

LIFT PRODUCTS INC.

# MOTO CART

A MOTORIZED MATERIAL HANDLING CART

OWNER'S/OPERATOR'S MANUAL - MODELS MC-10-S / MC-10-M / MC-10-L  
MC2-HD20 / MC2-HD15



Lift Products Inc.  
W226 N900 Eastmound Dr.  
Waukesha, WI 53186  
Telephone: (262) 521-5720  
Fax: (262) 521-5725  
Parts & Service: 877-543-8776

# MOTO CART

## PRODUCT SERVICE INFORMATION

**Please fill out and keep this manual on hand for service records**

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

REPRESENTATIVE \_\_\_\_\_

TELEPHONE \_\_\_\_\_

PURCHASED DATE \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

PURCHASED FROM \_\_\_\_\_

TELEPHONE \_\_\_\_\_

<b>INTRODUCTION .....</b>	<b>2</b>
<b>SAFETY FIRST .....</b>	<b>3</b>
<b>OPERATING THE MOTO CART .....</b>	<b>4</b>
<b>MODEL MC-10-S / MC-10-M /MC-10-L /MC2-HD20 /MC2-HD15 (EZ-GRIP CONTROLS).....</b>	<b>4</b>
ON-OFF KEY SWITCH .....	4
FORWARD/REVERSE .....	4
SPEED MODES .....	4
EMERGENCY STOPPING .....	4
BATTERY CONDITION .....	4
RUNNING .....	5
BRAKING SYSTEMS .....	5
CHARGING .....	6
<b>BATTERIES .....</b>	<b>6</b>
BATTERY LIFE .....	6
BATTERY LOAD TESTING .....	7
CIRCUIT BREAKER .....	7
<b>MAINTENANCE .....</b>	<b>7</b>
MAINTENANCE SCHEDULE .....	7
MAINTENANCE PROCEDURES .....	8
<b>DIAGNOSTICS &amp; TROUBLESHOOTING .....</b>	<b>9</b>
<b>PUSHING MANUALLY .....</b>	<b>11</b>
<b>SPECIFICATIONS .....</b>	<b>12</b>

Welcome to the MOTO CART . . . a member of the Lift Products family of quality mobility products. We know you'll be depending on it, so we have taken great care to make it completely reliable. This owner's manual is designed to help you get the most out of your CART and includes very important safety and care information. Please read it thoroughly and keep it handy for reference. Thank you for choosing the MOTO CART

Information in this manual is based upon specifications in effect at the time of publication. Lift Products reserves the right to make changes at any time without notice.

Be sure to complete the Product Service Information box on the inside front cover. This will be your record of important information, which will help you if your MOTO CART ever requires service. When seeking repair parts while your MOTO CART is under warranty, a copy of your bill of sale may be requested to verify warranty status.

**FAILURE TO READ THIS OWNER'S MANUAL  
WILL VOID THE WARRANTY**

If there is anything in this manual that you do not completely understand or are unsure of,  
**DO NOT OPERATE** your **MOT CART**. Call Customer Service at:

**1-877-543-8776**

To prevent accidents which can cause injury to you, damage the MOTO CART or damage your cargo, observe the following rules:

READ THE OWNERS'S MANUAL BEFORE OPERATING THE MOTO CART.

1. Read and understand this owner's/operator's manual before operating the MOTO CART
2. Read and understand all safety instructions provided with the MOTO CART.
3. Only trained personnel should be allowed to use the MOTO CART. All persons using the CART must read this owner's/operator's manual.
4. The MOTO CART has a maximum load capacity of 1500 pounds. Do not exceed the rated capacity for your model.
 

MC2-HD20	2000
MC2-HD15	1500
MC-10-L	1500
MC-10-M	1500
MC-10-S	1500
5. Do not travel up or down inclines greater than 6°.
6. Always turn the key switch off before loading or unloading the CART.
7. Always take corners slowly and with caution to prevent the load from shifting.
8. Do not travel sideways across inclines.
9. Do not stop the MOTO CART on an incline. Always park, load and unload on a flat, level surface.
10. Do not go up and down curbs. Only operate the CART on smooth surfaces.
11. Always unplug the batteries before making any adjustments or repairs to the MOTO CART.
12. Always load the CART evenly, distributing the load to prevent tipping.
13. Do not defeat any safety equipment on the CART.
14. Do not use the MOTO CART to push or pull objects or other carts.
15. Do not operate the MOTO CART in wet environments.
16. Do not expose the MOTO CART to high temperatures. The CART is battery operated. Batteries may be severely damaged if exposed to high temperatures.
17. Do not operate the MOTO CART with a broken wheel or broken or bent caster.
18. Use extreme caution when operating the MOTO CART near doorways, in hallways and near stairwells. Reduce speeds in these areas.
19. Do not manually release the electromechanical brake on or near an incline. If you must release this brake, release the brake only when on a level surface and with the CART completely unloaded. Instructions for releasing the brake are in the section titled "Pushing Manually".
20. Test the operation of the MOTO CART in an environment with sensitive electronic equipment prior to the use in that environment. The CART has not been tested with all manufacturers equipment and may react to, or cause a reaction in the electronic equipment.

We would like you to get the most out of your MOTO CART. When you use the CART for the first time, you must know how to properly operate and care for it to avoid unsafe situations. Please read this manual thoroughly and become familiar with all of the safety information provided.

Be aware of your surroundings – drive slowly and cautiously. Avoid collisions which could cause damage to the CART or shift the load, damaging the goods, or injuring you or surrounding people.

Anticipate and avoid unsafe situations. Be courteous of others and let your presence be known.

Perform first time operation in an open area on a flat surface free of obstacles. Have someone familiar with the operation of the MOTO CART available to assist you.

First time operators should read and understand all instructions and controls before attempting to operate the CART.

#### **MODELS MC-10-M/ MC-10-L / MC-10-S /MC2HD-15 /MC2HD-20 (Roller-Grip Controls)**



#### **On-Off Key Switch**

The on-off key switch is located on the side of the Roller Grip control unit. To turn the power on, fully insert the key into the key switch and turn the key clockwise. When the power is on, the status LED located on the top of the control unit will illuminate.

#### **Forward/Reverse**

The Forward/Reverse direction of the Cart is controlled by the thumb-wheels located on either side of the Roller Grip control unit. Pushing either of the thumb-wheels forward (clockwise) will move the Cart forward. Pushing either of the thumb-wheels backward (counterclockwise) will move the Cart in reverse.

#### **Speed Modes**

The Roller Grip control provides two speed modes, “Rabbit” (fast) or “Turtle” (slow). A “Rabbit/Turtle” rocker switch located on top of the unit allows selection of the desired speed mode. Depressing the back of the rocker switch (Turtle icon) selects the slow mode, while depressing the front of the switch (Rabbit icon) selects the fast mode.

**Always select the Turtle/Slow speed during training, in close quarters, or in circumstances in which you risk damage or injury if the Rabbit (fast) speed is selected.**

#### **Emergency Stopping**

To stop the Model MC-10M /MC-10-L/ MC-10-S/ MC2-HD15 /MC2-HD20 CART in an emergency, press in on the Emergency Stop Button. The Emergency Stop Button is the large red button covering most of the Roller-Grip control unit’s front. To restart the Cart, the key switch must be cycled (turned off and then back on).

#### **Battery Condition**

The Battery Gauge located on top of the Roller-Grip control unit indicates when the Cart’s batteries need to be recharged. If the Battery Gauge shows red, yellow and green, the batteries are charged. If the Battery Gauge shows just red and yellow, the batteries need to be charged as soon as possible. If the Battery Gauge shows just red (either steady or flashing slowly), the batteries need to be charged immediately. The Battery Gauge reading is more accurate after the power has been on for at least one

## OPERATING THE CART | MOTO CART

### Running

The Model MC-10-M/MC-10-L/MC-10-S/MC2HD-15/MC2-HD20 Cart is equipped with the ergonomically designed Roller-Grip control unit. To operate the Cart, follow the steps below:

1. Turn the key switch clockwise to the Drive position. Select the desired speed mode using the “Rabbit/Turtle” switch
2. Gently push either of the Roller-Grip thumb-wheels forward (clockwise). The CART will start to move and accelerate forward, away from you.
3. To stop, release the control lever. The MOTO CART will gently slow down with the aid of dynamic regenerative braking.
4. To go in reverse, gently push either of the Roller-Grip thumb-wheels backward (counter-clockwise). The CART will start to move and accelerate toward you. For safety, the maximum speed in reverse is normally set slower than the forward speed.

### Braking Systems

All MOTO CARTS have two types of braking systems, dynamic regenerative braking and electro-mechanical braking.

**1. Dynamic Regenerative Braking** - Dynamic regenerative braking automatically brings the CART to a smooth stop when the thumb-wheel is released. However, it does not lock the wheels in place.

**2. Electromechanical Braking** - After the dynamic braking has brought the CART to a stop, the electromechanical brake will lock the drive wheels in place. The electromechanical brake is a parking brake and can be applied instantly by pressing the emergency stop switch (located on the front of the Model MC-10-M/MC-10-L/MC-10-S/MC2HD-15/MC2-HD20 Roller-Grip control

unit). The center, or drive wheels, must be contacting the floor surface for the brake to hold.

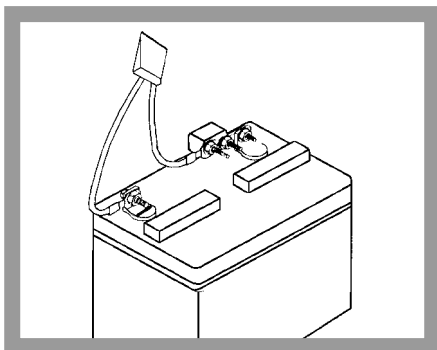
### Charging

The MOTO CART is equipped with two U-1 Absorbed Glass Mat (AGM) batteries, which require charging on a regular basis. An on-board charging system is integrated into the electronics of the CART to make charging easy.

1. Position the MOTO CART close to an AC power outlet. The CART can be charged using any voltage between 100 and 240 volts AC 50/60 Hz. Model MC-10-M/MC-10-L/MC-10-S/MC2HD-15/MC2-HD20 is equipped with an on-board coil cord for charging (if required, use a plug adapter from the country in which the CART will be used).
2. Turn the unit off and remove the key.
3. Find the coil cord located just below the frame on the control handle end of the CART.
4. Plug the coil-cord directly into the power supply outlet. If needed, connect only an industrial grade grounded extension cord to the coil-cord and then to the AC power supply outlet. Make sure the plug is fully engaged into the supply outlet.
5. Allow the unit to charge overnight – six to eight hours for a full charge. For optimum battery life, charge the CART whenever it is not in use – it cannot be over-charged.
6. With the power on, the Battery Gauge shows the charging status. If the Battery Gauge shows red, yellow and green, the batteries are nearly or fully charged. If the Battery Gauge shows red and yellow, or just red, charging needs to be continued.
7. Unplug the cord from the power supply outlet (and if used, the extension cord from the unit) before attempting to turn the unit on.

FOR BEST RESULTS: USE ABSORBED GLASS MATT BATTERIES  
WITH YOUR MOTO CART

1. The batteries supplied with the CART are maintenance free sealed AGM batteries. DO NOT remove the battery caps. DO NOT attempt to add water. This will ruin your batteries and void your warranty. Liquid-electrolyte batteries are not recommended for use with your MOTO CART.
2. If a crusty or powdery white substance appears on or around the battery terminals, clean them: use a solution of baking soda and water with a toothbrush. DO NOT allow this solution to enter the battery vents. If you do not clean the batteries when this substance appears, or if it is left for prolonged periods, it will reduce the quality of battery connection and affect performance.
3. When replacing the batteries, clean the terminals and battery posts with a wire brush. When reattaching the terminals, be sure all connections are tight. The black wire must be attached to the negative (-) terminal. Failure to connect with proper polarity will damage the control module.



### **Battery Life**

Battery life depends upon use and proper care. If you use the MOTO CART a lot, your batteries will need replacement sooner than if you only use your CART a little. Other factors, which can reduce battery life, are: irregular or inefficient charging, extreme temperatures, and cargo weight.

If the distance you travel on a charge becomes noticeably shorter, and ramps once easily climbed become difficult to go up, you may need to replace the batteries. Other signs indicating the need to replace batteries include heating or swelling of the batteries (sometimes accompanied by an acrid odor).

If you notice any of these conditions, have your batteries load tested.

### **Battery Load Testing**

A “load test” is a sure test of battery condition, and can be performed by your local Authorized Service Center.

Load testing measures battery voltage under a heavy load. Before the load test, your batteries should be fully charged. The service center will measure the open circuit voltage, or voltage across the batteries, prior to a load test. This open circuit voltage must measure at least 12.6 volts on each battery in order to receive an accurate assessment during a load test. The service center will set the load tester to 100 amperes and hold the setting for 10 seconds.

At the end of 10 seconds, the service center will read the results while the batteries are still under load, if the load test voltage is below 10.0 volts each, the batteries should be replaced.

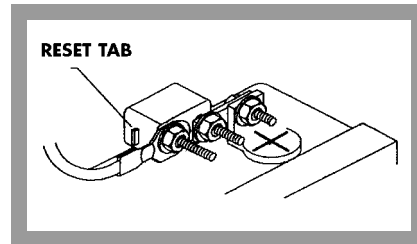


## BATTERIES | MOTO CART

### Circuit Breaker

A manually reset circuit breaker is located on one battery attached to the positive (+) terminal. The circuit breaker protects the wiring and batteries against damage in the event of a short circuit. If a breaker opens, reset it by pushing the tab down. If it opens again in a short time, there is a short circuit, which must be found and corrected.

If any additional wiring is added to the CART, it must not bypass the breaker.



DO NOT DEFEAT THE BREAKER!  
DO NOT REMOVE OR BYPASS  
THE CIRCUIT BREAKER!

DO NOT TAPE THE TAB DOWN!

## MAINTENANCE | MOTO CART

### MAINTENANCE SCHEDULE

Your MOTO CART will give you years of safe and dependable service in return for regular maintenance and early attention to any developing problems. We recommend the following maintenance program.

If you use your CART often, you may find it to your advantage to perform this maintenance more frequently.

**CAUTION: Disconnect the batteries before  
Performing any maintenance.**

#### Every Day or as Needed:

1. Maintain the batteries' charge.
2. Clean debris from the wheels and drive unit assembly.

#### Once Each Month:

1. Check for loose connectors and any signs of unusual wear.
2. Grease caster wheel swivel assemblies. Use only industrial grade grease in the caster wheel swivel assemblies.

#### Once Every Three Months:

1. Clean your CART with a damp sponge.
2. Check the wires for wear, fraying or cracking.
3. Check the connectors for wear or cracking.
4. Examine the tires and wheel assemblies for wear or damage.

**NOTE: THIS MAINTENANCE IS BEST  
PERFORMED BY YOUR LOCAL AUTHORIZED  
SERVICE CENTER.**

#### Cleaning Your MOTO CART:

Turn the power OFF and disconnect the batteries before cleaning your CART. Use warm soapy water and a damp sponge to clean your MOTO CART. DO NOT pressure-wash or hose your CART off. Excessive water may damage electronic components.

Do not use harsh or abrasive cleansers on the MOTO CART or its tires. These types of cleansers will damage the finish of your CART, and may cause premature tire wear. Clean your tires with a bristle brush dipped in warm water.

## MAINTENANCE PROCEDURES

### Lubrication:

All wheel bearings are sealed and permanently lubricated. Spray silicone lubricants (or WD-40\*) may be used on any other moving parts. Apply this lubricant whenever there is “stickiness” in the moving parts.

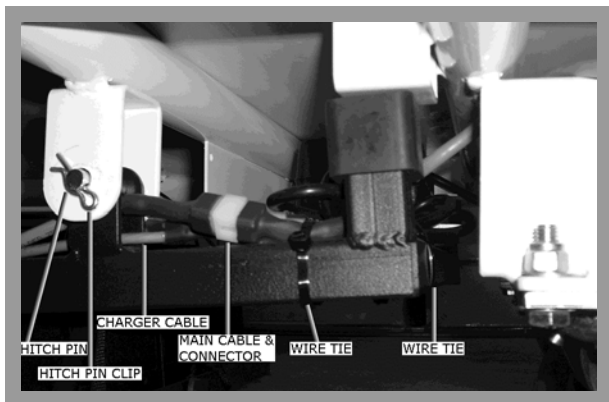
\*WD-40 is a registered trademark of the WD-40 Company and is Not affiliated with Electro Kinetic Technologies, LLC.

### Replacing the Batteries:

Make sure that the brake is applied (brake handle down). Turn the power OFF and disconnect the batteries.

Cut the wire ties holding the main cable and the charger cable to the drive system frame and disconnect the cables.

Remove any load from cart. You may want a second person to help with dropping the drive system. Remove the hitch pin clips from the hitch pins and remove the hitch pins from the U brackets that attach the drive system to the cart. Some downward pressure on the platform may make the pins easier to remove. The drive system frame should then drop away from the cart frame. Use caution, as the drive system is heavy.



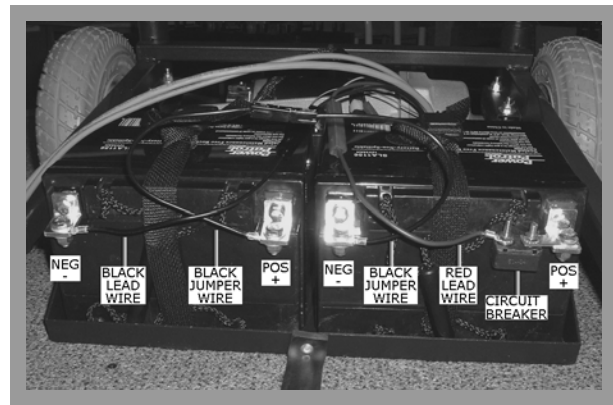
Raise the front of the cart and remove the two suspension springs.

Release the brake and roll the drive system out from under the cart.

Undo the battery hold down straps and remove the batteries from the battery tray.

Remove the circuit breaker and wires from the old batteries.

Install the new batteries by following these steps in reverse order.



Remember to re-apply the brake (push brake handle down).

**WARNING:** Do not touch both the negative and positive terminals of the batteries with a conductive material (e.g., metal) or sparks, burns, or explosion may result.

Your MOTO CART has been designed and built to be dependable and trouble free, but we know that there can be unexpected problems with any technical product. The following checklists will give you a “First Aid” approach to dealing with most problems. You can also call our Service Hotline: 877-543-8776.

**MODELS MC-10-M / MC-10-L / MC-10-S / MC2HD-15 / MC2-HD20**

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
<b>Unit Dead, BCI Dark</b>	Key Switch turned to Off position.	Turn Key Switch to Drive (right) position.
	Emergency Stop Switch has been pressed.	Recycle Key switch.
	Circuit breaker open.	Reset circuit breaker.
	Power connection interrupted.	Check power cables to batteries.
<b>Unit Dead, BCI Illuminated</b>	Obstruction in pathway of wheels.	Check for obstruction.
	Motor worn out.	Contact Authorized Service Center.
<b>Unit Runs Slow</b>	Battery charge low.	Charge batteries.
	Worn batteries.	Charge batteries. Load test batteries.
<b>Battery Weak or Won't Take a Charge</b>	Charger power interrupted.	Check wall outlet for continuous power.
	Loose connection in wiring.	Check all exposed wire connections.
	Charger burned out.	Replace charger.
<b>Intermittent Running</b>	Loose connection in wiring.	Check all exposed wire connections.
	Worn motor brushes.	Contact Authorized Service Center.
<b>Hard to Turn</b>	Casters require lubrication.	Lubricate casters.
	Worn out caster bearings.	Replace casters.

Moto Cart Model MC-10-M / MC-10-L / MC-10-S / MC2HD-15 & MC2-HD20 Carts equipped with Roller-Grip Hand Controls provide diagnostics information to assist technicians in troubleshooting drive system problems. The diagnostics information is obtained by observing the fault codes issued by the status LED located on the Roller-Grip control unit.

During normal operation, with no faults present, the status LED is steadily on. If the controller detects a fault, the status LED displays a fault identification code. The number of flashes indicates the nature of the fault. The codes are listed in Table 1 below, along with possible causes of the fault indicated.

**Table 1 DIAGNOSTIC CODES**

<b>NUMBER OF FLASHES</b>	<b>POSSIBLE CAUSE</b>
<b>1</b>	The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connections are good, try charging the battery.
<b>2</b>	There is a bad connection to the motor. Check all connections between the motor and the control system.
<b>3</b>	The motor has a short circuit to a battery connection. Contact your service agent.
<b>4</b>	Not used.
<b>5</b>	Not used.
<b>6</b>	The controller is being inhibited from driving. This may be because the Emergency Stop Button was pressed. Turn the Key switch Off and On.
<b>7</b>	A throttle fault is indicated. Make sure that the throttle is in the rest position before switching on the CART.
<b>8</b>	A controller fault is indicated. Make sure that all connections are secure. Contact your service agent.
<b>9</b>	There is a bad connection to the parking brake. Check all connections between the parking brake and the controller.
<b>10</b>	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection. Check the battery connections.
<b>Rippling Up &amp; Down</b>	Throttle applied at power up. Release throttle lever.

**PUSHING MANUALLY**

The drive system on the MOTO CART can be disabled to allow you to push the unit Manually. To disable the drive system:

1. On a level surface only, lift up on the brake handle located under the deck near the drive wheels to disable the Electromechanical Parking Brake.
2. Turn the Key Switch to the Off position to disable the Dynamic Braking.

**AFTER PUSHING, RETURN THE BRAKE LEVER TO THE DOWN POSITION TO PREVENT THE CART FROM ROLLING AND TO ENABLE DRIVING.**

**WARNING:  
DO NOT RELEASE THE BRAKE ON OR NEAR AN INCLINED SURFACE.  
THE UNIT WILL NOT STOP ON ITS OWN WHEN THE BRAKING SYSTEM IS DISABLED.  
SEVERE INJURY MAY RESULT IF THE UNIT IS LEFT TO ROLL UNATTENDED.**



**MODEL MC-10-M / MC-10-L / MC-10-S /  
MC2HD-15 & MC2-HD20**

- Spring-suspension and center wheel transaxle drive system
- Speed range, 0-3 MPH (0-4.8 km/hr)
- Maintenance free permanent magnet motor
- Non-marking tires
- Variable speed control
- Horn, key switch, emergency stop
- Hi/Low speed switch
- (2) 33AH, 12 volt, AGM maintenance free batteries
- On board 100-240, 50/60 Hz, UL listed battery charger
- Automatic dynamic braking & parking brake
- Deck Height: 11.5" (290 mm)
- Incline Rating: 6°

**Model MC-10-M**

Usable Platform Length: 48"  
Usable Platform Width: 24"  
Capacity: 1,500 lbs.

**Model MC-10-L**

Usable Platform Length: 60"  
Usable Platform Length: 24"  
Capacity: 1500 lbs

**Model MC-10-S**

Usable Platform Length: 41 1/2"  
Usable Platform Width: 24"  
Capacity: 1500 lbs

**Model MC2-HD15**

Usable Platform Length: 48"  
Usable Platform Width: 36"  
Capacity: 1500 lbs

**MODEL**

Model: MC2-HD20

Useable Platform Length: 48"

Useable Platform Width: 36"

Capacity: 2,000 lbs.







LIFT PRODUCTS, INC

Lift Products, Inc.  
W226 N900 Eastmound Dr.  
Waukesha, WI 53186  
Telephone: (262) 521-5720  
Fax: (262) 521-5725  
Parts & Service: 877-543-8776