

Battery Installation

Assembly, Installation and Operating Instructions



This instruction sheet applies to Pronto® M91™ wheelchairs.

Yes, you can:

SAVE THESE INSTRUCTIONS

NOTE: Check all parts for shipping damage. In case of damage, DO NOT use. Contact Carrier/Invacare for further instructions.

SAFETY SUMMARY

To ensure the safe and proper installation and use of the batteries on the M91, these instructions **MUST** be followed:

⚠ WARNING

Make sure power to the wheelchair is OFF before performing this section.

NEVER allow any of your tools and/or battery cable(s) to contact **BOTH** battery terminal(s)/post(s) at the same time. An electrical short may occur and serious personal injury or damage may occur.

The use of rubber gloves and chemical goggles and face shield is recommended when working with batteries.

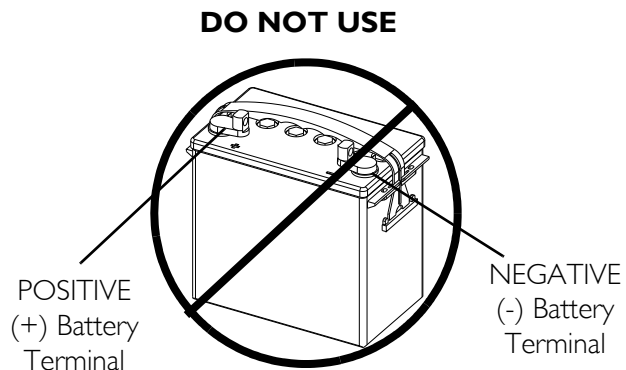
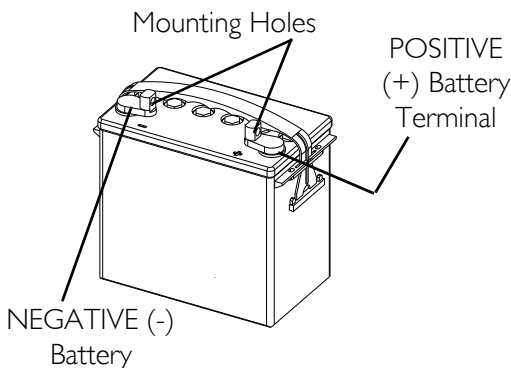
Always use a battery lifting strap when lifting a battery. It is the most convenient method and assures that the battery acid will not spill. It also helps to prolong the life of the battery.

DO NOT tip the batteries. Keep the batteries in an upright position.

Invacare strongly recommends that battery installation and battery replacement always be done by a qualified technician.

After **ANY** adjustments, repair or service and **BEFORE** use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Battery terminal configuration shown below **MUST** be used. Batteries that have the reversed terminal configuration **MUST NOT** be used - otherwise serious injury or damage may occur.



For more information regarding Invacare products, parts, and services, please visit www.invacare.com

⚠ CAUTION

When connecting the battery cables to the battery(ies), the battery cable(s) MUST be connected to the battery terminal(s)/post(s) as shown in FIGURE 3 otherwise damage to the battery may result.

For proper battery connection, batteries MUST use post style terminals with mounting holes through the terminal.

NOTE: If there is battery acid in the bottom of the battery tray or on the sides of the battery(ies), apply baking soda to these areas to neutralize the battery acid. Before reinstalling the existing or new battery(ies), clean the baking soda from the battery tray or battery(ies) being sure to avoid contact with skin and eyes. Determine source of contamination. Never install/reinstall a battery with a cracked or otherwise damaged case.

Installing/Removing the Batteries

NOTE: For this procedure, refer to FIGURE 1 and FIGURE 2.

NOTE: Have the following tools available:

TOOL	QTY	COMMENTS
Battery Lifting Strap	1	Supplied
1/2-inch (6 pt) Box Wrench	1	Not Supplied
7/16-inch (6pt) Box Wrench	1	Not Supplied
3/8-inch (6pt) Box Wrench	1	Not Supplied
Diagonal Cutters	1	Not Supplied

Installing

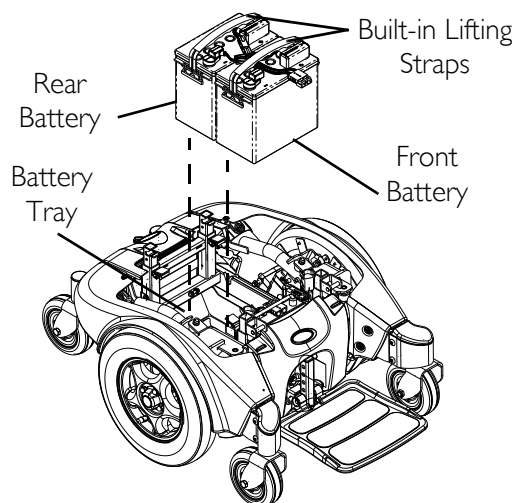
1. Place the wheelchair in a well ventilated area where work can be performed without risking damage to carpeting or floor covering.
2. Verify the joystick on/off switch is in the off position and disconnect joystick (not shown).
3. Perform one (1) of the following:
 - A. Wheelchairs without Powered Seating Systems - Remove the seat. Refer to Removing/Installing the Seat Assembly in the M91 Owner's Manual (P/N 1110560).
 - B. Wheelchairs with Formula™ PTO Plus - Tilt the seat back. Refer to Tilting the Seat Assembly in the M91 Owner's Manual (P/N 1110560).
 - C. Wheelchairs with Power Tilt Only™ - Tilt the seat back. Refer to the Power Tilt Only Owner's Manual (P/N 1118362).
4. Remove the top shroud. Refer to Removing/Installing the Shrouds in the M91 Owner's Manual (P/N 1110560).
5. If necessary, disconnect right and left motor leads to allow access to the front of the battery tray.

6. Move aside the motor leads and controller cable to allow unobstructed access to the front of the battery tray.

NOTE: Perform this section on one battery at a time starting with the rear battery. Repeat STEP 7 to position the remaining battery into the battery tray.

7. Perform one of the following to position the battery into the battery tray:
 - A. Batteries With Built In Lifting Strap - Use built in lifting strap to position battery into the battery tray (Detail "A" of FIGURE 1).
 - B. Batteries Without Built In Lifting Strap - Use the battery lifting strap to position battery into the battery tray. When battery is in proper position, remove lifting strap (Detail "B" of FIGURE 1).
8. Using the battery retaining strap, secure the two batteries into the battery tray.
9. If necessary, connect the wiring harness to the two batteries. Refer to Connecting/Disconnecting the Battery Wiring Harness on page 5.
10. Reconnect right and left motor leads to allow access to the FRONT of the battery tray, if disconnected in STEP 5.

Detail "A" - Batteries with built-in lifting straps



Detail "B" - Batteries without built-in lifting straps

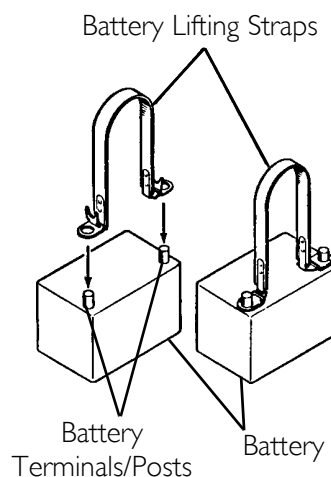


FIGURE I - Batteries with/without Lifting straps

11. Connect the front battery to the controller (RED connector). Refer to FIGURE 2.
12. Connect the rear battery to the front battery (RED and BLACK connectors). Refer to FIGURE 2.
13. Reinstall the top shroud. Refer to Removing/Installing the Shrouds in the M91 Owner's Manual (P/N 1110560).
14. Perform one (1) of the following:
 - A. Wheelchairs without Powered Seating Systems - Reinstall the seat. Refer to Removing/Installing the Seat Assembly in the M91 Owner's Manual (P/N 1110560).
 - B. Wheelchairs with Formula PTO Plus - Tilt the seat forward. Refer to Tilting the Seat Assembly in the M91 Owner's Manual (P/N 1110560).

C. Wheelchairs with Power Tilt Only - Tilt the seat forward. Refer to Tilting the Seat Assembly in the Power Tilt Only Owner's Manual (P/N 1118362).

15. Connect the joystick (not shown).

NOTE: New battery(ies) MUST be fully charged BEFORE using, otherwise the life of the battery(ies) will be reduced.

16. If necessary, charge the battery(ies). Refer to Charging Batteries in the M91 Owner's Manual (P/N 1110560).

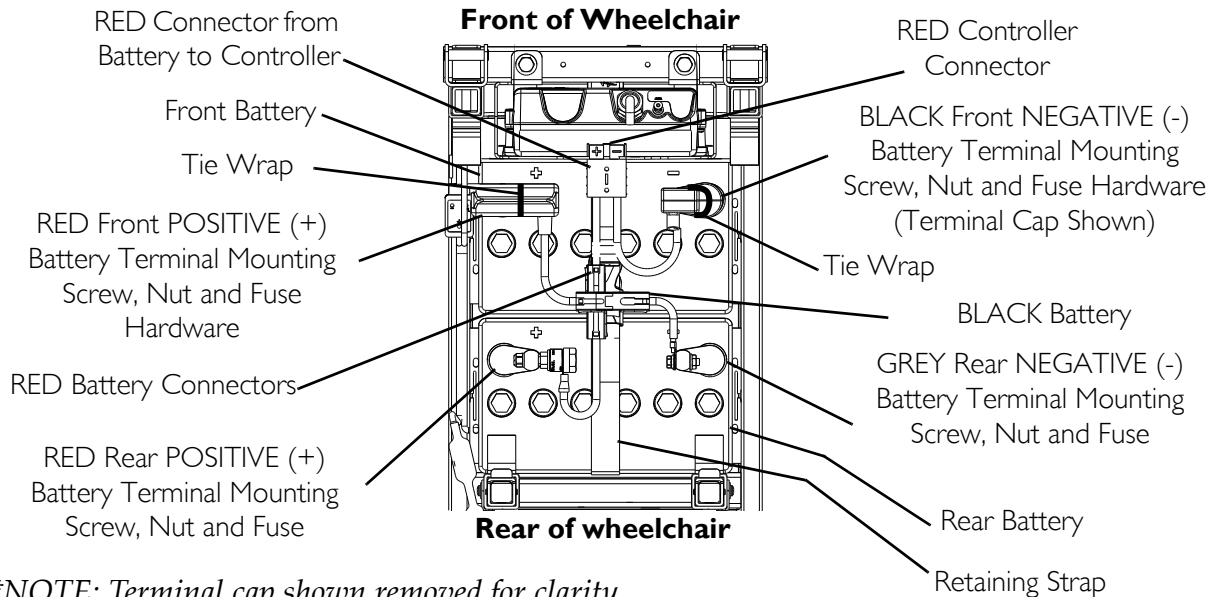


FIGURE 2 - installing/removing the batteries

Removing

1. Place the wheelchair in a well ventilated area where work can be performed without risking damage to carpeting or floor covering.
2. Verify the joystick on/off switch is in the off position and disconnect joystick (not shown).
3. Perform one (1) of the following:
 - A. Wheelchairs without Powered Seating Systems - Remove the seat. Refer to Removing/Installing the Seat Assembly in the M91 Owner's Manual (P/N 1110560).
 - B. Wheelchairs with Formula PTO Plus - Tilt the seat back. Refer to Tilting the Seat Assembly in the M91 Owner's Manual (P/N 1110560).
 - C. Wheelchairs with Power Tilt Only - Tilt the seat back. Refer to Tilting the Seat Assembly in the Power Tilt Only Owner's Manual (P/N 1118362).
4. Remove the top shroud. Refer to Removing/Installing the Shrouds in the M91 Owner's Manual (P/N 1110560).
5. If necessary, disconnect right and left motor leads to allow access to the front of the battery tray.
6. Disconnect the front battery from controller (RED connector). Refer to FIGURE 2.

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7. Move aside the motor leads and controller cable to allow unobstructed access to the front of the battery tray.
 8. Disconnect the rear battery from the front battery (RED and BLACK connectors). Refer to FIGURE 2.
 9. If necessary, disconnect the wiring harness from batteries. Refer to Connecting/Disconnecting the Battery Wiring Harness on page 5
 10. Unfasten the retaining strap that secures the two batteries in the battery tray.

NOTE: Perform this section on one battery at a time starting with the front battery. Repeat STEP 11 to remove remaining battery from battery tray.

11. Perform one of the following to remove the battery from the battery tray:
 - A. Batteries With Built-in Lifting Strap- Use built in lifting strap to remove the battery from the battery tray (Detail "A" of FIGURE 1).
 - B. Batteries Without Built-in Lifting Strap- Use the battery lifting strap to remove the battery from the battery tray (Detail "B" of FIGURE 1).

Connecting/Disconnecting the Battery Wiring Harness

NOTE: Perform this section on one battery at a time starting with the front battery.

NOTE: The front battery has three connectors - two to the rear battery wiring harness (RED and BLACK) and one to the controller cable (RED), and the rear battery has two connectors (RED and BLACK) to the front battery wiring harness.

NOTE: Both the front and rear wiring harnesses are shipped with the POSITIVE (+) RED battery cable and mounting screw connected. Use the exposed, threaded portion of the mounting screw to secure the POSITIVE (+) RED cable to the POSITIVE (+) terminal.

⚠ WARNING

DO NOT remove fuse or mounting hardware from **POSITIVE (+) RED** battery cable/mounting screw.

All battery terminal covers (two on the front battery and two on the rear battery) MUST be installed prior to use.

Connecting

NOTE: For this procedure, refer to FIGURE 3.

1. Peel back RED battery terminal cover to expose RED battery cable connection to battery terminal.
2. Peel back BLACK battery terminal cover from BLACK battery cable on front battery **OR** GREY battery terminal cover from BLACK battery cable on rear battery.
3. Using the mounting screws and nuts, secure the NEGATIVE (-) BLACK battery cable to NEGATIVE (-) battery terminal/post as shown in FIGURE 3.
4. Using the mounting screws and nuts, secure the POSITIVE (+) RED battery cable to POSITIVE (+) battery terminal/post as shown in FIGURE 3.
5. Verify wiring harness is correctly installed and securely tightened.
6. Verify proper battery orientation.
7. Reposition battery terminal covers over battery post(s).
8. Using new tie-wraps, secure the terminal covers to the battery terminals as shown in FIGURE 3.
9. Repeat STEPS 1-8 to install and connect the rear battery to the rear battery harness.

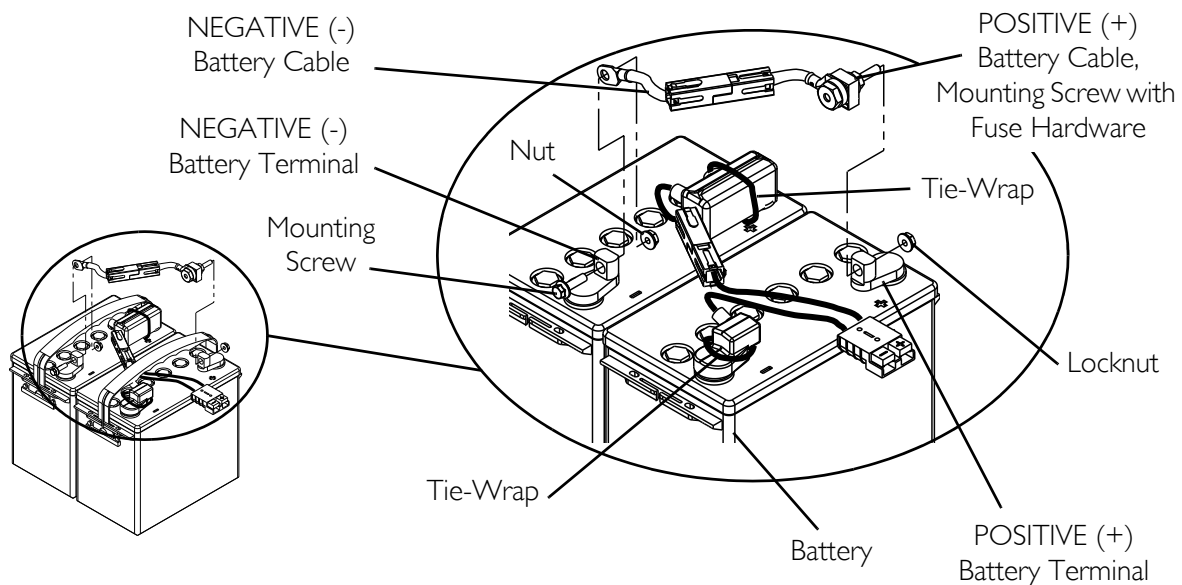


FIGURE 3 - Connecting/Disconnecting the Battery Wiring Harness

Disconnecting

NOTE: For this procedure, refer to FIGURE 3.

1. Remove the existing tie-wraps that secure the battery terminal covers to the battery terminals.
2. Peel back RED battery terminal cover to expose RED battery cable connection to battery terminal.
3. Peel back BLACK battery terminal cover from BLACK battery cable on front battery **OR** GREY battery terminal cover from BLACK battery cable on rear battery.
4. Remove the mounting screws and nuts that secure the POSITIVE (+) RED battery cable to the POSITIVE (+) battery terminal/post as shown in FIGURE 3.
5. Remove the mounting screws and nuts that secure the NEGATIVE (-) BLACK battery cable to the NEGATIVE (-) battery terminal/post as shown in FIGURE 3.
6. Set wiring harness aside.
7. Repeat STEPS 1-6 to disconnect the rear battery from the rear battery harness.



Yes, you can.®

Invacare Corporation www.invacare.com

USA
One Invacare Way
Elyria, Ohio USA
44036-2125
800-333-6900

Canada
570 Matheson Blvd E Unit 8
Mississauga Ontario
L4Z 4G4 Canada
800-668-5324

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