



INSTRUCTION BULLETIN

No. 9021931
Machine: T380AMR/
T7AMR
Published: 09-2022
Rev. 00

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in the machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save the cost of ordering an entire kit.

NOTE: Numbers in parenthesis () are reference numbers for parts listed in Bill of Materials.

Installation instructions for **kit number 9052002**

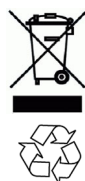
Kit installation must be performed by TennantTrue[®] service or an authorized service provider.

SYNOPSIS:

This kit contains the parts needed to replace a lithium battery in T380AMR and T7AMR scrubbers equipped with lithium batteries.
Please follow step-by-step instructions.

SPECIAL TOOLS/CONSIDERATIONS:

(Estimated time to complete: 1 - 1.5 hours)



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, used machine components such as batteries and fluids in an environmentally safe way according to local waste disposal regulations.

Always remember to recycle.

PREPARATION: T380AMR

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

1. Completely empty the recovery tank.

NOTE: Do Not empty the solution tank before installing the new lithium battery (1). The solution tank must be full when installing this kit so the machine does not tip over.

2. Turn off the lithium battery pack. Press and hold the power button on one of the lithium batteries for 20 seconds to turn the entire battery pack off. (Fig. 1)

Quickly press the power button on each lithium battery and observe the indicator bars near the button. None of the indicator bars should illuminate, indicating the battery is off.



FIG. 1

3. Disconnect the battery cable from the machine.



WARNING: Always disconnect battery cables from machine before working on electrical components.

4. Set the recovery tank into the service position. (Fig. 2)

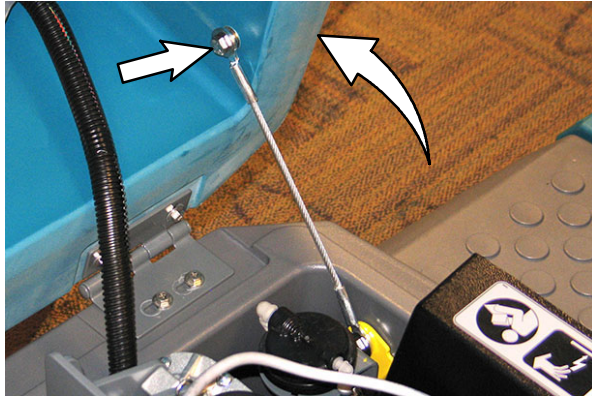


FIG. 2

5. Disconnect all cables from the faulty lithium battery being replaced. (Fig. 3)
6. If replacing the lithium battery equipped with the resistor plug, remove the resistor plug from the battery. Set the resistor plug aside. (Fig. 3)
7. Remove the faulty lithium battery from the battery compartment. (Fig. 3)

INSTALLATION: T380AMR

1. Install the new lithium battery into the battery compartment. (Fig. 3)
2. Reinstall the battery cables, CAN communication cables, and resistor plug (if battery equipped with resistor plug is being replaced) onto the battery. (Fig. 3)

Torque red (+) cable connections to 22 Nm (16 ft. lbs.).

Torque black (-) cable connections to 17 Nm (12.5 ft. lbs.).

Torque lithium battery CAN communication cable, resistor plug, and UI to BMS electrical harness connections to 0.6 Nm (0.44 ft. lbs.).

3. Reconnect the battery cable to the machine.
4. Turn on the batteries. Hold the power button on each lithium battery for 5 seconds to turn on the battery. Wait 20- 30 seconds for each battery to restart.
5. Quickly press the power button on each battery again and observe the indicator lights near the button. The indicator lights should illuminate.
6. Confirm lithium battery system is functioning properly. See CHECK LITHIUM BATTERY STATUS for confirmation procedure.
7. Set the recovery tank into the regular position.

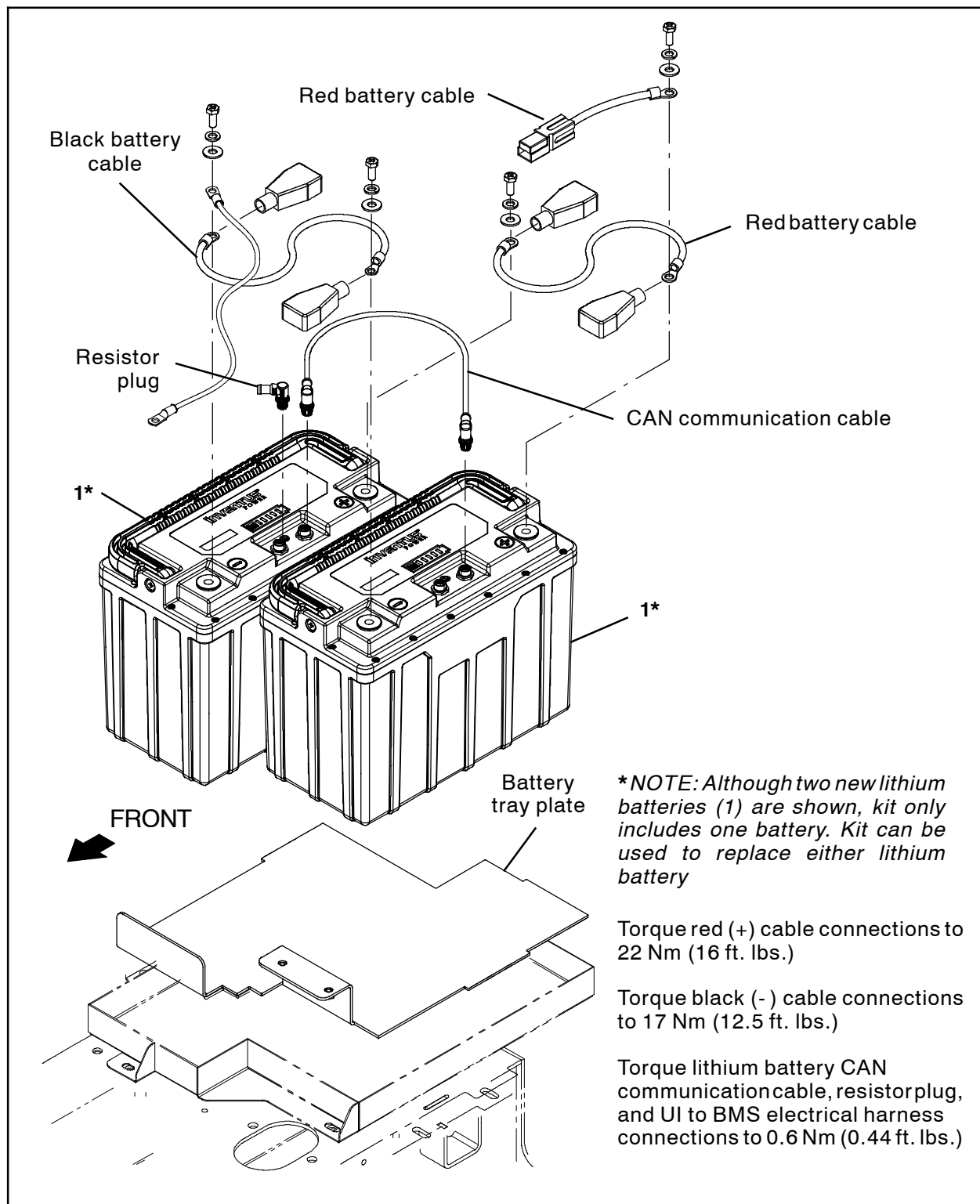


FIG. 3

PREPARATION: T7AMR

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, and remove key.

1. Completely empty the recovery tank.
2. Tilt the recovery tank back. Ensure the recovery tank is empty before tilting. (Fig. 4)



FIG. 4

3. Disconnect the main wire harness from the operator seat switch harness. (Fig. 5)



FIG. 5

4. Remove the operator seat/seat plate from the machine. Set seat/seat plate aside. (Fig. 6)



FIG. 6

5. Remove the battery box cover from the machine. Set the battery box cover aside. (Fig. 7)

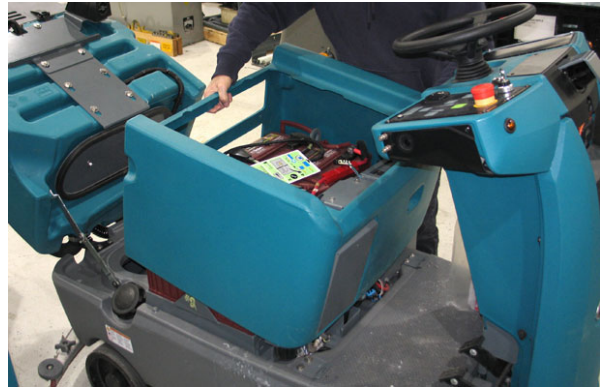


FIG. 7

6. If necessary to allow easier access to the lithium batteries, remove the strap from around the batteries. (Fig. 8)

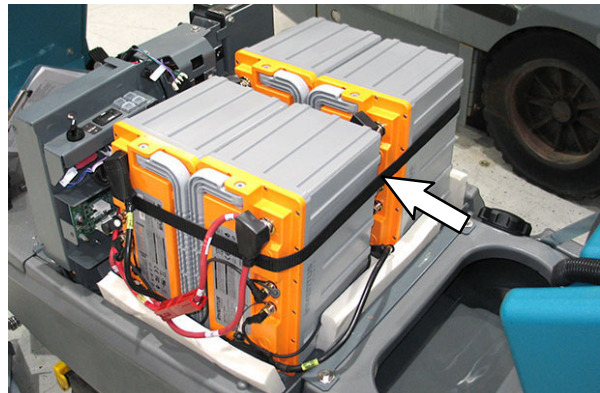


FIG. 8

7. If necessary, remove the foam spacer(s) to allow easier access to the lithium battery being replaced. (Fig. 8)

8. Turn off the lithium battery pack. All batteries must be OFF prior to replacing the lithium battery terminal resistor.

Press and hold the power button on one of the lithium batteries for 20 seconds to turn the entire battery pack off. (Fig. 9)

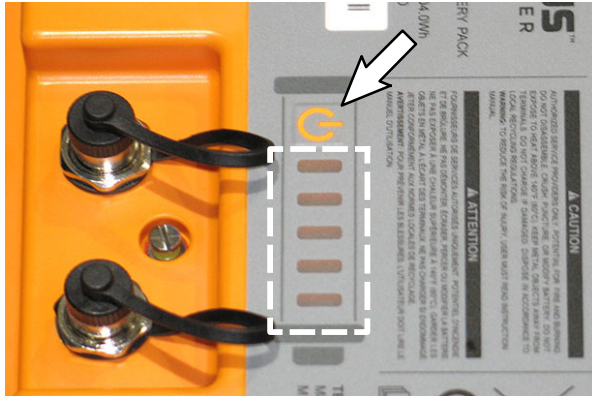


FIG. 9

Quickly press the power button on each lithium battery and observe the indicator bars near the button. None of the indicator bars should illuminate, indicating the battery is off.

9. Disconnect the battery cable from the machine.



WARNING: Always disconnect battery cables from machine before working on electrical components.

10. Disconnect all cables from the faulty lithium battery being replaced. (Fig. 10)
11. If replacing the lithium battery equipped with the resistor plug, remove the resistor plug from the battery. Set the resistor plug aside. (Fig. 10)
12. Remove the faulty lithium battery from the battery compartment. (Fig. 10)

INSTALLATION: T7AMR

1. Install the new lithium battery into the battery compartment. (Fig. 10)
2. Reinstall the battery cables, CAN communication cables, and resistor plug (if battery equipped with resistor plug is being replaced) onto the battery. (Fig. 10)

Torque red (+) cable connections to 22 Nm (16 ft. lbs.).

Torque black (-) cable connections to 17 Nm (12.5 ft. lbs.).

Torque lithium battery CAN communication cable, resistor plug, and UI to BMS electrical harness connections to 0.6 Nm (0.44 ft. lbs.).

3. Reconnect the battery cable to the machine.
4. Turn on the batteries. Hold the power button on each lithium battery for 5 seconds to turn on the battery.
5. Quickly press the power button again and observe the indicator lights near the button. The indicator lights should be illuminated.
6. Reinstall the foam spacer(s) if removed to allow easier access to the lithium battery being replaced.
7. Tighten the strap around the four lithium batteries to secure them into place in the battery compartment.
8. Reinstall the battery box cover onto the machine.
9. Reinstall the operator seat/seat plate onto the machine and connect the main wire harness from the operator seat switch harness.
10. Confirm lithium battery system is functioning properly. See CHECK LITHIUM BATTERY STATUS for confirmation procedure.

*** NOTE:** Although four new lithium batteries (1) are shown, kit only includes one battery. Kit can be used to replace all lithium batteries

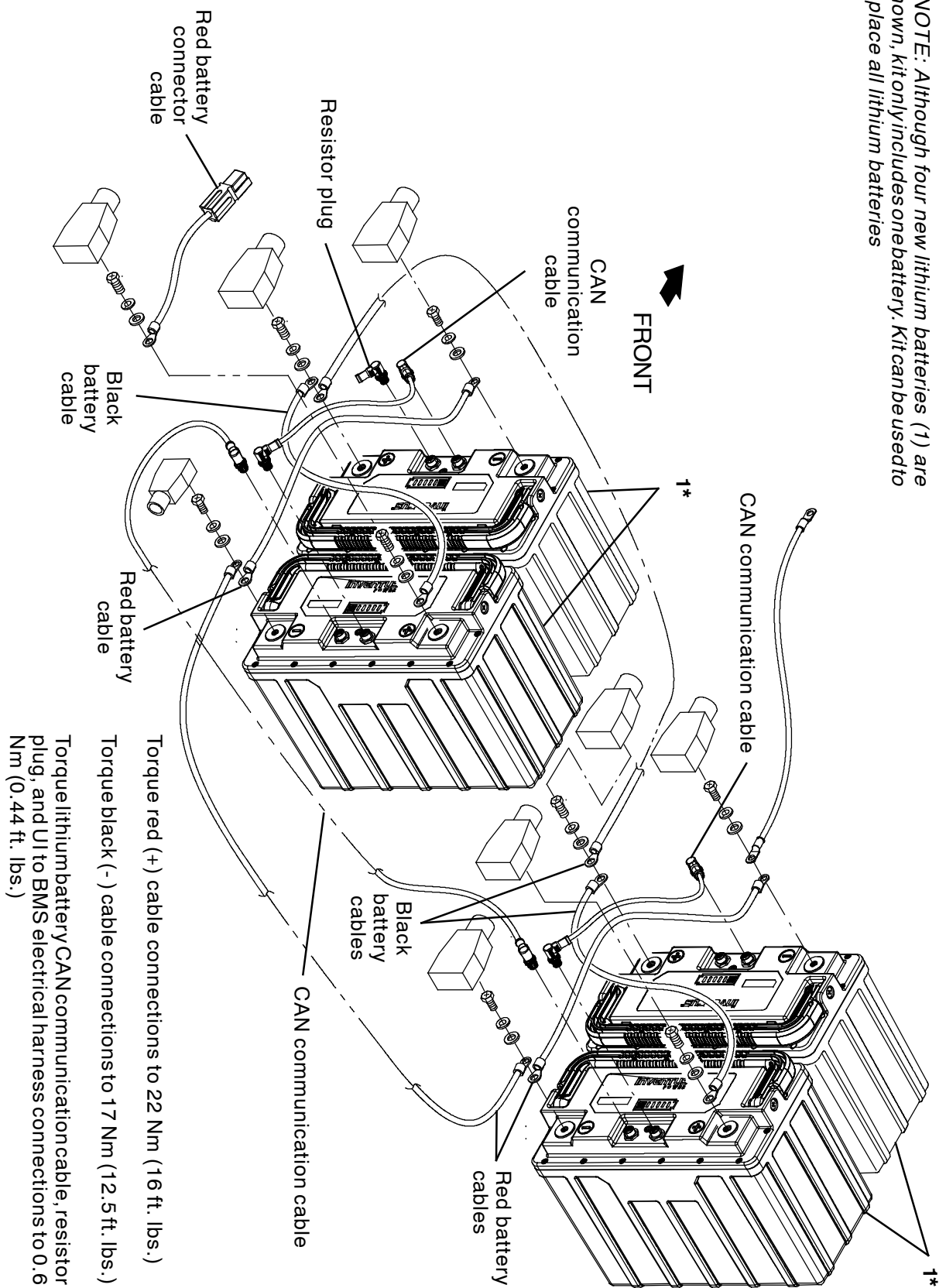


FIG. 10

CHECK LITHIUM BATTERY STATUS: ALL MACHINES

1. Connect a USB cable to the service device.

ATTENTION: Never allow the metallic tip on the loose end of the service USB cable to touch a lithium battery positive (+) terminal when connecting the USB cable to the service device/ USB cable connected to the lithium battery control board. USB cables, service device, and/or lithium battery control board could be damaged if loose metallic end of the service USB cable touches a lithium battery positive (+) terminal.

2. Connect the other end of the USB cable connected to the service device in the previous step to the USB cable installed on the lithium battery communication board.
3. Turn the key switch ON.
4. Double click the Service Diagnostics desktop shortcut or find the software in All Programs to launch the software.
5. Allow the Service Diagnostics tool to connect to the lithium battery network and the lithium battery service screen to open. (Fig. 11)

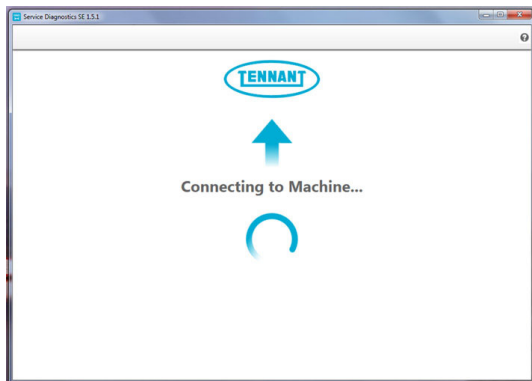


FIG. 11

6. Use the Service Diagnostics tool to access the lithium battery screen. (Fig. 12)

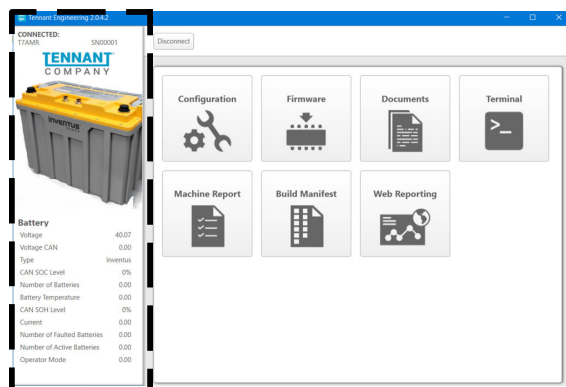


FIG. 12

7. Observe the lithium battery information pane on the left side of the screen. Both the "Number of Batteries" and "Number of Active Batteries" should reflect the number of lithium batteries (two (2.00) or four (4.00) depending how many batteries are in the machine), and the number of "Number of Faulted Batteries" should be zero (0.00). (Fig. 13)

Battery	
Voltage	26.11
Voltage CAN	26.74
Type	Inventus
CAN SOC Level	26%
Number of Batteries	2.00
Battery Temperature	19.00
CAN SOH Level	100%
Current	-3.30
Number of Faulted Batteries	0.00
Number of Active Batteries	2.00
Operator Mode	5.00

FIG. 13

NOTE: See LITHIUM BATTERIES section in the T380AMR/T7AMR SERVICE MANUALS for detailed troubleshooting procedures if "Number of Batteries" and "Number of Active Batteries" do not reflect number of batteries installed in machine, or there is a number other than zero (0.00) in "Number of Faulted Batteries".

8. Disconnect the USB cable from the service device and the USB harness (18).

NOTE: Ensure communication board USB cable end is again oriented down when finished checking battery status and disconnecting the communication board USB cable from the service device.

9. Turn the key switch OFF.

Bill Of Materials For Battery, Replmt, Li-Ion, 24V, 90 AH - 9052002

Ref.	Tennant Part No.	Description	Qty.
	1253354	Battery, Replmt, Li-Ion, 24V, 90 AH	1

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