









Renogy Lithium Battery Firmware Update

Bulletin Type:	Recall	Publication Date:	May 2024 Jayco, Entegra Coach	
Bulletin #(s):	24V-160 USA 2024-141 Canada			
Job Code(s):	9903603	Make(s):		
Flat Pata(a);	9903603A .50 HR Renogy Battery Inspection Only	Model(s):	Terrain, Solstice LI, Swift LI, Launch, Expanse LI, Ethos LI	
rial Rale(S):	Inspection and Battery Firmware Update	Model Year(s):	2021-2024	

Incident:	Renogy Firmware Update to address Recall Remedy			
Affected Units:	2021-2024 Jayco Terrain, Solstice LI, S Launch, Expanse LI, Ethos LI with Ren	Swift LI; 2021-2024 Entegra Coach ogy 48V Lithium system		
Parte Kit-N/A	Parts Kit #: N/A			
Faits Kit.N/A	Part Kit Contents: N/A			
	Renogy will be sending the USBCAN A dealers.	Analyzer and Jumper cables to		
Misc. Tools &	1 - USBCAN Analyzer	CO USECAN - I		
Supplies:	1 - Jumper Cable – Male Amp Super Seal Connector to Bare Wire			

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Misc. Tools & Supplies:	1 - Jumper Cable-A – Female Amp Super Seal Connector to Grey Deutsche (DTM) Connector	
 -	1 - Jumper Cable-B – Female Amp Super Seal Connector to Male Amp Super Seal Connector	
Parts Return Information:	N/A	<u> </u>

RENOGY Lithium Battery Firmware Update

Please read the following instructions thoroughly before starting the inspection and battery firmware update. If you have any questions or need some guidance throughout the inspection or battery firmware update procedure, please contact Renogy at <u>Recall@renogy.com</u> or give us a call at **(909) 870-1885**.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



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Indicates a potentially hazardous situation that, if not

avoided, may result in death or serious injury.

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1. Inspection Process

Check the firmware version on the Samkoon screen. If the firmware version is 137.4.4 you should stop and file a claim for inspection only.

Before completing the firmware update, the battery should pass the following inspection to check for stuck contactors.

A.Checking for stuck contactors



Being able to power the 12V or 48V circuits when the battery is "off" is the most obvious sign for stuck contactors. A stuck contactor will require immediate stoppage of use and require a battery replacement related to the recall.

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WARNING

DO NOT touch any terminals or connectors.

CAUTION

- DO NOT wear jewelry or other metal objects when working on or around the battery.
- 1. Power down the lithium battery system.
 - A. Turn off the Inverter by pushing button on Inverter remote switch located near the Firefly Touchscreen so that the push button protrudes from its location and the green power light shuts off.



- B. Verify all charging sources have been disconnected:
 - i. Alternator (Engine OFF)
 - ii. Shore Power (Nothing plugged into shore power port)
 - iii. Side Solar (Nothing plugged into side solar port)
 - iv. Rooftop Solar disconnect near battery in the 'OFF' position.
- C.Turn off the 12V Master Disconnect (Main Power) located near the rear of the sliding door. Verify that the red light turns off.





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E. Press and release the Self-Locking Battery Switch. The button will flush in the 'OFF' position. For verification, the Samkoon Screen should be OFF.



G. Check if you have 48-volt power by pushing the button on the Inverter remote switch located near the Firefly Touchscreen so that it is pushed in. Wait about 1-2 minutes to see if the green power light turns on. If the light comes on, there DENOGY is still power, and we have identified a stuck 48V contactor that requires immediate stoppage and battery replacement. Contact your dealer right away. Don't try to remove the battery yourself.

If no lights were observed during the 12V or 48V circuit checks, then you can move on to the next Step B.

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BATTERY

SWITCH

SELF LOCK











B.Check for Cell Imbalance

Cell imbalance is not a direct indicator of a stuck contactor, but attributed to variations in cell capacity, aging, charging, and discharging. However, it could suggest the presence of a stuck contactor.

If you have any of the following conditions <u>AND a stuck contactor</u>, then you proceed with battery replacement under the recall. If you ONLY have cell imbalance and not a stuck contactor, then you must contact your dealer for a battery warranty replacement NOT RELATED to the recall.

Cell imbalance could be defined by any of the following conditions below:

- A. If the voltage difference between the min and max cell voltage is greater than 800mv.
- B. If the battery total voltage is less than 32V.
- C. If the max cell reads 8,000mV or similar.
- D. If the min cell is under 2,000mV.

WARNING: Do not attempt to charge the battery with the above conditions:



2. Driver Installation – Getting your PC Ready

To ensure smooth driver installation, we recommend you have the following materials ready as well as access to administrative privileges on your computer if it is on a network.

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Note: The update is only compatible with Windows computers and not Mac OS systems. If you do not have a Windows computer, please reach out to your dealer, or contact Renogy at <u>Recall@renogy.com</u> or call us at (909) 870-1885.

A.Materials Needed

- 1. Laptop running Windows 10 with administrative privileges preferred.
 - a. The driver installation has been tested to operate on Windows 10 and Windows 11. Computers that are part of a network should have IT personnel nearby to unlock driver access to install the necessary driver to connect to the USB Can Analyzer as well as provide access to BitLocker if applicable.
 - In some cases, you will need your BitLocker to disable your driver to install the battery firmware driver needed to conduct battery update.
- 2. USB CAN Analyzer
 - a. The USB-Can Analyzer will be shipped with the harnesses needed to connect to the battery as well as a USB Cable to connect to your computer.



3. Access to the Driver and Firmware Installation Folders

B. Downloading the Renogy Battery Firmware Update Folder

 Click the below link to access the battery update folders and select "Download". You can also scan the QR Code which will take you to the same domain. It is recommended to be logged into another device to download the driver as it will require a restart of your computer.



 ✓ Download

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https://rb.gy/v2xtwg

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Jayco	ENTEGRA COACH		High Rido	land Gerv	STARC	RAFT	
OneDrive	🔎 Search					ସ ୫ 🚳 ? (ML)	
+ Add new	양 Share ⓒ Copy link 🛓 Download 🕞 Automat	e ~			JF Sort	: ✓ ☴ ✓ 町 Details	
Mauricio Luna	My files > Renogy Battery Firmware Update						
G Home	Pi Name † v	Modified ~	Modified By Y	File size 🗸	Sharing	Artivity	
양 Shared			mounica by		or of the later	Activity	
☆ Favorites	KB1210LFP515-12 Update Instructions	2 hours ago		/ items	Shared		
Recycle bin	Update Instructions Video Steps						
Browse files by							
& People							
Meetings							

2. Go to the downloaded One Drive Folder location – typically in "Downloads" – and right click the zipped file and select "EXTRACT HERE" or "EXTRACT" or "EXTRACT ALL" and choose your own location.

		Extract	Downloads					
	e View	Compressed Folder	Tools					
C	Cut Copy path Paste sho	rtcut Move Copy to * to * O	Delete Rename	New Folder New New	Right click the older and then elect "Extract	Select all Select none Invert selection Select		
	his PC → OS ((C:) → Users → MLu	ına → Downloads	H	lere."			
			Name			Date modified	Туре	Size
			Today (1)	06	Open	E/E/2024 4:12 DEA	VinRAR ZIP archive	1,239,846 KB
			Last week (3)	t	Share with Skype Open with WinRAR		∕licrosoft Excel W	87 KB
			ALLIANCE RV SOLA	R AUDIT 4-28-24 nd ECB CAN box s	Fytract files		VinRAR ZIP archive VinRAR ZIP archive	6,392 KB 4,283 KB
			Last month (14)		Extract to "OneDrive_2024-05	-06\"		
8	6)		2024_04_25	1240419 130310-M	🖻 Share		VinRAR ZIP archive	672 KB
	min							

3. When finished, there will be a folder called "Renogy Battery Firmware Update" Folder

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C. Installing the Driver

1. Click the START button and select SETTINGS.



2. Select Update and Security. Alternatively, you can type in "recovery options."





3. Select "Recovery" and then select "Restart Now" under Advanced Startup

÷	Settings	
ል	Home	Recovery
Fi	nd a setting $ ho$	Reset this PC
Upo	late & Security	If your PC isn't running well, resetting it might help. This lets you choose to keep your personal files or remove them, and then reinstalls Windows.
С	Windows Update	Get started
曲	Delivery Optimization	
\$	Windows Security	Advanced startup
₹	Backup	Start up from a device or disc (such as a USB drive or DVD), change your PC's firmware settings, change Windows startup settings, or restore Windows from a system image. This will restart your PC.
Þ	Troubleshoot	Restart now
ධු	Recovery	
Ø	Activation	More recovery options
Å	Find my device	Learn how to start fresh with a clean installation of Windows
8	For developers	

4. Your computer will restart and then prompt you to select from the following options. Use your mouse to select "Troubleshoot." Alternatively, you can use your arrow keys and press enter.

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5. After "Troubleshoot" use your mouse to select "Advanced Options"



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6. Under Advanced Options use your mouse to select "Startup Settings"

¢	Advanced options				
	Startup Repair Fix problems that keep Windows from loading	Contraction of the second seco	r see		
	Startup Settings Change Windows startup behavior	UEFI Firmware Settings Change settings in your PC's UEFI firmware			
	Command Prompt Use the Command Prompt for advanced troubleshooting	System Restore Use a restore point recorded on your PC to restore Windows			
	See more recovery options	and the second s	Orter and the second se		

7. Under Startup Settings, you will press "ENTER" again to restart your computer where you will disable the driver signature enforcement.

¢	Startup Settings	5	
	Restart to change Windows opti Enable low-resolution video mode	ions such as:	and a stand of the
	Enable deougging mode Enable boot logging Enable Safe Mode Disable driver signature enforcement Disable early-launch anti-malware protection Disable automatic restart on system failure		and the second sec
			tart
	and the second s	and the second second	

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 When your computer restarts, you will then be given the following options and make sure to select number 7 – Disable driver signature enforcement – by using your mouse to select it or pressing the number 7 on your keypad

Startap Settings
Press a number to choose from the options below:
1) Enable debugging
2) Enable boot logging
3) Enable low-resolution video
4) Enable Safe Mode
5) Enable Safe Mode with Networking
6) Enable Safe Mode with Command Prompt
7) Disable driver signature enforcement 4 Pross 7 or
8) Disable early launch anti-malware protection
9) Disable automatic restart after failure
Press F10 for more options
Press Enter to return to your operating system
riess the to retain to your operating system

If you did not get to the Startup Settings and instead get BitLocker below, please see the next section **"D. Finding your BitLocker"** for finding your BitLocker then proceed to redo the steps Highlighted in "C. Installing the Driver" after finding your BitLocker.



Connect the USB Can Analyzer to your computer to automatically try to download the ITEK Driver needed to conduct battery updates. Connect the USB-B Side of the cable to the USB Can Analyzer and connect the USB A side to your computer.

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9. Upon connecting, the driver will attempt to automatically install if you do not have driver enforcement enabled.



10. Upon completion, you need to validate whether the driver installed correctly by going to Device Manager. Go to Start, type in "DEVICE MANAGER" and select the following to open the window.

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11. If the ITEK USBCAN is shown under "Other Devices" as well as has a caution symbol, then driver needs to be updated to be correctly installed. It should normally fall under Universal Serial Bus Controllers



12. Right click the ITEK USB Driver and select "UPDATE DRIVER"

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			Find Your Er	IOGY nergy Freedom [™]
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🗄 Device Manager			- 🗆 X	
File Action View	Help			
	🛿 🖬 👹 💭 💺 🗙 🕀			
 LAPTOP.822C5 Audio inpi Batteries Bluetooth Computer Disk drives Disk drives Display ad Firmware Firmware Keyboards Monitors Monitors Network a Other devi App Se M M M M W W W W W Pint (SE21 uts and outputs s lapters terface Devices s other pointing devices dapters lices erver Update driver Uninstall device Scan for hardware changes Properties			
	Device Manager File Action View File Action Vi	Device Manager File Action View Help Image: File Action View Help Image: Image: </td <td>ENTEGRA COACH EVENCE Manager File Action View Help Ele Action View Help Help Action View Help Action View Help Action View Help A</td> <td>Fie Action View Help</td>	ENTEGRA COACH EVENCE Manager File Action View Help Ele Action View Help Help Action View Help Action View Help Action View Help A	Fie Action View Help

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14. Select Browse and locate the folder where you downloaded the "Renogy Battery Firmware Update" folder. It will be in Downloads by default. Then select Okay.

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15. Windows will give the following prompt and ensure to select the install the driver software anyway.



16. The driver has been installed and you are now ready to begin battery firmware update. You can proceed to section **3.** Firmware Bootloader Instruction

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Close











D. Finding your BitLocker

1. Press Enter to Continue then "skip this drive".



- 2. To find your recovery key, you will need to login to your computer like normal.
- 3. You can access your BitLocker through Microsoft or by clicking the following link:

https://account.microsoft.com/devices/recoverykey

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4. Once you log into your Microsoft account, you select Devices and go to your current computer device and select "View BitLocker Keys"

🗰 My Account 🗸					R
Mauricio Luna Mauricio Luna@renogy.com	Devices				
은 Overview	If you lose a device or no longer of	use it, disable it so no on	e else can gain access to it. To re-enable it after it's been	disabled, contact your admin.	
$\beta_{\!P}$ Security info	DESKTOP-5AK0CTD	•••	-	Active	~
Devices	💷 eng01	::: Му	/ Account \lor	Active	~
Password	Andy2019			Inactive	~
	RNG-LT027		Mauricio Luna	Inactive	~
§3 Settings & Privacy Settings & Privacy	😐 Mauricio	MIL	Vauricio.Luna@renogy.com	Inactive	~
	□ SALE07	_			~
B My Apps 參 My Groups		8 Ov	verview	Select "Devices" from	
중 ^D Give feedback		P₂ Se	curity info	the menu	1
		🗖 🗆 De	evices		
		🔎 Pa	ssword		
		Ċ Or	ganizations		
		ණි Se	ttings & Privacy		
		🔑 М	y sign-ins		_
III My Account V					Ŕ
Mauricio Luna Mauricio.Luna@renogy.com	Devices			•	
S Overview	If you lose a device or no longer o	use it, disable it so no on	e else can gain access to it. To re-enable it after it's been	disabled, contact your admin.	
ℜ Security info	DESKTOP-5AK0CTD		Windows	Active	~
Devices Devices	😐 eng01		Windows	Active	~
Password	Andy2019		Windows	Inactive	~
Organizations	-		Windows	Inactive	~
Reference Clic	ck on your de	evice	Windows	Inactive	~
to a	access the dr	op-	Windows	Inactive	~
My Groups dov	vn menu.	•			
8 ^D Give feedback					
C one recover					

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🗄 My Account 🗸				R å
ML Mauricio Luna Mauricio.Luna@renogy.com	Devices			
Overview	If you lose a device or no longer use it, disable i	t so no one else can gain access to it. To re-ena	ble it after it's been disabled, contact your admin.	
A _ℓ Security info	DESKTOP-5AK0CTD	Windows	Active	^
Devices Password Organizations	Disable lost device View Bitlocker Keys	Organization Status Active	Device object ID ① 7a8f3d15-d7ab-442b-b0ef-e9ecfbcd180d	٥
🖏 Settings & Privacy	eng01	Windows	Active	~
🍃 My sign-ins	Andy2019	Windows	Inactive	~
CB My Apps	C - 846 (1937	Windows	Inactive	\checkmark
	w BitLocker	Windows	Inactive	~
	-			

 Then you select Show recovery key and write down this BitLocker code for the next page
 BitLocker keys for DESKTOP-5AK0CTD

CTOP-5AK0CTD Windows Active Disable lost device Organization Status Device object ID O Active 7a8/3d15-d7ab-442b-b0ef-e9ecfbcc 1 Windows Active 2019 Windows Inactive
Disable lost device Organization Status Active 7a8f3d15-d7ab-442b-b0ef-e9ecfbcc 1 Windows Active 2019 Windows Inactive
Windows Active 2019 Windows Inactive
2019 Windows Inactive
-LT027 Windows Inactive
ricio Windows Inactive
07 Windows Inactive

6. Once you have your BitLocker Key, proceed to redo the steps in the previous section C. Installing the Driver

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3. Firmware Bootloader Instruction

If your battery passed the inspection process, then you may proceed with updating the battery firmware to Version 137.4.4.



 DO NOT wear jewelry or other metal objects when working on or around the battery.



- 1. Power down the lithium battery system.
 - A. Verify all charging sources have been disconnected:
 - i. Alternator (Engine OFF)
 - ii. Shore Power (Nothing plugged into shore power port)
 - iii. Side Solar (Nothing plugged into side solar port)
 - iv. Rooftop Solar disconnect near battery in the 'OFF' position
 - B.Turn off the 12V Master Disconnect (Main Power) located near the rear of the sliding door.
 - C.Turn off the Inverter by pushing button on Inverter remote switch located near the Firefly Touchscreen so that the push button protrudes from its location and the green power light shuts off.



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SOC%

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V: 51.2 V

C: 210.0 AL

100%

13

BMS_Ver: 137







RENOGY

Baz_Volt Ho.

3426 mV 1

Total Voltage

53.8 V

Baz_Tenp Ho.

22.7°C 3

lin_Volt No.

3339 mV 8

Total Current

Bin_Temp Ho.

20.2 °C 2

0.0 A



E.Record the reported percentage - SOC%, as this will be used later for manual calibration of the battery.

F. Press and release the Self-Locking Battery Switch. The button will flush in the 'OFF' position. For verification, the Samkoon Screen should be OFF.



2. Locate the Battery Serial Number which will be by the battery handle in the back. The battery serial will determine which Jumper Cable you will be using to conduct the Bootloader.

Note: Most batteries will be using the Jumper Cable



1

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Battery Serial	Cable	Note
If your battery serial begins with 23RBC, 22RBC, or 21RBC	Jumper Cable – Male Amp Super Seal Connector to Bare Wire	Most Common
lf your battery serial begins with TE05	Connect the Jumper Cable + Jumper Cable- A together so that you have Bare Wire and Grey Deutsche (DTM) Connector on the ends.	Rare

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 Locate the battery harness and connect your respective jumper cable to the respective connector. The Jumper Cable will connect to the Amp Connector on the battery harness labeled "Debug", while the Jumper Cable + Jumper Cable-A will connect to the grey DTM connector on the battery harness labeled "Generator" (Figure 2)

Cable	Connecting Point
Jumper Cable – Male Amp Super Seal Connector to Bare Wire	
	Connect to the Black Amp Super Seal Connector. This connector will be labelled on the "Debug" line of the battery harness. Note: Remove the protective dust protector cap
Connect the Jumper Cable + Jumper Cable-A together so that you have Bare Wire and Grey Deutsche (DTM) Connector on the ends.	
	Connect to the grey DTM Connector. This connector will be labeled on the "Generator" line of the battery harness. Note: You may have to disconnect it from the APS

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 Verify the USB-CAN analyzer has both toggles in the ON position (toggles up) as shown. (Figure 3) Also verify that the white bare wire is inserted into the CAN1 "L" terminal, and blue bare wire end is inserted into the CAN1 "H" terminal.



- 5. Connect the iTekon USB-CAN analyzer to the computer with a USB cable.
- Press and release the Self-Locking Battery Switch. The button will be depressed in the 'ON' position. (Figure 4)
- 7. Go to the Renogy Battery Firmware Folder that you downloaded and open. (Figure 5)



8. Open the "RBT210LFP51S-12 Update Instructions" then select "1. Bootload Folder" and then Run the KPT _BMU_Bootload_V1.01.exe. (Figure 6)

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						Fig. 6	
$ imes$ $=$ $ imes$ $ $	New item 🕶		Open -	Here Select all			
Delete Rename	New Easy access *	Properties	Edit	Select none			
	folder		History		ion		
rganize	New	Oper		Select			
Documents → US O	Documents -> US OEM Support -> Update -> RBT210LFP51S-12 Update Instructions -> 1. Bootload						
Name		Status	Date mo	dified	Туре	Size	
kerneldlls		•	12/14/20	023 1:01 PM	File folder		
res		•	12/14/20	023 1:01 PM	File folder		
ControlCAN.dll		•	9/28/202	22 1:18 PM	Application exten	40 KB	
KPT_BMU_Bootlo	oad_V1.01	•	9/28/202	22 1:18 PM	Application	40 KB	

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9. If you get a security message, click "More Info", then "Run Anyway"



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Verify and change the following settings (Figure 7 – Red):

- A. Device: USBCAN1, Channel 1
- B. Baud Rate: 250K bit/s
- C. CAN Type: Standard
- D. File Type: S19.

10. Click **Connect** (Figure 7 – Green) to connect the battery to the KPT Bootload. The CAN connection successful prompt appears. (Figure 8)

NOTE: If connection fails, close the Bootload program , unplug the USB cable from the computer for approximately 5 seconds and re-start with step #7.

KPT_Boot	load V1.00 ??????	???? 2017.07.29		-	- 🗆 >	<
Device:	USBCAN1	▼ Channel 1 ▼	Baud Rate: 250K bit/s 💌	CAN Type:	Standar 🗸	
Target:	BMU	▼ 1#MCU ▼	File Type: S19 🔻		Connect	
File Path:					DownLoad	
Fig. 7					Complete:0 %	5

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					RENOGY Find Your Energy Freedom ^{**}
Jay	CO	ENTEGRA COACH	Highland RIDGE RV	STARCE	RAFT =
11.Sele	ect the 3 dot	s (Figure 8- Blue)			
Fig. 8	oad V1.00 mm	((((2017.07.29			- L X
Device:	USBCAN1	▼ Channel 1 ▼	Baud Rate: 250K bit/s	CAN T	ype: Standar 💌
Target:	BMU	✓ 1#MCU	File Type: S19	•	DisConnect
File Path:					DownLoad
					Complete:0 %

CAN connection successful!

12. Open the Firmware Folder and select V137.4.4[20240430a].S19 File (Figure 9 - Red)

Device:	USBCAN1	• Cha	annel 1 💌 Baud Rate: 2	50K bit/s - CAN Typ	e: Standar •
Target:	BMU	MPT Open		×	DisConnect
File Path:		Look in: 🚺	2. Firmware	• 🖨 🖆 📰 •	. DownLoad
		Name	ect.abs-V137.3.13.s19	Date modified 5/6/2024 2:19 PM 5/6/2024 2:19 PM	Complete:0
CAN connec	tion succ		.4.4[20240430a].s19 -2024-1-20-1743.s19	/6/2024 2:19 PM 5/6/2024 2:19 PM	
9		File name:	V137.4.4[20240430a]	Open	
		Files of type:	S19 File(*.s19)	✓ Cancel	

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			Find Your Energy
Jayco	ENTEGRA COACH	Highland RIDGE RV	STARCRAFT =
14. Select "Dow KPT_Bootload V1.00 ??	nload". (Figure 10 -	Green)	X
Device: USBCAN1	▼ Channel 1 ▼	Baud Rate: 250K bit/s 💌	CAN Type: Standar 💌
Target: BMU	▼ 1#MCU ▼	File Type: S19 💌	Fig. 10 DisConnect
File Path: C:\Users	\Jeremy Yoder\Desktop\	Renogy battery firmware upda	ate fi DownLoad
			Complete:06

- 15. Go to the 'Battery Switch Self Reset' button (Figure 11) and ensure you have the computer screen visible to you from that location so that you can observe the update percentage as it progresses.
- Press and hold the 'Battery Switch Self Reset' button until the "Complete: %" (Figure 10 –Red) reaches goes from 0 to 100%. This process should take 1-2 minutes.

Note: If the download percentage does not populate, close the Bootloader program, unplug the USB cable from the computer for approximately 5 seconds and re-start with step #7.

A. While it is downloading, it is normal to see the Samkoon screen show a "No Device Response" message. This should disappear about the same time as download reaches 100%. (Figure 12)



B. Read the BMS_ver in the lower right corner of the battery monitor. The updated BMS Firmware should now read 137.4.4. (Figure 13)

Note: The State of Charge (SOC%) might automatically calibrate to 0% or 100% and require manual calibration as one of the last steps of this instruction.



Note: Upon successful download, the Samkoon screen may also power off. As long as the BMS Version number reflects 137.4.4, the bootloader still went through.

- 17. Click Yes on the Download Successful window and close the KPT Bootload. (Figure 14) If the Download Successful window does not appear, the Battery Switch Self Reset button can be released when the Complete reaches 100%. (Figure 14 –Blue)
- 18. When complete, the Bootload should disconnect automatically. If not, select DisConnect (Figure 14 -Green) and close the window.

KPT KPT_Bootload V1.00 ???????? 2017.07.29	$ \Box$ \times
Device: USBCAN1 💌 Channel 1 💌 Baud Rate: 250K bit/s	CAN Type: Standar 💌
Target: BMU 🔽 1#MCU 🔽 File Type: S19	▼ DisConnect
File Path: C:\Users\ML\OneDrive - RNG International Inc\Documen	ts\Products DownLoad
KPT_BMU_Bootload_V1.01	Complete: 100%
Send the Number 2 frame data: ID:0 Send the Number 3 frame data: ID:0 Send the Number 4 frame data: ID:0 Send the Number 5 frame data: ID:0	7c 29 in the line of 1521 9a b7 in the line of 1521 29 ac in the line of 1521 00 00 in the line of 1521
Kecivež UxlU: bb,fe,be,2U,ff,ff,ff, Send the Number 1 frame data: ID:0 Send the Number 2 frame data: ID:0 Send the Number 3 frame data: ID:0 Send the Number 4 frame data: ID:0.	16 48 in the line of 1 33 fc in the line of 1 fb 7e in the line of 1 81 Oa in the line of 1 1522

19. Press and release the Self-Locking Battery Switch. The button will be flush in the 'OFF' position. For verification, the Samkoon Screen should be OFF. (Figure 15)

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20. Disconnect the USB from your laptop for approximately 15 seconds before starting the Debug Tool Instruction. Note: It is important to disconnect the USB from the laptop to reset the USB Can Analyzer so that it will successfully connect in the next program. Failure to act on this will not allow the next program to take place.



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4. Debug Tool Instruction

For the Debug Tool Instruction, you will only need the Jumper Cable with the Male Amp Super Seal Connector.

Battery Serial	Cable	Note
If your battery serial begins with 23RBC, 22RBC, or 21RBC	Jumper Cable – Male Amp Super Seal Connector to Bare Wire	Most Common
If your battery serial begins with TE05	Connect the Jumper Cable + Jumper Cable- B together so that you have Bare Wire and Male Amp Super Seal Connector on the ends.	Rare

- 1. Disconnect and then Reconnect the USB cable to reset the USBCAN Analyzer.
- Go to the Renogy Battery Firmware Folder on the desktop screen and open the KPT_Debug_ToolVE3.3.0.exe-Shortcut. (Figure 16)

> Renogy	Fig. 16	210LFP51				
Name		!				
📙 1. B	ootload	c				
2. Firmware						
3. KPT_Debug_ToolVE3.3.0						
4. Configuration File						
ITek Driver						
💼 Renogy Recall Firmware Update Procedure						

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- 3. Turn on the lithium battery: Turn battery on with the self-locking switch and self-resetting switch. (Figure 17)
 - A. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
 - B.Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for approximately 5-10 seconds to turn on the battery.



- C.To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.
- 4. Run the KPT_Debug_ToolVE3.3.0.exe-Shortcut (Figure 18)

Note: If the program fails to load or you experience any issues, close the program, disconnect the USB Can Analyzer, Reconnect the USB Can Analyzer, then run the KPT Program again

Manage 3. KPT_Deb		3. KPT_Debug_To	_Debug_ToolVE3.3.0							
Арр	lication T	ools							Fig. 18	
cut	Move to +	Copy to *	Delete Rename	New folder	New item ▼ Easy access ▼	Properties	Select all Select none Invert selection		3	
		Org	anize	Ne	ew	Open	Select			
nload	s → Ren	ogy Bat	tery Firmware Upda	ite → RBT210	LFP51S-12 Upd	late Instructions	T_Debug_ToolVE3.3.0			
		^ N	lame			Date modified	Туре	Size		
			config			5/6/2024 4:17 PM	File folder			
			device			5/6/2024 4:17 PM	File folder			
			history data			5/6/2024 4:17 PM	File folder			
			platforms			5/6/2024 11:11 PM	File folder			
			plugins			5/6/2024 4:17 PM	File folder			
			d3dcompiler 47	dll		5/6/2024 11-11 PM	Application exten	3,386 KB		
			KPT_Debug_Tool	VE3.3.0		5/6/2024 11:11 PM	Application	635 KB		
			IIDEGL.all			0/0/2024 11:11 PM	Application exten	66 KB		
			libacc s dw2-1 a	111		5/6/2024 11:11 PM	Application exten	112 KB		

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5. If you get a security error, click more info, then run anyway.



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Run the KPT Debug Tool and change the settings to ZLG Driver, CAN2 (Figure 19 - Red)

6. Select Open (Figure 19 –Green)										
菜单	Fig. 19	Э								
CAN										
ZLG_Driver ~	一级主板	\sim								
CAN2 ~ 250K ~	🐶 Open									
☞ KPT_Debug_ToolVE3.3.0 菜单					- 🗆 X					
CAN	电压信息/mv	度信息/℃	附加信息	BMS状态	继电器状态					
CANalyst-II ~ 一级主板 ~ CAN1 ~ 250K ~ [●] Open			总电压/0.1V:	工作模式: 未知模式	放电继电器:					
	BMS结构: 一体式 ~	ті 🚺	最高电压/mV:	充电状态: 停止充电	慢充继电器: 🥐					
	V1		最高电压位置	充电电流/0.1A:	预充继电器:					
	V2		最低电压/mV:	充电电压/0.1V:	风扇继电器: 🥐					
		总压/V		扩展信息	DCDC继电器: ?					

7. Click Menu (Figure 20– Blue) and select Threshold (Figure 20 – Green).

 菜单	KPT_Debug_Tool\	/E3.3.0	Fig. 2	0						
2 2 3 3 4 3 4 3 4 3 4 3 4 3 4 5 4 5 4 5 4 5	阈值配置 电池模拟 从板模拟 从板显示 复位显示	、 : 、 请求!	 一级主板 Close 近发送失败! 	e						
☞ KPT_Del 菜单	bug_ToolVE3.3.0							_		×
CAN	AT the second seco		电压信息/mv	温度信息/℃	附加信息	 BMS状态		继电器状态		
CANalyst CAN1	-11 · 取主板 · 250K · • • Op	v Den		▲ 『 」 『 」 『 」 『 』 感 个 数:	总电压/0.1V:	工作模式:	未知模式	放电继电器:	?	^
			BMS结构: 一体式 ~	T1	最高电压/mV:	充电状态:	停止充电	慢充继电器:	?	
			V1		最高电压位置	充电电流/0.1A:		预充继电器:	?	
				T2	最低电压/mV:	充电电压/0.1V:		风扇继电器:	?	
			V2 []]		最低电压位置	扩展信息		DCDC继电器:	?	

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8. Click Import (Figure 21- Blue) to import a configuration file.

	』 警護値	二级打	段警阀值	三级推	<u> 医警嗣值</u>		Fig. 21	
\subseteq	177° RV	,		Rr	·~		0 🗘	
单体过低		单体过低		单体过度		从板ID号 BMS编码	1	
压差 过大 充 电温度高		上差过大 充电温度高	0 • •c	<u>上至过</u> 大 充电温度高	0 💭 mv 0 🗣 °c			
充电温度低 放电温度高	0 ♥ °c 0 ♥ °c	充电温度低 飲电温度高	0° ♥ °C 0 ♥ °C	充电温度低放电温度高	0 ♥ °c 0 ♥ °c	RTC		
放 电温度低 温差 过大	°⊂ 0 € °⊂	放电温度低 温差过大	2° ♥ 0 2° ♥ 0	放电温度低温差过大	⊃° ♥ 0 ℃	2000/	1/1 0:00:00	
回 懷过流 绝缘 电阻	0 🖨 А 0 🚔 Ко	回 惯过流 绝缘电阻	0	回馈过流 绝缘电阻	0 🖨 А 0 🖨 КΩ		et (ii) 52 52	
SoC18	0 🔷 %	SoCiti	0 🗣 %	SoCite	0 🗣 %			

- Open the configuration file folder and select EV2807 Parameter Configuration Table_20240424.json file. (Figure 22)
- 10. Select Open.
- 11. At the "Succeed to import!" Message, select YES.



- 12. Click **Configuration** (Figure 23 Green) to configure the threshold.
- 13. At the "Config Success" Message, select YES.

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14. Close the KPT Debug Tool

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5. Debug Tool Manual SOC% Calibration

At some point during the bootloader process, the state of charge (SOC) will automatically calibrate to 0% or 100% and will need to be manually set. This can be corrected through the KPT Debug Tool and will require disconnecting and reconnecting the USB Can Analyzer.

1. Reconnect the USB cable to reset the USBCAN Analyzer.

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- Go to the Renogy Battery Firmware Folder on the desktop screen and open. (Figure 24)
- 3. Turn on the lithium battery: Turn battery on with the self-locking switch and self-resetting switch. (Figure 25)
 - D.Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
 - E.Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for
 - F. To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.



Fig. 25

BATTERY SWITCH

SELF



BATTERY SWITCH

 (\mathbf{A})

SELF RESET







STARCRAFT



	Run the KPT_Debug_ToolVE3.3.0.exe-Shortcut (Figure 26)											
	Manage 3. KPT_Debug_ToolVE3.3.0							-				
Ар	plication T	ools										Fia. 26
		È	X 🛋		晴 New item 🔻		📑 Open 🔻	Select all				J -
tcut	Move to ₹	Copy to •	Delete Rename	New folder	Easy access •	Properties	🥁 Edit	Select none	n			
		Org	ganize		New	c	pen	Select				
nload	ls → Ren	ogy Bat	tery Firmware Upda	te → RE	3T210LFP51S-12 Up	date Instruc	tions → 3. KP	T_Debug_ToolVE3.3	.0 →			
		^ N	lame			Date mod	lified	Туре		Size		
		config			5/6/2024	4:17 PM	File folder					
			device			5/6/2024	4:17 PM	File folder				
			history data			5/6/2024	4:17 PM	File folder				
			platforms			5/6/2024	11:11 PM	File folder				
			plugins			5/6/2024	4:17 PM	File folder				
			d3dcompiler 47	dll		5/6/2024	11-11 PM	Application exte	en	3,386 KB		
	🛷 KPT_Debug_ToolVE3.3.0			5/6/2024	11:11 PM	Application		635 KB				
			IIDEGL.GII			J/ 0/ 2024		Application exte	en	66 KB		
			libace s dw2-1 e	111		5/6/2024	11-11 PM	Application exte	en	112 KB		

- 5. Run the KPT Debug Tool and change the settings to ZLG Driver, CAN2 (Figure 27 Red)
- 6. If you get a security error, click more info.
- 7. Select Open (Figure 19 Green)



CAN 电压信息/mv 温度信息/℃ 附加信息 BMS状态 继电器状态 CANalyst-II ~ 一级主板 ₿°C °F 0) 单体个数: 温感个数: 总电压/0.1V: 工作模式: 未知模式 放电继电器: 2 CAN1 ~ 250K 🕂 Open 一体式 MS结构: \sim 最高电压/mV: 充电状态: 停止充电 2 慢充继电器: т1 ^ 0) 最高电压位置 充电电流/0.1A: (? П V1 预充继电器: Т2 \Box 充电电压/0.1V: 最低电压/mV: 0 风扇继电器: П V2 最低电压位置 ? 扩展信息 DCDC继电器: 外总压/V

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8. Click **Menu** (Figure 20– Blue) and select **Battery Simulation** (Figure 28 – Green).

参 KPT_Debug_ToolVE3.3.0 菜单	Fig. 28			
 阈值配置 电池模拟 人板模拟 人板提示 复位显示 請求 	 ✓ 一级主板 ✓ ✓ Close 帧发送失败! 			
● KPT_Debug_ToolVE3.3.0 家单				- 🗆 X
CAN	电压信息/mv 温度信息/℃	附加信息	BMS状态	继电器状态
CANalyst-II ~ 一级主板 ~ CAN1 ~ 250K ~		□□ [▲] ●电压/0.1V: □□	工作模式: 未知模式	放电继电器: ?
	BMS结构: 一体式 ~ T1	日 最高电压/mV: 日	充电状态: 停止充电	慢充继电器: 🥐
			充电电流/0.1A:	预充继电器:
		山 最低电压/mV: []	充电电压/0.1V:	风扇继电器: ?
			扩展信息	DCDC继电器: 🥐

9. Then a submenu will launch, where you will click the SOC line (Figure 29— Green) and manually type in the SOC percentage you recorded before the update. Once you type in the correct SOC%, you will press **Send** (Figure 29 – Red)

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					F	ind Your Energy Free
Jayce	$\frac{E N T}{c \circ}$	EGRA	High RIDG	land E RV	STARCRA	AFT _
📵 模拟功能		Fic	1	_	□ ×	
模拟信息		29 继电器越控	, 外总	盂/0.1 V	✓ 模拟模式	
SoC	52 🗘 %	□ 放电继电器	▲ V1	0	○ 快充模式	
总电压	525 🔹 0.1V	□ DCDC继电器	V2	0	○ 慢充模式	
总电流	0 🗘 A	□ 慢充继电器□ 快充继电器	V3	0 •	○ 放电模式	
最高温度	20 🔹 ℃	□ 预充继电器	V4	0		
最低温度	20 🗘 ℃	 加热继电器 风扇继电器 	V5	0		
最高单体电压	3285 🖨 mV	□ 自定义8	V6	0		
最低单体电压	3285 🚔 mV	自定义9	V7	0	🗌 故障清除	
绝缘电阻	0 🗘 K	自定义10▲	• V8	0		1

- 10. The Samkoon will now reflect the correct SOC%. If it does not, close the program altogether, disconnect the USB Can Analyzer and begin the **5. Debug Tool Manual SOC% Calibration** section again.
- 11. Verify the update through a battery restart.
 - a. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)



 b. Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for an

cabinet near Firefly touchscreen) for approximately 5-10 seconds to turn on the battery.

c. To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.

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Update is complete when the SOC% reflects the initial SOC% before the update began as well as the new BMS Version showing 137.4.4 on the bottom right-hand side of the Samkoon monitor.



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