



*The proof is  
in the product.*

1 August 2013

# Powered UltiMate Instruction Manual



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

DATA SHEET

# Powered Centre Drive UltiMate



## *Centre Drive Liftmate with Push Button Lift and Drive*

The UltiMate features both a powered lift and powered drive system, removing the need for manual pushing or lifting and with the central drive wheels it's ideal in confined spaces.

With a lift height of 1600mm it is ideal in many applications, to safely manoeuvre loads to various work heights.

Part No:	P2GOULTIMATE
Capacity:	400kg
Dimensions:	1100 x 600mm
Unit Weight:	246kg
Wheels:	250mm Semi Pneumatic x 2, 125mm Urethane castors
Deck Height:	425 to 1600mm

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

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

The *Trolley* is a battery powered mobile platform truck used for moving materials, parts, or machinery from one location to another without having to manually carry the load or push a wheeled *Trolley*. These heavy push or pull *Trolley* applications can occur anywhere, a dock at a marine, to distributing the company coffee machine around the plant, garage, workshop.

If these *Trolley* 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 *Trolley*.

## **1. Packing List**

1.1 Folded Trolley                      1.2 M8 x 20Screw

## **2. Specifications**

Motor 24Volt Battery 2 x 12 v/40 Ah sealed lead acid battery, Battery Charger 100-220v ~ 50/60Hz<1.5A 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 Check the Status**

The status light should be on steadily if the electric and driving systems are OK. If it flashes, check the clutch engagement first.

**3.3 Forward Motion** Start your *Trolley*, 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.

### **3.4. Stop: Trolley**

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

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

### **3.6. Reverse Motion:**

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

### **3.7 Forward Steering:**

Look straight ahead. When you need to turn right, you turn the "Caster" to the left. Vice 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 *Trolley* by disengaging the clutch in the transaxle. Power: You can push or pull the *Trolley* by pressing the yellow free-wheel button by your right hand finger and operating by your left hand.

**3.8 Operating Lift Table:** Up and down buttons are located on the top of the control handle. To raise the platform push and hold “UP” button until it reaches the required height (max height 1000mm). To lower the platform 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 *Trolley* 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 *Trolley*. Should you have any questions about the correct operation of your *Trolley*, please contact dealer.

Your *Trolley*, 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.

### **CAUTION:**

**IT IS VERY IMPORTANT THAT YOU READ THIS INFORMATION REGARDING THE POSSIBLE EFFECTS OF ELECTOMAGNETIC INTERFERENCE ON YOUR POWERED EQUIPMENT.**

### **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.

## **WARNINGS**

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect *Trolley*. Following the warnings list below should reduce the chance of unintended brake release or powered movement, which could result in serious injury.

- 1) Do not operate hand-held transceivers (transmitters-receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the *Trolley* is turned ON.
- 2) Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them;
- 3) If unintended movement or brake release occurs, turn the powered *Trolley* OFF as quickly as it is safe.
- 4) Be aware that adding accessories or components, or modifying the powered *Trolley*, may make it more susceptible to EMI (Note: There is no easy way to evaluate their effect on the overall immunity of the equipment.)
- 5) Report all incidents of unintended movement or brake release to the *Trolley* manufacturer, and note whether there is a source of EMI nearby.

If unintended motion or brake release occurs, turn the power OFF as quickly as it is safe.

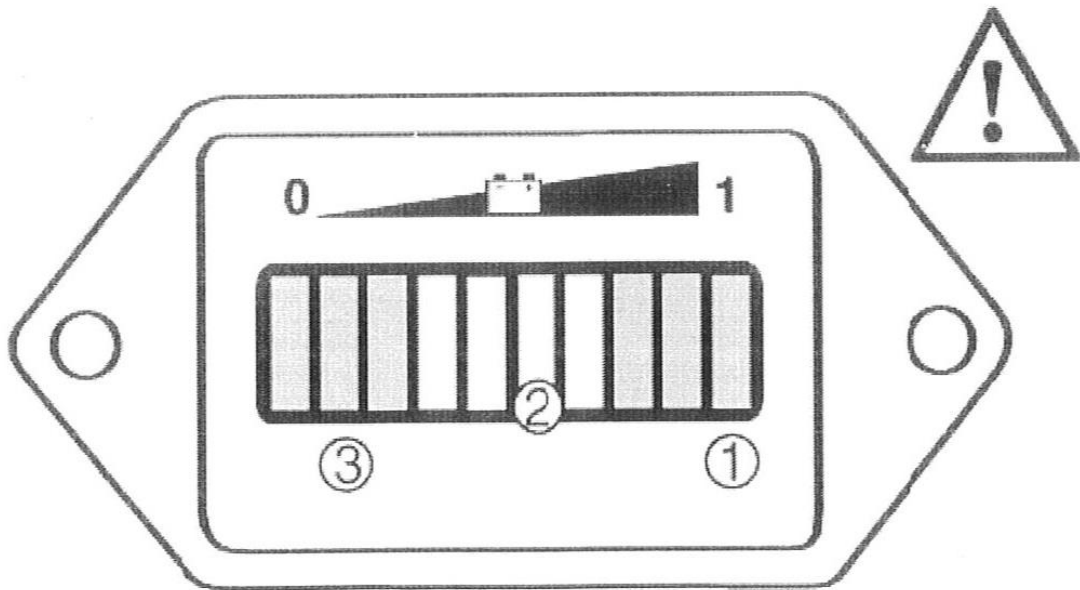
### **In summary,**

- DO NOT** try to climb sharp curbs
- DO NOT** drive over obstacles exceeding 5 cm in height.
- 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 8 degrees or a rise of 2 meters in 10 meters.
- 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 (CB) radios and cellular phones, while your *Trolley* 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 *Trolley* comes with an on-board battery charger for your 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 3<sup>rd</sup> -from-left red LED flashes, indicating "energy reserve" (70% depth of discharge). The 3 left-most LEDs alternately flash, indicating "empty" (80% depth of discharge).

2. On a level dry surface, turn off the power key and plug the AC cord into the charger socket located on the fibre-glass compartment. Plug the other end of the AC cord into the well grounded 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. MAINTENANCE 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 Trolley horn.

Rotate the throttle lever in the opposite direction till just brake release clicks, notice the angle rotated between the lever and the Trolley 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.

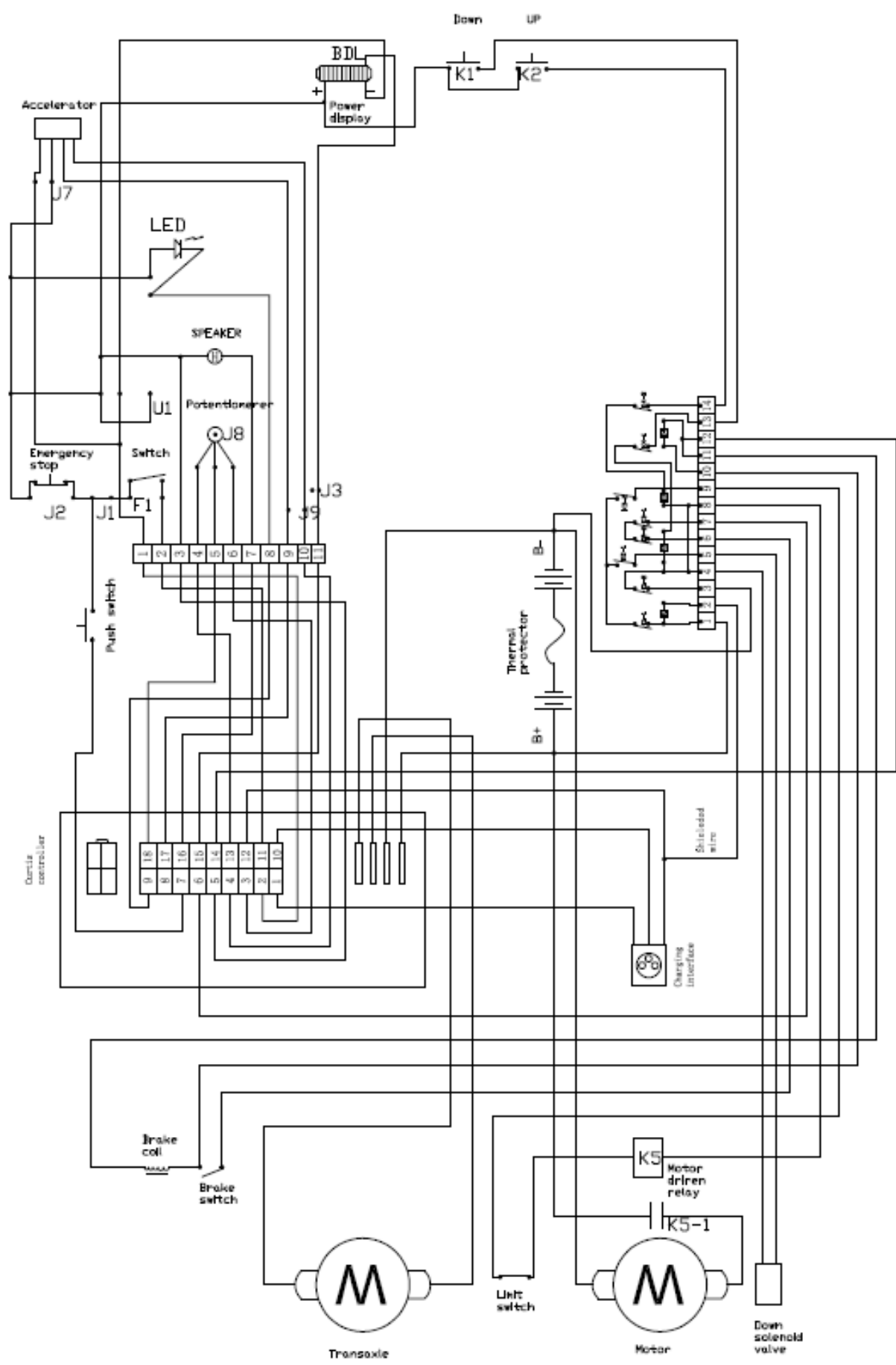
Repeat until the reverse, neutral and forward are in proper ranges.

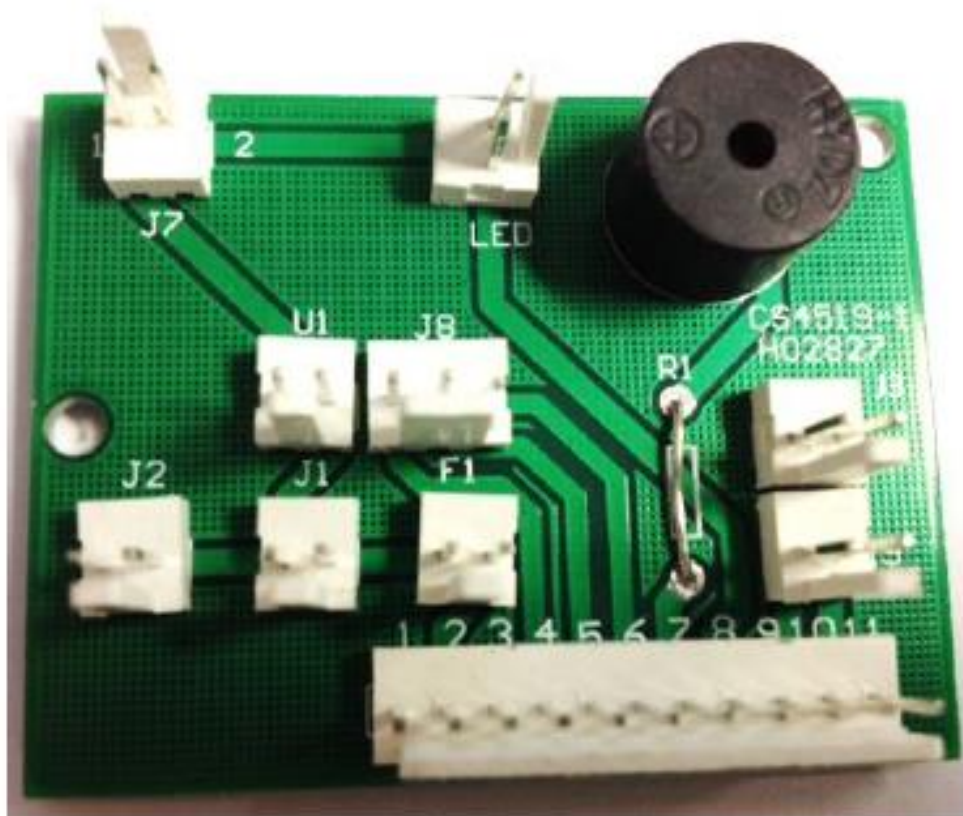
Make sure the throttle control lever is parallel to tiller handle. If the lever is not parallel, full range rotation in one direction will not be possible, resulting in loss of speed in that direction.

## **LIMITED WARRANTY**

This warranty is extended only to original consumer purchases of the Trolley 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.





Code	Item	Code	Item
J7	Throttle Module (orange/green line)	J1	Brake Release Switch
LED	Red LED Light	F1	Key Switch
U1	Battery Status Indicator (double line)	J3	Battery Status Indicator (single line)
J8	Speed Dial	J9	Throttle Module (black/white line)
J2	Emergency Stop Switch	11 PIN	Main Wiring Loom

**Table 2 STATUS LED FAULT CODES**

LED CODES		EXPLANATION
<i>LED off</i>	■	no power or defective controller controller operational; no faults
<i>solid on</i>	□	
1,1	□ □	thermal cutback fault
1,2	□ □□	throttle fault
1,3	□ □□□	speed limit pot fault
1,4	□ □□□□	undervoltage fault
1,5	□ □□□□□	overvoltage fault
2,1	□□ □	main contactor driver Off fault
2,3	□□ □□	main contactor fault
2,4	□□ □□□	main contactor driver On fault
* 3,1	□□□ □	HPD fault present for >10 seconds
3,2	□□□ □□	brake On fault
3,3	□□□ □□□	precharge fault
3,4	□□□ □□□□	brake Off fault
3,5	□□□ □□□□□	HPD (High Pedal Disable) fault
* 4,1	□□□□ □	current sense fault
* 4,2	□□□□ □□	motor voltage fault (hardware failsafe)
* † 4,3	□□□□ □□□	EEPROM fault
* 4,4	□□□□ □□□□	power section fault

\* = *Must cycle keyswitch to clear.*

† = *Must use programmer to clear, as follows: select Program Menu, alter data value of any parameter, cycle keyswitch.*

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

**Table 3 TROUBLESHOOTING CHART**

LED CODE	PROGRAMMER LCD DISPLAY	EXPLANATION	POSSIBLE CAUSE
1,1	THERMAL CUTBACK	over-/under-temperature cutback	<ol style="list-style-type: none"> <li>1. Temperature &gt;92°C or &lt; -25°C.</li> <li>2. Excessive load on vehicle.</li> <li>3. Operation in extreme environments.</li> <li>4. Electromagnetic brake not releasing.</li> </ol>
1,2	THROTTLE FAULT 1	throttle fault	<ol style="list-style-type: none"> <li>1. Throttle input wire open or shorted.</li> <li>2. Throttle pot defective.</li> <li>3. Wrong throttle type selected.</li> </ol>
1,3	SPD LIMIT POT FAULT	speed limit pot fault	<ol style="list-style-type: none"> <li>1. Speed limit pot wire(s) broken or shorted.</li> <li>2. Broken speed limit pot.</li> </ol>
1,4	LOW BATTERY VOLTAGE	battery voltage too low	<ol style="list-style-type: none"> <li>1. Battery voltage &lt;17 volts.</li> <li>2. Bad connection at battery or controller.</li> </ol>
1,5	OVERVOLTAGE	battery voltage too high	<ol style="list-style-type: none"> <li>1. Battery voltage &gt;36 volts.</li> <li>2. Vehicle operating with charger attached.</li> <li>3. Intermittent battery connection.</li> </ol>
2,1	MAIN OFF FAULT	main contactor driver Off fault	<ol style="list-style-type: none"> <li>1. Main contactor driver failed open.</li> </ol>
2,3	MAIN CONT FLTS	main contactor fault	<ol style="list-style-type: none"> <li>1. Main contactor welded or stuck open.</li> <li>2. Main contactor driver fault.</li> <li>3. Brake coil resistance too high.</li> </ol>
2,4	MAIN ON FAULT	main contactor driver On fault	<ol style="list-style-type: none"> <li>1. Main contactor driver failed closed.</li> </ol>
3,1	PROC/WIRING FAULT	HPD fault present for >10 sec.	<ol style="list-style-type: none"> <li>1. Misadjusted throttle.</li> <li>2. Broken throttle pot or throttle mechanism.</li> </ol>
3,2	BRAKE ON FAULT	brake On fault	<ol style="list-style-type: none"> <li>1. Electromagnetic brake driver shorted.</li> <li>2. Electromagnetic brake coil open.</li> </ol>
3,3	PRECHARGE FAULT	precharge fault	<ol style="list-style-type: none"> <li>1. Low battery voltage.</li> <li>2. KSI and throttle turned on at same time.</li> </ol>
3,4	BRAKE OFF FAULT	brake Off fault	<ol style="list-style-type: none"> <li>1. Electromagnetic brake driver open.</li> <li>2. Electromagnetic brake coil shorted.</li> </ol>
3,5	HPD	HPD (High Pedal Disable) fault	<ol style="list-style-type: none"> <li>1. Improper sequence of throttle and KSI, push, or inhibit inputs.</li> <li>2. Misadjusted throttle pot.</li> </ol>
4,1	CURRENT SENSE FAULT	current sense fault	<ol style="list-style-type: none"> <li>1. Short in motor or in motor wiring.</li> <li>2. Controller failure. *</li> </ol>
4,2	HW FAILSAFE	motor voltage fault (hardware failsafe)	<ol style="list-style-type: none"> <li>1. Motor voltage does not correspond to throttle request.</li> <li>2. Short in motor or in motor wiring.</li> <li>3. Controller failure. *</li> </ol>
4,3	EEPROM FAULT	EEPROM fault	<ol style="list-style-type: none"> <li>1. EEPROM failure or fault.</li> </ol>
4,4	POWER SECTION FAULT	power section fault	<ol style="list-style-type: none"> <li>1. EEPROM failure or fault.</li> <li>2. Short in motor or in motor wiring.</li> <li>3. Controller failure. *</li> </ol>

# 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			●

## P2GO Trolleys Spare Parts

CM- Cagemate / LM- Liftmate / TM- Turnmate / MC- Maids Cart

Part No.	Description
P2GOT001	Accelerator/Throttle Module - CM, LM, TM, MC
P2GOT002	Red Speed Control Push Lever (Set of 2)- CM, LM, TM, MC
P2GOT003	Control Box with Dial* - CM, TM, MC
P2GOT004	Control Box (old style) On/Off Only - CM
P2GOT005	Control Box with Up/Down Buttons* - LM
P2GOT006	Battery Status Indicator - CM, LM, TM, MC
P2GOT007	Key Switch - CM, LM, TM, MC
P2GOT008	Red Emergency Stop Plastic Button Cover- CM, LM, TM, MC
P2GOT009	Green Emergency Stop Switch (Behind Red Button) - CM, LM, TM, MC
P2GOT010	Yellow Brake Release Switch - CM, LM, TM, MC
P2GOT011	Red LED Status Indicator - CM, LM, TM, MC
P2GOT012	Blue Swivel Castor - CM, LM, TM,
P2GOT013	Pneumatic Wheel - CM, LM, TM, MC
P2GOT014	Battery Charger Outlet - CM, LM, TM, MC
P2GOT015	Battery Charger Box Release Nut - CM, LM, TM, MC
P2GOT016	Battery Charger Release Nut - LM
P2GOT017	Battery Charger - CM, LM, TM, MC
P2GOT018	Handle Grip - CM, LM, TM, MC
P2GOT019	Solenoid - LM
P2GOT020	Black Relay - LM
P2GOT021	Black Circuit Breaker - LM
P2GOT022	Green Microswitch - LM
P2GOT023	Lift Cylinder (new style) - LM
P2GOT024	Lift Cylinder old style) - LM
P2GOT025	Hose Kit (new style)- LM
P2GOT026	Hose Kit (old style) - LM
P2GOT027	11 Pin Interface / Circuit Board In Control Box - CM, LM, TM, MC
P2GOT028	Large Circuit Board (14 screw, 4 relay)
P2GOT029	Main Wiring Loom - CM, LM, TM, MC
P2GOT030	Power Pack - CM, LM, TM, MC
P2GOT031	Transaxle - CM, LM, TM, MC
P2GOT032	Adhesive Rubber Bumper Strip For Base - CM, LM, TM, MC
*Control boxes include switches and wiring but do not include accelerator module, circuit board or emergency button	

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

## POWERED ULTIMATE

**400kg**

**LOAD CAPACITY** - 400kg

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.

If powered status light flashes there may be a fault, please contact your supplier.

### EMERGENCY STOP

Stops the unit when reversing.

### PADDLE LEVER

Push lever forward for forward motion.

Push lever down for reverse motion.

(Buzzer should sound in reverse)

**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 unit up / down

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

*If in doubt contact supplier before use.*



## POWERED ULTIMATE



### **ELECTRONIC BRAKE RELEASE**

Push to disable drive motor when power is on.



### **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 which is located in a compartment underneath the deck at the front of the unit.




It is **RECOMMENDED** before accessing the charger the locking mechanisms under the scissor are slid into the locking position.



Charging point is located underneath 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.*