



Renogy 48V Lithium Battery Replacement

Bulletin Type:	SRP	Publication Date:	December 2023
Bulletin #(s):	23-122	Make(s):	Jayco - Entegra
Job Code(s):	<i>If affected unit has warranty remaining, submit your claim following the normal process</i>	Model(s):	Terrain (19Y) Solstice LI (21BL) Swift LI (20AL, 20DL, 20TL) Launch (19Y) Expanse LI (21BL) Ethos LI (20AL, 20DL, 20TL)
Flat Rate(s):			Model Year(s):

Incident:	Replacing Renogy 48V Lithium Battery
Affected Units:	2021-2024 Jayco Terrain, Solstice LI, Swift LI; 2022-2024 Entegra Coach Launch, Expanse LI, Ethos LI with renogy 48V Lithium system
Parts List:	1 - BATTERY,LITHIUM 48V 210AH RENOGY W/HARN VER. 1 (Part #2025003)
Misc. Tools & Supplies:	Screwgun with Square Bit Ratchet 7/16" socket 13mm socket Philips Screwdriver 7/16" box wrench

- 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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CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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WARNING

Indicates a potentially hazardous situation that, if not avoided, may result in death or serious injury.

RENOGY 48V LITHIUM BATTERY REPLACEMENT INSTRUCTIONS



WARNING



- Please keep the battery away from water, heat sources, sparks, and hazardous chemicals.
- DO NOT puncture, drop, crush, burn, penetrate, shake, or strike the battery.
- DO NOT open, dismantle, or modify the battery.
- DO NOT touch any terminals or connectors.
- DO NOT touch the exposed electrolyte or powder if the battery casing is damaged.
- Uncovered electrolyte or powder that has contacted the skin or eyes MUST be flushed out with plenty of clean water immediately. Seek medical attention afterwards.
- Please make sure any battery charger or charge controller has been disconnected before working on the battery.
- DO NOT connect or disconnect terminals from the battery without first disconnecting loads.



CAUTION



- DO NOT place tools on top of the battery.
- Please wear proper protective equipment when working on the battery.
- Please use insulated tools when working on the battery.
- DO NOT wear jewelry or other metal objects when working on or around the battery.
- Please ensure adequate and secure mounting of the battery.
- Please use suitable handling equipment for safe transportation of the battery.
- DO NOT dispose of the battery as household waste. Please use recycling channels in accordance with local, state, and federal regulations.

1. With the battery which is being replaced, power down the lithium battery system.
 - A. Verify all charging sources have been disconnected:
 - i. Alternator
 - ii. Shore Power
 - iii. Rooftop Solar – disconnect near battery in the 'OFF' position
 - iv. Side Solar
 - 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.
 - D. Press and release the Self-Locking Battery Switch. The button will be flush in the 'OFF' position.
 - E. Review the Samkoon Battery Screen to ensure that there is not any voltage present.



2. Remove components necessary to gain access to the lithium battery. The removal procedure will be dependent by floor plan.
 - A. Sprinter SY
 - i. Loosen the rear screen and remove fasteners for the rear of the upper and lower ABS panels. (Figure 1)
 - ii. Remove all screw retainer covers and fasteners from the lower ABS panel (top, side and bottom). (Figure 2)
 - iii. Pulling from the bottom of the ABS, lift the bottom to slide the ABS panel out from under the top ABS panel. The support foam will need to be removed at the same time. (Figure 3)



- B. Promaster WT – With a screwgun and square bit (Figure 4):
 - i. Remove bed lid assembly with bed mechanism.
 - ii. Remove the fasteners from the inverter. The wire connections will still be attached but should allow enough room to rotate the inverter out of the way.
 - iii. Remove divider panel.
 - iv. Remove storage bottom panel.

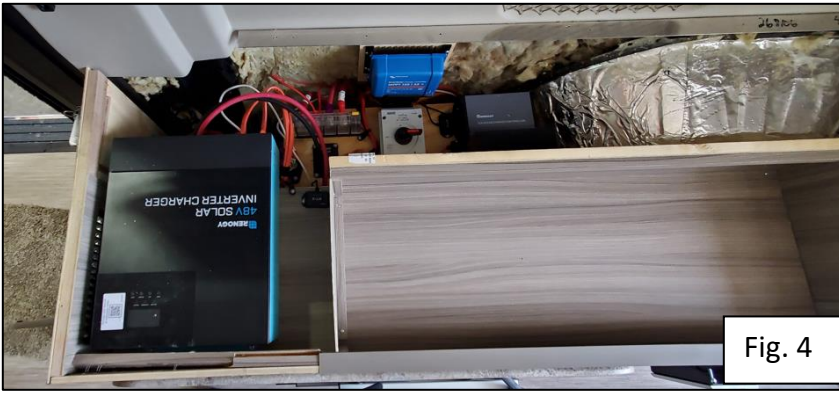


Fig. 4

- C. Promaster WA – With a screwgun and square bit (Figure 5):
- i. Remove bed lid assembly with bed mechanism.
 - ii. Remove the fasteners from the component shelf (2-4 fasteners into the cleat on bed front).
 - iii. Move the component shelf out of the way. There may be some components which need to be removed to allow the shelf to lift towards the exterior wall.



Fig. 5

- D. Ford Transit TB – remove sofa seat cushion (wrench/socket), remove board (if needed), loosen battery and remove
- i. Using a 13mm socket, loosen rear bolts for the upper sofa seat cushion. Remove upper cushion. (Figure 6)
 - ii. Reaching under the lower sofa seat cushion,
 1. Using a 13mm socket, loosen rear nuts for sofa seat cushion.
 2. Using a Philips screwdriver and 7/16 box wrench, loosen front bolts
 3. Remove cushion to access battery

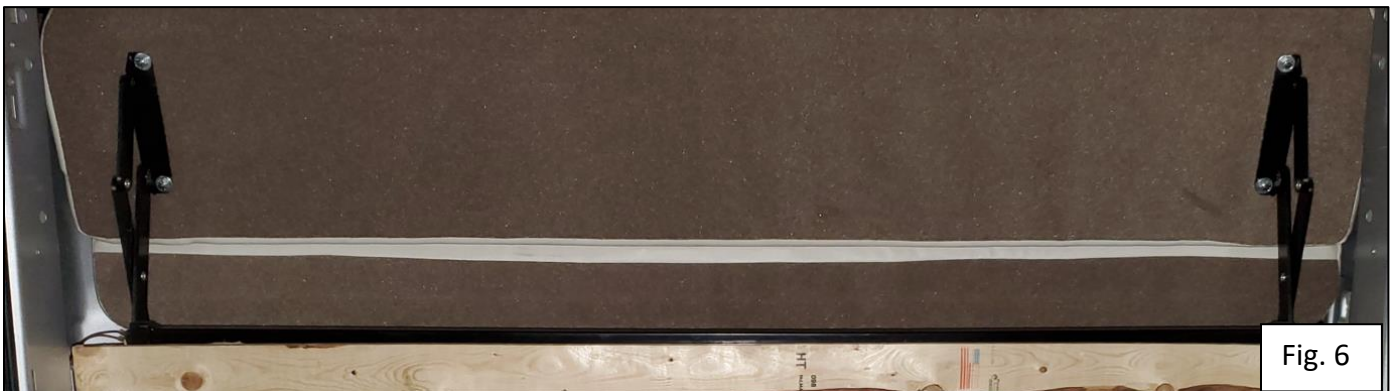
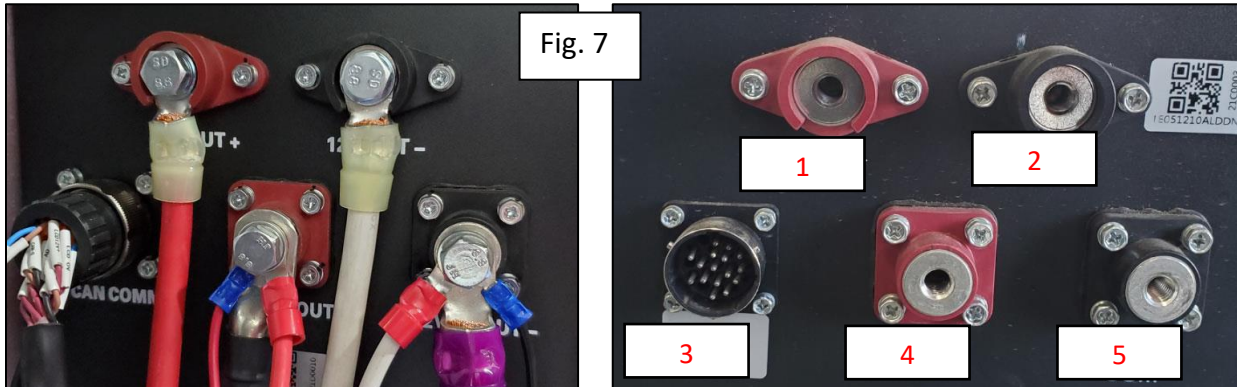


Fig. 6

Before replacing the battery, it is recommended to take a picture of the existing connections on the battery intended on being replaced to ensure correct wiring into the 12V and 48V terminals.

3. Remove the battery harness connections from the lithium battery (Figure 7):
 - i. 12V Positive Output - with ratchet and 13mm socket, remove fastener.
 - ii. 12V Negative Output - with ratchet and 13mm socket, remove fastener.
 - iii. Communication Port – rotate connector and pull outward
 - iv. 51.2 Positive IN/OUT Terminal - with ratchet and 13mm socket, remove fastener.
 - v. 51.2 Negative IN/OUT Terminal - with ratchet and 13mm socket, remove fastener.



4. Remove the battery – The removal procedure will vary by floor plan or model.
 - A. Mercedes Sprinter (SY) – the battery is secured to the battery bracket. (Figure 8)
 - i. Using 7/16" wrench and socket, loosen all of the 1/4-20 bolts, flat washers, lock washer and nut assemblies.
 - ii. Remove the battery.

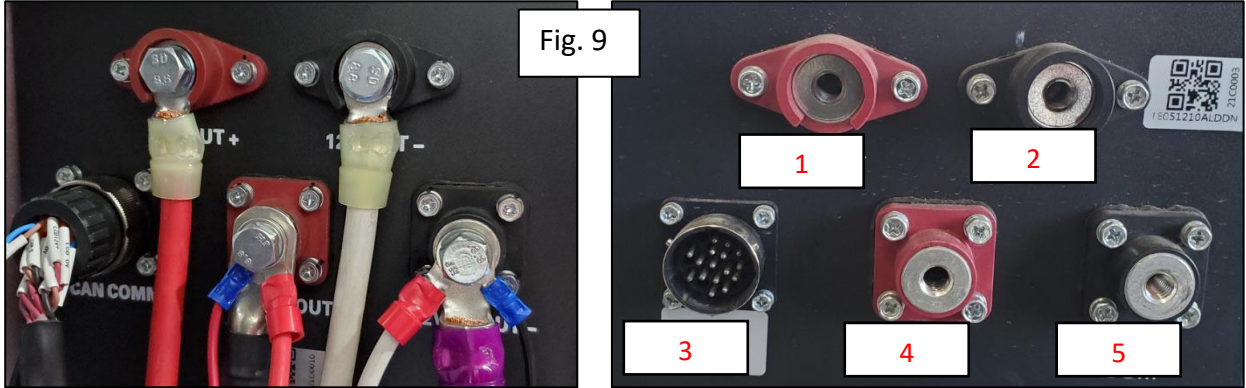


- B. Dodge Promaster and Ford Transit - - the lithium battery is secured directly to the floor.
 - i. Using a screwgun with extension and phillips bit, loosen all of the fasteners to the floor.
 - ii. Remove the battery

5. Inspect Replacement Battery
 - A. Please verify the polarity before connecting wiring. Reversing polarity can and will destroy the battery.
 - B. Please check for visible damage including cracks, dents, deformation, and other visible abnormalities.
 - C. The terminal side of the battery and terminal connections should be clean, free of dirt and corrosion, and dry.

6. Reversing the steps from #4 above, secure the new lithium battery to either the battery bracket or the floor.

7. Connect the battery harness connections from the lithium battery (Figure 9):
 - i. 12V Positive Output - with ratchet and 13mm socket, secure fastener.
 - ii. 12V Negative Output - with ratchet and 13mm socket, secure fastener.
 - iii. Communication Port – align connector, push inward and rotate
 - iv. 51.2 Positive IN/OUT Terminal - with ratchet and 13mm socket, secure fastener.
 - v. 51.2 Negative IN/OUT Terminal - with ratchet and 13mm socket, secure fastener.



8. Power On New Battery

- A. Verify all charging sources are disconnected:
 - i. Alternator
 - ii. Shore Power
 - iii. Rooftop Solar – disconnect near battery in the ‘OFF’
 - iv. Side Solar
- B. Turning on the lithium battery: Turn battery on with the self-locking switch and self-resetting switch
 - i. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
 - ii. 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. There will be a series of clicks count to 5 after the last one.



- C. Turn on Inverter by pushing button on Inverter remote switch. Green light will turn on the remote switch when inverter is on. Turn off inverter when not charging by shore power or using 120V outputs (outlets and Timberline Heater) for short storage to preserve battery SOC%. Leaving the inverter ON when the system is not in use can result in a 15-20% loss in SOC per day.
- D. To turn on 12V power, press and release the momentary switch located near the rear of the sliding door. Note that the red light by switch is illuminated when the 12V power is active. To turn off the 12V power, press and release the switch again and the red light by switch will turn off.
- E. Verify the Samkoon Battery Screen is operating and review:
 - A. Total Voltage
 - B. Minimum and Maximum Cell Voltages
 - C. State of Charge
 - D. Battery Temperatures
 - E. Battery Operation Status





9. Re-install previously removed components to access the battery.

10. Review and change Inverter Settings. Use the following to change parameter settings:

- A. Press SET button on Inverter to open parameter settings
- B. Press UP or DOWN and go to Parameter 8 and then press ENT button
- C. Parameter setting will begin to flash, then change to LF16. By doing the Battery Type first, it will automatically change many of the related defaults.
- D. Press ENT button to save setting
- E. Continue to review and change all parameters to ensure they match the suggested settings below.
- F. Press SET button to exit setting menu

OPTION #	DESCRIPTION	SELECTION	DEFAULT OR CUSTOM
00	EXIT	N/A	
01	LOAD WORKING MODE	UTILITY	DEFAULT
02	OUTPUT FREQUENCY	60	DEFAULT
03	AC INPUT VOLTAGE RANGE	UPS	DEFAULT
04	BATTERY POWER UTILITY SETPOINT	44.0V	DEFAULT
05	UTILITY TO BATTERY POWER SETPOINT	58.8V	DEFAULT
06	BATTERY CHARGING MODE	SnU	DEFAULT
07	MAXIMUM CHARGING CURRENT	80A	DEFAULT
08	BATTERY TYPE	LF16	CUSTOM SET POINT
09	BOOST CHARGE VOLTAGE	53.6V	CUSTOM SET POINT
10	BOOST CHARGE DURATION	VARIABLE UNTIL FULL	DEFAULT
11	FLOAT CHARGE VOLTAGE	N/A	DEFAULT
12	LOW VOLTAGE LOAD DISCONNECT	50.0V	CUSTOM SET POINT
13	BATTERY OVER DISCHARGED DELAY TIME	30 s	CUSTOM SET POINT
14	BATTERY UNDERVOLTAGE ALARM	50.4V	CUSTOM SET POINT
15	BATTERY DISCHARGE LIMIT VOLTAGE	49.6V	CUSTOM SET POINT
16	SET EQUALIZATION CHARGING	N/A	DEFAULT
17	BATTERY EQUALIZATION VOLTAGE	N/A	DEFAULT
18	BATTERY EQUALIZATION DURATION	N/A	DEFAULT
19	BATTERY EQUALIZATION TIME DELAY	N/A	DEFAULT
20	EQUALIZATION INTERVAL	N/A	DEFAULT
21	ENABLE EQUALIZATION IMMEDIATELY	N/A	DEFAULT

22	POWER SAVING MODE	DIS	DEFAULT
23	OVERLOAD AUTOSTART	ENA	DEFAULT
24	OVERTEMPERATURE AUTOSTART	ENA	DEFAULT
25	BUZZER ALARM	ENA	DEFAULT
26	MODE TRANSITION ALARM	DIS	CUSTOM SET POINT
27	OVERLOAD BYPASS	ENA	DEFAULT
28	MAXIMUM D/C CHARGING CURRENT	40A	DEFAULT
29	SPLIT PHASE	DIS	DEFAULT
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	LOW VOLTAGE DISCONNECT RECOVER	51.6V	CUSTOM SET POINT
36	PV CHARGING CURRENT	80A	DEFAULT
37	BATTERY CHARGING BOOST RETURN SETPOINT	52V	DEFAULT
* 38	AC OUTPUT VOLTAGE SETTING	120	DEFAULT
* 39	MAX AC INPUT CURRENT	30A	CUSTOM SET POINT

11. Cycling the new lithium battery – The state of charge percentage (SOC%) on some newly arrived replacement batteries will read 100% by default and they need to be cycled and calibrated to reflect the correct SOC%. If the Samkoon battery screen is displaying 100% SOC but the Total Voltage is less than 53.5V, complete the following:
- A. Power on the battery and discharge the battery to its low voltage cut-off which occurs when the max_volt and min_volt read below 3000mV. The total voltage cut-off is 48V.
 - i. Use the inverter to discharge the battery until it disconnects. Large loads will help you achieve this faster such as turning on the air conditioner.
 - B. Once the battery reaches this point, the Samkoon will power off and the battery will disconnect from the circuit. To begin the recovery process, connect the RV to an external 120VAC (up to 30A) power source, and ensure that the inverter/charger power switch is in the “ON” position. The battery will begin “clicking” and the Samkoon will turn back on. The SOC% will slowly increase. It is imperative to try to recharge the battery completely so that it undergoes a complete cycle.
 - i. It is recommended to shut down any non-critical loads to allow the battery to recharge quicker.



12. Calibrating New or Replaced Batteries - the state of charge is incorrect or out of sync, then it is important to charge the battery completely to resynchronize calibration. To begin the calibration process:
- A. Ensure the battery is ON.
 - B. Ensure that the remote inverter/charger power switch is in the "ON" position. The button should be pushed in to power and green light showing.
 - C. Change the inverter setting #9 to 54.4V.
 - D. Connect the unit to an external 120VAC (up to 30A) power source.
 - E. The battery will begin "clicking" and the Samkoon will turn on. It is imperative to charge the battery to 100% completely.
 - F. Change the inverter setting #9 to 53.6V after charging.

Jayco's sole obligation under our limited warranty is to repair or replace defective materials and/or workmanship deemed our responsibility as determined by Jayco in our sole discretion. Jayco reserves the right to use new and/or remanufactured parts or materials of similar quality to complete any work, and to make parts and/or design changes as appropriate without notice to anyone. Jayco designs and/or materials changes are done without obligation to incorporate such changes in previously manufactured product. Jayco makes every reasonable effort to ensure field remedies will not adversely affect performance and/or safety of the unit. This field remedy is not intended to extend to future performance of this RV, or any of its materials, components or parts beyond the standard warranty period. The RV owner's obligation to notify Jayco, or one of its independent, authorized dealers, of a claimed defect does not modify any obligation placed on the RV owner to contact Jayco directly when attempting to pursue remedies under state or federal law.

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