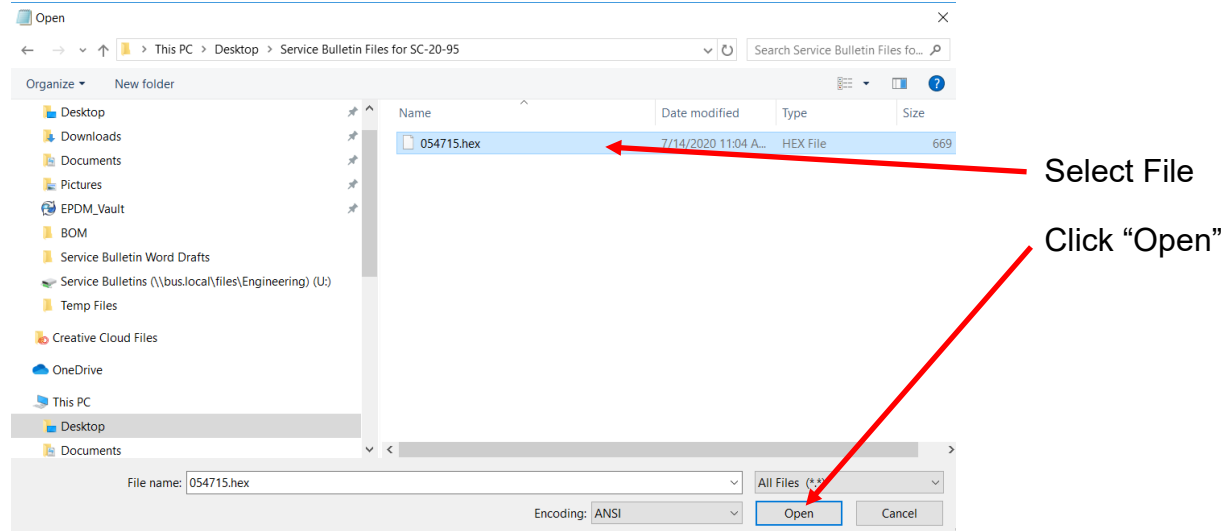
Click Powertrain Start Flash

97. The Proterra Diagnostic Tool will display a reminder to power cycle and reconnect the Proterra Diagnostic Tool when programming is complete

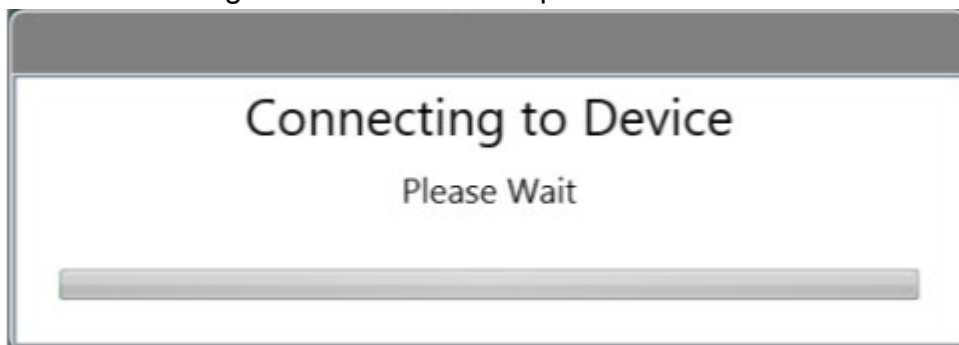


98. The following screen will be displayed. Navigate to the location where you stored the configuration file earlier. Select the software file downloaded previously and click “Open” to load the file.

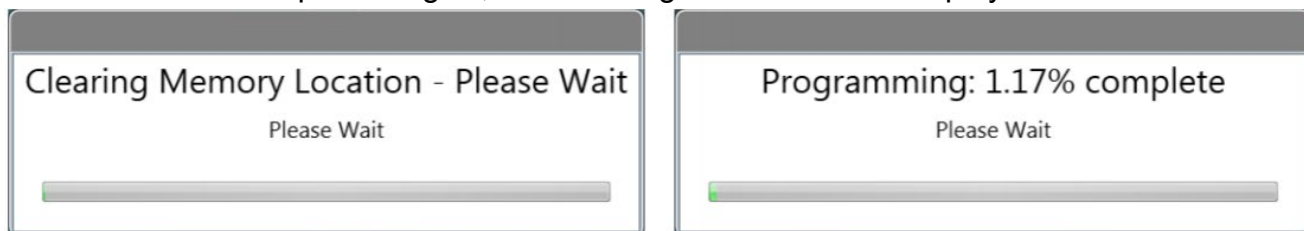
Note: The file name displayed should be 056133.hex.



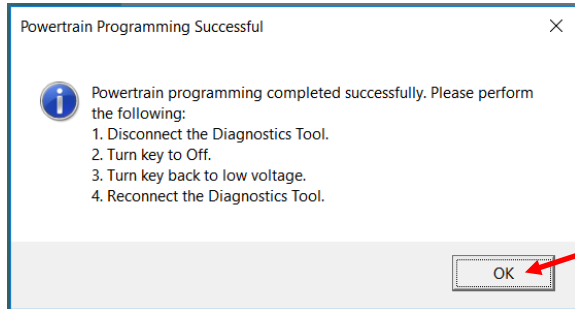
99. The Proterra Diagnostic Tool will attempt to connect to the device.



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



101. The software update may take several minutes to complete. When the update is complete the following will be displayed. Click the “OK” button to complete the update process.



Click “OK”

102. Navigate to the Home tab and press the Disconnect button



Click “Disconnect”

103. Turn **OFF** the bus Master Switch at the Driver's Workplace and wait for the bus to turn off



Master Switch “Off”

104. Turn **ON** the bus Master Switch at the Driver's Workplace and ensure the Dash screen is **ACC**.

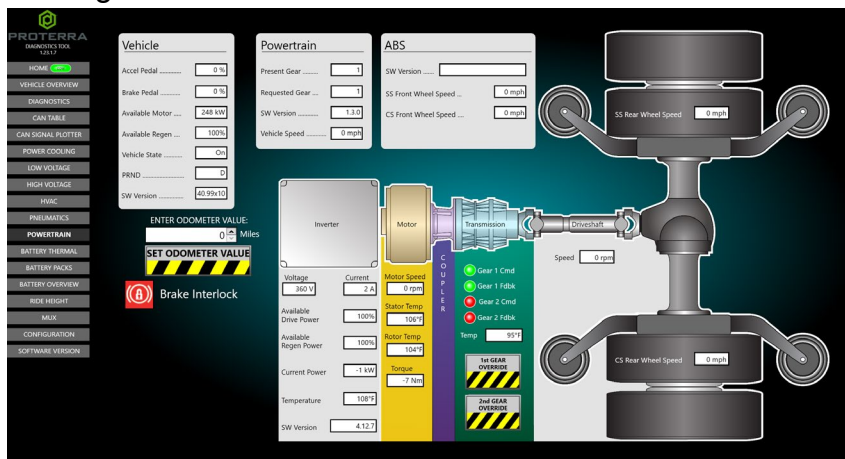


Master Switch “ACC”

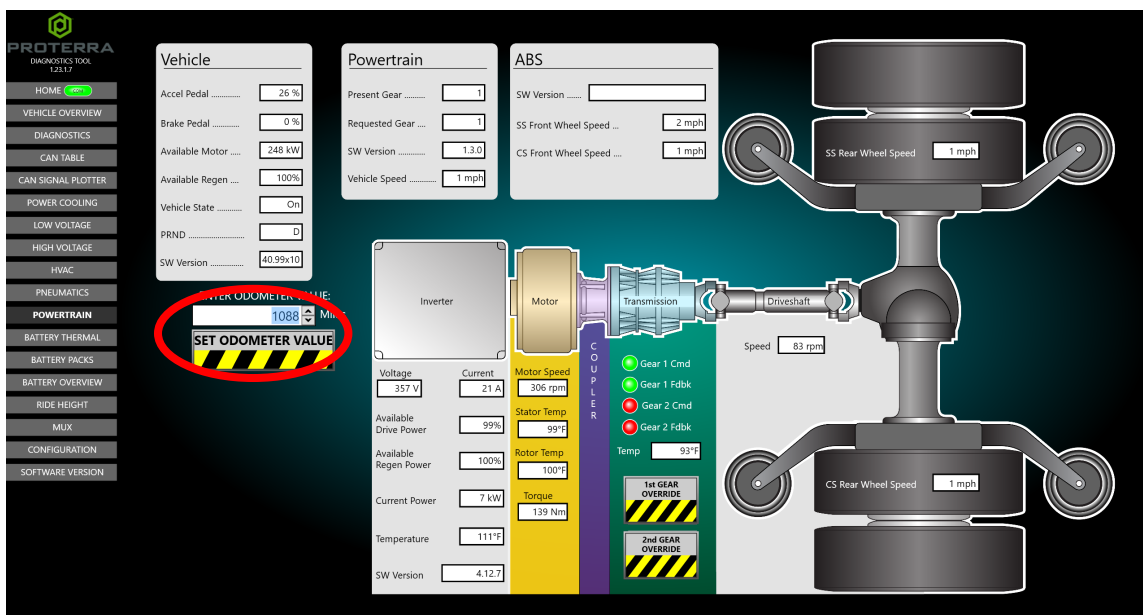
105. On the Home tab, click the Connect button



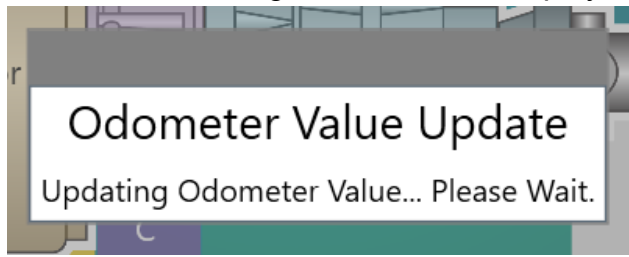
106. Navigate to the Powertrain tab



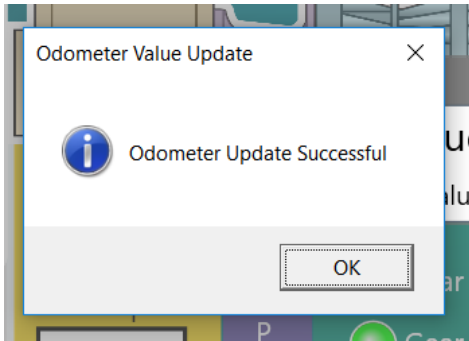
107. Type the recorded odometer value in the Odometer value field and click “Set odometer value”



108. The Proterra Diagnostic Tool will display the following while updating the odometer value



109. The Proterra Diagnostic Tool will display the following when the odometer update process completes successfully. If the Proterra Diagnostic Tool displays Failed or Timeout please check for active faults on the Diagnostics tab.



110. Verify that the odometer value displayed on the dash matches the recorded odometer value. Note that it's okay if the new odometer value differs by up to 1 mile.

111. The software update is now complete.

112. Disconnect the cable from the OBD-II port.

113. Close the Streetside wheel well box

114. Return the bus to service.