

# Curb King Wheelbarrow Operations Manual

Operations and specifications subject to change without notice.

## On/Off Switch:

Curb King electric wheelbarrows are activated with a rocker switch for convenience and safety. If the switch is left on for approximately 20 minutes without use, the controller goes into a power save mode (sleep mode). To wake the controller, cycle the rocker switch to the off position for 2 seconds, then back to the on position.

## Variable Speed Control:

The thumb lever on the throttle assembly controls forward and reverse motion. Moving the lever forward increases speed in proportion to how far forward you push it - the further you push forward, the faster you go forward. The same is true for reverse direction. Releasing the lever will automatically return it to zero, commanding the controller to slow down and stop the machine.

## 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. In order to slow down the machine, reduce throttle input, or simply release the throttle lever, and the machine will brake to a stop. While driving down hill, this feature allows direct control over the speed of the machine, so long as the load in 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 throttle input is increased, or the operator manually overrides it.

## Manual Drive Release:

The wheelbarrow is equipped with a lever that overrides the electromechanical brake. This option should only be used if the batteries are too low to drive the system, or if the drive system becomes inoperable. On the drive motor, move the lever down. **THE POWER SWITCH SHOULD BE TURNED TO THE OFF POSITION.** Important note - With the brake in the disengaged (manually released) position, the power switch must be turned off, or the drive system will not move freely. Furthermore, 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.



## **Charging the Unit:**

Curb king wheelbarrows are provided with an off board 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) while the unit is charging. When the unit is completely charged, the light will turn solid green. It is recommended that the machine be left ON CHARGE whenever it is not in use. The charger is a smart charger, and will not overcharge the batteries. Please read the charger warning section carefully.

## **General Warnings:**

1. Never carry passengers in a Curb-King Wheelbarrow. Do not tow or push another object.
2. When unattended, leave the power switch in the off position
3. Operate at a safe speed; go only as fast as safety considerations allow.
4. Do not drive off curbs or ledges higher than 1 inch
5. Always look behind before and while operating in reverse.
6. Never operate an Curb king wheelbarrow under the influence of drugs or alcohol.

## **Battery Warnings:**

1. To reduce the risk of injury, use only batteries provided or recommended by Curb King. Other batteries may explode causing personal injury and damage.
2. **NEVER PLACE A BATTERY NEAR AN OPEN FLAME OR HEAT.** It could explode.
3. The batteries are sealed lead acid. Do not short circuit or charge in a sealed container. The electrolyte in the battery is an acid, which can cause severe burns to the skin and eyes. Wear protective clothing and gloves when working with batteries. Treat all electrolyte spills with an extended flushing of clear water. Contact a physician immediately if contact is made with battery acid.
4. Hydrogen gas is formed when charging batteries. Use a location with adequate ventilation when charging the batteries. Never smoke near batteries. Never charge batteries in an area with open flame or where there is a potential for an electrical arc. Never mix old batteries with new ones of different sizes or types. Use the battery charger for charging the lead acid batteries only in accordance with the instructions in this manual.
5. Never lay any metal objects across the batteries (could cause a short circuit).

## **Charger Warnings:**

1. Before using the charger, read this section.
2. Use only the charger provided with the Curb King wheelbarrow.
3. Do not expose the charger to moisture or water.
4. To reduce the risk of damage to the charger and chord, pull the charger by the metal plug when disconnecting the charger.
5. Make sure the chord is located so that it will not be stepped on or damaged
6. Do not use an extension if possible. An improper extension chord could cause electrical shock or fire. If you must use an extension chord, make sure that:(a) the pins on the plug are the same number; (b) the extension chord is properly wired and in good electrical condition; (c) the wire size is large enough to handle at least 20 amps.
7. **DO NOT OPERATE THE CHARGER IF THE CHORD IS DAMAGED.**
8. Do not operate the charger if it has been crushed or damaged in any way.
9. Never disassemble the charger - it is not serviceable and will need to be replaced if damaged.
10. Only clean the charger with a dry cloth and electrical-grade cleaners. Do not use water.
11. Do not use the charger outdoors in wet conditions.
12. Charge in well-ventilated areas away from sparks, heat, and flames.
13. For optimum performance, charge in temperatures from 50 to 100 degrees F.

## **Battery Care:**

1. Store and charge your Curb king wheelbarrow at temperatures between 50' and 100' F.
  2. Always keep the machine on charge. Batteries stored for long periods of time will self-discharge and may get so low, that the charger will not recharge them.
  3. Keep the terminals clean and tight
  4. Handle the batteries with care - do not drop them
  5. Recharge the battery as soon as you can after using the machine
  6. The batteries will require 4-10 charge/discharge cycles until batteries charge up to their full potential
  7. **DEEP DISCHARGE ON A CONTINUAL BASIS WILL SHORTEN THE SERVICE LIFE OF THE BATTERIES.**
  8. Always disconnect the battery power connector when shipping or storing the batteries.
  9. Battery performance is greatly reduced when operating in temperatures less than 40' F.
- For example, you can expect only half the range when operating at temperatures below **32' F.**

### **Battery Replacement:**

Batteries must be recycled. To preserve natural resources, please recycle the batteries properly. Local, state, or federal laws prohibit the disposal of lead acid batteries in regular trash. Consult your local waste authority for information regarding available recycling centers.

You will know that your batteries need replacing when you notice diminished range or operational time.

This usually occurs from 300 to 500 charge/discharge cycles, which Curb King estimates to be about 2 years plus or minus 6 months. Replacement batteries are available from Curb King or from an authorized dealer or battery distributors.

Once the old batteries are removed, cover the terminals with heavy electrical tape. Do not attempt to destroy or drain the batteries. Never touch both terminals with metal objects, a short may result. Keep the batteries away from children.

### **General Machine Care:**

1. Keep machine in a dry place, preferably at 50 degrees or warmer
2. Wash machine with warm soapy water. Do not use pressure washers.'
3. If machine must be left outside, it is suggested that you cover it with a tarp or waterproof cover.
4. Do not drive machine through more than 4" of water - never submerge drive system or battery box.
5. Drive system is lubricated for life, so no maintenance is required for drive system
6. Keep tires inflated to 20 to 25 PSI.
7. ALWAYS KEEP BATTERIES ON CHARGE

## TROUBLESHOOTING

PROBLEMS	POSSIBLE CAUSE	REMEDY
Motor does not run	Power switch in off position	Turn switch to On Position
	Controller in sleep mode	[Cycle switch, off 2 sec, then on]
	Batteries are drained	Recharge batteries
	Manual release lever released on drive system	Re-engage manual release on drive system, [Cycle switch, off 2 sec, then on]
	Electrical fault	Unplug, then plug in both motor and throttle connectors
	Power switch turned on while throttle on	Let go of throttle, cycle switch
Motor shuts off during use	Circuit breaker has tripped	Push circuit breaker to reset
	Controller trip due to thermal overload (weight and/or climb angle may exceed controller capacity)	Release throttle, allow controller to cool down for at least 30 seconds. Unload some weight, cycle power switch, operate machine again
Insufficient range	Hilly or soft terrain	Push to assist drive system
	Batteries not "broken in"	Charge and discharge 4 to 10 times before optimum range
	Cold batteries	Keep batteries warm (above 50°)
	Battery not fully charged	ALWAYS keep machine on charge
	Damaged, old batteries	Replace batteries
	Low tire pressure	Inflate tire(s) to 20-25 PSI
Machine abruptly stops	Broken motor wire or connector	Check motor wires to make sure none are broken, also check connector to make sure wires are secure in connector
Machine slows down aggressively while in manual release mode (two-wheel drive system only)	"Push too fast" safety feature (See Manual Release section on manual)	Do not push machine so fast while in manual release mode