INSTRUCTION TO SERVICE

ITS61489	November 6, 2025
SECTION:	260 – Battery Compartment
SUBJECT:	Update V2 traction inverters with new bootloader
ISSUE:	Programming V2 inverters at 24 V can result in bricking permanently
SUMMARY:	Connect to and program ELFA3 traction inverters

ITS61489

Ref. NHTSA Recall No.	Ref. Transport Canada Recall No.
Not Applicable	Not Applicable

THIS ITS DOCUMENT SHOULD BE RETAINED AND REFERRED TO FOR FUTURE MAINTENANCE UNTIL THE NEW FLYER PARTS AND/OR SERVICE MANUAL IS UPDATED TO REFLECT WORK DONE AS A RESULT OF THIS DOCUMENT. ENSURE THAT THIS DOCUMENT IS AVAILABLE FOR PARTS AND MAINTENANCE STAFF GOING FORWARD.

PROCEDURE:

1. Set park brake and chock wheels.
2. Ensure MRS is in the OFF position

⚠ **WARNING: DO NOT TURN OFF BATTERY DISCONNECT SWITCH. INVERTERS CANNOT BE PROGRAMMED WITH LV BATTERIES DISCONNECTED.**

3. Ensure correct inverter program is available. Consult your New Flyer representative if program is not available. If the bootloader has already been installed skip to Part 2 and consult the table for programming inverters.

Part 1: Installing new bootloader

☞ **NOTE: The new bootloader only needs to be installed once per inverter. After initial install, skip to Part 2 to cover programming inverters.**

☞ **NOTE: Installing the bootloader will delete any existing programming. DO NOT DRIVE THE VEHICLE UNTIL ALL TRACTION INVERTERS HAVE BEEN REPROGRAMMED.**

1.1 35/40 Foot Standard Grade

4. Enter the bus and gain access to the engine compartment by lifting the seats at the back of the vehicle.
5. Locate the X1 connector on the traction inverter (see figure 1) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

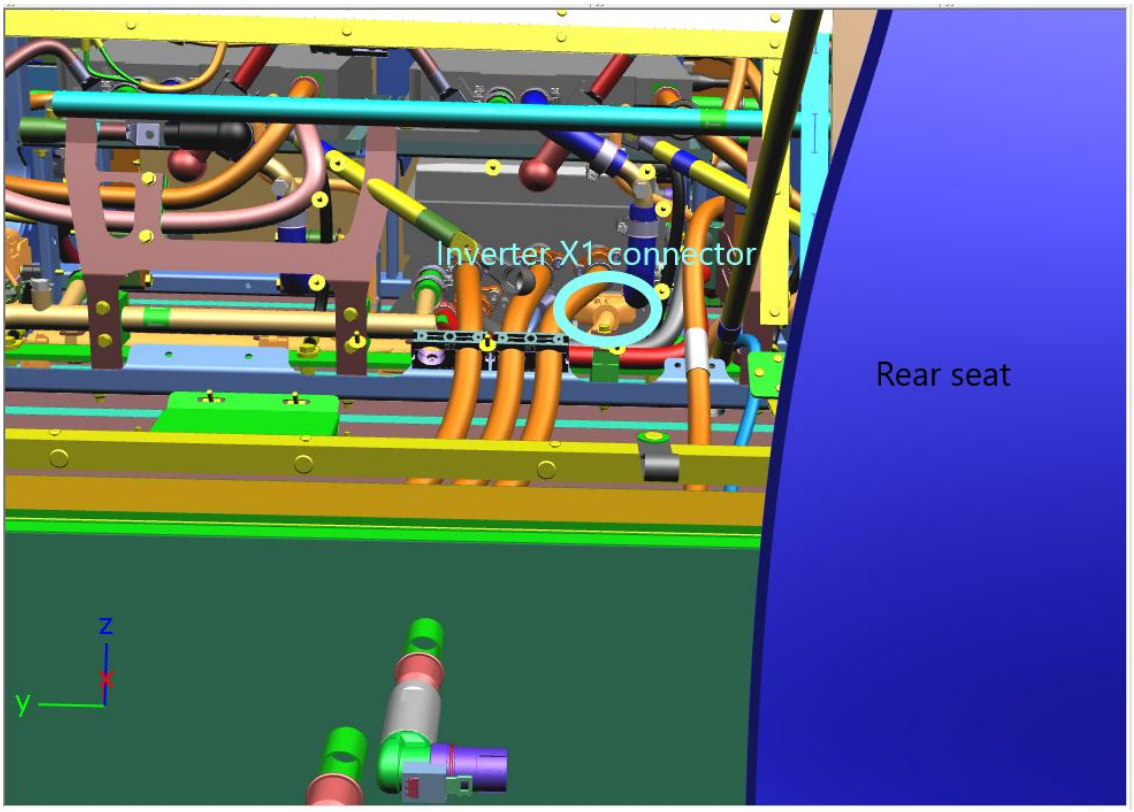

Figure 1: XE35/40 traction inverter X1 connector highlighted in light blue

6. Take the X1 connector included in PN 1144289 ASSY-12V INVERTER PROG BOX and attach it to the traction inverter.
7. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the rear panel using alligator clips.
8. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12V bus bar in the rear panel using alligator clips.

9. Connect USB end of PCAN tool to laptop USB port 1.
10. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
11. Open supplied CANFlash program on laptop.
12. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 2). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

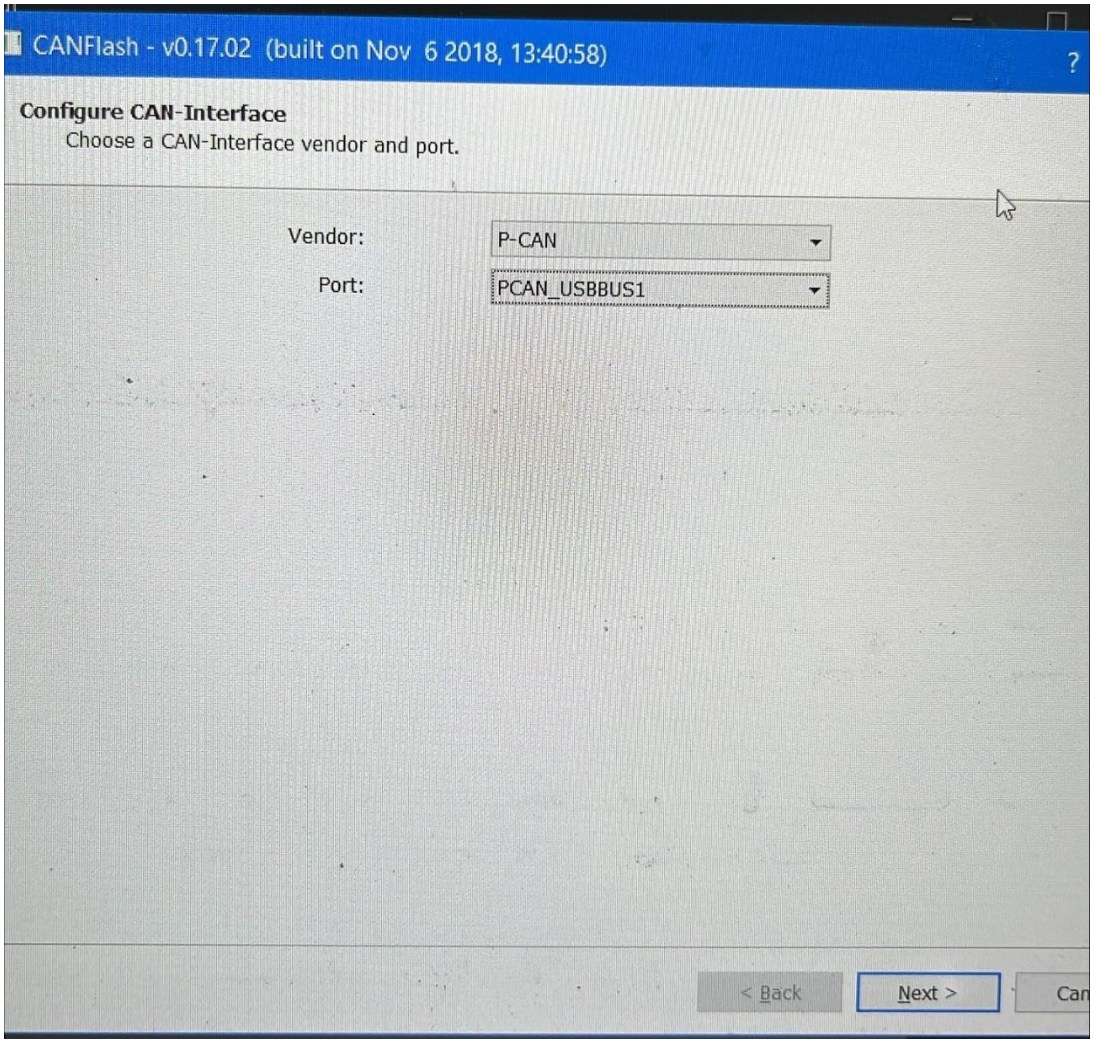

Figure 2: CANFlash PCAN settings

13. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 3). Ensure the knob on top of 1144289 is set to inverter ID 1. Click **Next** when complete.

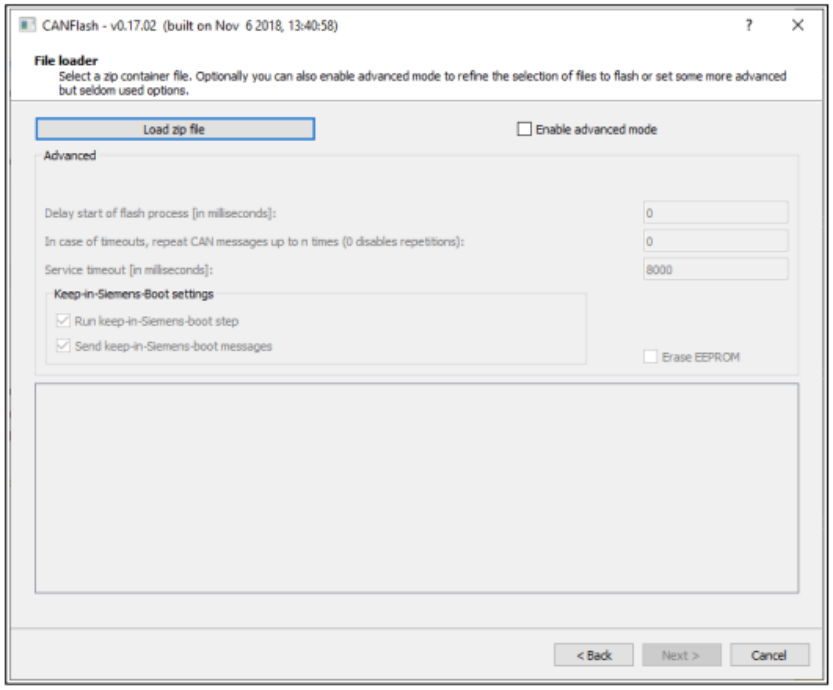

Figure 3: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

14. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 4). Click **Next** when complete.

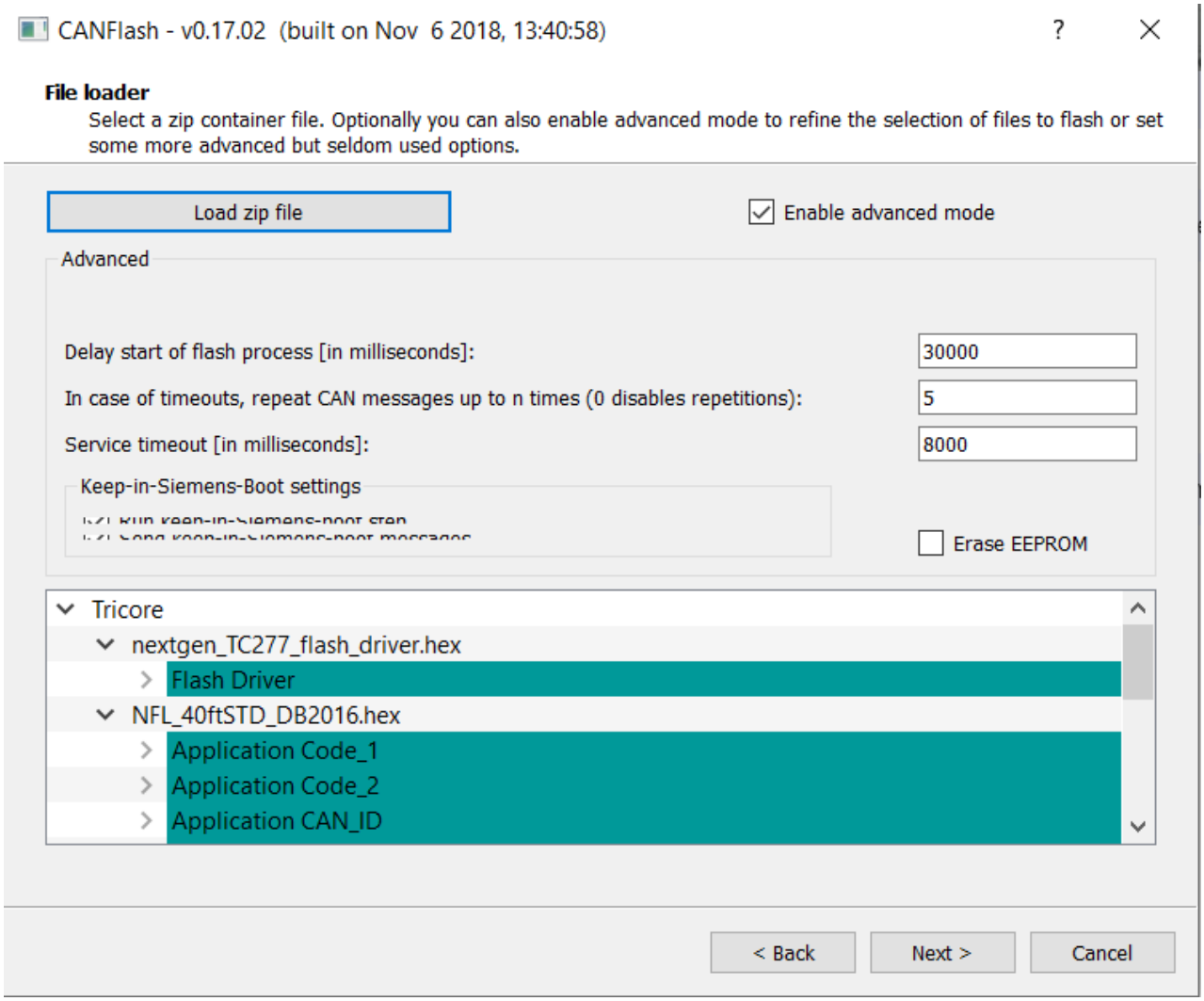

Figure 4: Advanced settings for CANFlash

15. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 5). In part 1 you do not need to turn the Master Run switch ON.

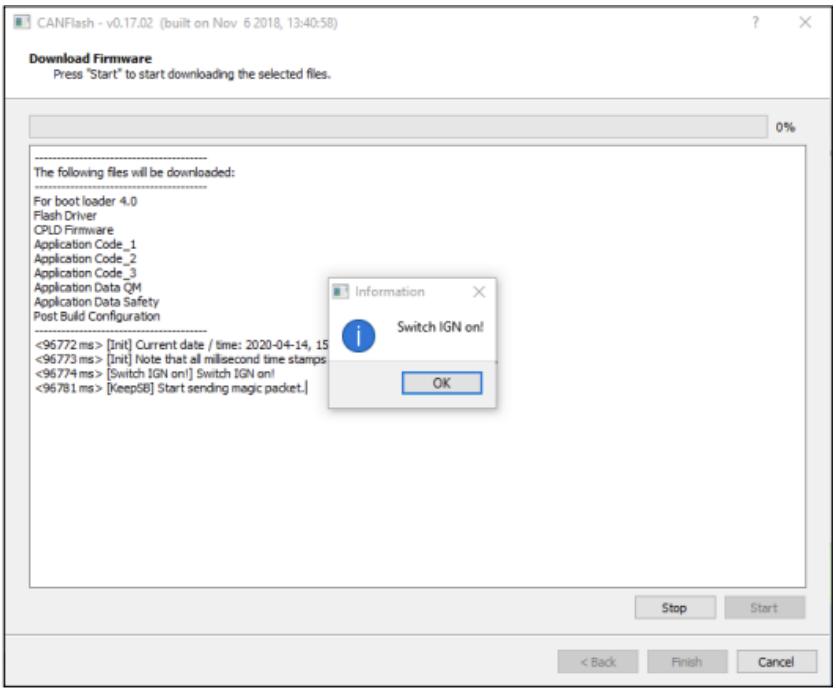

Figure 5: Flip switch on 1144289 when CANFlash shows Switch IGN on!

16. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
17. Disconnect the 1144289 X1 connector from the traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the inverter.

1.2 60 Foot Rear Inverter

18. Enter the bus and gain access to the engine compartment by lifting the seats at the back of the vehicle.
19. Locate the X1 connector on the traction inverter (see figure 6) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

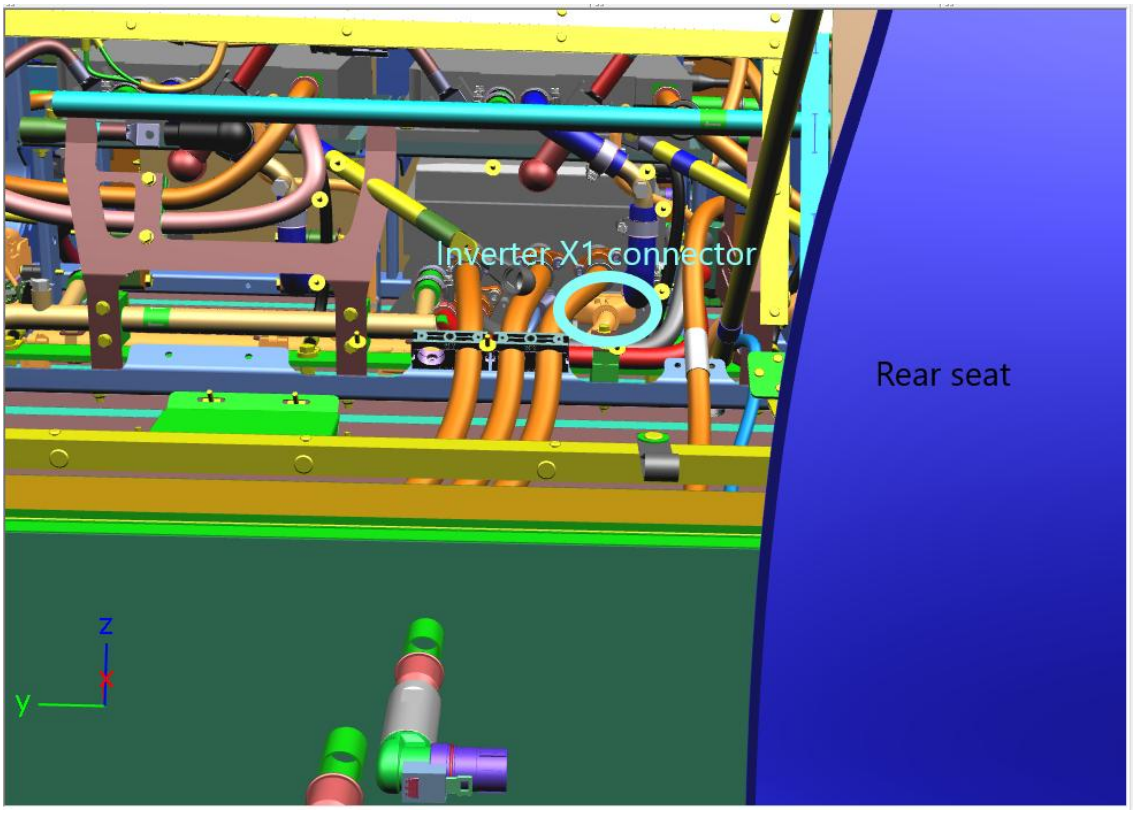

Figure 6: XE60 rear traction inverter X1 connector highlighted in light blue

20. Take the X1 connector included in PN 1144289 and attach it to the traction inverter.
21. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the rear panel using alligator clips.
22. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12V bus bar in the rear panel using alligator clips.
23. Connect USB end of PCAN tool to laptop USB port 1.
24. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
25. Open supplied CANFlash program on laptop.
26. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 7). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

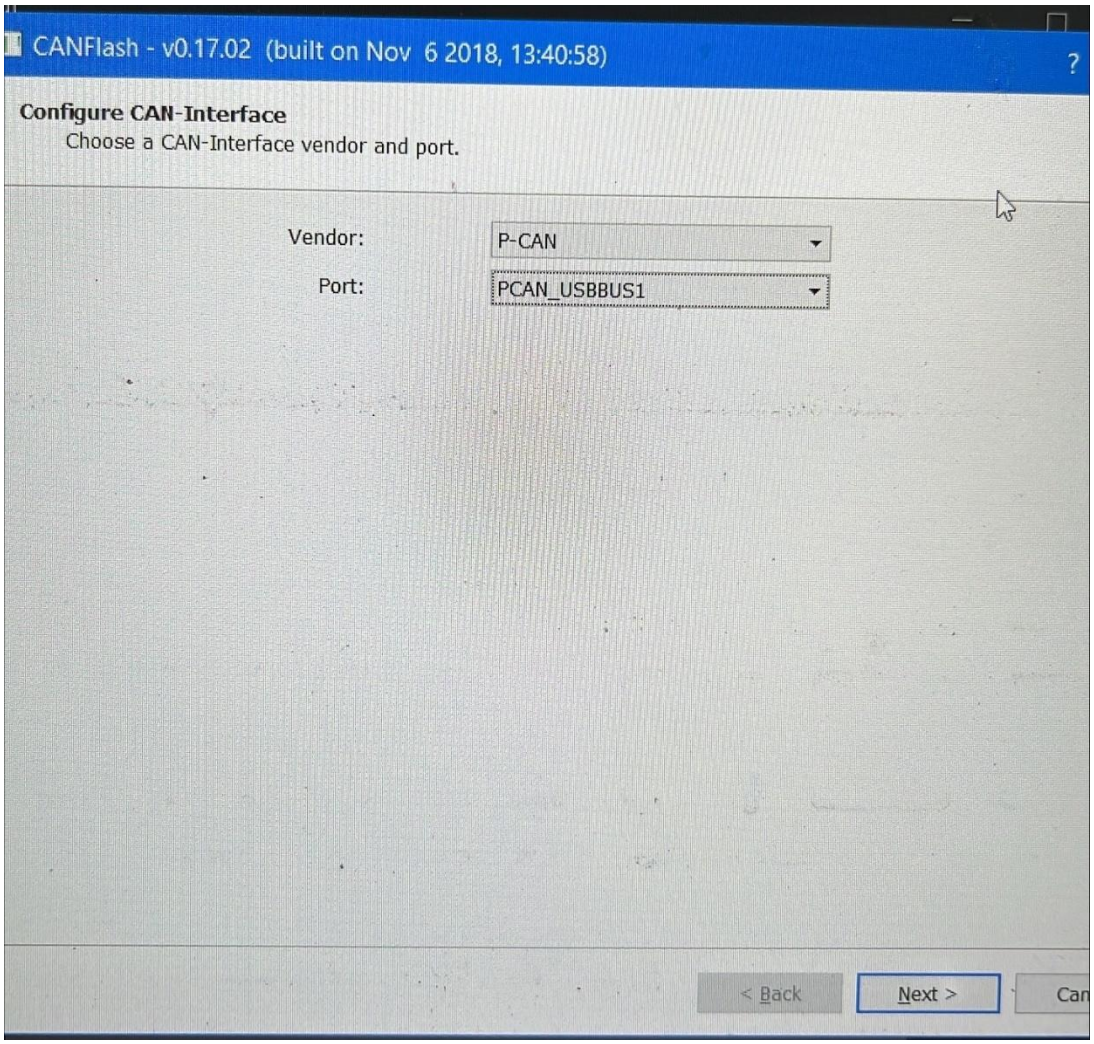

Figure 7: CANFlash PCAN settings

27. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 8). Ensure the knob on top of 1144289 is set to inverter ID 3. Click **Next** when complete.

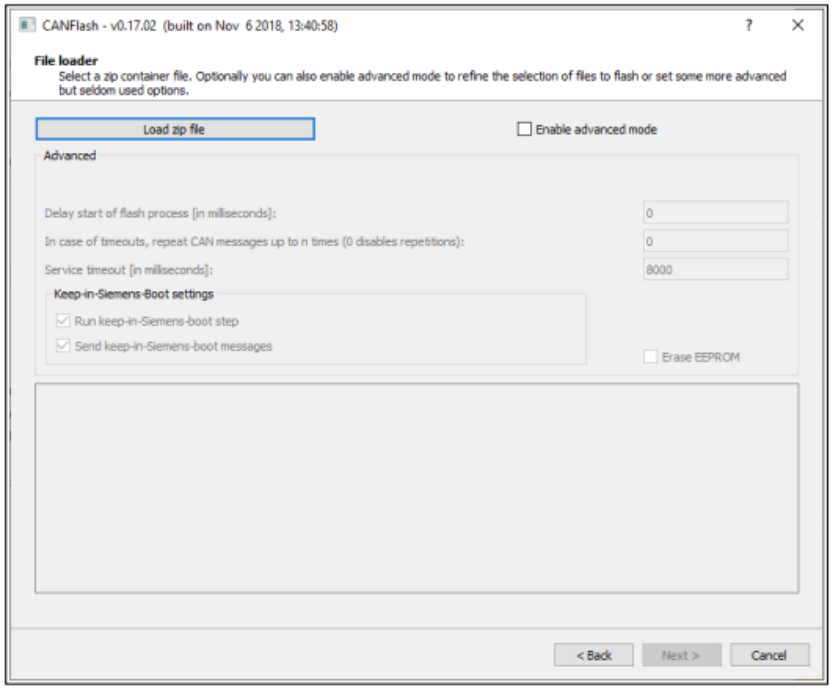

Figure 8: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

28. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 9). Click **Next** when complete.

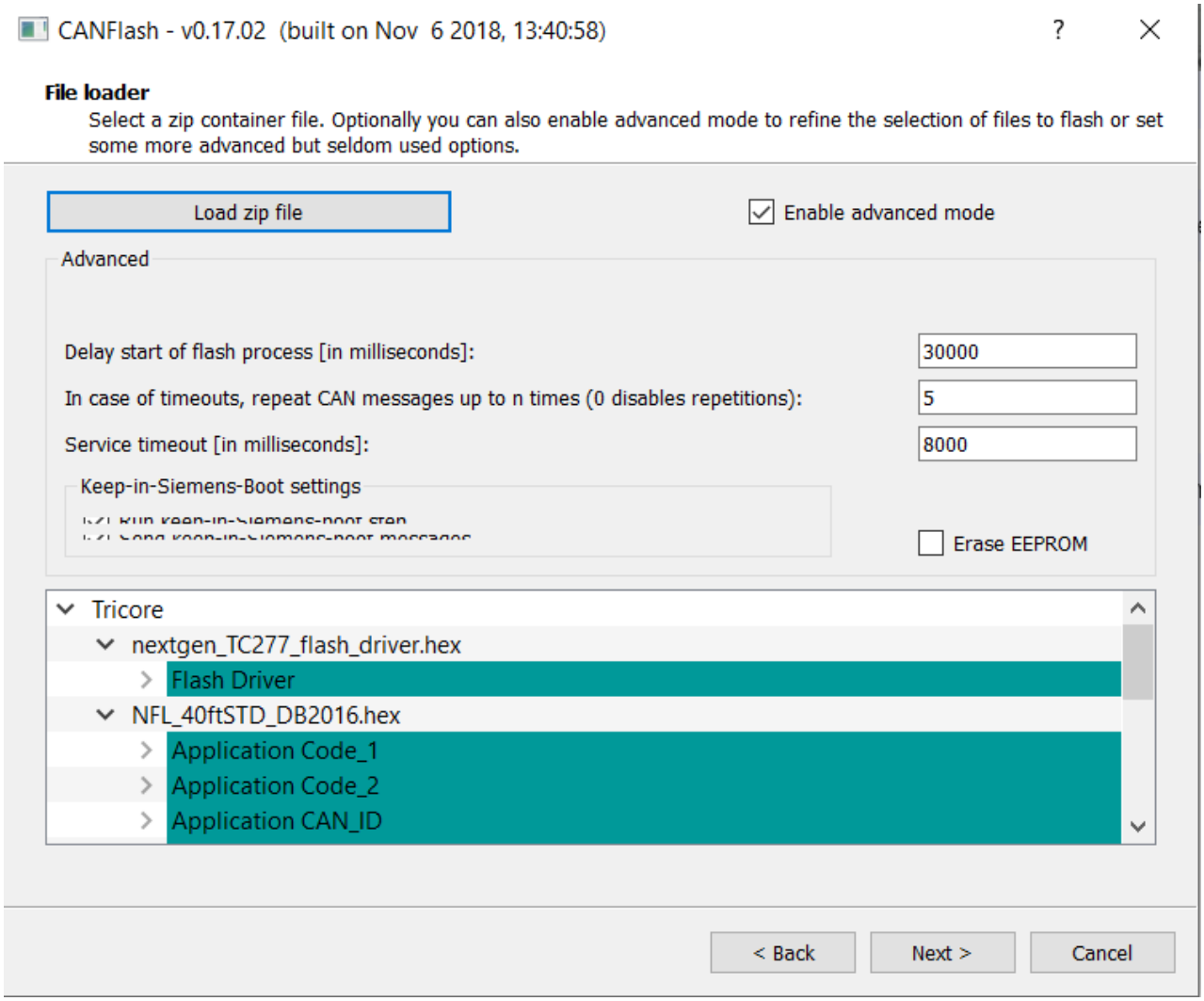

Figure 9: Advanced settings for CANFlash

29. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 10). In part 1 you do not need to turn the Master Run switch ON.

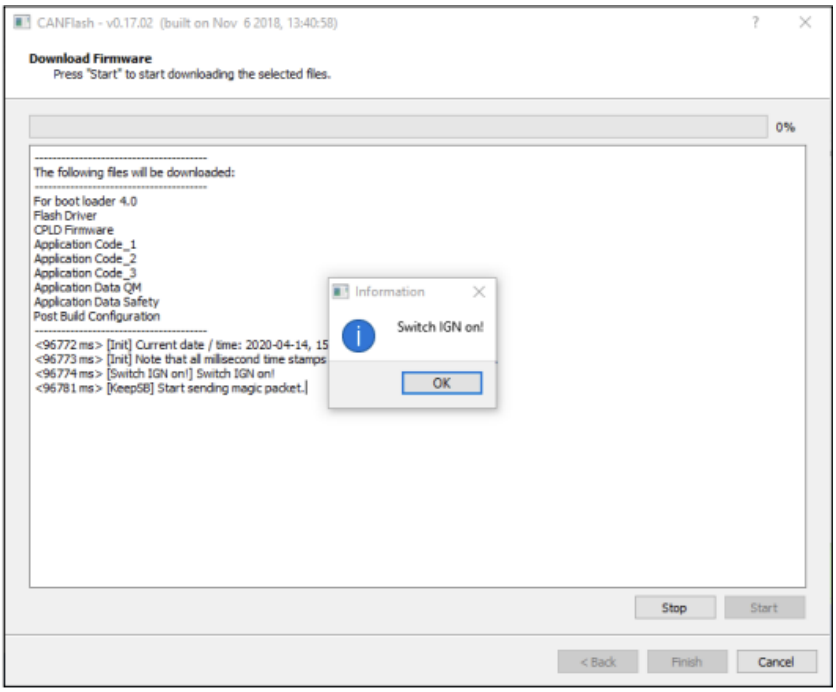

Figure 10: Flip switch on 1144289 when CANFlash shows Switch IGN on!

30. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
31. Disconnect the 1144289 X1 connector from the traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the inverter.

1.3 35/40 Foot High Grade

32. Enter the bus and gain access to the engine compartment by lifting the seats at the back of the vehicle.
33. Locate the X1 connector on the streetside traction inverter (see figure 11) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

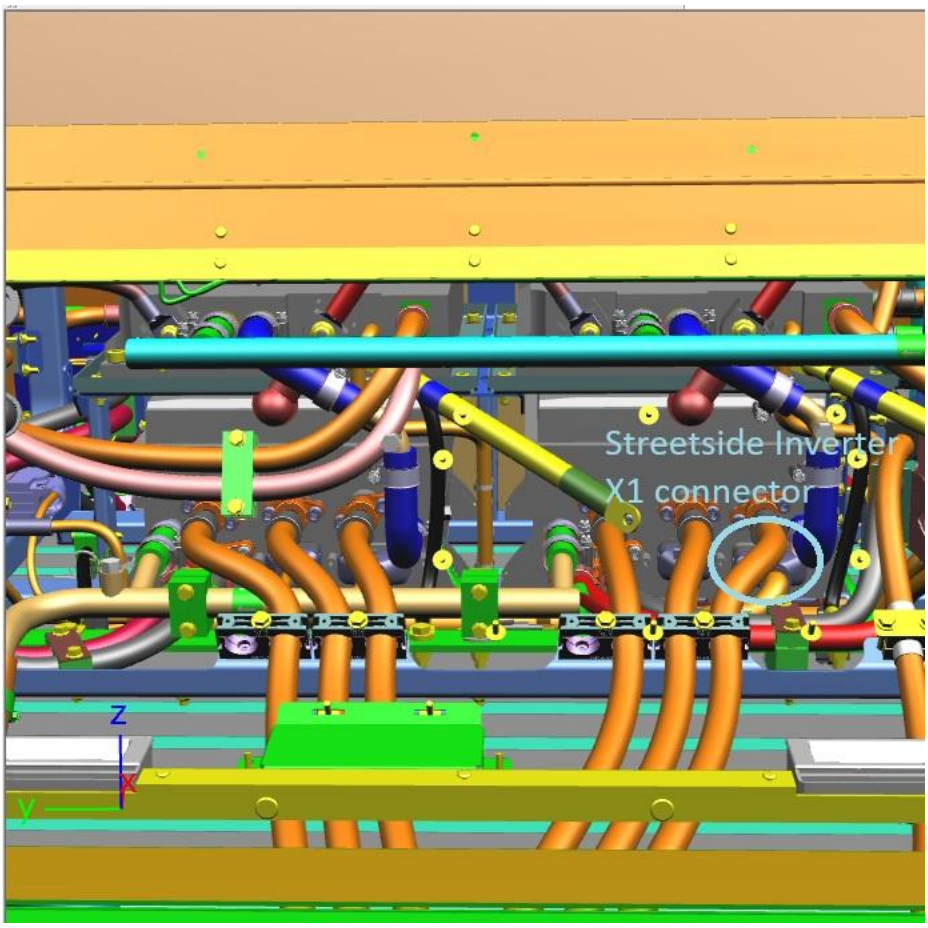

Figure 11: XE35/40 high grade streetside traction inverter X1 connector highlighted in light blue

34. Take the X1 connector included in PN 1144289 and attach it to the streetside traction inverter.
35. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the rear panel using alligator clips.
36. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12 V bus bar in the rear panel using alligator clips.
37. Connect USB end of PCAN tool to laptop USB port 1.
38. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
39. Open supplied CANFlash program on laptop.

40. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 12). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

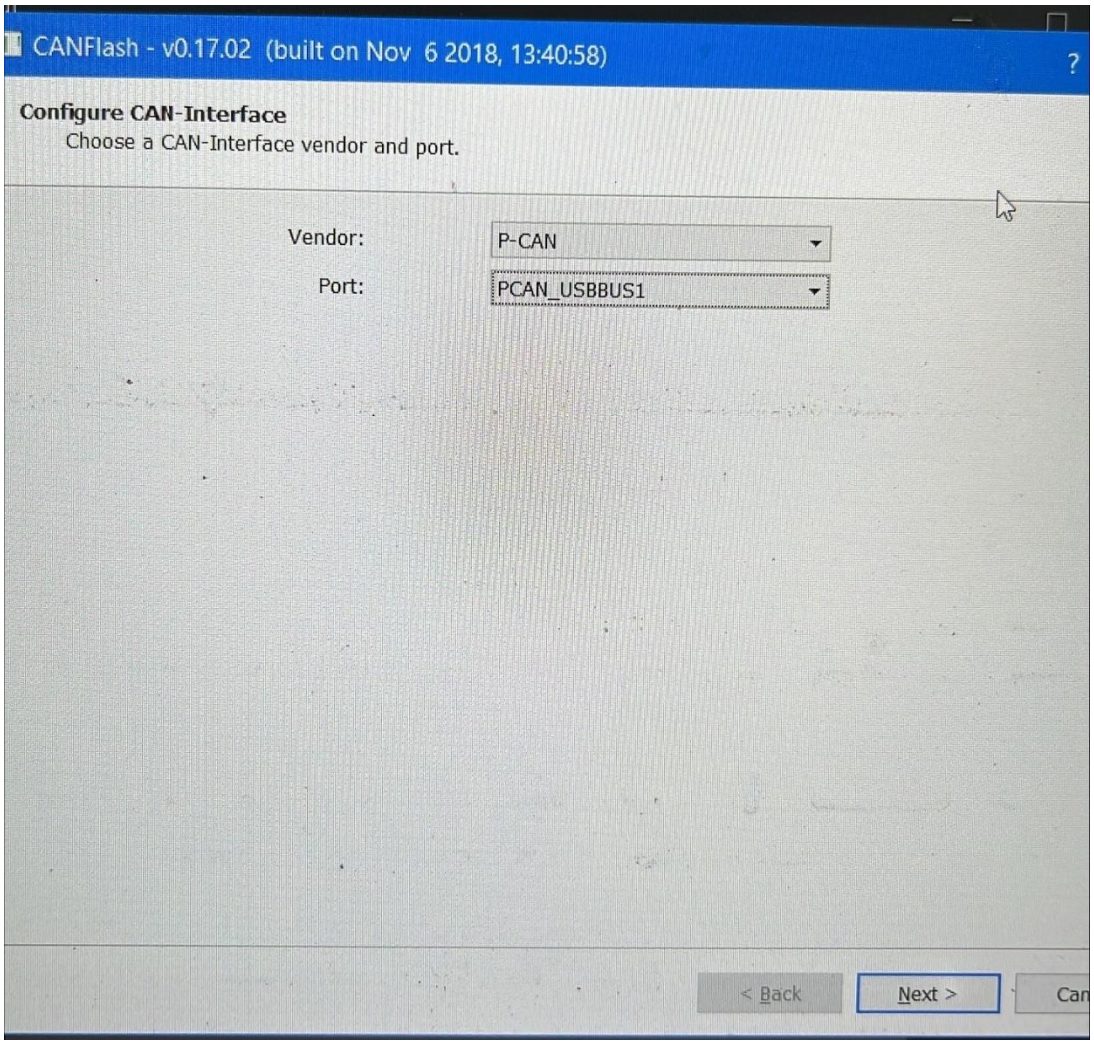

Figure 12: CANFlash PCAN settings

41. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 13). Ensure the knob on top of 1144289 is set to inverter ID 1. Click **Next** when complete.

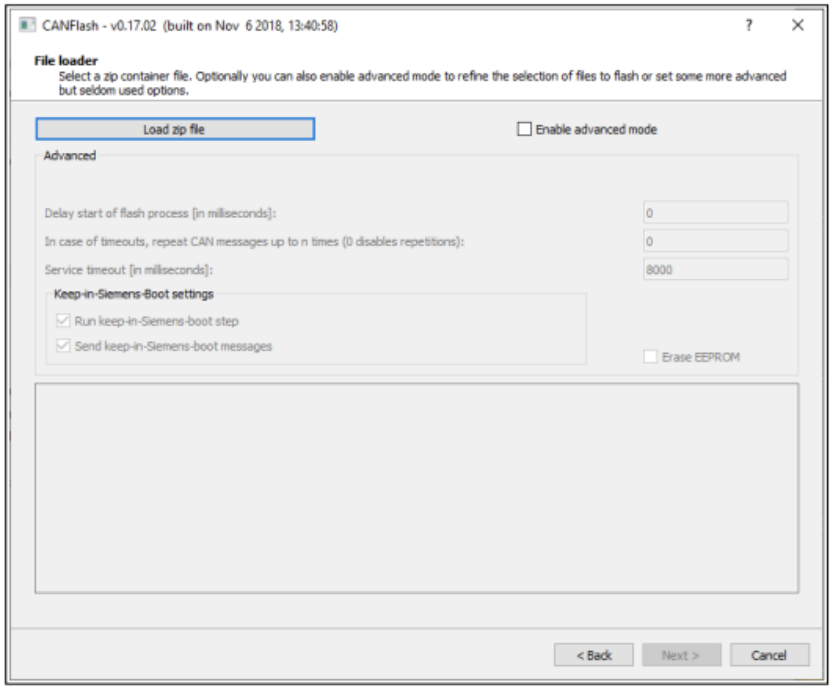

Figure 13: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

42. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 14). Click **Next** when complete.

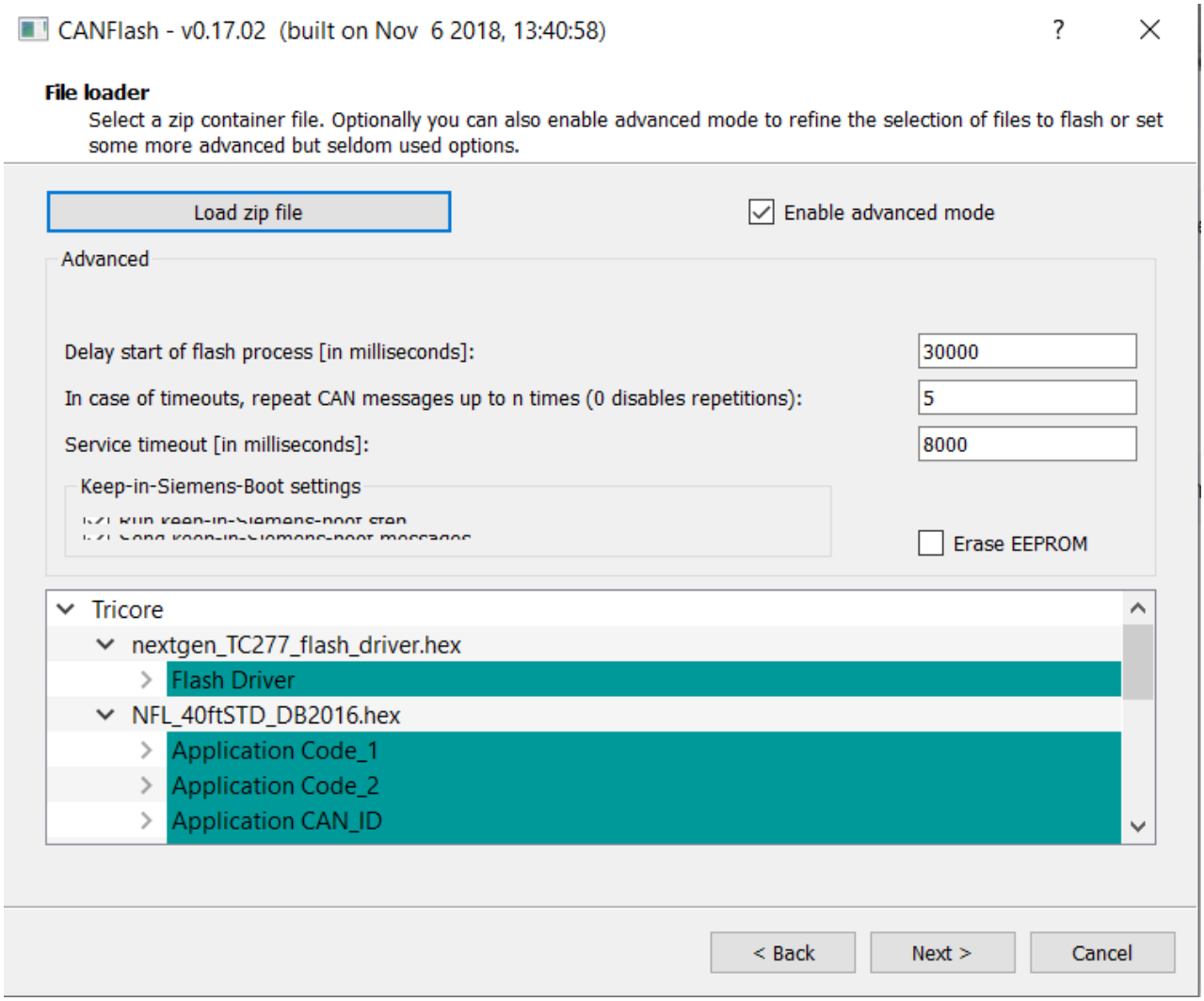

Figure 14: Advanced settings for CANFlash

43. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 15). In part 1 you do not need to turn the Master Run switch ON.

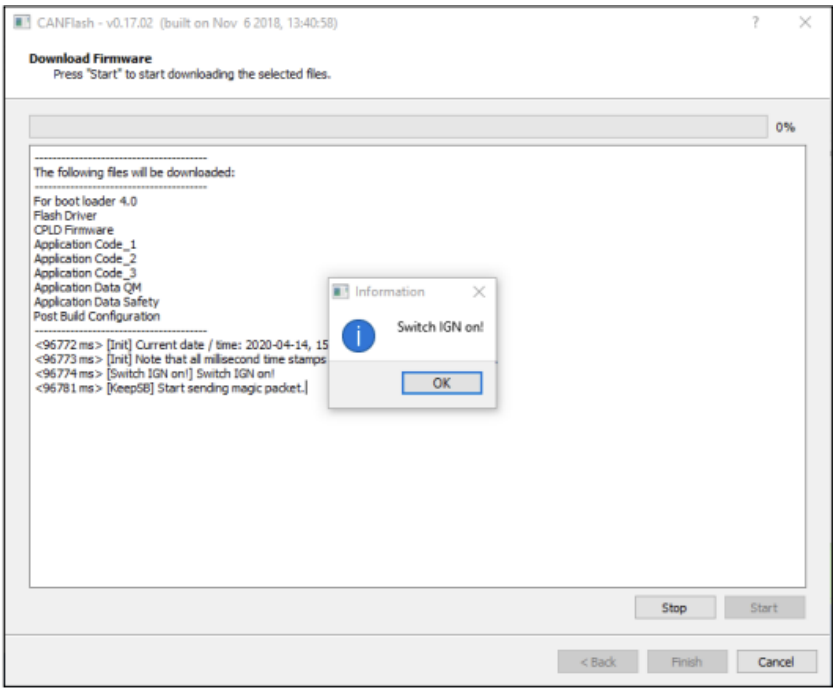

Figure 15: Flip switch on 1144289 when CANFlash shows Switch IGN on!

44. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
45. Disconnect the 1144289 X1 connector from the streetside traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the streetside inverter.
46. Locate the X1 connector on the curbside traction inverter (see figure 16) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

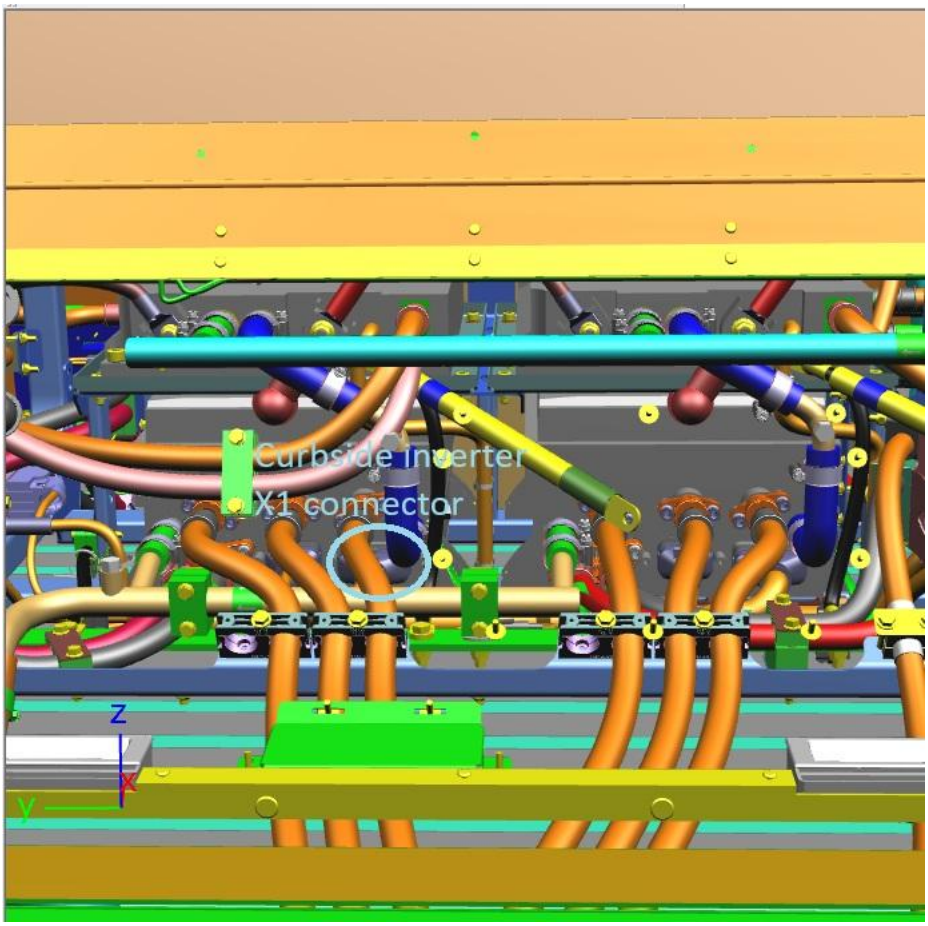

Figure 16: XE35/40 high grade curbside traction inverter X1 connector highlighted in light blue

47. Take the X1 connector included in PN 1144289 and attach it to the curbside traction inverter.
48. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the rear panel using alligator clips.
49. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12 V bus bar in the rear panel using alligator clips.
50. Connect USB end of PCAN tool to laptop USB port 1.
51. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
52. Open supplied CANFlash program on laptop.
53. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 17). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

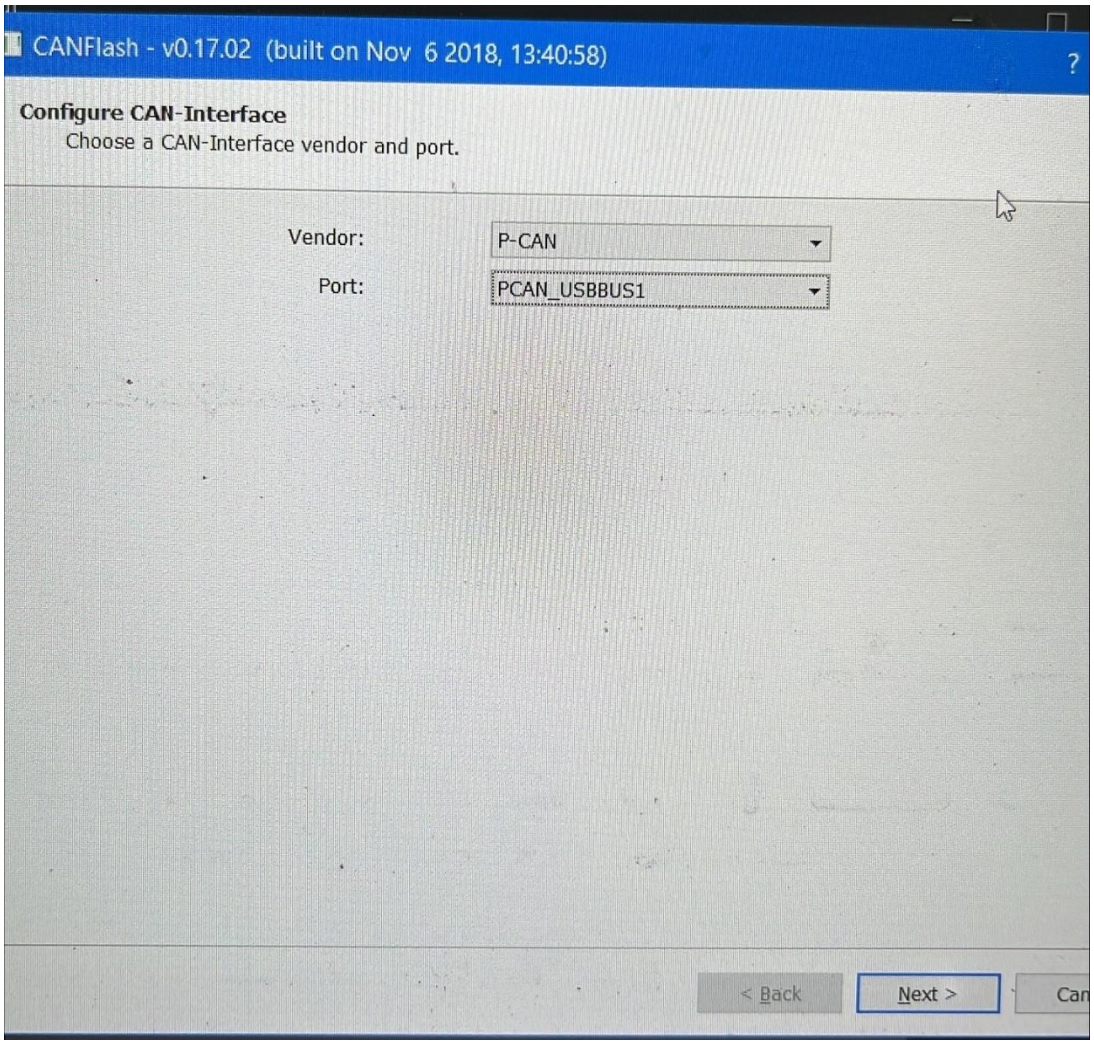

Figure 17: CANFlash PCAN settings

54. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 18). Ensure the knob on top of 1144289 is set to inverter ID 2. Click **Next** when complete.

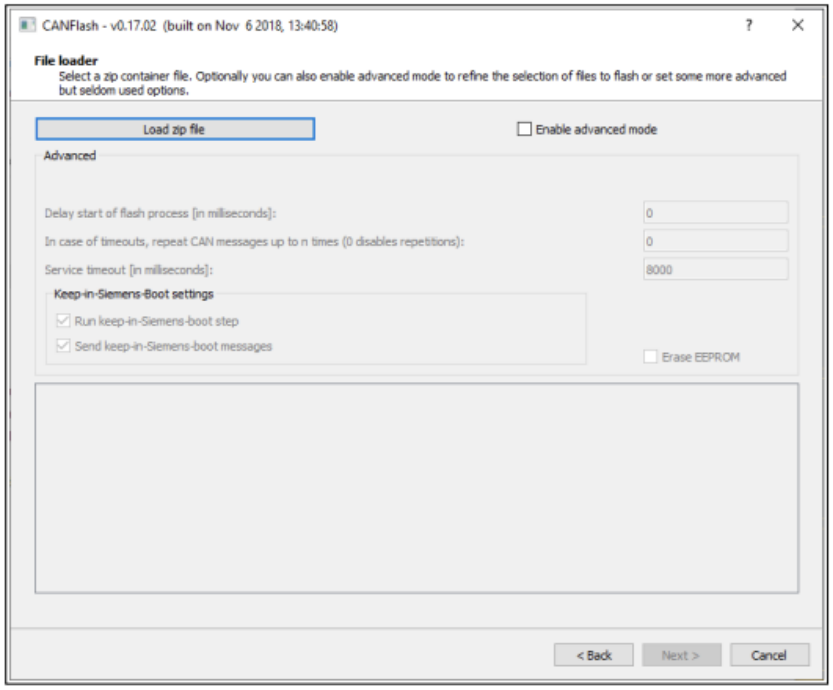

Figure 18: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

55. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 19). Click **Next** when complete.

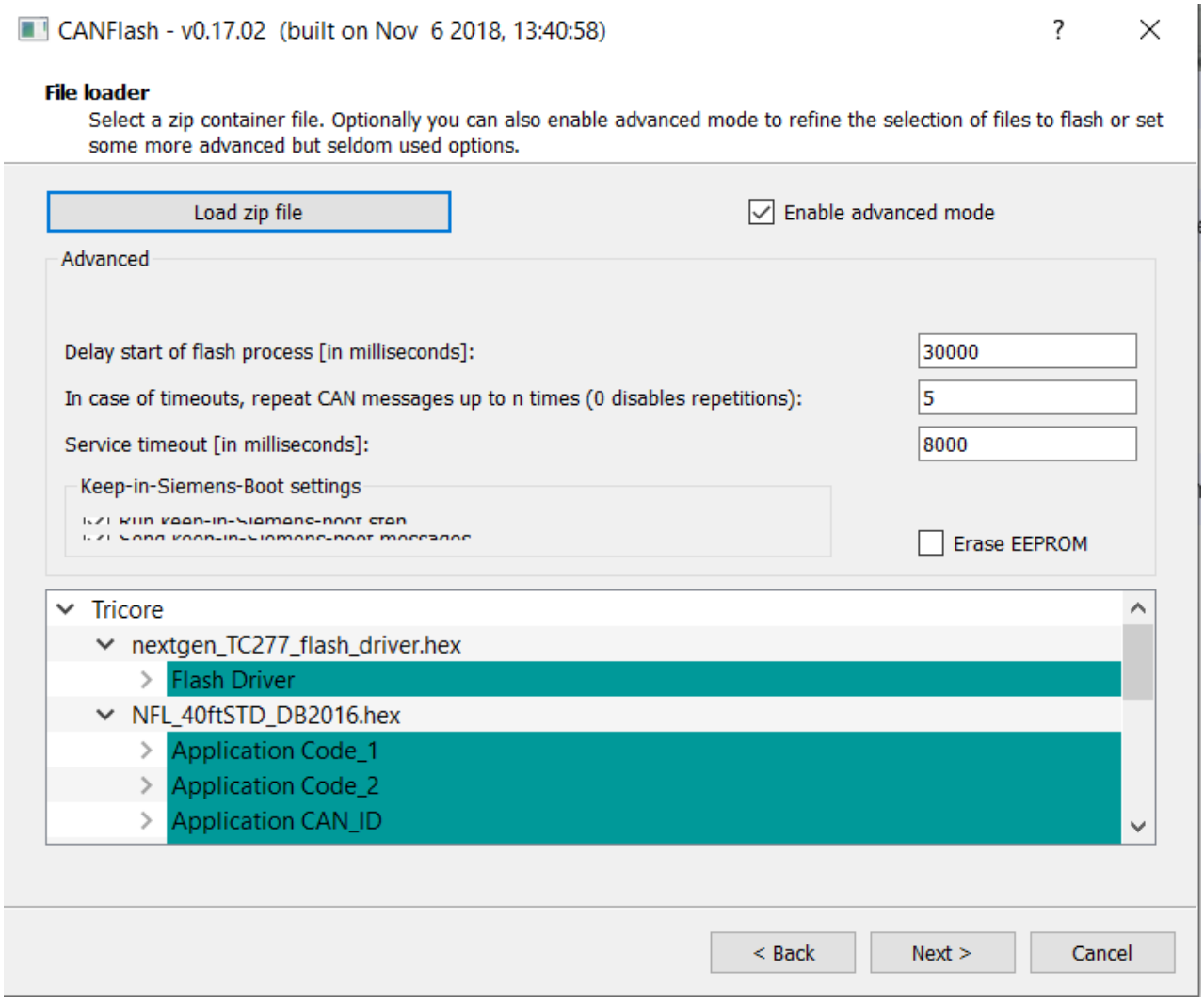

Figure 19: Advanced settings for CANFlash

56. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 20). In part 1 you do not need to turn the Master Run switch ON.

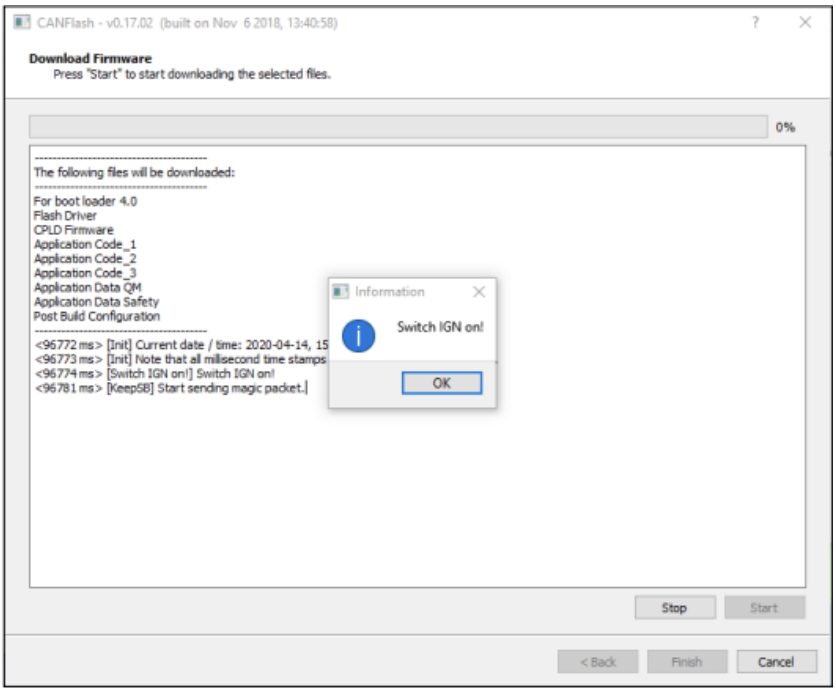

Figure 20: Flip switch on 1144289 when CANFlash shows Switch IGN on!

57. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
58. Disconnect the 1144289 X1 connector from the curbside traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the curbside inverter.

1.4 60 Foot Centre Axle

59. Gain access to the centre axle inverter rack on the roof of the vehicle. Ensure requisite safety precautions are taken.
60. Locate the X1 connector on the curbside traction inverter (see figure 21) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

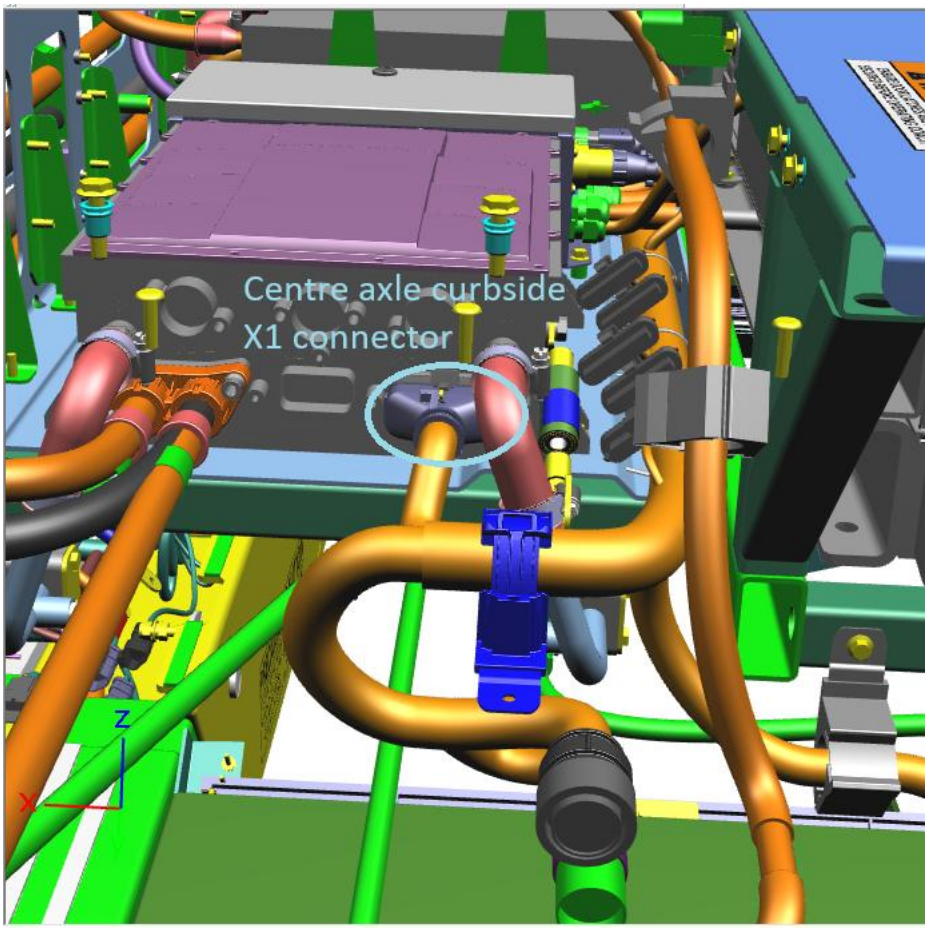

Figure 21: XE60 centre axle curbside traction inverter X1 connector highlighted in light blue

61. Take the X1 connector included in PN 1144289 and attach it to the curbside centre axle traction inverter.
62. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the centre door panel using alligator clips.
63. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12 V bus bar in the centre door panel using alligator clips.
64. Connect USB end of PCAN tool to laptop USB port 1.
65. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
66. Open supplied CANFlash program on laptop.

67. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 22). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

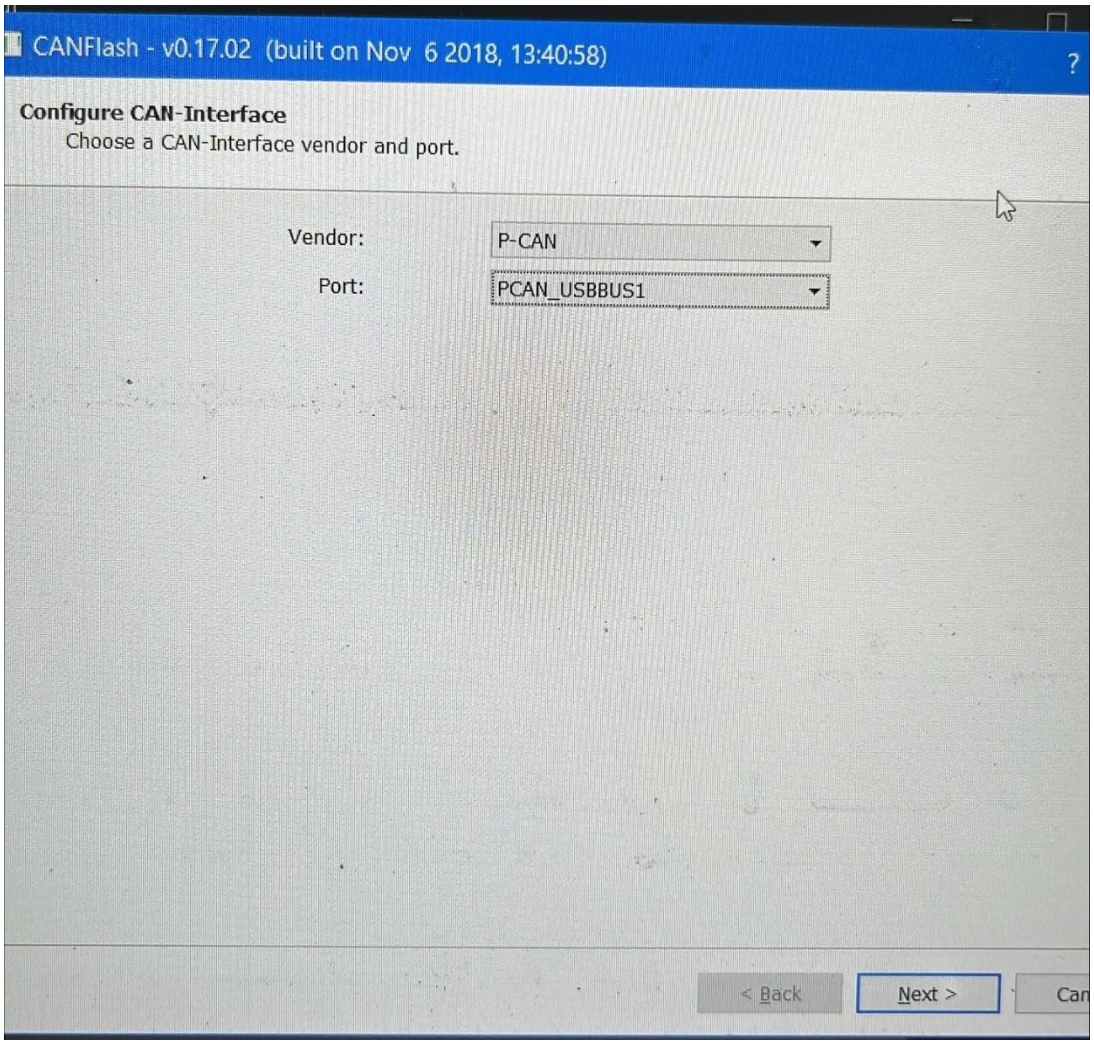

Figure 22: CANFlash PCAN settings

68. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 23). Ensure the knob on top of 1144289 is set to inverter ID 1. Click **Next** when complete.

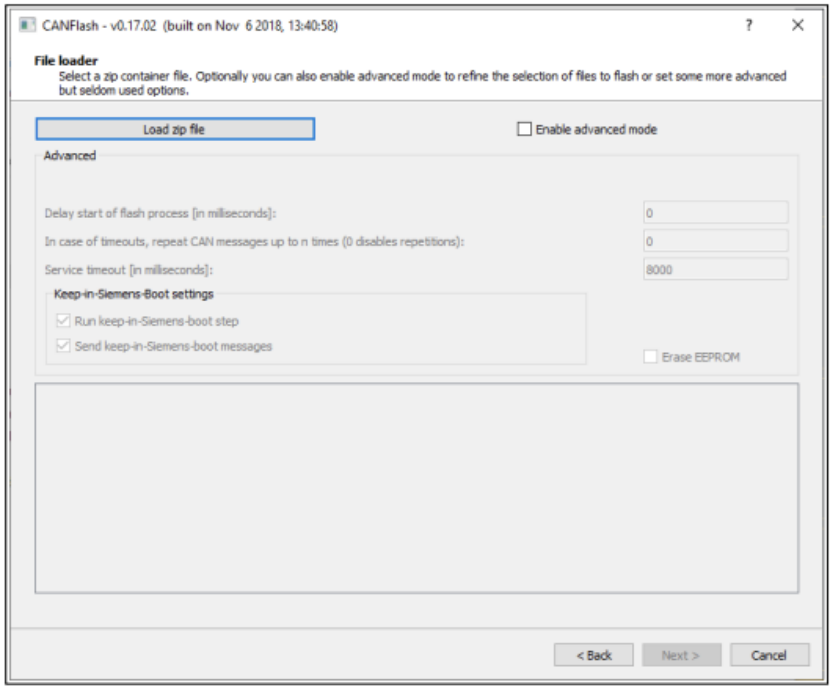

Figure 23: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

69. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 24). Click **Next** when complete.

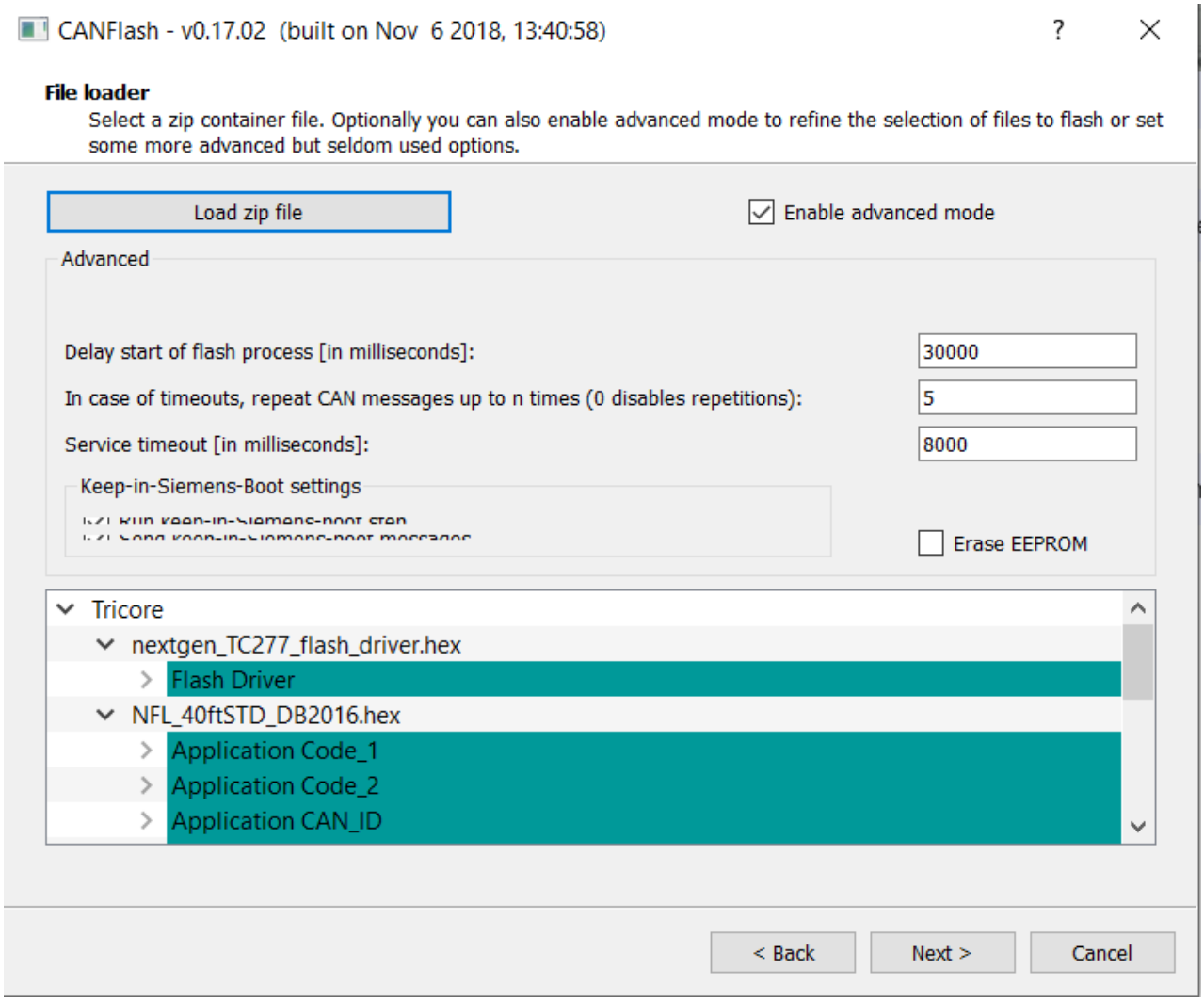

Figure 24: Advanced settings for CANFlash

70. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 25). In part 1 you do not need to turn the Master Run switch ON.

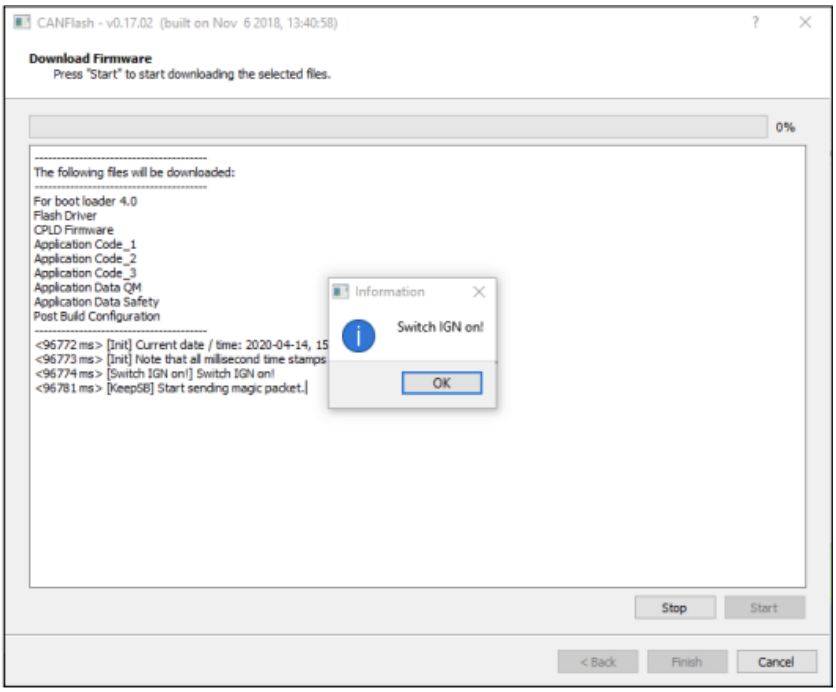

Figure 25: Flip switch on 1144289 when CANFlash shows Switch IGN on!

71. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
72. Disconnect the 1144289 X1 connector from the curbside centre axle traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the curbside inverter.
73. Locate the X1 connector on the streetside centre axle traction inverter (see figure 26) and remove it. Secure this connector nearby using Tywraps to reconnect later. Be aware the locking tab is located on the bottom of the connector and needs to be opened.

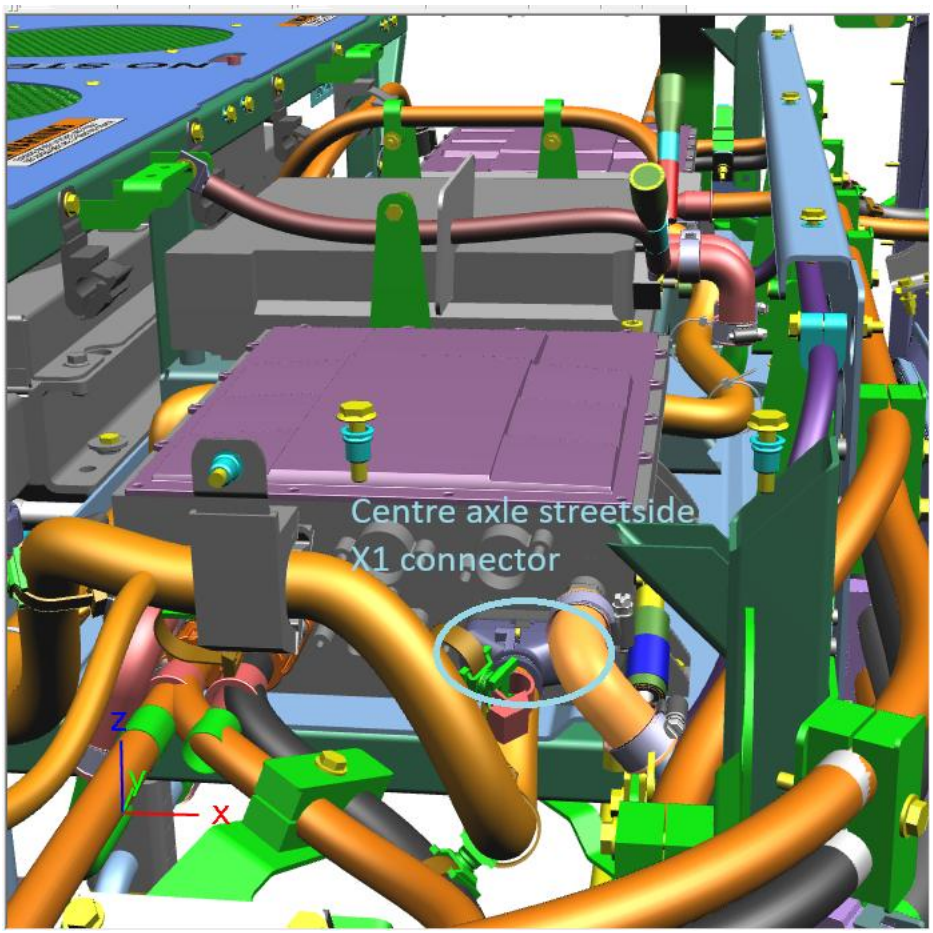

Figure 26: XE60 centre axle streetside traction inverter X1 connector highlighted in light blue

74. Take the X1 connector included in PN 1144289 and attach it to the streetside centre axle traction inverter.
75. Ensuring the ignition switch on 1144289 is in the OFF position, connect the ground (black) plug to ground in the centre door panel using alligator clips.
76. Ensuring the ignition switch on 1144289 is in the OFF position, connect the supply voltage (red) plug to the 12 V bus bar in the centre door panel using alligator clips.
77. Connect USB end of PCAN tool to laptop USB port 1.
78. Connect male DB9 end of PCAN tool to female DB9 connector on 1144289.
79. Open supplied CANFlash program on laptop.
80. Once CANFlash is open select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 27). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.

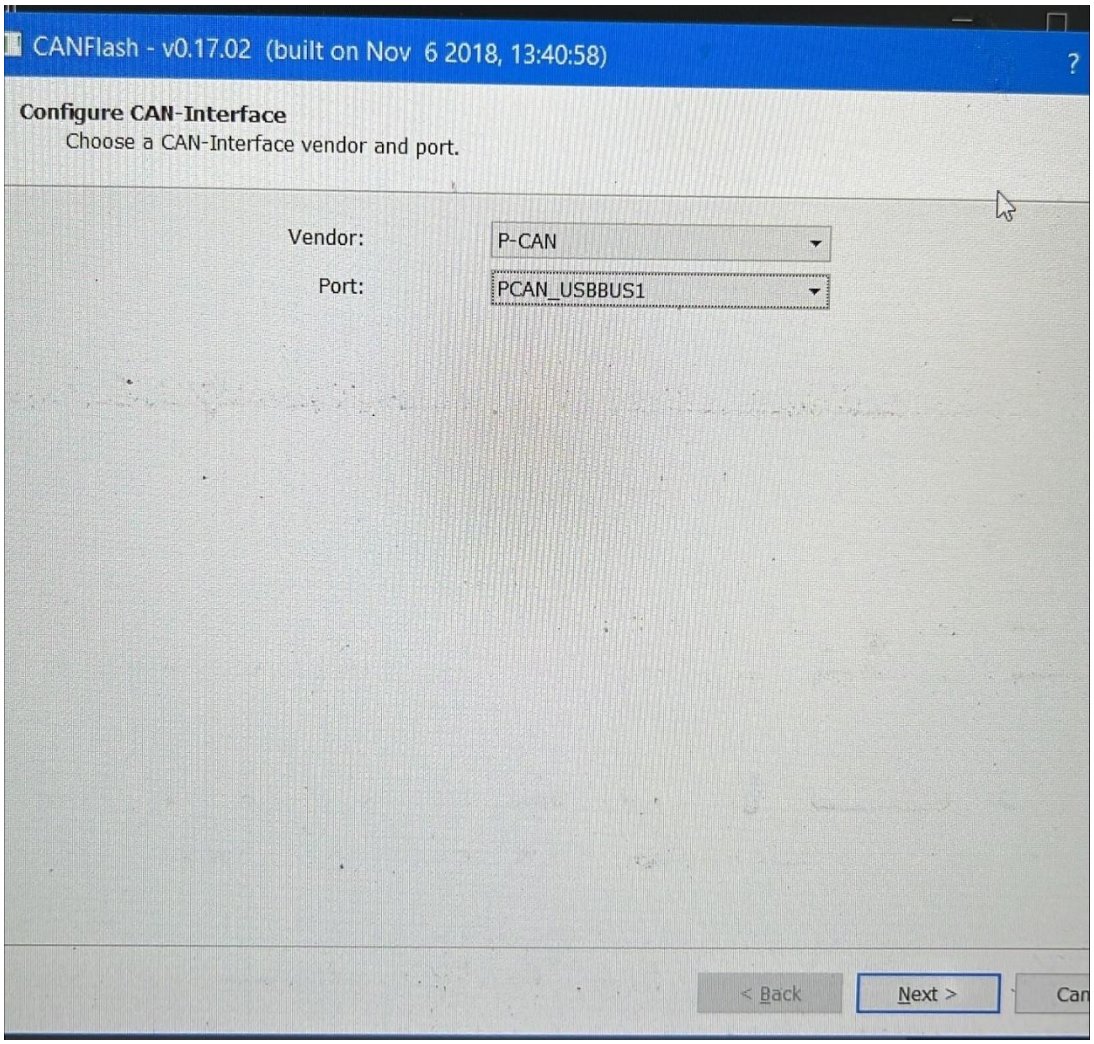

Figure 27: CANFlash PCAN settings

81. Click **Load zip file**. Select **SS1000214_Official Release Bootloader 5.11.zip** (see figure 28). Ensure the knob on top of 1144289 is set to inverter ID 2. Click **Next** when complete.

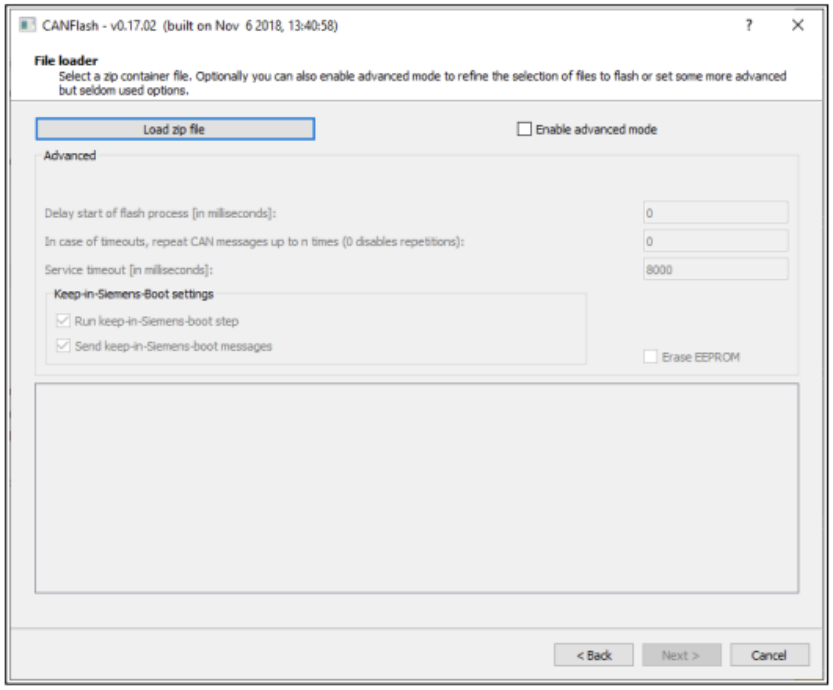

Figure 28: Load zip file in CANFlash

☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

82. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 29). Click **Next** when complete.

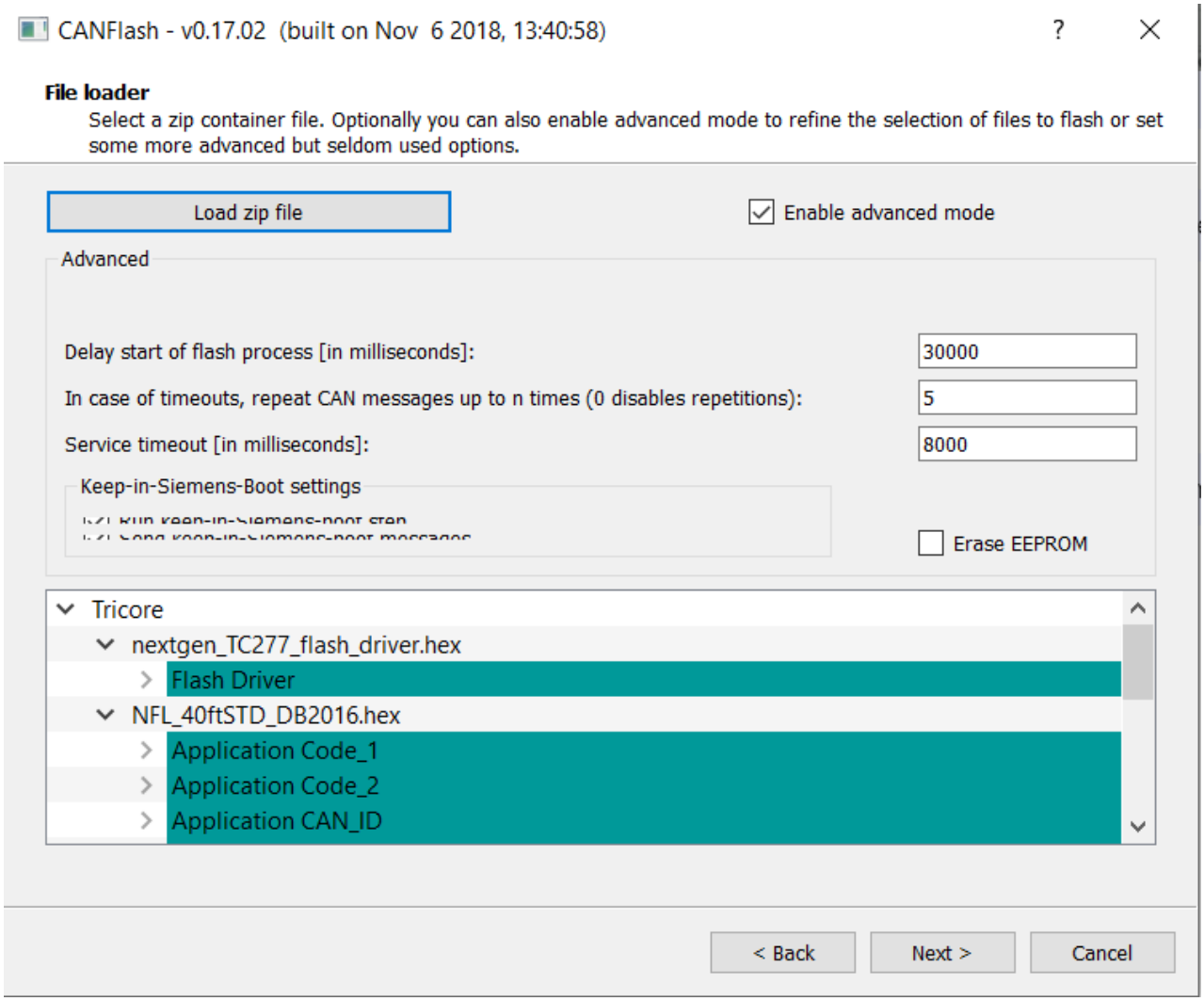

Figure 29: Advanced settings for CANFlash

83. Flip the ignition switch on 1144289 ON when CANFlash says Switch IGN on! (see figure 30). In part 1 you do not need to turn the Master Run switch ON.

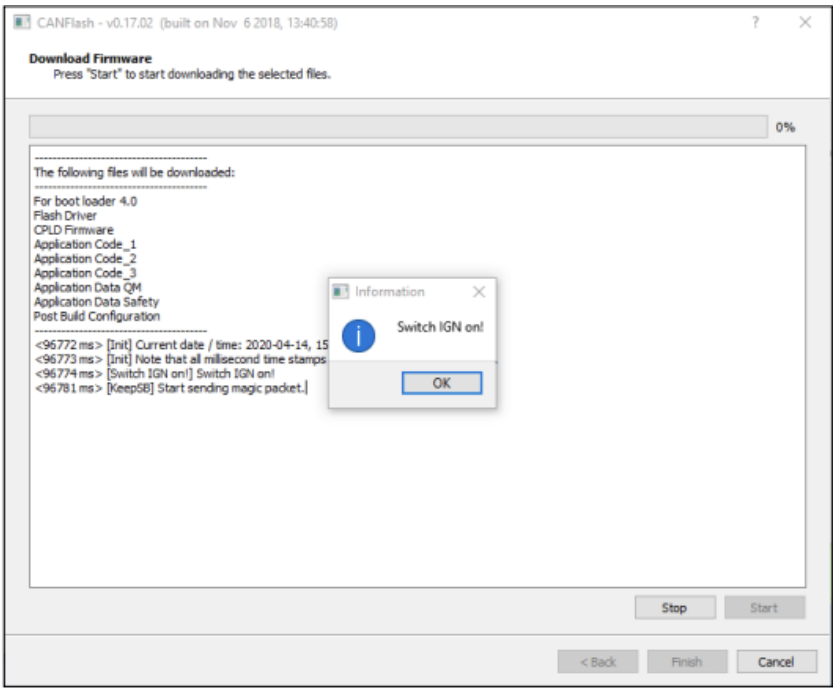

Figure 30: Flip switch on 1144289 when CANFlash shows Switch IGN on!

84. The flashing process will start automatically. When the process is complete CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
85. Disconnect the 1144289 X1 connector from the curbside traction inverter. Reconnect the bus-side X1 connector removed in step 5 to the curbside inverter.

Part 2: Programming the inverter(s)

☞ **NOTE: SS1000214_Official Release Bootloader 5.11.zip only needs to be installed once per inverter.**

☞ **NOTE: Installing the bootloader will delete any existing programming. DO NOT DRIVE THE VEHICLE UNTIL ALL TRACTION INVERTERS HAVE BEEN REPROGRAMMED.**

Consult the table below for the correct port to program traction inverters from.

SR #	Port for programming inverters
2838	Rear Prop
2829	Ebus
2853	Ebus
2892	Rear Prop
2893	Rear Prop
2837	Rear Prop
2846	Rear Prop
2848	Ebus
2869	Rear Prop
2881	Ebus
2883	Rear Prop
2908	Rear Prop
2931	Rear Prop
2951	Rear Prop
2957	Rear Prop
2958	Rear Prop
2980	Rear Prop
3001	Rear Prop
2796	Rear Prop
2799	Rear Prop
2801	Rear Prop
2802	Rear Prop
2803	Rear Prop
2841	Rear Prop
2847	ebus
2830	Rear Prop
2831	Rear Prop
2832	Rear Prop
2833	Rear Prop
2975	Rear Prop
2911	Rear Prop
2932	Rear Prop

2922	Rear Prop
2730	Rear Prop
2884	Rear Prop
2704	Rear Prop
2825	Rear Prop
2828	Rear Prop
2949	Rear Prop
2950	Rear Prop
2849	Ebus
2856	Rear Prop
2864	Ebus
2903	Rear Prop
2912	Ebus
2947	Rear Prop
2955	Rear Prop
2997	Rear Prop
3019	Rear Prop
2877	Ebus
2863	Rear Prop
2899	Rear Prop
2924	Rear Prop
2926	Rear Prop
2936	Rear Prop
2963	Rear Prop
2998	Rear Prop
2999	Rear Prop
3000	Rear Prop
3004	Rear Prop
2930	Rear Prop
2959	Rear Prop
2824	Rear Prop
2844	Rear Prop
2845	Rear Prop
2854	Ebus
2855	Ebus
2878	Rear Prop
2921	Rear Prop
2991	Rear Prop
2992	Rear Prop
2925	Rear Prop
2805	Rear Prop

2945	Rear Prop
2967	Rear Prop
2760	Rear Prop
2834	Rear Prop
2842	Rear Prop
2886	Rear Prop
2961	Rear Prop
2972	Rear Prop
2840	Rear Prop

2.1 Rear Propulsion Port

☞ **NOTE: Each inverter has a specific program, consult supplied software package for complete list.**

86. Gain access to the rear panel of the vehicle. Connect the Deutsch 9-pin end of PN 711447 to the rear propulsion port.
87. Connect USB end of PCAN tool to laptop USB port 1.
88. Connect male DB9 end of PCAN tool to female DB9 connector on CAN 2 (H and J) cable of 711447.
89. Turn the hazard switch to the ON position.
90. Open supplied CANFlash program on laptop
91. Once CANFlash is open, select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 2 above). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.
92. Click **Load zip file**. Select the supplied inverter program (see figure 3 above). Click **Next** when complete.

    ☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

    ☞ **NOTE: Each inverter has a separate file. Do not mix and match unknown programs. If you are uncertain which program is required by a specific vehicle, ask your New Flyer representative for assistance.**

93. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 5). Click Next when complete.
94. Turn the Master Run Switch to the Day Run position when CANFlash says **Switch IGN on**!
95. The flashing process will start automatically. When the process is complete, CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
96. Repeat steps 86-95 for systems with multiple inverters. Ensure the zip file is changed each time.
97. Skip to step 108.

2.2 Ebus Port

☞ **NOTE: Each inverter has a specific program, consult supplied software package for complete list.**

98. Gain access to the rear panel of the vehicle. Connect the Deutsch 9-pin end of PN 711447 to the Ebus port.
99. Connect USB end of PCAN tool to laptop USB port 1.
100. Connect male DB9 end of PCAN tool to female DB9 connector on CAN 2 (H and J) cable of 711447.
101. Turn the hazard switch to the ON position.
102. Open supplied CANFlash program on laptop
103. Once CANFlash is open, select **P-CAN** under the Vendor drop-down menu. Select **PCAN_USBBUS1** under the Port drop-down menu (see figure 2 above). It's important to ensure the physical connection to the laptop matches the same port as dictated by the CANFlash setup. Click **Next** when complete.
104. Click **Load zip file**. Select the supplied inverter program (see figure 3 above). Click **Next** when complete.

    ☞ **NOTE: DO NOT UNZIP THE FILES. CANFlash will handle all the required processes.**

    ☞ **NOTE: Each inverter has a separate file. Do not mix and match unknown programs. If you are uncertain which program is required by a specific vehicle, ask your New Flyer representative for assistance.**

105. Click the **Enable advanced mode** button. Change the **Delay start of flash process** box to 30000. Change the **repeat CAN messages** box to 5 (see figure 5). Click Next when complete.
106. Turn the Master Run Switch to the Day Run position when CANFlash says **Switch IGN on**!
107. The flashing process will start automatically. When the process is complete, CANFlash will show 100% and a message saying **All tasks finished** will appear. Pressing **Finish** will close CANFlash.
108. Repeat steps 86-95 for systems with multiple inverters. Ensure the zip file is changed each time.
109. Remove all tools and debris from work area to return coach to service.

LABOUR ESTIMATE				
	Operation	Number of Technician(s)	Hours	Labor Time T X HR
1	Update traction inverter bootloader and program inverter	1	0.5	0.5

PARTS REQUIRED					
Item	Part Number	Description	Qty. per Coach	Units	Notes
1			1	EA	

SPECIAL TOOLS REQUIRED					
Item	Part Number	Description	Qty.	Units	Notes
1	1144289	ASSY-12 V TRACTION INVERTER PROG BOX	1	EA	1 PER SR/RPSM
2	711447	SIEMENS PCAN INTERFACE CABLE	1	EA	1 PER SR