



# Motorized Hopper Cart Owner's Manual

## Important Startup Instructions

1. Read the Owners Manual thoroughly before first use.
2. Charge the Motorized Hopper Cart for six hours before using it for the first time. If the battery completely discharges, recharging may take up to 18 hours. See pages 5-6 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 Hopper Cart.

## **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 Hopper Cart 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 Hopper Cart 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 maximize battery life.
2. Read manual thoroughly before first use.

## Motorized Hopper Cart



## Battery

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 24V charger designated for use with the Motorized Hopper Cart. 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 Hopper Cart is powered by a 24V system using two 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 Hopper Cart 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.

### Charging the Battery

The Motorized Hopper Cart is provided with an off-board 24V 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 Hopper Cart be kept on a charger whenever it is not in use; the batteries will not overcharge. Before use, unplug the charger from the Motorized Hopper Cart 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.

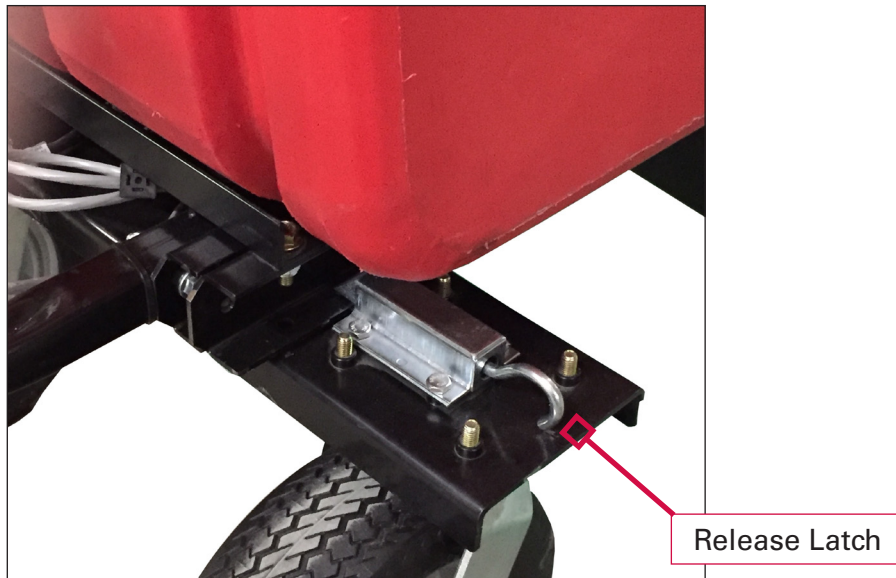


\*Battery has a warranty of six (6) months

## Using the Tub

Before loading the tub, make sure it is securely latched onto the cart frame.

The Hopper Cart should be completely stopped with the parking brake engaged before dumping. There are two ways to dump the tub. The first way is to keep the tub latched onto the cart frame and push the handlebars upward to dump the contents (like a wheelbarrow). Another way is to unlatch the tub and hinge the tub forward to dump the contents (like a dump truck).



Method 1



Method 2



## Motorized Hopper Cart 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 Hopper Cart. 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 power key 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 Hopper Cart 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 Hopper Cart 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) and placed on charge. Leaving the Hopper Cart loaded for an extended period of time is not suggested.

## Slopes and Inclines

The Motorized Hopper Cart can carry up to 750 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.

Please note - the overall capacity is determined by tub size (250 lbs. - small; 400 lbs. - medium; 750 lbs. - large).

## **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 the pneumatic tires are properly inflated to 20-25 psi.
5. Unplug the charger from the Hopper Cart 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 Hopper Cart to make sure it is functioning properly in manual mode. Then reengage the transaxle.

## Using the Motorized Hopper Cart

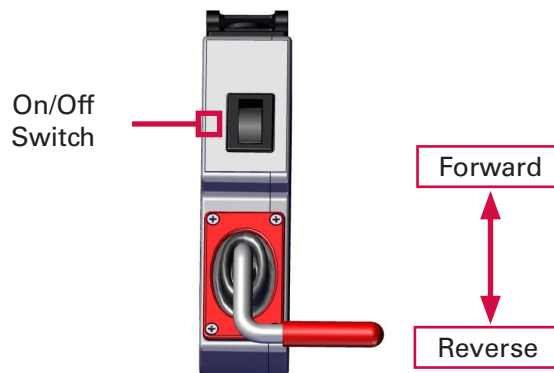
### On/Off Switch

1. Turn the rocker switch to ON to engage the powered transaxle.
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 3.0 mph.

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



### 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 Hopper Cart will slow to a stop and park in place even on an incline, as long as the load on the Hopper Cart does not exceed capacity.

### **Considerations When Using Propulsion**

- Always operate the Hopper Cart 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 9.
- While unattended, turn the unit off.
- Do not drive the Hopper Cart 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.

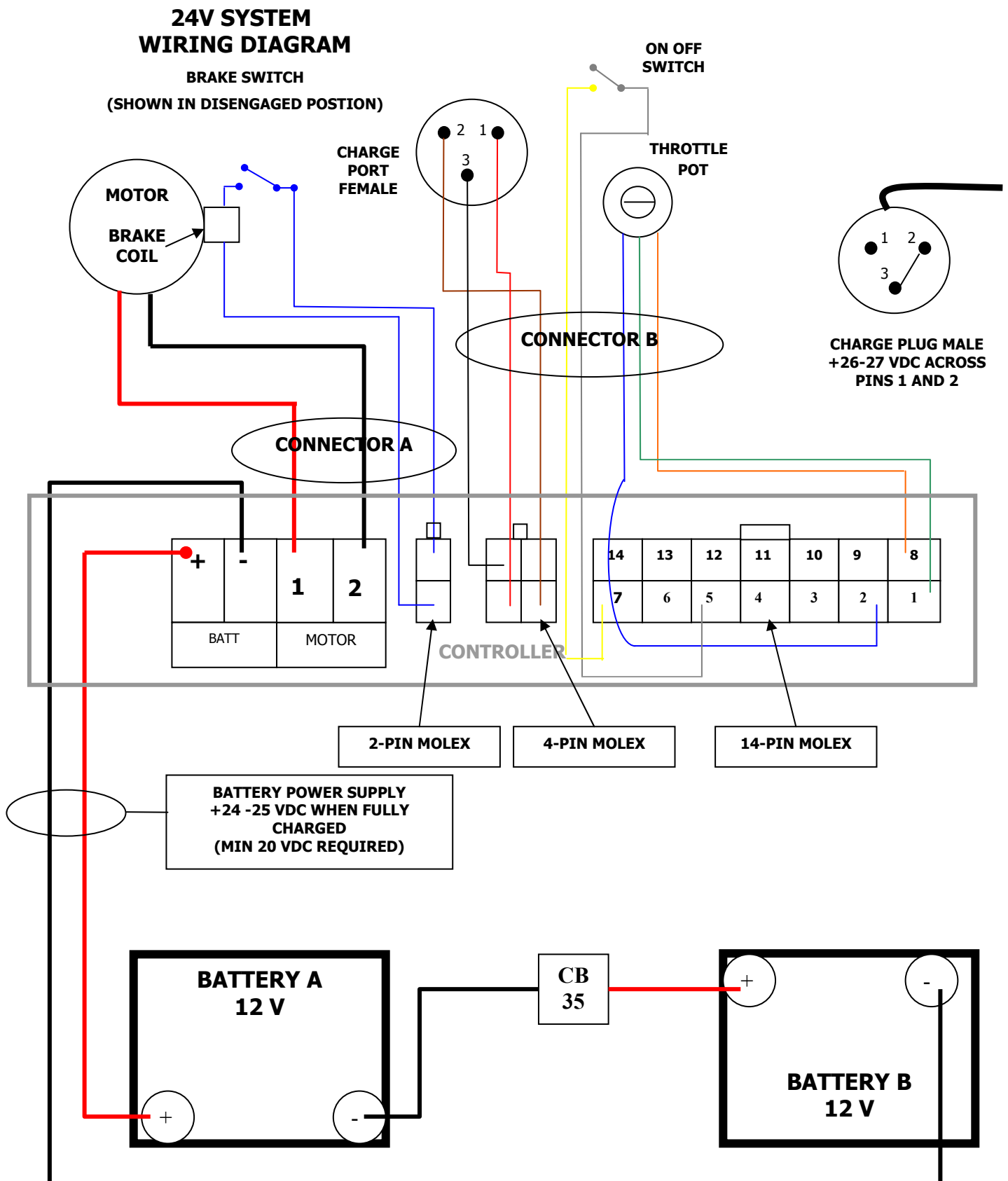
### **At the End of the Day**

1. Make sure the Hopper Cart is unloaded
2. While unattended, turn the unit Off.
3. The Motorized Hopper Cart 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 Hopper Cart 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.

## Wiring Diagram - 24V System



## 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	Circuit breaker has tripped Controller trip due to thermal overload (weight and/or climb angle may exceed controller capacity)	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.
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 abruptly stops	Broken motor wire or connector	Check motor wires and brake wires to make sure none are broken, and also check connector to make sure wires are secure in connector
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)





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