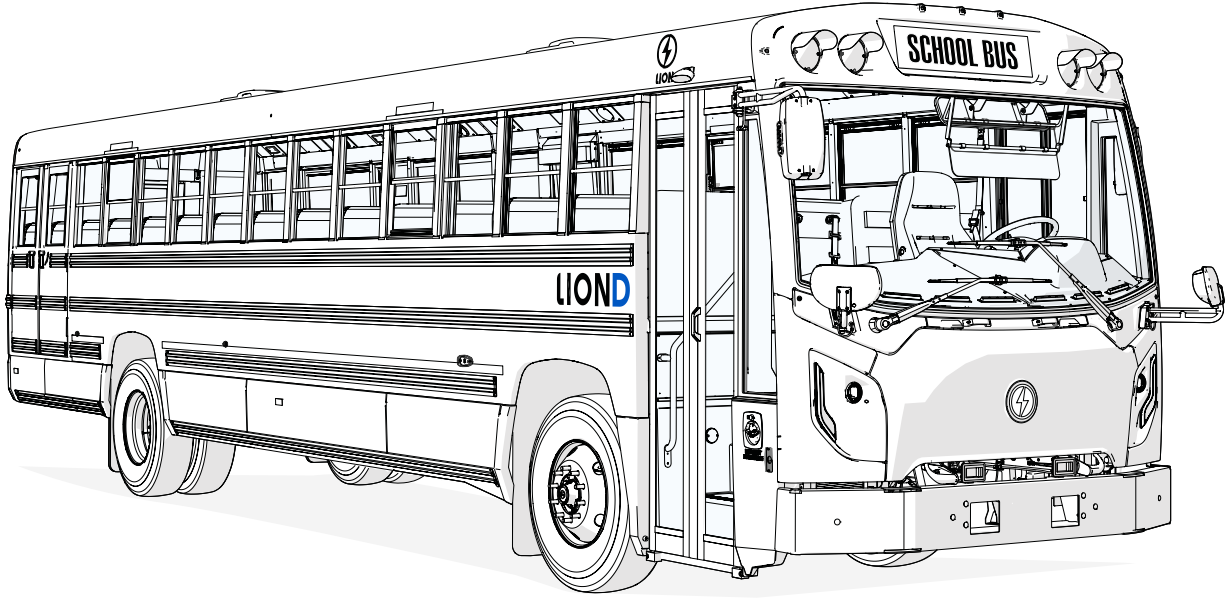
LION ELECTRIC

Towing procedure



This guide is intended for first responders and certified rescuers. high-voltage batteries are the only energy source for the propulsion of the LionD. Always act as if the high-voltage system is activated, the high-voltage system might be active even when the vehicle emits no sound.

LIOND

Legal Notice

The information contained in this document is subject to change without notice. This document is intended for first responders and certified rescuers. No part of this document may be reproduced or transmitted in any form without the prior written permission of The Lion Electric Company.

The Lion Electric Company cannot be held liable for any errors in this document, or for any damages that may result from the use of this document or the information contained.

Intellectual property rights related to this document and the product described are exclusive to The Lion Electric Company and are protected by applicable intellectual property legislation.

Recovery

This vehicle can be pulled or recovered on a very short distance by using the chassis tow hooks.

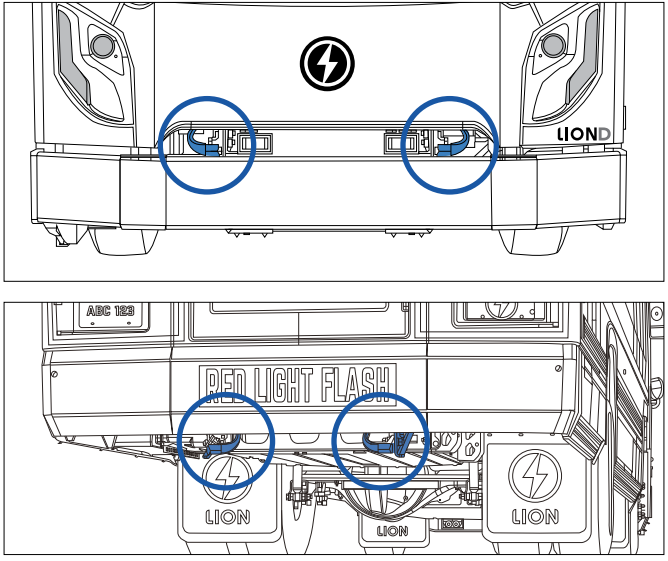


Figure 1 - *Tow hooks*

Towing

The front axle can't support the full weight of the vehicle. Hence, towing by lifting the rear wheels is prohibited. The recommended method is on platform towing **(Figure 2)**.

Alternatively, it can be towed from the front axle with the rear wheels on the ground. However, the following points must be respected **AT ALL TIMES**:

- Both rear axle half-shafts must be removed.
- The parking brake must be manually released by inserting the release bolt ("caging bolt") into each rear brake chamber.

Figure 2 - *Flatbed towing*

In case of an emergency where it is not practical or too dangerous to remove the rear wheel half-shafts, it is possible to tow the vehicle on a short distance without removing them.

However, some parameters must be respected:

- The battery disconnect switch must be at "**OFF**".
- The towing speed must be slower than 20 km/h (12 mph).
- The towing distance can't exceed 10 km (6 miles).

The other instructions that apply when towing the vehicle with the rear wheel half-shafts removed are still valid:

- The parking brake must be released (or both brake chambers must be manually caged).
- The pneumatic suspension air tank must be connected to the towing vehicle air supply.

Then, when the vehicle is safely parked, the rear wheels half-shafts must be removed according to the normal towing procedure.

Preparation

1. Ensure the parking brake is applied, and the rear wheels are chocked.
2. Connect an external air supply to the air circuit quick-connect port located near the air dryer assembly and open the cut-off valve.

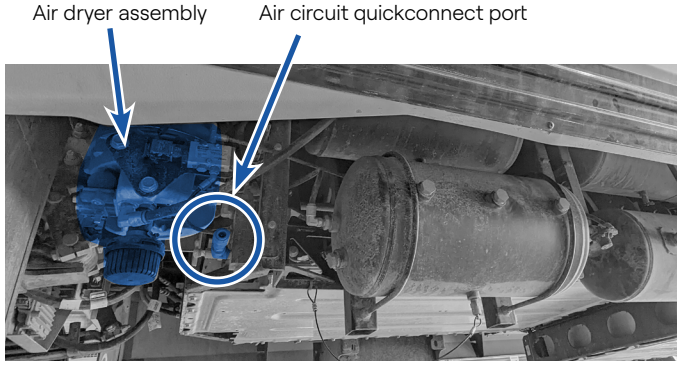


Figure 3 - *Air circuit quick-connect port*

Preparation

1. Ensure the parking brake is applied, and the rear wheels are chocked.
2. Connect an external air supply to the air circuit quick-connect port located near the air dryer assembly and open the cut-off valve.
3. Allow air reservoirs to fill to at least 80 psi.
4. Position tow truck's crossbar and lift adapters beneath the vehicle's steer axle, ensuring the lift adaptors are position directly beneath the suspension between the U-bolts **(Figure 4)**.
5. Lift the tow truck's crossbar until the steer axle is seated on the lift adapters.
6. Secure the axle to the crossbar with chains or ratchet straps.

Figure 4 – *Tow truck's crossbar and lift adapters*

Figure 5 – *Lion D lifted by the front axle*

Half-Shaft Dismounting

Perform Half-Shaft Dismounting Procedure **(both wheels)**:

1. Place a drip pan under the wheel hub on the driver's side.
2. Remove the 8 nuts securing the axle flange to the hub.
3. Remove the axle shaft by sliding it out from the center of the hub **(Figure 6)**.
4. Install a suitable hub cover plate over the opening and reinstall fasteners to seal it **(Figure 7)**.

Repeat steps 1 through 4 for the other rear wheel.

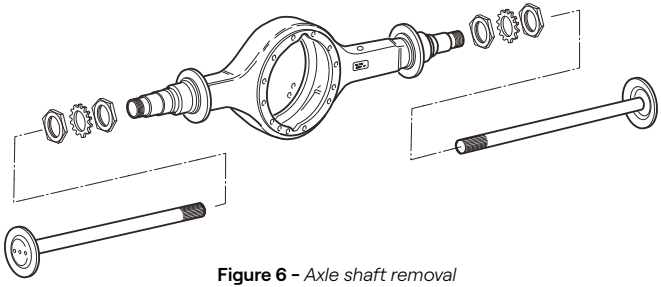


Figure 6 – *Axle shaft removal*

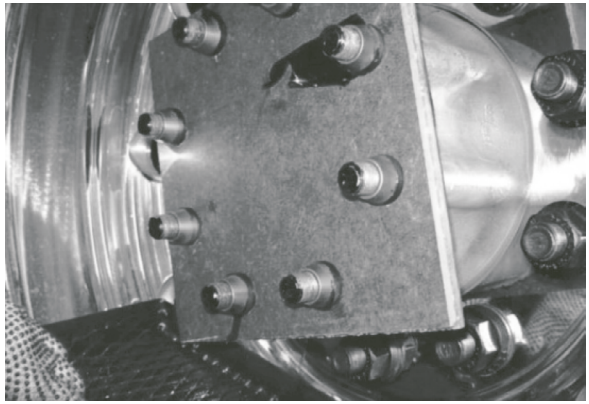


Figure 7 – *Hub cover plate*

Parking brake manual release

1. Disengage the parking brake from inside the cabin.
2. Remove the dust plug from parking brake chamber **(Figure 8)**.
3. Remove the release bolt ("caging bolt") from its storage sleeve.
4. Insert the release bolt head through the opening in the brake chamber.
5. Turn release bolt clockwise (1/4 turn) to lock its head in the "T-slot" receptacle of the brake chamber **(Figure 9)**.
6. Tighten the release bolt nut until the spring in the chamber is 90-95% compressed.

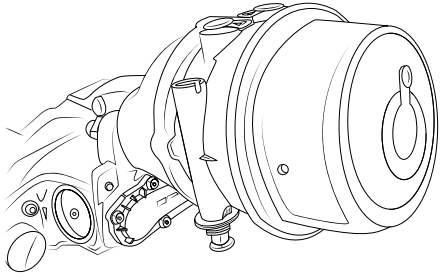


Figure 8 - *Parking brake chamber*

Finalization

1. Set the vehicle's Battery disconnect switch to "OFF".
2. Lift the vehicle's front end.
3. Remove wheel chocks.
4. Retract the recovery boom to position the vehicle into its final towing position.
5. Install towing safety chains.
6. If required, adjust the tow truck's boom height to limit the vehicle's height to less than 115 in.
7. The vehicle is now ready to be towed.

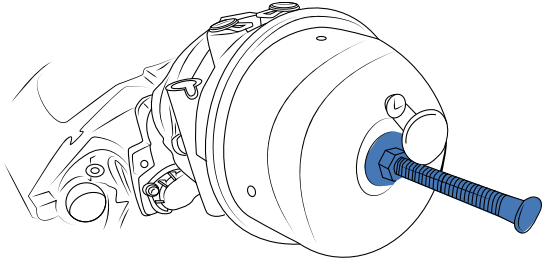


Figure 9 - *Parking brake chamber*

Preparing Vehicle for Road Use

Before the vehicle can be driven again, following actions must be completed.

1. The parking brake release bolts must be removed
2. The external air supply must be removed.
3. The axle shafts must be re-installed, and the differential oil topped up.

Parking Brake Release Bolts Removal

1. Disengage the Parking Brake.
2. Using a wrench, unscrew release bolt nut.
3. Replace the release bolt into its holder.
4. Re-install nut and washer and tighten to 10-15 lb-ft (14-20 Nm).
5. Replace the dust plug onto brake chamber, and ensure it is seated correctly.
6. Perform Steps I to V for the other brake chamber on the rear axle.
7. Apply the parking brake.

Axle Shafts Re-installation Procedure

1. Clean any debris off from the axle half shafts.
2. Reinstall axle half shaft into wheel hub housing with new gaskets (Lion PN: 11-14418-000).
3. Tighten nuts to 180 ft-lb (244 Nm).
4. Perform Steps 1 to 3 on the other side.
5. Rotate the wheel until the oil fill hole on the hub is facing up.
6. Remove the oil fill plug.
7. Pour 1/2 pint of axle oil into each hub.
8. Install oil fill plug and tighten to 40 to 60 ft-lb (54 to 82 Nm).
9. Place a drip pan beneath the rear axle's differential cover fill plug.
10. Ensure the differential oil is not too hot to touch.
11. Clean the filler plug and the area around it before unscrewing the filler plug.
12. Insert a finger and make sure the oil level is just beneath the filling port. If required, add oil.
13. Replace filler plug and torque to 40 to 60 ft-lb (54 to 82 Nm).

NOTES

NOTES

NOTES

LIOND

THE LION ELECTRIC COMPANY

921 Rivière-du-Nord Road
Saint-Jérôme, Quebec CANADA J7Y 5G2
1-855-546-6706
Info@thelionelectric.com