



Motorized Hand Truck Owner's Manual

Important Startup Instructions

1. Read the Owners Manual thoroughly before first use.
2. Charge the Motorized Hand Truck for six hours before using it for the first time. If the battery completely discharges, recharging may take up to 18 hours. See pages 5-7 for battery and charging information.

Date of Purchase: _____



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Warranty

Magliner products have a one (1) year warranty unless otherwise specified from the date of purchase against defects in workmanship or material. Any part or component, except items covered by warranties of other manufacturers, returned to the factory or service center freight prepaid by the owner, found upon examination by Magline, Inc. to be defective or the result of improper workmanship by the factory will be repaired or replaced without charge and returned to the owner freight prepaid by Magline, Inc.

Alterations of Magliner products void any warranty or liability on the part of Magline, Inc.

Magline, Inc. does not guarantee product capacity if alterations are made.



Thank you for your purchase! If you have any questions regarding your new Magliner product please call our customer service department at 1-800-MAGLINE (624-5463) or (989) 512-1000. Please read this manual thoroughly to become familiar with the safe operation and maintenance of your new Motorized Hand Truck.

General Safety Instructions

- Inspect before each use for damaged and loose fasteners/connections.
- Inspect the unit for cracks, wear or damage. Replace damaged components immediately.
- Keep hands and feet away from all moving parts.
- When unattended, leave the power switch in the off position.
- Operate at a safe speed; go only as fast as safety considerations allow.
- Do not use this product to transport people.
- Do not drive off curbs or ledges higher than one inch. An aluminum walk ramp must be used to overcome obstacles over one inch.
- Never use on a moving vehicle.
- Always stand beside the machine walking forward while operating in reverse. Never walk backwards with machine.
- Never exceed rated capacity, especially on ramps or hills. Damage to the hand truck and personal injury could result.
- Do not operate when the battery charger is plugged in.
- Never attempt to open the battery. If the battery is cracked or leaking, do not recharge it - it must be replaced.
- Always use a Magliner battery charger to charge your battery.

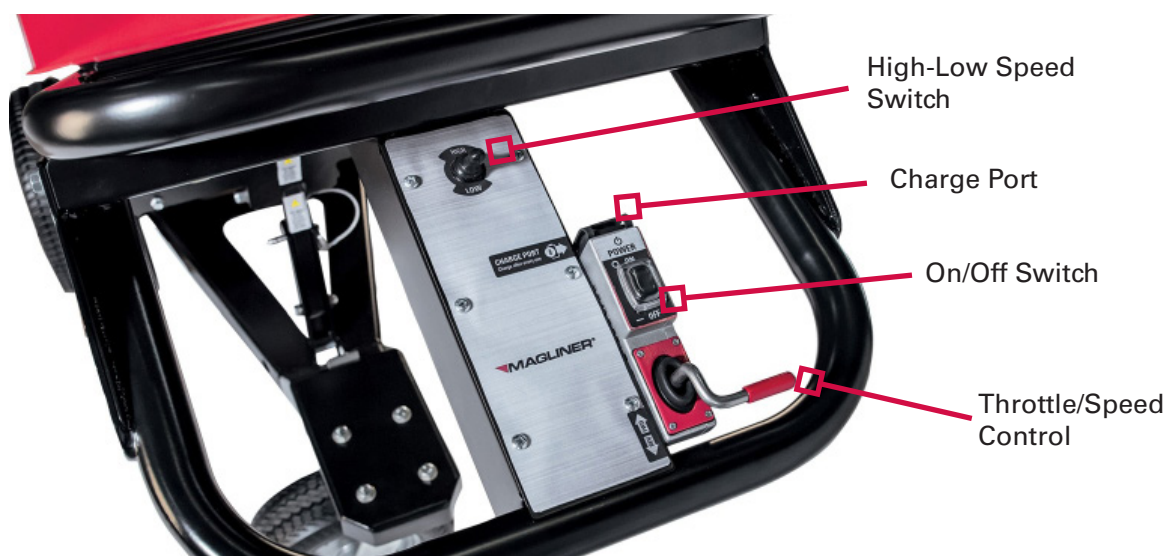
General Machine Care

- Charge the machine in a dry place, preferably at 50 degrees F or warmer
- Wash machine with warm soapy water. Do not use pressure washers.
- Do not drive hand truck through more than 2" of water, and never submerge drive system or battery box.
- Drive system is lubricated for life, so no maintenance is required for drive system.
- Keep pneumatic tires inflated to 20-25 psi.

Startup Instructions

1. Fully charge battery before first use, and charge the battery after each use to prevent total battery discharge and to maximize battery life.
2. Read manual thoroughly before first use.

Motorized Hand Truck



Battery

This product contains three non-spillable AGM lead-acid batteries. The battery must be charged for a minimum of six hours before using it the first time. If the battery completely discharges, recharging may take up to 18 hours. When not in use, it is recommended to keep the battery plugged in to maintain a maximum charge and extend the battery life. The charger will not overcharge the batteries.

General Battery Warnings

- Do not connect accessories to the battery; this will cause premature battery failure.
- Unauthorized modification could create a hazardous condition and result in serious injury.
- Batteries contain sulfuric acid, which can burn eyes, skin, clothes, etc. Use caution! Always wear gloves when working with batteries. If contact occurs, flush immediately with water and get medical attention. Protect surfaces from battery damage by placing batteries on rubber or acid-safe plastic surfaces.
- Never place a battery near an open flame or heat.
- To prevent electrical shock, do not touch non-insulated parts of the charger output connectors, battery connectors or battery terminals. Do not use connectors that are cracked, corroded, or do not make adequate electrical contact. Use of damaged or defective connectors could result in fire or electrical shock.
- Keep sparks, flame and smoking materials away from batteries.
- Batteries can supply a large amount of current. Do not wear jewelry or watches when working on the batteries.

General Charging Warnings

- Use only the Magliner 36V charger designated for use with the Motorized Hand Truck. Charge using a 110V electrical outlet.
- Do not operate the unit when the battery charger is plugged in.
- Do not expose charger to rain or snow.
- Store the charger in a dry, clean place.
- Use the charger only in a dry, well ventilated room without flammable fluids or explosive gases.
- Make sure the cord is located such that it will not be a trip hazard or otherwise subject to damage or stress.
- Do not operate a charger with a damaged cord or plug – replace immediately.
- Unplug the charging unit from the AC power supply source before attempting any maintenance or cleaning.
- Always use battery chargers supplied by Magline, Inc. Other battery charging units could cause damage to your batteries or personal injury.
- To avoid damage to battery charger connectors and cords, disconnect by grasping the plug body and pulling it straight out of the outlet or receptacle. DO NOT pull on the cord. DO NOT twist, rock, or pull the connector sideways.
- The metal tip on the end of the plug may be hot when it is first unplugged.

Battery Life

The Motorized Hand Truck is powered by a 36V system using three non-spillable 12V AGM lead acid batteries connected in series.* A fully-charged battery pack will last at least one typical day; however, extreme temperature ranges and extreme loads can have an effect on the amount of power available during one charging cycle. You will know that your batteries need replacing when you notice diminished range or operational time.

Battery Care

- Store and charge the Motorized Hand Truck at temperatures between 50 and 100 degrees F.
- Always keep the machine on charge. Batteries stored for long periods of time will self-discharge and may get so low, that the charger cannot recharge them.
- Keep the terminals clean and tight.
- Handle the batteries with care.
- The batteries may require 4-10 charge/discharge cycles until batteries charge up to their full potential.
- DEEP DISCHARGE ON A CONTINUAL BASIS WILL SHORTEN THE SERVICE LIFE OF THE BATTERIES.
- Battery performance may be reduced when operating in temperatures less than 40 degrees F. You should anticipate a range reduction by 50% or more when operating at temperatures below 32 degrees F.

Battery Box



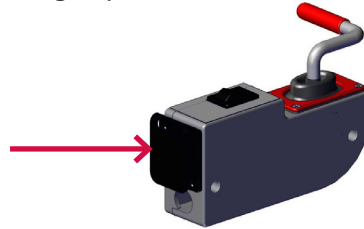
*Battery has a warranty of six (6) months

Charging the Battery

The Motorized Hand Truck is provided with an off-board 36V charger. To charge the machine, plug one end of the charger into a 110V wall outlet, and the other end into charger port. An LED light on the charger will blink (or turn amber or red) while the unit is charging. When the unit is completely charged, the light will turn solid green. For optimum performance, charge in temperatures from 50-100 degrees F.

It is essential that the Motorized Hand Truck be kept on a charger whenever it is not in use; the batteries will not overcharge. Before use, unplug the charger from the Motorized Hand Truck by carefully pulling the connector out of the charger port in the throttle. Install the dust cover boot over the plug connector on throttle to keep the charger port clean.

Charger port for
onboard charging



The batteries may also be charged separate from the machine (i.e. bench charging). Bench charging is very useful if extra range is desired by having a second battery pack fully charged, or if the power source is far from where the machine is stored. To charge using this method:

1. Open battery compartment door.
2. Remove pin.
3. Slide out the battery pack. PLEASE NOTE: The battery pack weighs approximately 38 lbs.
4. Insert the charger connector into the charge port on the battery pack to begin charging.



Step 1



Step 2



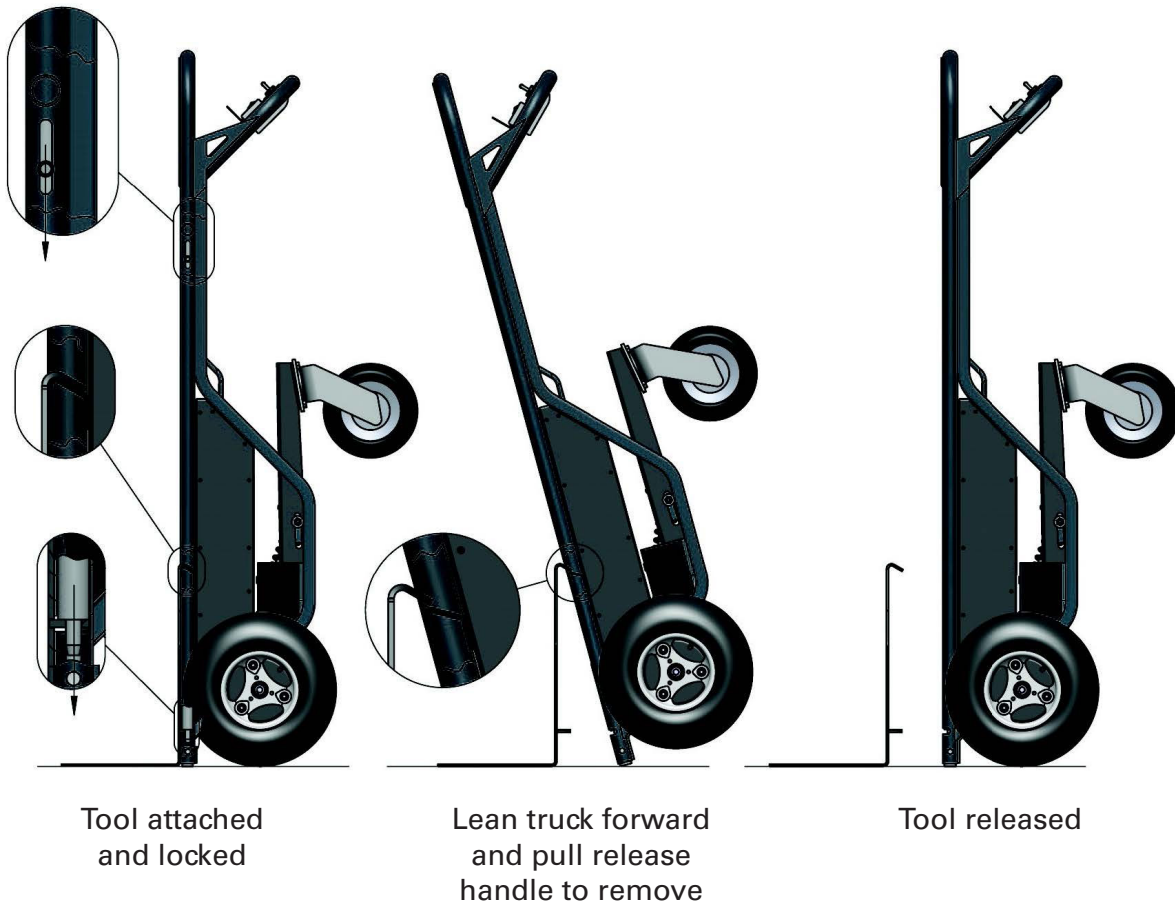
Step 3



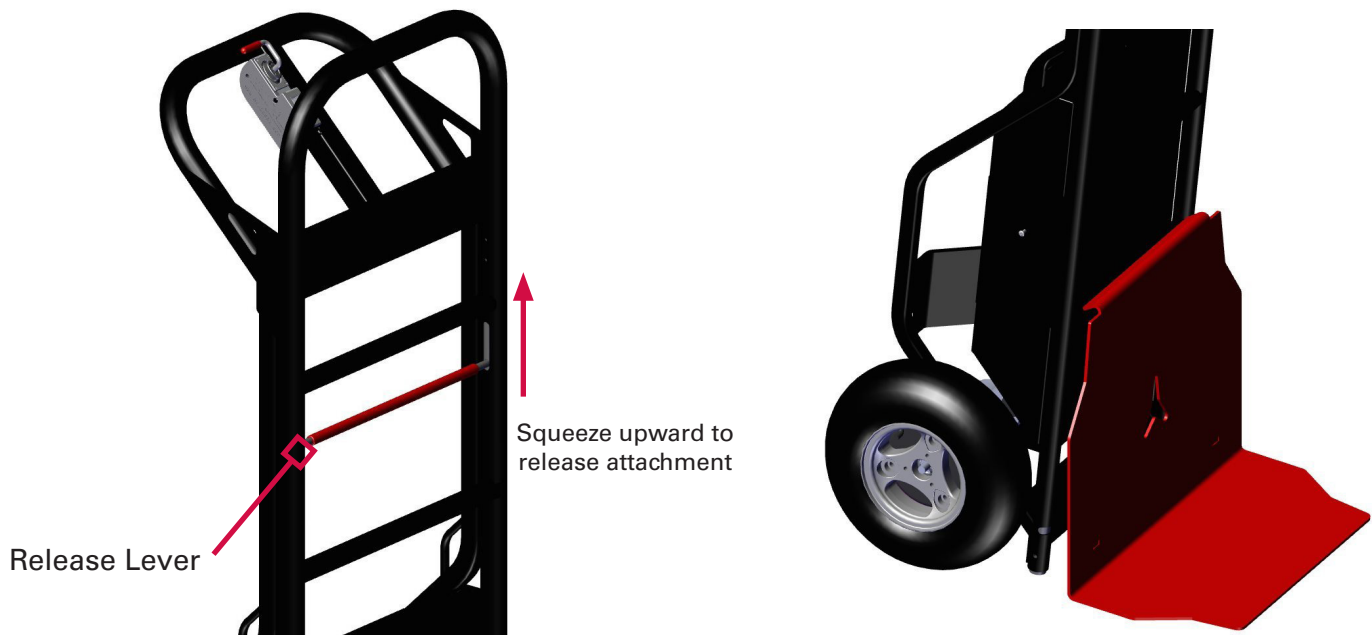
Step 4

Changing Front Attachment

The quick attach feature that permits the easy and quick exchange of application specific tools. It requires no pins, bolts, or any other fastener, and no special tools. The diagram below shows how it works.



REVERSE THIS PROCESS TO ATTACH NEXT ATTACHMENT



Rear Stabilizer Arm

The rear stabilizer arm supports the hand truck in the incline position for ease of use. The stabilizer arm has two positions – stowed and deployed. In the stowed position, the stabilizer arm is folded up into the frame of the hand truck to minimize the overall footprint. In the deployed position, the stabilizer arm is folded down so that the load is carried on the two drive wheels and on the rear caster wheel as well.



Stowed Position



Deployed Position



Deployed Angles

Deploying and Stowing the Stabilizer Arm

1. From a stowed position, pull the detent pin out of the stowed hole, and push the arm downward until it is fully extended.
2. Align the detent pin and place into the deployed hole (you may have to move the arm up and down slightly to align the pin through all three plates).
3. Make sure the detent pin is fully inserted with the safety clip properly secured BEFORE putting any load on the stabilizer arm.
4. To stow the stabilizer arm, reverse the above process.



Stowed Position
Detent pin in stowed hole



Deployed Position
Detent pin in deployed hole



**NEVER OPERATE UNIT
WITHOUT THE PIN SECURELY
PLACED IN EITHER HOLE**

Motorized Hand Truck Drive System

Automatic Electronic Braking

The drive system features regenerative braking by which the electronic controller uses the motor to slow down the machine in both forward and reverse directions. To slow down the machine, reduce throttle input, or release the throttle lever, and the machine will brake to a stop.

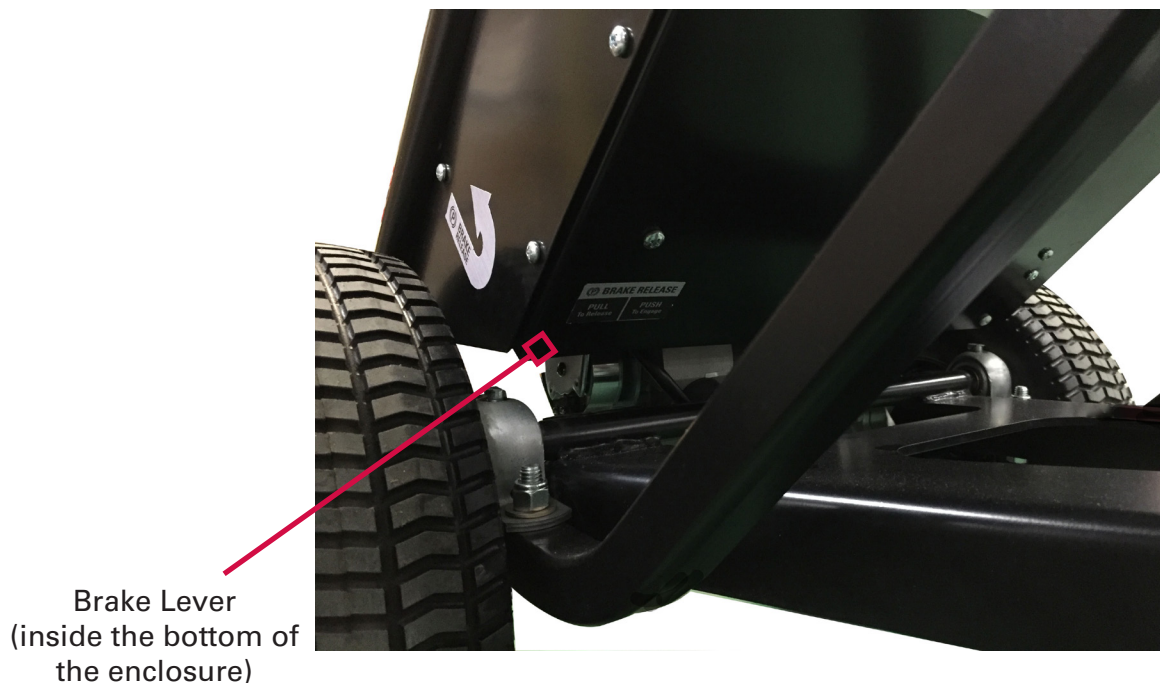
While driving downhill, this feature allows direct control over the speed of the machine, as long as the load on the machine does not exceed the design parameters. In addition, the drive system is equipped with an electromechanical park brake, which is automatically engaged when throttle input is zero. This locks the machine in place until there is throttle input from the operator, or the operator manually overrides it in manual mode (see below).

Manual Mode (Free Wheeling)

The drive system is equipped with a lever that overrides the electromechanical brake for manually pushing the Motorized Hand Truck. This option should only be used if the batteries are too low to drive the system, or if the drive system becomes inoperable. To disengage the brake, push the lever down until it clicks into the disengaged position.

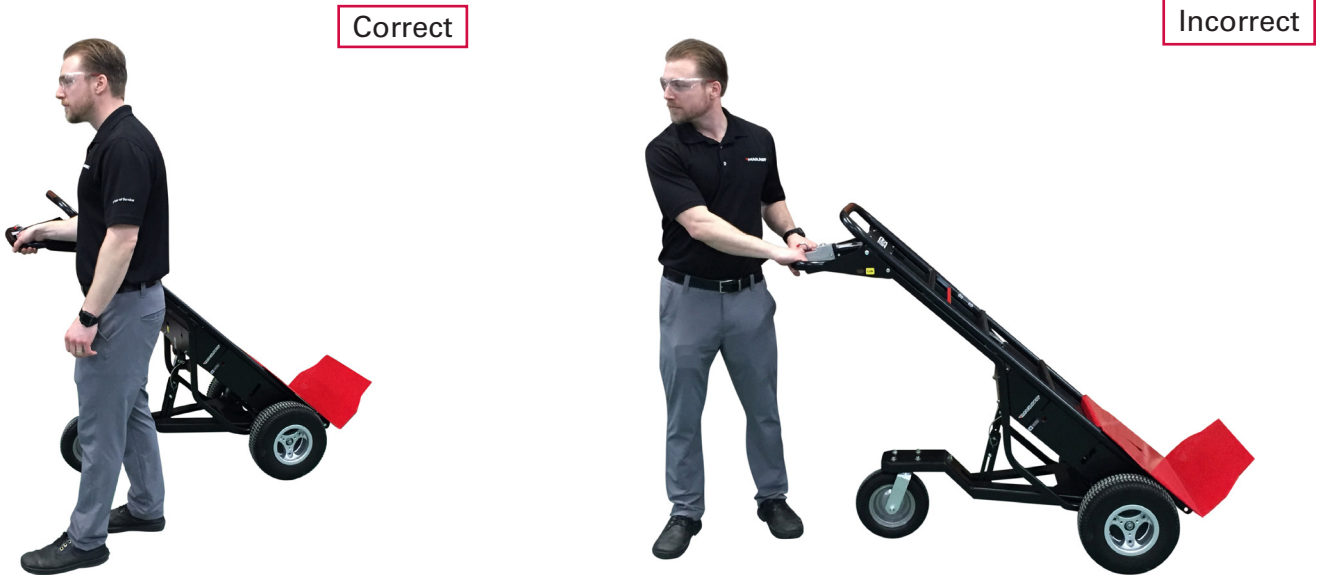
With the brake in the disengaged position, the ON/OFF switch **MUST** be turned off, or the drive system will not move freely. The controller **WILL NOT** operate the motor when the brake is disengaged. This is a safety lock-out that prevents the operation of the machine when the electromechanical brake on the transaxle has been manually released.

NOTE: A safety feature called “push too fast” will aggressively slow the machine down if the machine begins to move too quickly with the brake released and the power switch off. Its purpose is to avoid a run- away situation if the operator forgets to re-engage the brake.



Reverse Operation

While operating the Hand Truck in reverse, **DO NOT** stand behind the unit driving it toward you looking over your shoulder. The proper way to operate the unit in reverse is to **STAND BESIDE THE UNIT**.



Storage and Transportation

The Hand Truck can be stored in any position as the batteries are sealed and there are no fluids to leak out. The most common (and suggested) storage orientation is unloaded (empty) sitting on its three wheels and placed on charge. Leaving the hand truck loaded for an extended period of time is not suggested.

The most common orientation for transporting a Hand Truck onboard a truck is in the vertical orientation while secured to the truck **BEFORE** any transportation takes place.

Slopes and Inclines

The Motorized Hand Truck can carry up to 1,000 lbs. max under propulsion up to an 8 degree incline or decline. If the degree of incline is steeper than 8 degrees under full load, you can simply assist the climb with a slight push to assist the drive system.

Pre-Trip Inspection

1. Before each use, check for damaged or missing components. Replace damaged or missing components immediately with Magliner replacement parts.
2. Check all fasteners, and make sure to tighten or replace loose or missing hardware.
3. Check welds and material near welds for cracking or damage.
4. Make sure that pneumatic tires are properly inflated to 20-25 psi.
5. Unplug the charger from the hand truck by carefully pulling the connector out of the charger port in the throttle. Install the dust cover boot over the plug connector on throttle to keep the charger port clean. Store the charger in a dry, clean place.
6. Test the On/Off key switch to be sure the unit will turn on and off as intended.
7. Always check that the propulsion system is functioning properly before beginning the day; with the unit On, test that the unit moves forward and backward with propulsion.
8. With the unit turned Off, release the park brake and push or pull the hand truck to make sure it is functioning properly in manual mode. Then reengage the transaxle.

Using the Motorized Hand Truck

On/Off Switch

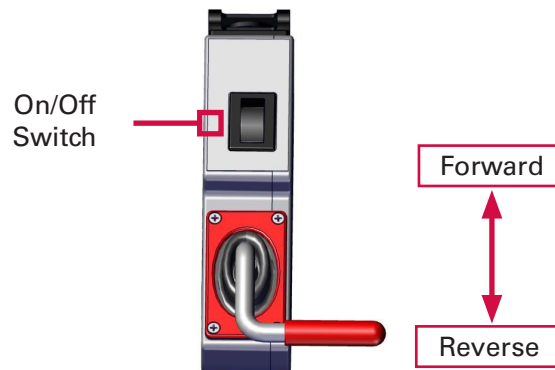
1. Turn the rocker switch to ON position.
2. If the switch is left on for approximately 20 minutes without use, the controller goes into a power save mode (sleep mode).
3. To wake the controller, cycle the rocker switch to the off position for 2 seconds, and then back to the on position.

Variable Speed Control

Moving the throttle lever increases speed in proportion to how far you pull or push it – the further you move away from home position, the faster you go forward or reverse. The maximum speed is approximately 4.3 mph.

Releasing the lever will automatically return it to zero, commanding the controller to slow down and stop the machine, locking it in place.

It is recommended operators set the High-Low speed switch to low when operating indoors and/or when loaded. Operating in high speed mode is suggested only when the operator has ample room to move and to stop, with few obstacles.



Moving with Propulsion

1. To use propulsion, be sure that the motor's brake lever is in the up position to engage the transaxle.
2. Turn the unit On. Check to be sure surroundings are clear.
3. Pull the throttle lever toward you to move in reverse; push the throttle away from you to move forward.
4. To increase the speed, push or pull the throttle lever further away from home position.
5. To slow the unit, move the throttle lever closer to home position.
6. When you release the throttle lever, the unit will slowly come to a complete stop and the park brake will engage.
7. The Hand Truck will slow to a stop and park in place even on an incline, as long as the load on the hand truck does not exceed capacity.

Considerations When Using Propulsion

- Always operate the Hand Truck only as fast as safety considerations allow.
- When turning tight corners, keep the unit close to the turn in the direction of travel; for example, when turning right, keep the unit close to the turn on the right. When turning left, keep the unit close to the turn on the left.
- Use extra caution when moving loads on ramps or moving loads in reverse as described on page 11.
- While unattended, turn the unit off.
- Do not drive the Hand Truck through more than 2 inches of water, and never submerge the drive system or battery box.
- Do not drive off curbs or ledges higher than one inch. An aluminum walk ramp must be used to overcome obstacles over one inch.

At the End of the Day

1. Make sure the Hand Truck is unloaded.
2. While unattended, turn the unit Off.
3. The Motorized Hand Truck when batteries are installed should be stored and charged indoors and in a dry environment. To maximize battery life and minimize charge time, temperatures should be between 50 to 100 degrees Fahrenheit.
4. Charge the batteries as soon as possible upon returning with the Hand Truck from use. Charge daily or after every use in a dry, well ventilated area away from sparks, heat and flames. Do not use an extension cord if possible, and do not use the charger if the cord is damaged.

Preventative Maintenance

Area	Inspection Frequency	Procedure/Normal Condition
Drive Wheels	Daily	Inspect wheels and tires for wear and cracks. Keep pneumatic tires inflated to 20-25 psi.
Fasteners	Daily	Tighten any loose hardware.
Battery Charging	Daily	Red, amber or green charging light should turn on when charging.
Casters	Daily	Inspect for wear; clean dirt and debris.
Transaxle	Daily	Transaxle should be kept free and clear of debris. When stored, the transaxle lever should be kept in powered mode with the power OFF to keep unit from rolling freely.

Troubleshooting

Problem	Possible Causes	Remedy
Motor does not run	Power switch in OFF position Controller in sleep mode Batteries are drained Motor brake lever released on drive system Electrical fault	Turn switch to ON position Cycle switch, OFF 2 sec, then ON Recharge batteries Re-engage motor brake on drive system Unplug, then plug in both motor and throttle connectors
Motor shuts off during use/abruptly stops	Circuit breaker has tripped Controller trip due to thermal overload (weight and/or climb angle may exceed controller capacity) Broken motor wire or connector	Push circuit breaker to reset Release throttle, allow controller to cool down at least 30 seconds. Unload some weight, cycle power switch, operate machine again. Check motor wires and brake wires to make sure none are broken, and also check connector to make sure wires are secure in connector
Insufficient range	Hilly or soft terrain Batteries not "broken in" Cold batteries Battery not fully charged Damaged, old batteries Low tire pressure	Push to assist drive system Charge and discharge 4-10 times before optimum range Keep batteries warm ALWAYS keep machine on charge when not in use Replace batteries Inflate pneumatic tire(s) to 20-25 psi
Machine slows down aggressively while in manual release mode	"Push too fast" safety feature	Do not push machine so fast while in manual release mode (see Manual Mode section)
Attachment will not lock onto machine	Alignment may be off Dirt or debris in tab-lock area	Adjust alignment to make sure attachment is properly seated on truck Check and clean any dirt away from locking pin or locking tabs



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