

December 16th, 2021

Preventive Measures for 12V Power System (LionC units in service)

This document is to inform you of the preventive measures that operators must perform on LionC in service to prevent the risk of low voltage (12volt) loss, until the corrective action (recall) is taken.

IMPORTANT: The switch should never be used while the vehicle is running on either 12V or HV (unless it is an emergency). The switch should only be used for LionC maintenance tasks.

Description of the vehicle (s) concerned by these recommendations

Type	Lion
Model (s)	Lion C
Model (s) year	2017 to 2022

List of tools required

- Torque wrench (with valid calibration) capable of 80 to 200 in-lbs (9 to 22 Nm)
- Socket 9/16
- Socket wrench
- Clamps
- Flashlight

Items to inspect on vehicles

- 1. Check the torque of the circuit breaker bolts:**
 - a. Locate the 12V battery access panel;
 - b. Turn the main switch to the "OFF" position;
 - c. Unscrew the battery holder with the butterfly bolts (See the blue circles in *Figure 1.*)

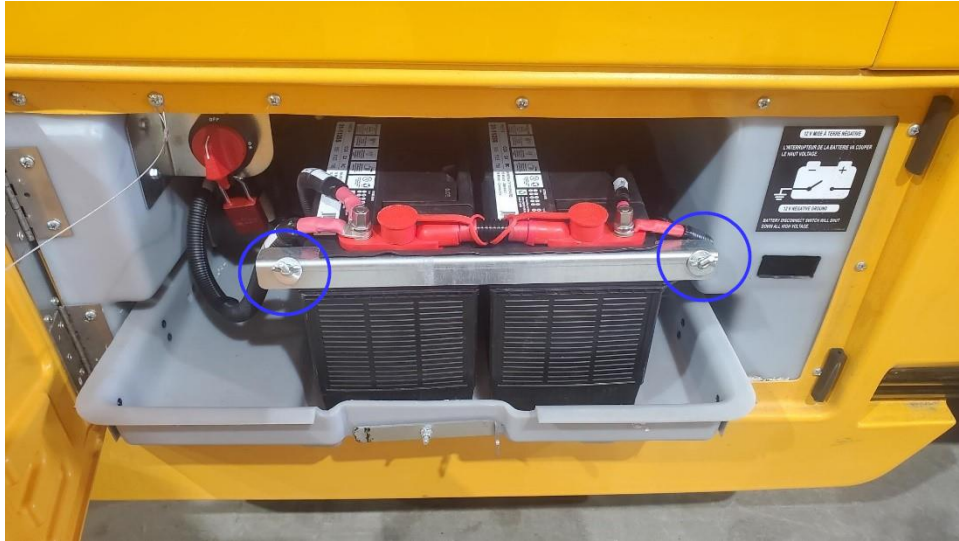


Figure 1 – Battery Holder

- d. Remove the caps from the electrical connections of the battery. With a 9/16 socket or wrench, unscrew the electrical connections (note: negative first followed by positive) for both batteries (4 bolts), circled in green in *Figure 2* and *Figure 3*



Figure 2 – Electric connections (front battery)



Figure 3 - Electric connections (rear battery)

- e. Remove the two batteries from the battery compartment.

IMPORTANT: It is **STRONGLY** recommended that the 12V lead-acid batteries not be tilted, ensure that batteries are handled horizontally.

2. Exterior switch inspection:

- a. Check the switch for any abnormalities:
 - i) No discoloration of bolts;
 - ii) No sign of melting of the plastic of the switch;
 - iii) The bolts must be properly seated and flat on the face exposed to the rear of the switch (ref.: *Figure 5* and *Figure 6*)
 - iv) The lock washer must be well fixed between the lug and the bolt (ref.: *Figure 7*);
 - v) Slightly push on the cables from front to back (ref.: *Figure 7*) No play can be tolerated in this direction, if any play is apparent, replace the switch.

The *Figure 4* shows a new switch. Note that the bolts are well inserted into the plastic, the color of the bolts and nuts is not discolored, and there is no sign of plastic melting:



Figure 4 – Switch in good condition

Figure 5 and Figure 6 show a switch in bad condition:

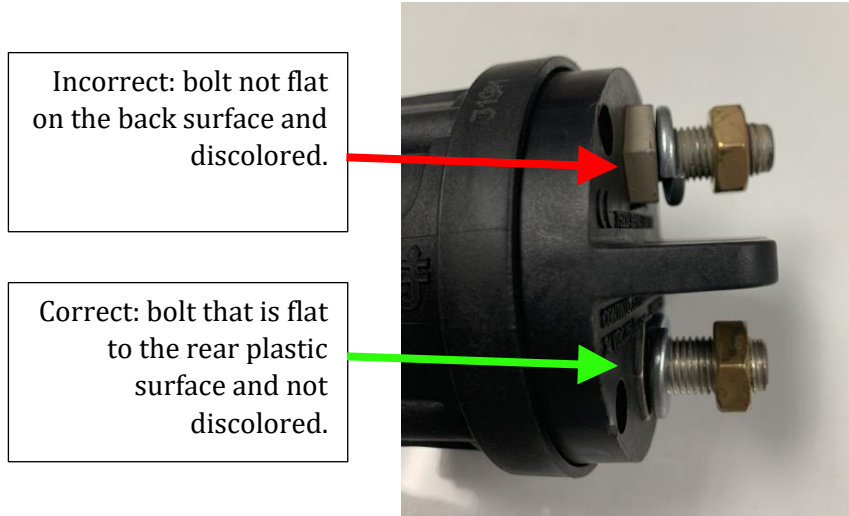


Figure 5: Switch in bad condition

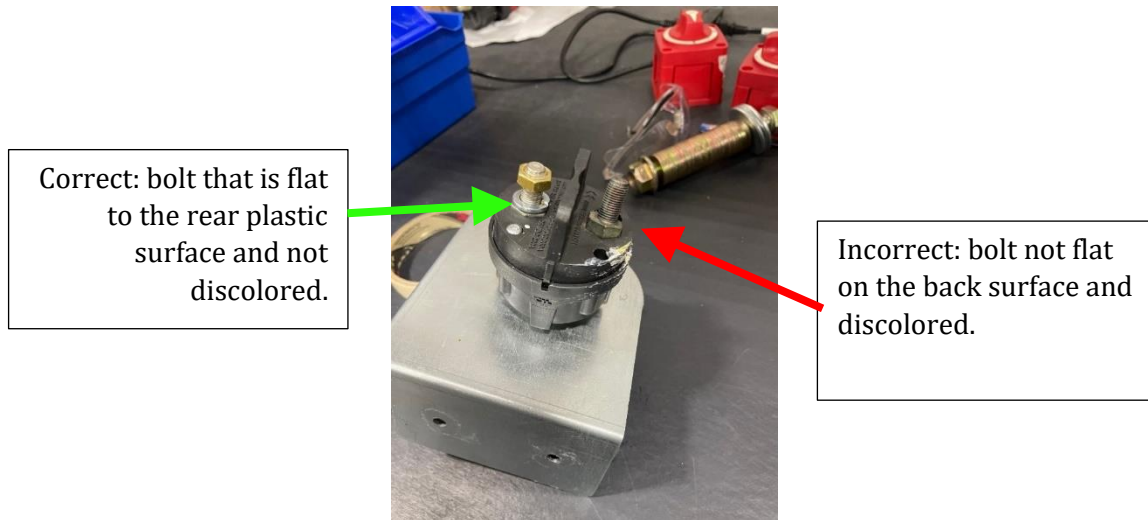
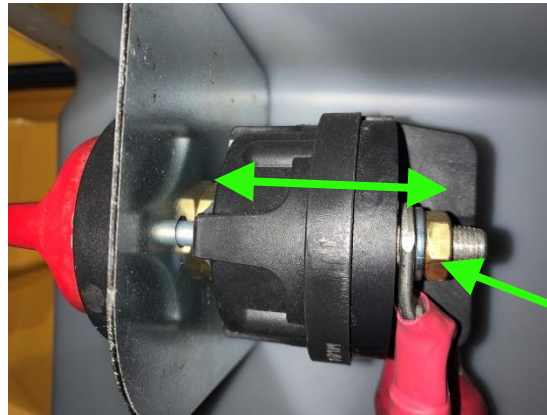


Figure 6: Switch in bad condition



Correct: lock washer
well fixed between the
lug and the bolt

Figure 7 – Perpendicular verification of electrical connections

IMPORTANT: If you notice severe deficiencies in any of the above inspection areas, it is strongly recommended that the LionC vehicle not be operated until the defective parts are replaced.

3. Tightening the switch nuts:

- a. Locate the switch bolts (ref.: *Figure 8* and *Figure 9*);



Figure 8 – Switch in good condition

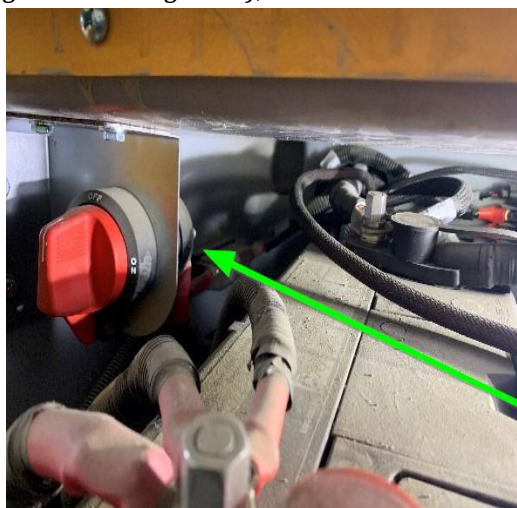


Figure 9 – Switch Bolt Location

Location of bolts
on the switch
(ref. *Figure 5*)

- b. Using the torque wrench and a 9/16 socket, set the torque wrench to 80 in-lbs (9 Nm);
- c. Torque both nuts to 80 in-lbs. (9 Nm).

4. Re-installing the batteries:

- a. Put back in place the two batteries in the compartment by reversing steps 1.c to 1.e.;
For step 1.d (tightening the battery nuts), the tightening torque for the battery terminals is 195 in-lbs (22 Nm) and remember to put the positive back on first followed by the negative. Refer to Figure 2 and Figure 3;
- b. Ensure that the wire connection lugs on the 4 battery posts are also tightened to 195 in-lbs (22 Nm), see Figure 10.
- c. During installation, note the position of the battery clips as shown in *Figure 11*, and hand tighten the wing nuts until they are tight, try to move the batteries and re-tighten if necessary.
- c. Validate the installation according to section 5 below.



Figure 10: Battery cable lugs (195 in-lbs)

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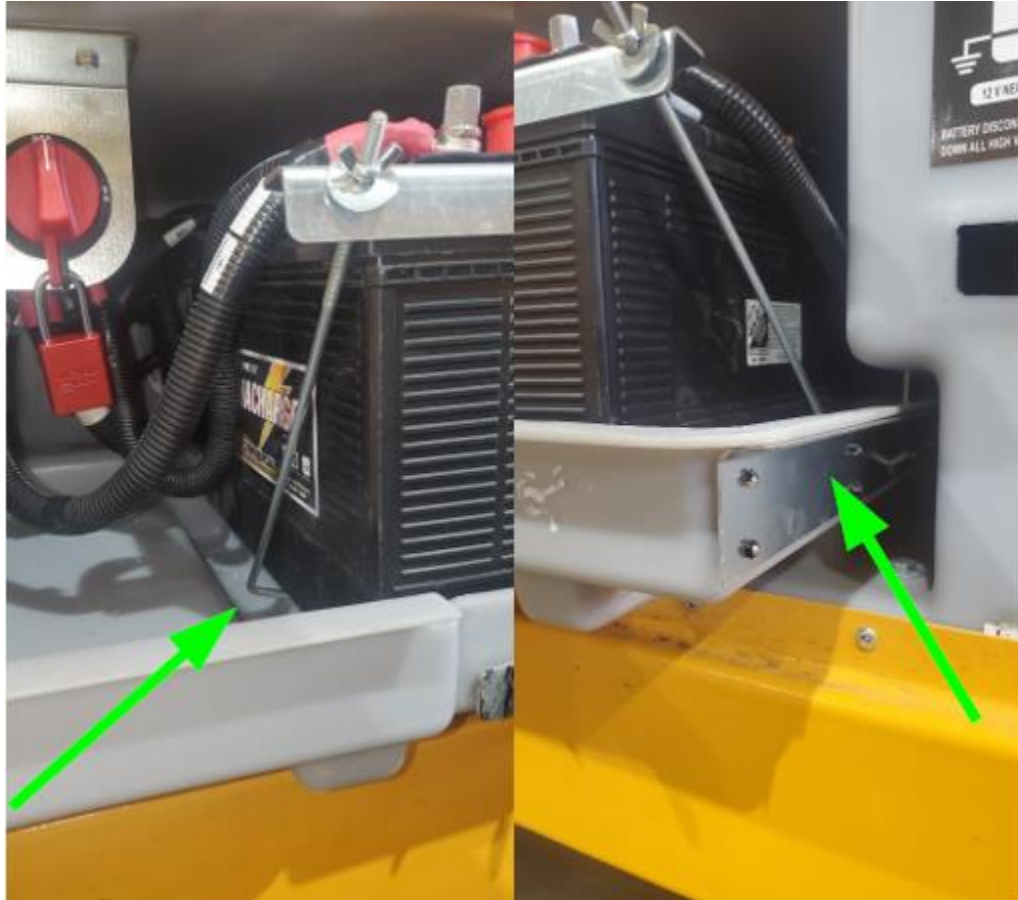


Figure 11 - Battery holders



5. Validation

- a. Turn the outside switch to the "ON" position;
- b. With no key in the ignition, press on the brake pedal, make sure the emergency brake pump activates (hydraulic pump noise);
- c. Stop pressing the brake pedal, make sure the emergency brake pump stops;
- d. Turn the ignition key to the "ON" position. Make sure the vehicle is turned on and that no error messages appear on the screen;
- e. Turn the ignition key to the "START" position and make sure that the high voltage is activated and that no error message appears on the screen;
- f. Turn off the ignition.

IMPORTANT: If you notice severe deficiencies in any of the above inspection areas, it is strongly recommended that the LionC vehicle not be operated until the defective parts are replaced

If you are uncertain, please contact the service department at this toll-free number: 1-855-546-6706 ext. :229.

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