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The proof is in the product.

1 August 2013

Powered BarrowMate HD Instruction Manual

Please ensure you are familiar with the correct operation of the Powered BarrowMate.

Powered 2 GO

powered2go.com.au

Powered Possibilities are Endless

DATA SHEET

Electric Heavy Duty BarrowMate

The heavy duty BarrowMate is a powerful battery powered wheel barrow specifically designed to make tasks like landscaping and yard clean ups safer and easier.

Even at the most challanging building sites with wet soft ground or slopes the BarrowMate can handle it.

The BarrowMate also come with hydraulic bucket tip to avoid strains.

Part Number:	**P2GOBARROWMATEHD**
Capacity:	300kg
Machine Length:	1765mm
Machine Width:	800mm
Machine Weight:	240kg
Tiller Head Height:	920mm
Internal Bucket Dimensions:	1110 l x 645 w x 485 h mm
Drive Wheel:	450mm dia pneumatics
Front Wheel:	300mm dia pneumatic

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You Tube

It is important to read and follow all the instructions and safety information contained in the Operation Manual prior to use.

We hope the *Barrow* will make you job easier and more fun. The BarrowMate HD can boost the productivity in your organisation and reduce injuries caused by repetitive pushing or pulling a manual Barrow with a heavy load. Therefore, you will create a happy and safe working environment and minimise the skyrocketing worker's compensation insurance cost.

The *Barrow* is a battery power wheelbarrow used from moving materials, parts, or soil from one location to another without having to manually carry the load or push a wheeled barrow. These heavy push or pull barrow applications can occur anywhere, domestic yard, moving hay in a horse stable or a construction site., garage, workshop.

If these barrow need constant pushing or pulling from one location to another and cause fatigue to the employee moving load, then it is perfect application for our battery powered, electric barrow.

1. Packing List

1.1 Powered Wheelbarrow

2. Specifications

Motor 24Volt Battery 2 x 12 v/75 Ah sealed lead acid battery, Battery Charger 100-220v ~ AC/24VDC/4A DC Charge Time 24 V

3. Operation

3.1 Turn ON Power

Insert the power key into the switch lock and turn clockwise to the "ON" position. All the battery display lights should be on indicating the batteries are full and ready to work.

3.2. Forward Motion Start your *Barrow* Stand behind the tiller and hold the "bull-horn" with two hands.

Look straight ahead. Press the upward throttle lever by your two-hands four fingers slowly to start moving forward. The speed should increase as you press more.

3.3. Stop *Barrow*

Slowly releasing your four fingers from the throttle lever will reduce the speed and stop the *Barrow*

3.4. Emergency Stop Just simply release your finger quickly. The *Barrow* should stop within 4.5 feet at full forward speed.

3.5. Reverse Motion

Press the downward throttle lever by your two-hands four fingers slowly to start moving revers.

3.6. Forward Steering

Look straight ahead. When you need to turn right, you turn the "Caster" to the left. Vise a versa for the left turn.

Reverse Steering: The operation is the opposite as forward

Move Manually (free wheeling):

Manual: You push or pull the *Barrow* by disengaging the clutch in the transaxle.

3.8 Operating bucket: Up and down buttons are located on the top of the control handle. To tilt bucket push and hold “UP” button until it reaches the required tipping level. To lower the bucket push and hold the down button.

Warning:

Before you operate, practice in a open area for **at least one hour** to get familiar with the *Barrow* and gain the operation skills. The brake may not be effective when engaged on inclines greater than the grade with allowed load. Be alert!

Emergency Stop

In case of out-of-control, turn the power off immediately!

4. SAFETY INSTRUCTIONS

We disclaim all responsibility for any personal injury or property damage, which may occur as a result of improper or unsafe use of its products. The following guidelines are intended to assist you in the safe operation of your *Barrow.* Should you have any questions about the correct operation of your *Barrow,* please contact dealer.

Your *Barrow* , can negotiate grass, gravel, dirt and sand surfaces, as well as hard paved or carpeted surfaces. However, extra caution should be taken when operating your unit on uneven surfaces other than flat surfaces.

There are some concerns about electromagnetic interference to powered equipment. You need to know what EMI (Electromagnetic Interference) is and how to prevent such incidents. The following paragraphs are intended to provide you some important information about this.

Electromagnetic Interference (EMI)

Electrically powered equipment may be susceptible to Electromagnetic Interference (EMI). Sources such as Radio Stations, TV Stations, Amateur Radio Transmitters, Two Way Radios and Cellular Phones all emit electromagnetic energy (EM). It is highly unlikely but in extreme cases where the intensity of EM is very high it may cause the powered equipment to release its brakes or move by itself. Powered equipment has a certain immunity level which in most cases is adequate. If you feel EMI may be a risk then you should conduct a site specific test and risk assessment to ensure the EM is within the products immunity level.
If you notice any unintentional movement or brake release we recommend turning the unit off immediately taking note of any high powered communications device in the area.

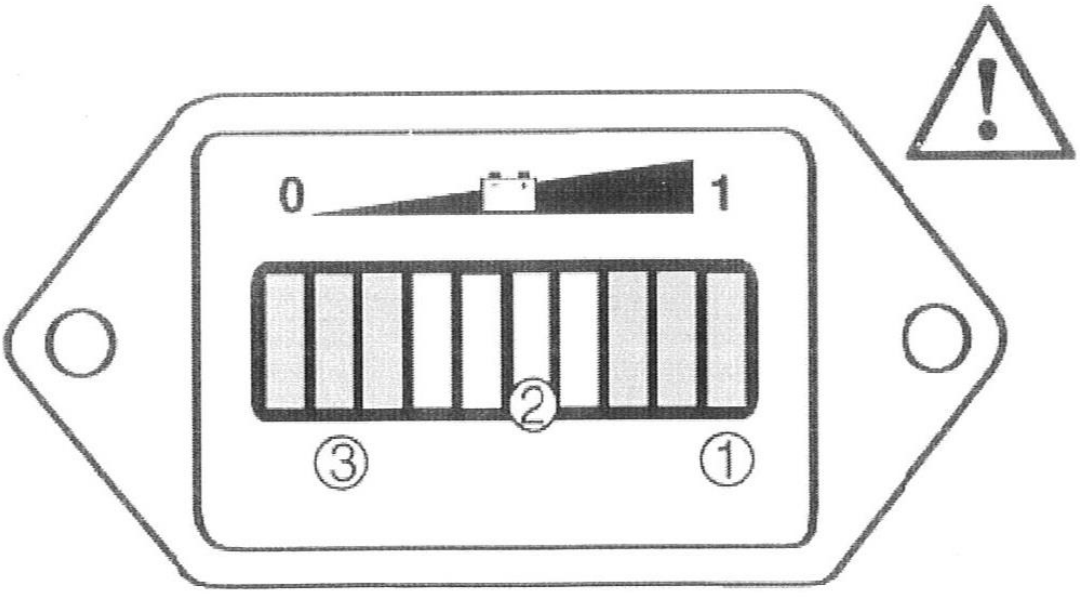
In summary,

-DO NOT try to climb sharp curbs
-DO NOT make an abrupt change at high speed or while travelling on an incline.
-DO NOT attempt to make fast turn on flat surfaces.
-DO NOT climb inclines greater than 20%
-DO NOT back onto uneven surface or inclines.
-DO NOT attempt to operate your unit in a stalled condition, such as travelling up too steep an incline. This may cause the circuit breaker to thermal cut out to trip, rendering your unit temporarily immobile.
-DO NOT operate your unit when the red battery indicator light is flashing.
-DO NOT turn ON or use hand-held personal communication devices, such as citizen band (CD) radios and cellular phones, while your *Barrow* is turned ON.
-BE AWARE of nearby transmitters, such as radio or TV stations and hand-held or mobile two-way radios, and try to avoid coming close to them.

5. BATTERY CHARGING

To ensure the best performance and maximum battery life, we recommend frequent battery charging. Your *Barrow* comes with a battery charger for you ease and convenience. The console battery display makes charging simple and easy. Follow these steps for battery charging.

1. The console battery display:



Only when battery is properly charged is the right-most green LED lit. As the battery's state-of-charge decreases, successive LEDs light up, only one on at a time. The 3rd –from-left red LED flashes, Indicating "energy reserve" (70% depth of discharge. The 3 left-most LEDs alternately flash, indication "empty" (80Kg depth of discharge)

2. One a level dry surface, turn off the power key and plug the AC cord into the charger. Plug the other end of the AC cord into the grounded well outlet.

3. Charge the battery for 6-8 hours depending on the usage before charging. Disconnect the AC cord, insert key into tiller and check if all green lights are on.

4. There is no possible way to overcharge the battery since the charging voltage in the floating stage is set constant. In general, you may start charging after work and disconnect it in the next morning.

Warning

You must turn off power before charging. Otherwise it may damage the electric circuit.

6. MAINTENACE SCHEDULE

In order to obtain the best performance and last its service life, please maintain your unit according to the following schedule and instructions.

DAILY

Test brake effectiveness before you drive
Recharge batteries fully every night

WEEKLY

Check tire pressure, pressure should be 40-50 psi
Check and tighten the throttle screw
Ensure there are no hydraulic leaks

MONTHLY

Check battery condition. Clean battery terminals if necessary
Check all electrical wire connectors to eliminate loose connections
Tighten all exposed screws and nuts
Check wheel bearings by spinning tires and check for free rotation.

THROTTLE ADJUSTMENT

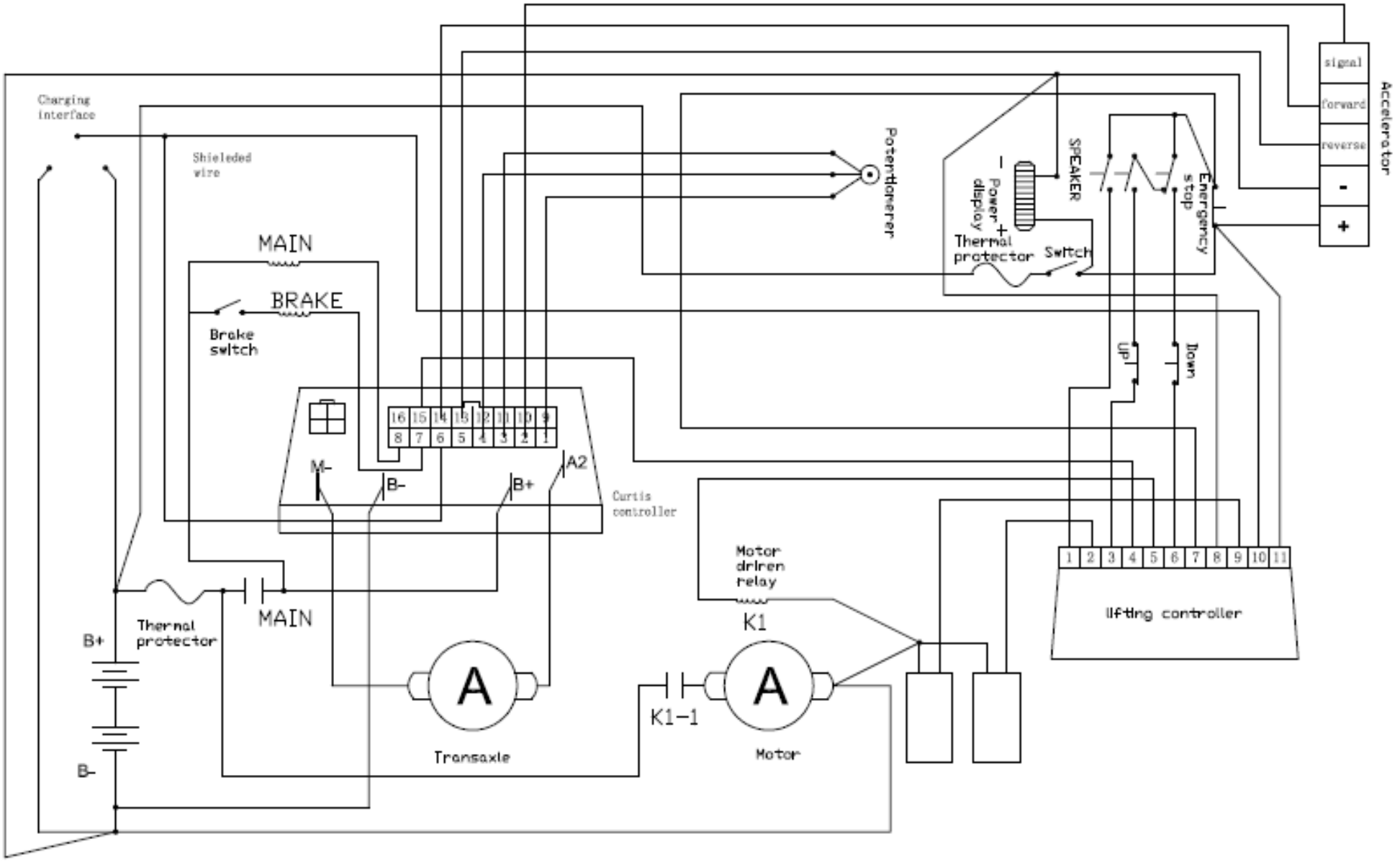
Release the clutch lever, thus the motor can rotate freely.
Note on the throttle control potentiometer, when the control level is switching, how the mount plate retain one end of the spring while the control bracket pulls the other end of the spring in the direction of rotation. As the lever rotates in the opposite direction, the other spring end is pulled in the opposite direction.
With the key in and speed setting at low, rotate the throttle lever until you just hear the brake release click and motor starts running. Notice the angle rotated between the lever and the *Barrow* horn.
Rotate the throttle lever in the opposite direction till just brake release clicks, notice the angle rotated between the lever and the *Barrow* horn in this direction.

If the angles are not identical, loose control bracket screws, rotate potentiometer shaft a few degrees by using a flat screw driver and then retighten it.
Repeat until the reverse, neutral and forward are in proper ranges.
Make sure the throttle control lever is parallel to tiller handle. If the lever is not parallel, full range rotation in one direction will not be possible, resulting in loss of speed in that direction.

LIMITED WARRANTY

This warranty is extended only to original consumer purchases of the *Barrow* either from the authorised retailers or representatives.

We warrant the products manufactured by them to be free from defects in materials and workmanship for a period of 1 year from the date of purchase for business use. If, within such warrant period, any such products shall be proven to our satisfaction to be defective, such product shall be repaired or replaced, at our option. This warranty does not include any shipping charges incurred in replacement part installation or repair of such product. Our sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.


Charging interface
Shieleded wire
MAIN
BRAKE
Brake switch
Potentiometer
SPEAKER
Power display
Thermal protector
Switch
Energency stop
signal
forward
reverse
-
+
Accelerator
UP
Down
16 15 14 13 12 11 10 9
8 7 6 5 4 3 2 1
M-
B-
B+
A2
Curtis controller
Motor driven relay
K1
1 2 3 4 5 6 7 8 9 10 11
lifting controller
B+
Thermal protector
MAIN
B-
A
Transaxle
K1-1
A
Motor

P2GO Trolley
Preventative Maintenance Schedule

Task	Daily	Weekly	Monthly
Test brake effectiveness before you drive	●		
Recharge batteries fully every night	●		
Check tyre pressure - Correct pressure 40 – 50 PSI		●	
Check and tighten the throttle screw			
Check battery condition and clean battery terminals If necessary		●	
Check all electrical wire connectors to eliminate loose connections			●
Tighten all exposed screws and nuts			●
Check wheel bearings by spinning tyres and checking for free rotation			●

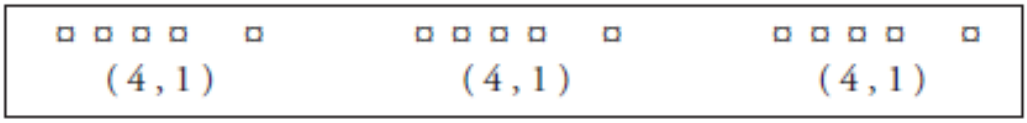
Table 8 TROUBLESHOOTING CHART

LED CODE	PROGRAMMER LCD DISPLAY	EXPLANATION	POSSIBLE CAUSE
1,1	HARDWARE FAILSAFE 2	output fault	1. Short in motor or in motor wiring. 2. Controller failure.
	HARDWARE FAILSAFE 4	overcurrent fault	1. Short in motor or in motor wiring. 2. Controller failure.
1,2	HARDWARE FAILSAFE 1	EEPROM fault	1. EEPROM failure or fault.
	HARDWARE FAILSAFE 3	main contactor fault	1. Main contactor welded. 2. Main contactor driver fault. 3. Main contactor coil fault.
	PRECHARGE FAULT	precharge fault	1. Internal controller fault. 2. Low battery voltage.
	HW FAILSAFE	motor voltage fault	1. Motor voltage does not correspond to throttle request. 2. M1 or M2 output shorted to B- or B+. 3. Internal motor short. 4. Controller failure.
2,1	SRO	SRO fault	1. Improper sequence of KSI, power enable, and direction inputs. 2. Wrong SRO type selected. 3. Direction switch circuit open.
2,2	HPD	HPD fault	1. Improper sequence of KSI, power enable, and throttle inputs. 2. Misadjusted throttle pot.
2,3	PROC/WIRING FAULT	HPD fault present for >5 sec	1. Misadjusted throttle. 2. Broken throttle pot. 3. Broken throttle mechanism.
2,4	SPD LIMIT POT FAULT	speed limit pot fault	1. Speed limit pot wiper wire broken. 2. Broken speed limit pot.
3,1	BB WIRING CHECK	emerg. reverse wiring fault	1. BB wire open. 2. BB check wire open.
3,2	EM BRAKE DRVR FAULT	electromag. brake driver fault	1. Electromagnetic brake coil shorted or open. 2. Electromagnetic brake wiring open.
3,3	THROTTLE FAULT 1	throttle fault	1. Throttle input wire open. 2. Throttle input wire shorted to B- or B+. 3. Throttle pot defective. 4. Wrong throttle type selected.
4,1	LOW BATTERY VOLTAGE	low battery voltage	1. Battery voltage <16 volts (24V models), <21V (36V models), or <27V (48V models). 2. Corroded or loose battery terminal. 3. Loose controller terminal.
4,2	OVERVOLTAGE	overvoltage	1. Battery voltage >36 volts (24V models), >48V (36V models), or >60V (48V models). 2. Vehicle operating with charger attached.
4,3	THERMAL CUTBACK	over-/under-temp. cutback	1. Temperature >95°C or < -25°C. 2. Excessive load on vehicle. 3. Improper mounting of controller. 4. Operation in extreme environments.

LED DIAGNOSTICS

During normal operation, with no faults present, the Status LED is steadily on. If the controller detects a fault, the Status LED provides two types of information. First, it displays a slow flash (2 Hz) or a fast flash (4 Hz) to indicate the severity of the fault. Slow-flash faults are self-clearing; as soon as the fault is corrected, the vehicle will operate normally. Fast-flash faults ("✻" in Table 9) are considered to be more serious in nature and require that the keyswitch (or power enable switch, if one is used) be cycled to resume operation after the fault is corrected.

Then, after the severity indication has been active for 5 seconds, the Status LED flashes a 2-digit fault identification code continuously until the fault is corrected. For example, code "4,1"—low battery voltage—appears as:



The codes are listed in Table 9.

Table 9 STATUS LED FAULT CODES

	LED CODES		EXPLANATION
	LED off	▬▬▬	no power or defective controller
	solid on	▭▭▭	controller operational; no faults
✻	1,1	□ □	output fault or overcurrent fault
✻	1,2	□ □□	EEPROM, main contactor, precharge, or motor voltage fault
	1,3	□ □□□	[not used]
	1,4	□ □□□□	[not used]
	2,1	□□ □	static return to off (SRO) fault
	2,2	□□ □□	high pedal disable (HPD) fault
✻	2,3	□□ □□□	HPD latching (HPD fault for >5 sec)
	2,4	□□ □□□□	speed limit pot fault
	3,1	□□□ □	emerg. rev. wiring fault (BB wiring check)
	3,2	□□□ □□	electromagnetic brake driver fault
	3,3	□□□ □□□	throttle fault
	3,4	□□□ □□□□	[not used]
	4,1	□□□□ □	battery undervoltage
	4,2	□□□□ □□	battery overvoltage
	4,3	□□□□ □□□	thermal cutback, due to over/under temp
	4,4	□□□□ □□□□	[not used]

✻ = *"Fast-flash" fault—must cycle keyswitch or power enable switch to clear.*

NOTE: Only one fault is indicated at a time, and faults are not queued up.

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** Warequip accepts no responsibility for equipment that is operated incorrectly, or not in accordance with operation manuals.*

POWERED BARROWMATE

300kg

LOAD CAPACITY - 300kg

Evenly distributed loads as recommended

DO NOT OVERLOAD or obstruct operator view with high loads.

POWER – ON/OFF SWITCH

Turn key switch to on position for normal operation.

EMERGENCY STOP

Stops the unit when reversing.

PADDLE LEVER

Push lever forward for forward motion.
Push lever down for reverse motion.

FORWARD MOTION IS ALWAYS RECOMMENDED!

SPEED CONTROLLER

Adjust speed for load and the speed required –
WALKING PACE IS RECOMMENDED!

UP/DOWN CONTROLS

Ensure it is safe to move the bucket up/down.

Please ensure you are familiar with the manual and the correct operating instructions.

If in doubt contact supplier before use.

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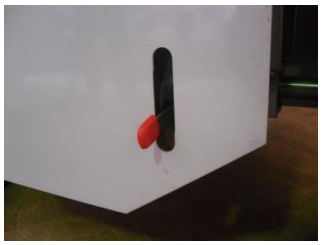
POWERED BARROWMATE



FREE WHEEL LEVER

Push to disable brake motor to enable free wheel if batteries are flat.
This enables trolley to be used normally with no power drive engaged.
ALWAYS do this on a level surface.

BATTERY INDICATOR

When low connect to charger as soon as possible

CHARGING

Unit has an external charger.
Charging point is located on the side of the handle at the bottom of the unit.

Plug lead into female position and then into powerpoint – charge with keyswitch in OFF POSITION.

OVERNIGHT CHARGE IS RECOMMENDED

Please ensure you are familiar with the manual and the correct operating instructions.

If in doubt contact supplier before use.