

PROSERIES[®]

**Battery Tugger Electric
Battery Handling Equipment**



OWNER'S MANUAL

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INTRODUCTION

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The information contained in this document is critical for safe handling and proper use of the Battery Tugger Electric. It contains a global system specification as well as related safety measures, codes of behavior, a guideline for commissioning and recommended maintenance. This document must be retained and available for users working with and responsible for the battery handling equipment. All users are responsible for ensuring that all applications of the system are appropriate and safe, based on conditions anticipated or encountered during operation.

This owner's manual contains important safety instructions. Read and understand the sections on safety and operation of the battery handling equipment before operating it and the equipment into which it is installed.

It is the owner's responsibility to ensure the use of this documentation and all related activities comply with applicable legal requirements in their respective countries.

This owner's manual is not intended to substitute for any training on handling and operating the Battery Tugger Electric that may be required by local laws and/or industry standards. Proper instruction and training of all users must be ensured prior to any contact with the battery system.

For service, contact your sales representative or call:

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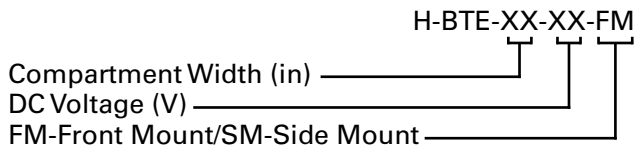
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Your Safety and the Safety of others is Very Important

⚠ WARNING You can be killed or seriously injured if you don't follow these instructions.

SYMBOL IDENTIFICATION






Symbol Identification Chart

	Refer to accompanying documentation		Refer to Manual
	Do not operate without all guards and covers in place		Crush Hazard – Keep Hands Clear
	Entanglement Hazard – From chain, gear, or pulley		Pinch Point Hazard
	Crush Hazard From Falling Load		Crush Hazard – Keep Feet Clear
	Eye Protection Required		Safety Shoes Required
	Slip Hazard		Heavy Object – Do not exceed the recommended load weight
	Protective Clothing Required		Rubber Gloves Required
			Face Shield Required


This manual contains important information to help you properly operate and maintain your Battery Tugger Electric for maximum performance, economy, and safety. By practicing correct operating procedures and by carrying out the recommended preventive maintenance suggestions, you will experience long, dependable, and safe service.

LABELS

Danger, Warning, Caution Labels

⚠ DANGER!	
	Only certified operators should attempt to lift/carry loads with this unit. Keep the area under load clear when operating the unit.
	Do not attempt to pull loads over 2500 lbs. (1134 kg). Back injury or muscle strain may occur. Use care when operating on an incline.
	Do not attempt to operate this equipment if you are impaired (ill, under the influence of medication, alcohol, etc.). Errors in operation can cause hazardous and potentially LETHAL conditions.

⚠ CAUTION!	
	To reduce the risk of collision, ensure the unit is positioned for optimal visibility.
	Use care when transporting a load over wet floors/surfaces.
  	Eye protection, safety shoes, and protective clothing are required when operating this equipment.

⚠ CAUTION!	
	The operating temperature range for the battery is from -20°C to +50°C. Do not use outside of the manufacture's recommendations.

⚠ CAUTION!	
	Do not operate without all guards, covers, and panels in place.

⚠ WARNING!	
	Crush Hazard! Keep hands clear.

⚠ WARNING!	
	Crush Hazard! Keep feet clear.

⚠ CAUTION!	
	Pinch Hazard! Keep hands clear.

⚠ WARNING!	
	Moving Parts! Keep hands and fingers clear.



MOUNTING

Truck Front Mounting

Figure 1: Pallet Truck Front Mounting

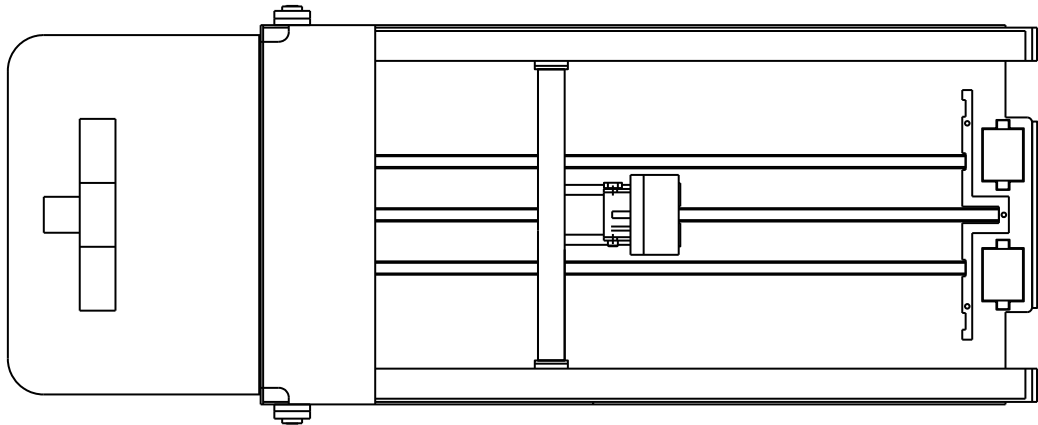


Figure 2: Fork Truck Front Mounting

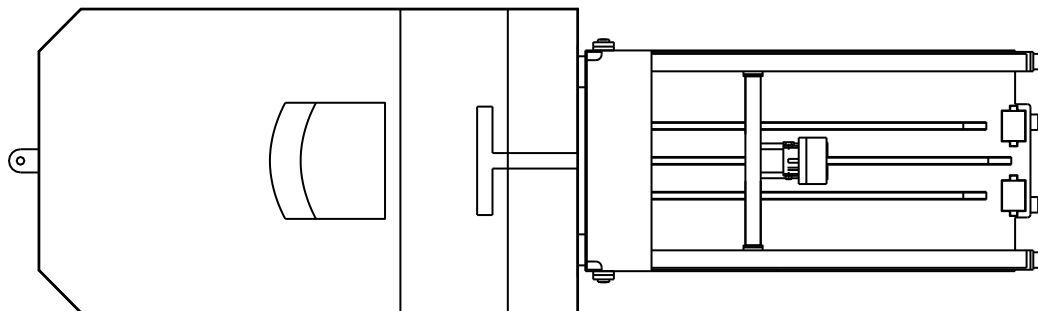


Figure 3: Battery Tugger/Lift Truck positioning
Example Showing Extraction Using Pallet Truck

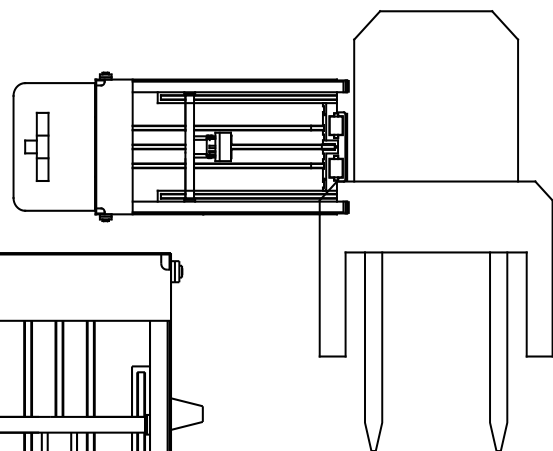
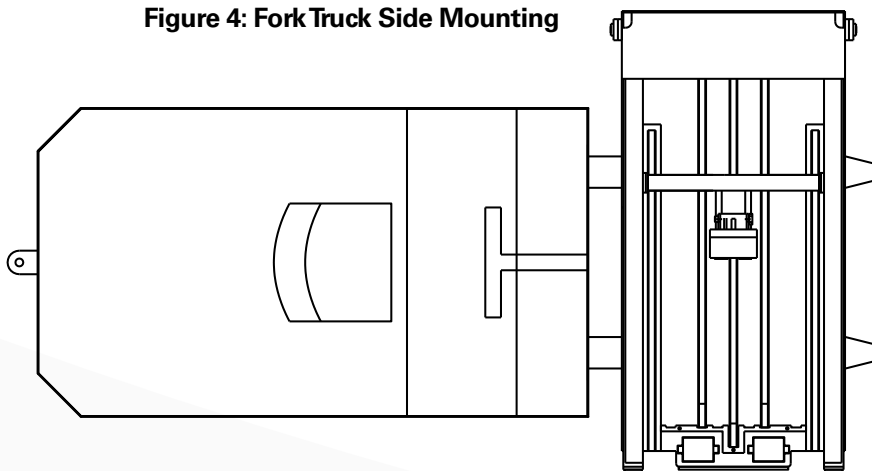


Figure 4: Fork Truck Side Mounting



OPERATING INSTRUCTIONS

Operating Instructions

Description:



The Battery Tugger Electric is a non-propelled, electrically powered battery changer that is designed for medium-volume applications and all sizes of batteries, such as those found in reach trucks, pallet trucks and 3- and 4-wheel counterbalance trucks.



Before operating the Battery Tugger it must be mounted onto a mobile lift truck or pallet truck as shown in **Figures 1, 2, or 3**. It is important that the operator thoroughly review and understand the proper safety procedures and Instructions as outlined in this Owner's Manual and the Owner's Manual for the mobile truck. It is also important that the Battery Tugger be secured to the mobile lift truck, either bolted permanently or chained. Fastening is recommended, however, the fastening can be quick-release to allow the host truck to be used in regular operations.



All operators must be trained or certified (if required) in the use of the Battery Tugger.



Safety shoes, safety glasses, and protective clothing are mandatory in battery rooms. Be sure to wear them at all times. Rubber gloves, rubber aprons, and full face shields are required when washing and servicing forklift batteries. Always use **caution** and **common sense**.

Preparation:

1. Park the lift truck in a perpendicular position adjacent to the Battery Tugger (**Figure 4**).
2. Prepare the lift truck for battery removal as follows:
 - Lower the forks until they sit flat on the floor.
 - Engage the parking brake.
 - Remove any protective covers.
 - Unplug the battery, and position the connector plug and cable to prevent snagging or pinching during the battery removal process.
 - Remove the battery retaining gate.

EXTRACTION

Extraction from the Lift Truck



1. Position the Battery Tugger in front of the battery compartment and lower the unit so the front rollers are approximately 1.27 cm below the bottom of the battery to be removed.



2. Power the magnet out until it contacts the battery to be removed. Then turn on the magnet toggle switch. Power the magnet back to pull the battery out, until it is just over the large black entry rollers on the Battery Tugger.



3. Raise the Battery Tugger using the forklift controls until the rollers support the weight of the battery, and continue to pull the battery into the Tugger.



4. Drive the forklift to an appropriate empty roller stand.



5. Raise or lower the Tugger to the roller stand height, then power the magnet to push the battery out onto the roller stand.

Insertion into the Lift Truck:

1. Raise the Tugger using the mobile lifting truck controls to the roller stand level and retrieve the charged battery.
2. Position the Tugger in front of the lift truck battery compartment, and then raise or lower the battery to be **just slightly above** (approx. 1/2") the level of the lift truck's roller or slider bed.
3. Power the magnet and battery as far as it will go into the lift truck. If using a powered pallet truck, make sure the pallet jack handle is in the vertical position, i.e. brakes are on.

Conclusion:

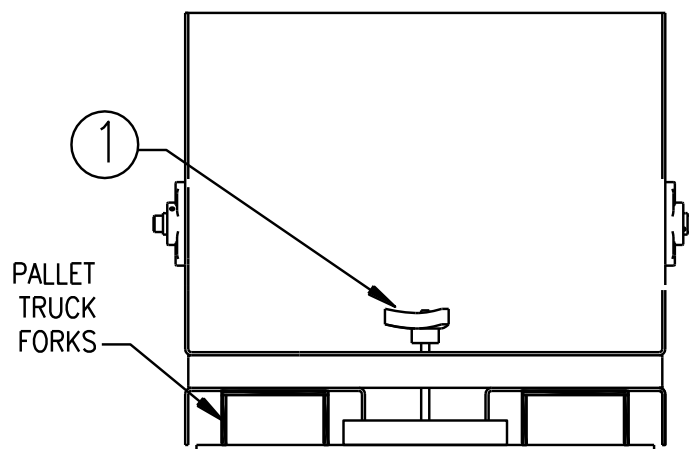
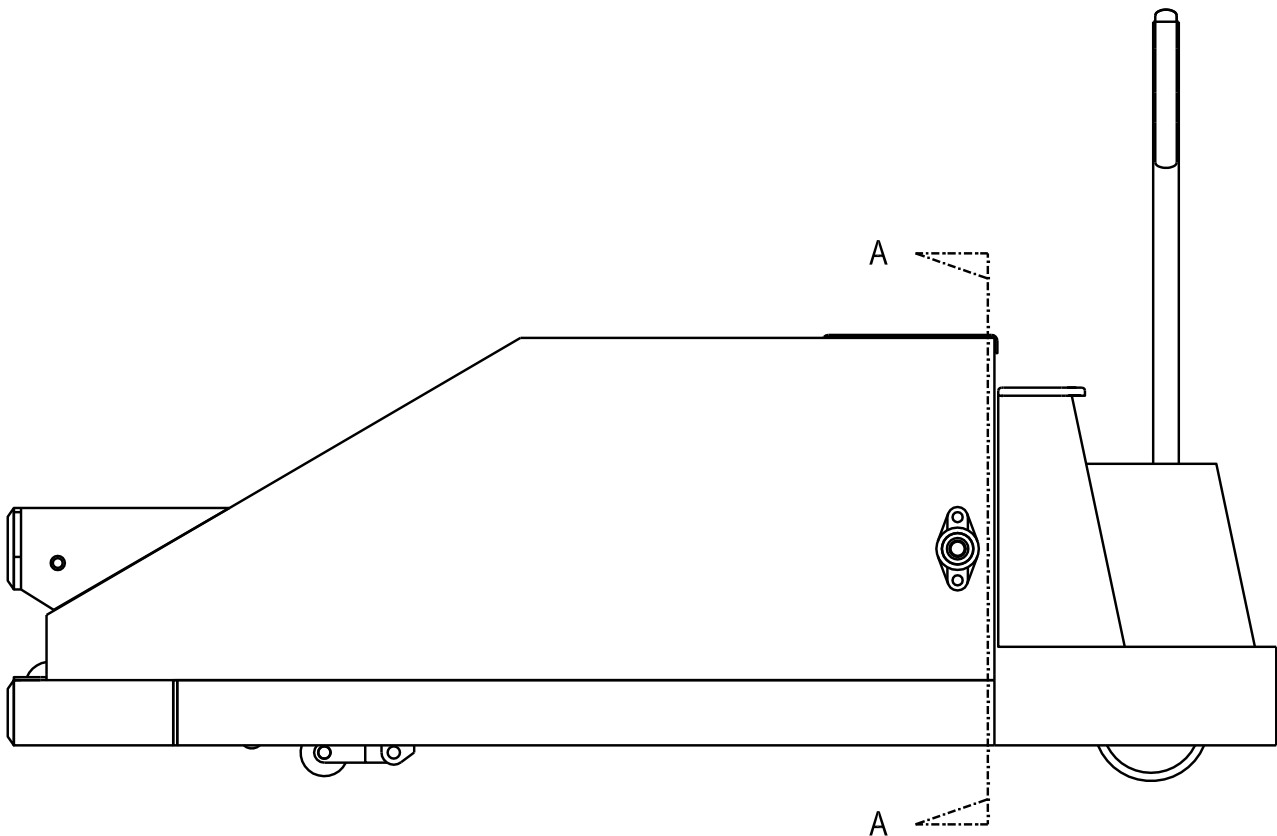
1. Drive the Battery Tugger away from the lift truck and park it in a safe location.
2. Check the discharged battery, connect the cables, and turn on the charger.
3. Prepare the lift truck for operation as follows:
 - Install the battery retaining gate
 - Plug in the battery
 - Install the protective covers
 - Check the battery indicator gauge



QUICK CLAMP

Battery Tugger Quick Clamp

Item	Qty.	Description	Part Number
1	1	QUICK CLAMP ASSEMBLY	BT-QC-XX-Y



SECTION A-A

QUICK CLAMP

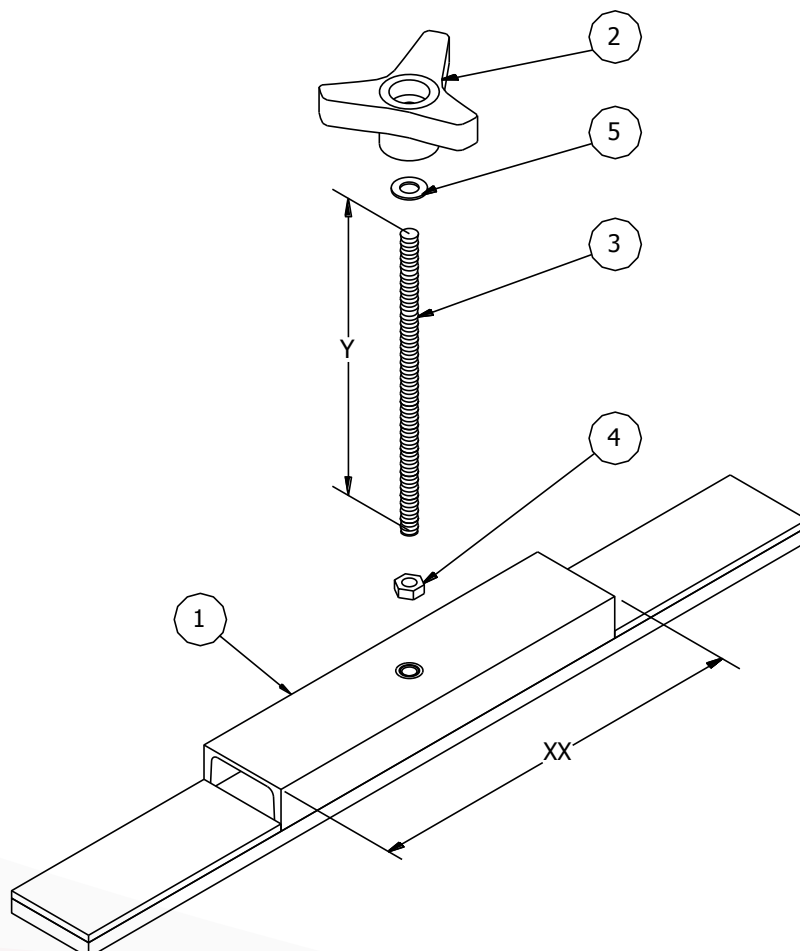
Battery Tugger Quick Clamp (Optional)

CBS-2470 Table

Item	Qty.	Description	Part Number	Y (length)
1	1	1/2-13 UNC THREADED ZINC ROD	CBS-2470-8	20 cm
2	1	1/2-13 UNC THREADED ZINC ROD	CBS-2470-9	23 cm
3	1	1/2-13 UNC THREADED ZINC ROD	CBS-2470-10	25 cm
4	1	1/2-13 UNC THREADED ZINC ROD	CBS-2470-11	28 cm
5	1	1/2-13 UNC THREADED ZINC ROD	CBS-2470-12	30 cm

Parts List

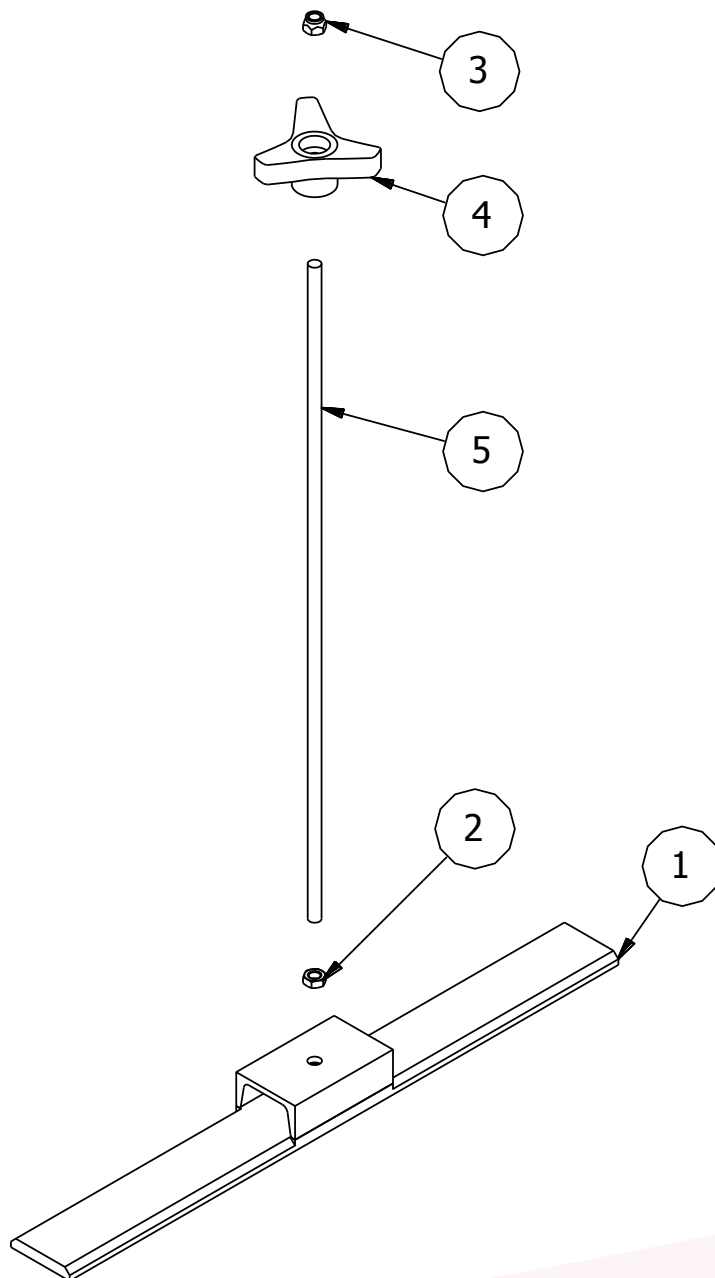
Item	Qty.	Description	Part Number
1	1	QUICK CLAMP WELDMENT (XX=12.7 cm FOR BT-QC-5)	BT-801-5
		QUICK CLAMP WELDMENT (XX=19 cm FOR BT-QC-7.5)	BT-801-7.5
		QUICK CLAMP WELDMENT (XX=33 cm FOR BT-QC-13)	BT-801-13
2	1	3-LOBED HAND WHEEL	CBS-2471
3	1	THREADED ZINC ROD	CBS-2470
4	1	JAMB NUT	CBS-3980
5	1	PLAIN WASHER	CBS-1512



QUICK CLAMP

PM Quick Clamp

Item	Qty.	Description	Part Number
1	1	QUICK CLAMP PLATE	CBTE-QC-101-HD-W
2	1	HEX JAM NUT	CBS-3980
3	1	HEX LOCK NUT	CBS-1575
4	1	3-LOBED HAND WHEEL	CBS-2471
5	1	THREADED ZINC ROD	CBS-2470-29



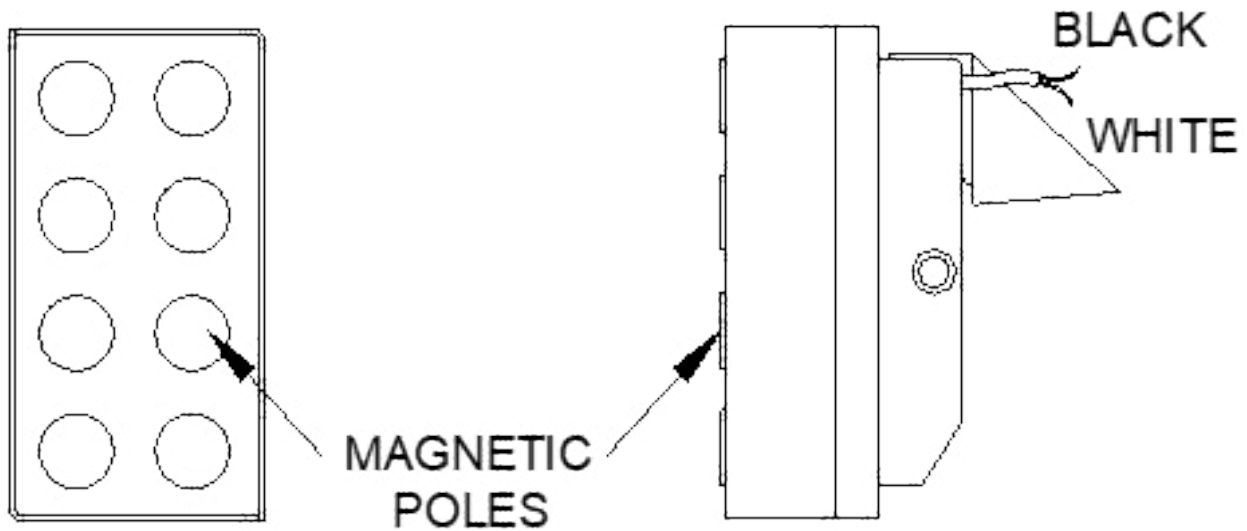
MAINTENANCE

Electromagnet Maintenance

Electromagnets require very little maintenance to provide a long useful life. Daily use of a shop towel to wipe the magnet face free of debris, grease, oil, or other foreign matter will ensure years of service life and thousands of safe operations.

The pulling capacity is greatly reduced when the face of the magnet is dirty. Use care when handling the magnet so as not to nick or mar the pulling surface. If the face is heavily worn, lightly surface grind a few thousandths of an inch off the face to clean up the pulling surface.

Never try to remove the electrical wires mounted in the magnet. Should you do this, you will destroy the magnet, and it will require rebuilding or replacement.



MAINTENANCE

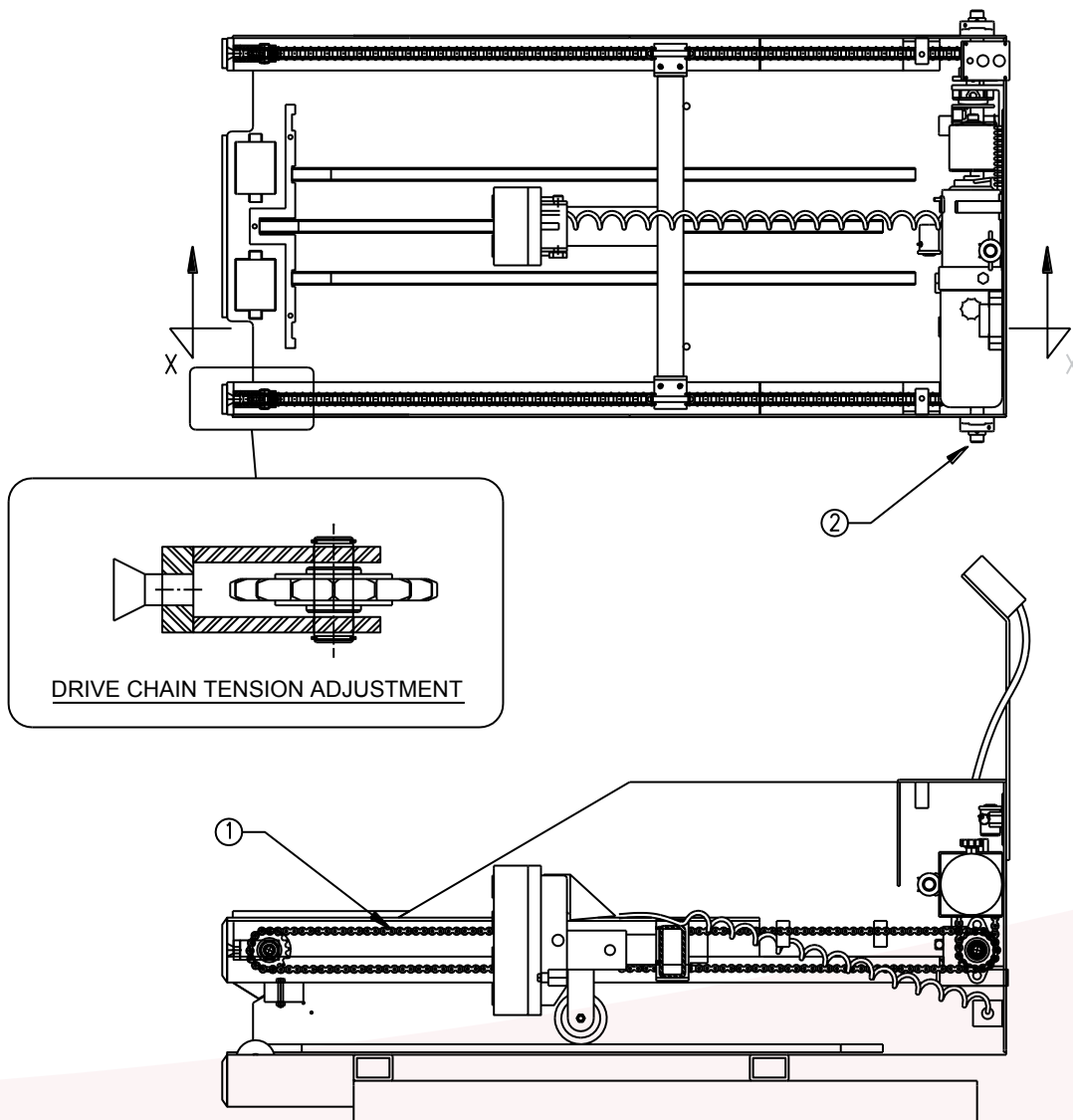
Drive Mechanism Maintenance

Item	Grease Points	# Points	Lubricant	Part Number
1	Drive Chain	3	Spray into container; use brush to apply monthly SCHAEFFERS 200	CBS-3597
2	Bearing	2	Rotanium/LOWSON Blue grease or equivalent every 2 months. P-35000	CBS-1208
	Cleaner		WD-40 (Local purchase)	
	Antiseize		Loctite® silver grade (76759)	CBS-4236

ATTENTION:

- Check monthly and tighten any bolts that have become loose.
- Check drive chain tension. There should be no more than 12.7 cm of deflection.
- See Drive Chain Tension Adjustment inset (below).
- If excessively slack, remove one full link or 1/2 link and reset tension.

If the chain is badly worn or stretched, replace it.



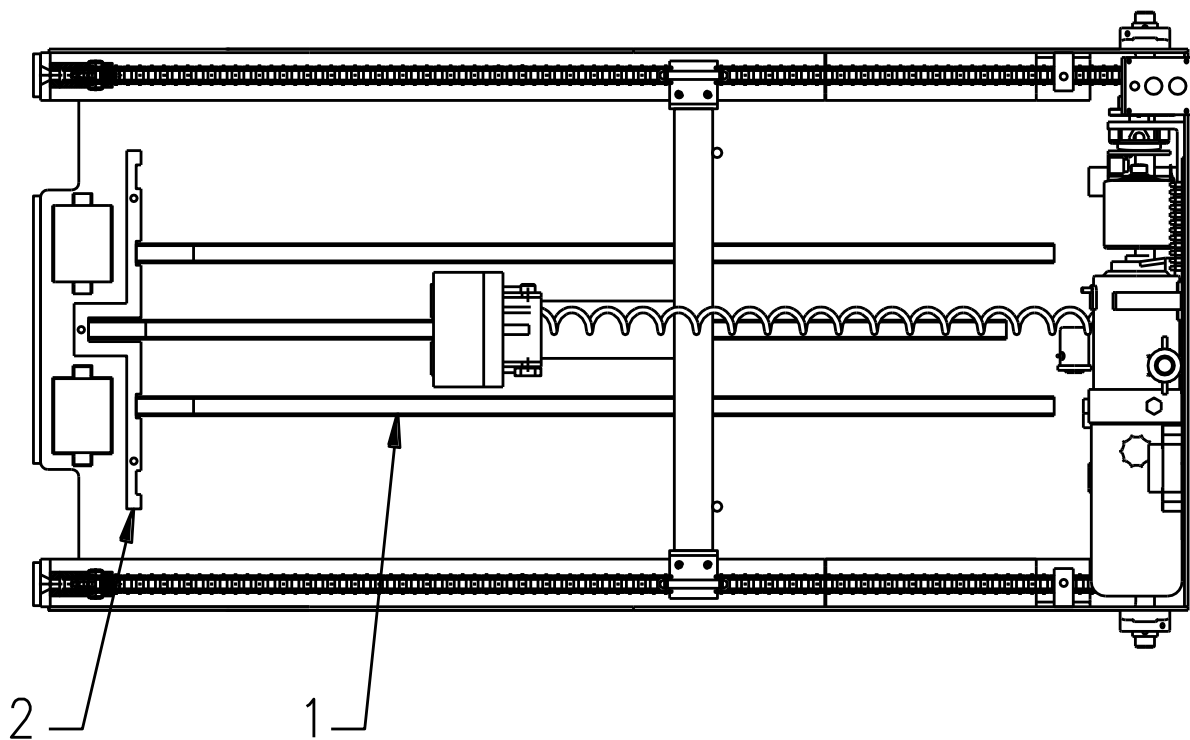
MAINTENANCE

Slider Strip Maintenance

The three (3) slider strips (**Number 1**) on the floor of the **Battery Tugger Electric** will require regular maintenance to provide long and useful service (weekly).

Wipe the top of the slider strips to remove debris, grease, oil, and any other foreign material. This will reduce the friction and ensure a long service life with thousands of safe operations.

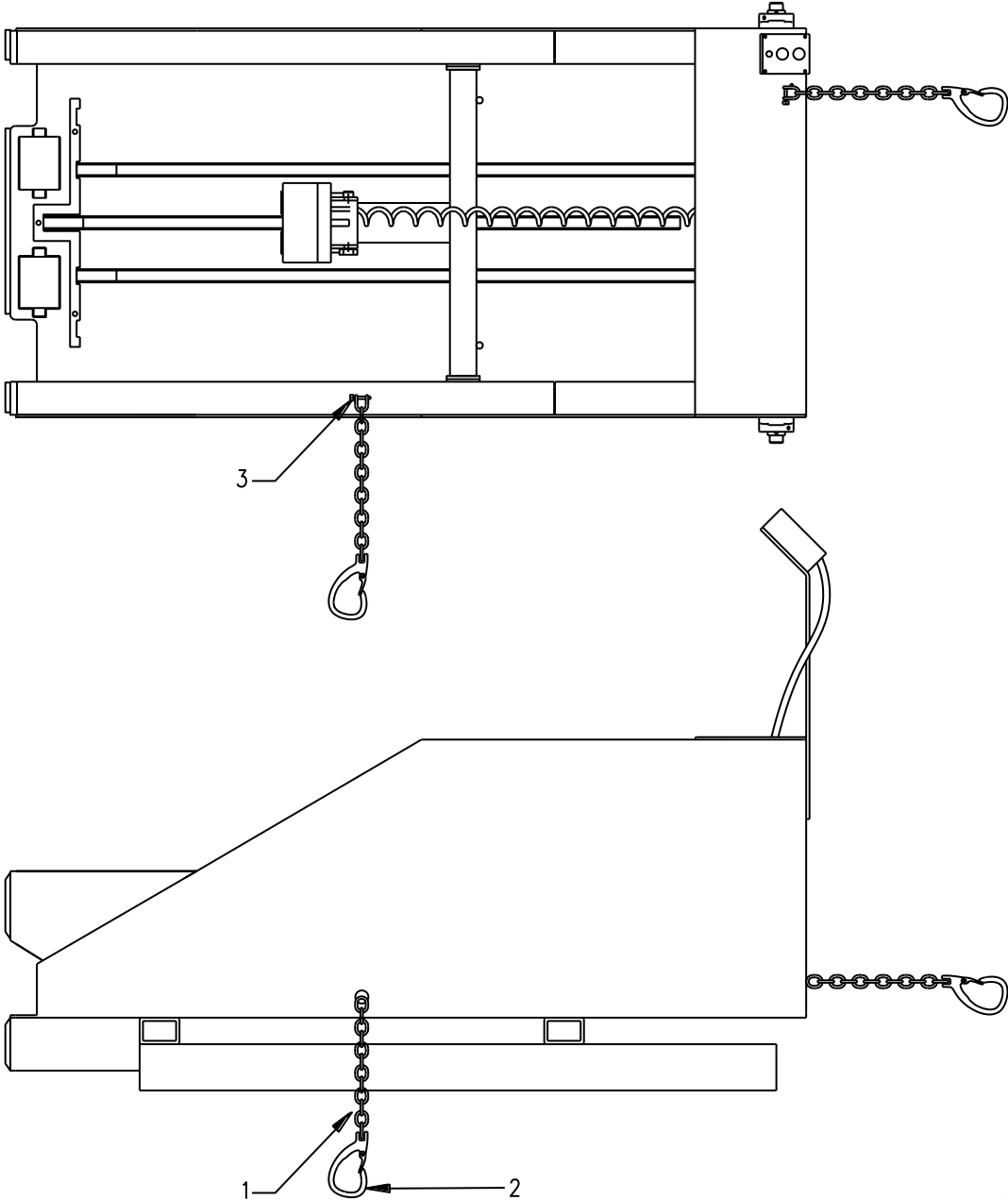
If the slider strips are heavily worn, replace them. To do this remove front slider stop (**Number 2**) and slide the plastic Slider Strip out. Slide the new Slider Strip into the Slider Strip Channel and replace front slider stop (**Number 1**).



SAFETY CHAIN

Fork Truck Safety Chain

Item	Qty.	Description	Part Number
1	1	Safety Chain	CBS-527
2	1	Clevis Sling Hook	CBS-1019
3	1	Shackle 0.6 cm	CBS-1034



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