

INSTRUCTION TO SERVICE

ITS: 59212	April 12, 2021
SECTION:	219-Engine
WRITTEN BY:	Dana Carver
SUBJECT:	Updating Siemens Software, Vansco and CM0711 Programs
ISSUE:	Watchdog faults on the inverters cause them to shut down without warning
SUMMARY:	Vansco, CM0711 and Siemens software update

ITS59212

Ref. NHTSA Recall No.	Ref. Transport Canada Recall No.
21V-244	2021-206

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.

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NEW FLYER.



This is to inform you that your vehicle may contain a defect that could affect the safety of a person.

PROCEDURE:

The following are instructions to update the Vansco, CM0711 and Siemens programs on a bus. The programs have been sent to the New Flyer RPSM and must be updated in the order of Vansco, CM0711 and then Siemens.

Vansco Update:

1. Ensure the Master Run Switch is in Day/Run position and hazard must be on.



- 2. Ensure laptop battery is fully charged or plugged into a power source.
- 3. Connect a laptop with VMM software to the under-dash USB A connector located below the right side of the dash, above the pedals.
- 4. Open the PLC program in the VMM software.
- 5. Select Tools and Query VMMs.



6. Ensure you are communicating with all the nodes in the query screen prior to downloading.



- 7. Select Download Logic.
- 8. Ensure the correct file name and revision appear in the File window.



9. The software will verify the correct number of VMMs are found. Do not download program if all VMMs are not located. If the correct number of VMMs were found, select Yes.

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todules in the by:	stem. b	Status: Idle
Status Mox VMM 1615 V2 VMM 1615 V3 VMM 1615 V5 VMM 1615 V5 VMM 1615 V9	Download Ladder Logic Download Ladder Logic Download Progress:	S 5 4 5
VMM 1615 Donf	film .	× 5
100	 CV64M(a) uses found Documbered monitolics as 	Consideration of chine user of a not often leaves
9	6VMM(s) were found Download may take se	everal minutes, do you wish to continue?
	6VMM(s) were found Download may take a	everal minutes, do you with to continue?
4	6VMM(s) were found Download may take a <u>Yos</u> Fig. Vhagam Files Wanuco Electronics	everal minutes, do you with to continue?
	6VMM(s) were found Download may take as	An and the second secon

- 10. After the download is complete, close the download window.
- 11. Disconnect the USB A cable.



CM0711 Update:

- 12. Ensure VMM 7100 or later is installed because it should have Flash Loader v1.9 or newer on it.
 - a. To open flash loader open the VMM software and click Applications \rightarrow click FlashLoader. See figure 1.
 - b. To check the version is v1.9 or later, click Help \rightarrow click About. See figure 2.

🔊 VMM Software - Version 7.3.2.7100 (April 6, 2016)	
File Edit Search View Tools Applications Help	
D C A H H H FishLooder.	
A Coventr.	
11/23/2018 2.33.10 PM DEFAULT KEY (CL.S.P.E.G.B.B.DF,DL,UL,D,FW,J13) O O RP1210 Msg/sec Rx. 0 Tx: 0	Rung Ordering: Automatic OEM ID: 0000002

Figure 1: FlashLoader location

^{bout} Copyright © 2000-2010 Parker Hannifi	n Electronic Controls	<u>للا</u>
Flash Loader Version 1.9.4.66		aerospace climate control electromechanical filtration fluid & gas handling hydraulics pneumatics process control sealing & shielding
-Parker _{VANSCO}	ENGINEERING YO	UR SUCCESS.
	<u> </u>	

Figure 2: Flashloader version

- 13. Make sure the bus is <u>NOT</u> in EV MODE. Turn the bus to Day Run or Night Run with EV MODE OFF.
- 14. Turn hazard lights on, to assure the bus is awake while programming the CM0711.
- 15. Connect a NEXIQ USB LINK to the 9-pin Vehicle Diagnostic Port behind the driver and USB cable to laptop.

***** NOTE: Make sure the NEXIQ USB LINK is a wired connection (<u>NOT</u> Bluetooth).

- 16. With the NEXIQ connected, in FlashLoader go to File → RP1210 Settings and make sure NEXIQ USB LINK J1939 Channel 1 is selected. Check this if you are having trouble getting connected.
- 17. You will see several question marks and other devices on the left-hand side, find source address 0x49, this is the CM0711 (see figure 3).
 - a. The version shows what is currently loaded in the CM0711. Take a screenshot of what is currently loaded.
 - b. Select the new .vsf file you received and click start (It will take 1-2 minutes to download the program).





Figure 3: CM0711 source address and current version



18. After downloading finishes, follow the same process in step 5 and find source address 0x49. The Version # should now be updated to the program you just loaded. The following example in figure 4 is for loading 1019607_NFIL_Electric_Bus_V5.00.vsf. It is also important to notice that it is V5.00 Build 0.

Module Details	
Description	
?	
Source Address 0x49	73
Function 0x42	66
ECU Instance 0x00	0
Identity	1019002
Version	101000
Application 5.00	
Parameter	Value
Boot Block Part Number Boot Block Version Application Part Number	1809 V3.03 Build 5 1019607
Application Version Platform Software Part Number Platform Software Version	V5.00 Build 0 1809 V2.15 Build 20
	Module Details Description ? Source Address 0x49 Function 0x42 ECU Instance 0x00 Identity 0xF8C7A Version Application 5.00 Parameter Boot Block Part Number Boot Block Version Application Part Number Application Part Number Platform Software Part Number Platform Software Version

Figure 4: CM0711 source address and updated version



- 19. Turn the master-run switch OFF for at least 20 seconds. It takes at least 7 seconds for the CM0711 to power off after turning off the master-run switch, but 20 seconds is recommended to be safe.
- 20. Put the bus back into Day Run (not EV mode).
- 21. Open the rear panel and make sure the light on the CM0711 is flashing green and then orange. This indicates the CM0711 is operating.
- NOTE: If the CM0711 light is off or steady red, it is bricked and will need to be sent back to NPD. Unfortunately, the bus will be undrivable without a function CM0711 so please contact NPD as soon as possible.



Figure 5: Rear panel and CM0711 module location

- 22. Make sure the bus can enter EV mode by cycling EV mode "ON" then "OFF".
- 23. Download updated PLC program to Vansco.
- 24. Remove all tools and debris and return the bus to service condition.

Please refer to Appendix A for Instructions to Update the Siemens Software

Important Note 1: Force the HVIL flag inactive to ensure that the PLC program does not shut off communication prior to searching all nodes (step 1.7 in Appendix A).

Important Note 2: The delay time can be changed to allow the technician more time between key-on and searching for nodes. 15 seconds has been used with success.

Important Note 3: The DICO, motor inverter(s), auxiliary inverters and parameters need to be updated.



Appendix A

1 Instructions

1.1 Use the Siemens Diag in the Rear Panel (see diagram below) to connect the computer containing the software to the system.



Image 1. CAD image showing location of Siemens diagnostic ports

1.2 From the computer, navigate to folder where SW package is located

🔒 « ReleasePa	ack⇒	Software > INV	~	ē	,○ Search INV
ect	^	Name	Date modified	Туре	Size
Hydrogenics		📓 XE4_2B2I_i06608.hex	14-Jan-21 8:49 AM	HEX File	885 KB

Image 2. Screenshot showing the contents of the folder with a .hex file (.hex file for XE40 shown in example)

1.3 Start the ELFA WinFlash tool via double click





1.4 From the tool choose **Select** in *Hex-File menu*

LFAFlash 2.03r0 [DICO_500] Copyright STW					
CAN-DLL: .\stwpeak2.dll		Configure	Select		
Hex-File: D:\Projects\NewFlyer\NewFlyer_XE4\trunk\INV\MAKE\Dut\XE4_2B2I\inv2.hex					
	Delay: 100 ♀ Flash Pa Start Time: 3 ♀ Local I Start Time: 3 ♀ Long S ▲ Wakeup Node Compa Send II Bitrate: Image: Send II ● Trim Hexfile Bitrate: T Read from node to file Type o Configuration: □ Capp	rameters D: 1 INR: N.22.57.2.523 - 0007 my ID: S1 D: 81	PO Bit ID		
	Image: Search All Node Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Message Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes	Request nd Reset RQ Confi ge: ID1536 99/0/0/0/0/0/0/0/0/	gure		

Image 3. Image showing ELFA flash tool window

1.5 Navigate to the folder where SW package is located $ReleasePack \rightarrow Software \rightarrow INV$. Click the .hex file to open

🛤 Open							×
Look in:	INV		•	⇐ 🗈 📸 🖬 ◄			
	Name	^		Date modified	Туре	Size	
Quick access	XE4_2B2I_i06	i608.hex		14-Jan-21 8:49 AM	HEX File		885 KB
Desktop							
Libraries							
This PC							
- I I I I I I I I I I I I I I I I I I I							
Network							
	File name:	XE4_2B2I_i06608.hex			•		Open
	Files of type:	Hexfiles (*.HEX)	_		•		Cancel

Image 4. Image showing .hex file for an XE40 configuration



Flash Tool Configuration Software Flashing

- 1.6 Switch OFF Key Start (KL15) for all components and wait approximantely 30 seconds
- 1.7 Select Search All Nodes and switch ON Key Start (KL.15)

ELFAFlash 2.03r0 [DICO_500] Copyright ST File Actions Target Help	W	- 🗆 X		
CAN-DLL: .\stwpeak2.dll		Select		
Hex-File: D:\Projects\NewFlyer\NewFlyer_XE4\trunk\INV\MAKE\Out\XE4_2B2I\inv2.hex				
	Delay: 100 Flash Parame Local ID: Start Time: 3 Long SNR: Image: Start Time: 100 Start Time: Image: Start Time: 3 Company ID: Image: Start Time: Send ID: Image: Start Time: Send ID: Image: Start Time: Bitrate: Image: Start Time: Type of Hex Image: Configuration: Image: Complexity DIC0_500 Image: Complexity	1 Image: Constraint of the sectors in the sector is in the sec		
×	Image: Search All Node Reset Require Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes Image: Search All Nodes	est eset RQ KConfigure		

Image 5. Image showing "Search All Node" selection on Flash tool window



The process of Resetting node(s) will appear like the image below

ELFAFlash 2.03r0 [DICO_500] Copyright ST File Actions Target Help	W	- 🗆 X
CAN-DLL: .\stwpeak2.dll		Select [€] Select
Hex-File: D:\\ReleasePack\Software\INV\X	E4_2B2I_i06608.hex	Q View Select
III Resetting node(s) ! III	Delay: 100 € Start Time: 3 € Wakeup Node	Flash Parameters Local ID: 1 Long SNR: N.22.57.2.523 - 00070 Company ID: SI Send ID: 81 29Bit ID
×		Bitrate: 500 Image: Second secon

Image 6. Image showing Resetting node(s) message on Flash tool.

After successful wakeup, choose the correct Inverter serial number and then click Flash selected nodes.

🗤 ELFAFlash 2.03r0 [DICO_500] Copyright STW	- 🗆 X
File Actions Target Help	
CAN-DLL: .\stwpeak2.dll	Select
Hex-File: D:\\ReleasePack\Software\INV\XE4_2B2I_i06608.hex	View Brit Select
III Resetting node(s)! III Results: Wakeup with Serial Number successful! Flash/Local_ID/Serial_number/Type_SNR Wakeup with Serial Number successful! 001 / XC131061022222 / 02 001 / NK925521700070 02 002 / 090745271004 / 00 00	× Type SNR: 00 -7 DICO 02 -7 INV Serial number of components
Flash selected nodes	
Change Local ID	Nr Configure
	/0/0/0/0/0/1

Image 7. Image showing example of a system containing two Inverters and one DICO



Process of SW flashing is shown below

ELFAFlash 2.03r0 [DICO_500] Copyrigit File Actions Target Help	ht ST	W		-		×
CAN-DLL: .\stwpeak2.dll				🕵 Configure	[∋] Se	lect
Hex:File: D:\\ReleasePack\Software\I	NVV	(E4_2B2I_i06608.hex		🖳 View	Cr Se	lect
III Resetting node I III Wakeup with Serial Number successful! Number of Flash sectors detected: 19 Device ID: ELFA Sectors to erase: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Erasing sector 18 Line 2300 / 20138	~	Delay: 100 Start Time: 3 Start Time: Start Time: Start Time: Star	Flash Parame Local ID: Long SNR: Company ID Send ID: Bitrate: Type of Her Capplication Reset Requ Send R Message: II	I N.22.57.2.523 SI 81 500 xfile on (all sectors) uest eset RQ 01536 99/0/0/0/0	3 - 00070	

Image 8. Image showing software flashing in progress

1.8 Once the SW flashing process finished, choose **Start program** and click **OK**.

ELFAFlash 2.03r0 [DICO_500] Copyright ST File Actions Target Help	TW	- 🗆 X
CAN-DLL: Astwpeak2.dll		Select
Hex-File: D:\\ReleasePack\Software\INV\	KE4_2B2I_i06608.hex	입 View B를 Select
III Resetting node I III Wakeup with Serial Number successful Device ID: ELFA Sectors to erase: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Erasing sector 18 Line 20138 / 20138 Writing CRCs Flashing finished Please select Start all nodes Start all nodes Do not start (obsy in steep mode)	Delay: 100 Start Time: 3 Wakeup Node Image: Start Time Hexfile Image: Start Time Time Time Time Time Time Time Time	Flash Parameters Local ID: 1 Long SNR: N.22.57.2.523 - 00070 Company ID: SI Send ID: 81 29Bit ID Bitrate: 500 ▼ Type of Hexfile ▼ ▼ C application (all sectors) ▼ ▼ Reset Request Send Reset RQ Six Configure Message: ID1536 99/0/0/0/0/0/0/1 ■ ■

Image 9. Image showing menu that window that appears when flashing is finished



The Inverter with the serial number which has been flashed will show up like the picture below. Close ELFA flash tool.

ELFAFlash 2.03r0 [DICO_500] Copyright ST File Actions Target Help	W	- 🗆 X
CAN-DLL: .\stwpeak2.dll		Configure
Hex-File: D:\\ReleasePack\Software\INV\>	(E4_2B2I_i06608.hex	Q View Select
Summary: Flash ECU: -> Local ID = 1 -> Serial Number = NK925521700070 Result: OK	Delay: 100 € Start Time: 3 €	Flash Parameters Local ID: 1
	Read from node to file Configuration: DICO_500	Bitrate: 500 Type of Hexfile C application (all sectors)
	Flash Node	Reset Request Send Reset RQ Message: ID1536 99/0/0/0/0/0/0/1

Image 10. Image showing ELFA flash tool window with serial number of the inverter that has been flashed

2 Validation

Perform a final check for the software version. Refer to Appendix A1 to confirm the software release package for your bus configuration.





3 Error Buffer Check

Once the final check for the software has been installed per the instructions, the user should perform a drive test and export the error buffers to confirm proper functionality of the trap 10 software update. <u>This step only needs</u> to be completed once per bus configuration (e.g. XE40, XE60, etc.). Once the software release package is confirmed for a specific bus configuration, this test will not need to be repeated for every vehicle within that configuration.

- 1. Key off (restart) the vehicle
- 2. Test drive the vehicle for 20-30 minutes
- 3. Pull off to a safe area, stop the vehicle, and turn off bus
- 4. Connect to the vehicle via PCAN-USB tool (see image below for location of diagnostic port). Open Siadis Expert



Image 11. CAD image showing location of Siemens diagnostic ports

- 5. Start SIADIS
- 6. Within Component Selection, choose Motor 1



Image 12. Image of SIADIS tool window showing components



7. Navigate to Utility menu \rightarrow Software version



Image 13. Image showing SIADIS tool Utility menu

Component selection	
ELFA®- Data via CA	AN -> Send all
DICO	
Info-Box	
Softw: XE4_2B2I_i06608.hex Dat Name: AYulianto Dat LCA: Ivpm_mcb2_VI_07112018.m Dat Motor standard inverter	e: 11.01.2021 11:47 e: 11.01.2021 e: 11.01.2021 11:38
1	

Confirm that the appropiate SW version shows (See Appendix A1)

Image 14. Image showing software version info window (example shown is for an XE40)



- ₩ SIADIS-Expert [Siemens AG] Project: D:\1. Projects\H2\H2.prj Х Files View Utility Communication Window Settings ? ▼ 000000:00:00 Software version 1 🖌 🐼 🔊 no warning Motor 1 Controller load Componer System config ۲ au Save parameters of all components Document of all components Document of all errorbuffers ConfiaFile: Save Labview variables Save Labview parameter і Х Save info texts of actual List samp Uce detection Show additional frames Generate header-file(s) Superuser status Restart 100 20 <
- 8. To access the error buffer select click Utility \rightarrow "document of error buffers"

Image 15. Image showing to access error buffer in SIADIS tool.

- 9. Once the error buffers are visible, review them and verify that there are no trap 10 errors
- 10. If there are no trap 10 errors, mark the vehicle as completed, save the error buffer, and register it as complete in the attached and return a copy to Siemens.
- 11. If there are trap 10 error in the error buffer, verify that the correct software has been flashed (refer to section 6 & 7) according to Appendix A1



LABOUR ESTIMATE					
	Operation	Number of Technician(s)	Hours	Labor Time T X HR	
1	Update the Vansco, CM0711 and Siemens software	1	2	2	