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Owner's Manual

P310

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Welcome aboard your new powerbase wheelchair, and thank you for choosing our product. Please read this manual carefully, and follow all instructions before attempting to operate your powerbase wheelchair for the first time. If there is anything in this manual that you do not understand, or if you require additional assistance for setting up your powerbase wheelchair, please contact your local dealer.

This latest model is designed for specific practical user needs, combining solid, rugged construction, and modern high-tech electronics, to enhance safety and performance.

With a state-of-the-art, programmable electronic control system, your powerbase wheelchair can be programmed and adjusted within a given range of its performance characteristics, to suit your individual needs. The controller is set up at the factory to give the powerbase wheelchair nominal operating performance characteristics.

After becoming familiar with the basic operation of the powerbase wheelchair, you may wish to customize the settings to fit your own personal preferences. A wide range of customization options can be adjusted such as acceleration, decelleration, maximum speed, turning speed, safety controls, better maneuverability of the joystick, and so on. Contact your local dealer for advice on additional equipment you may need.

Having your powerbase wheelchair checked regularly by your local dealer is the best way to ensure smooth operation, and safety.

This manual provides users practical tips and information on safety issues, operation, and maintenance. Please read it very carefully to ensure your maximum enjoyment and to fully benefit from your independence and mobility.

Whenever special advice or attention is needed, please do not hesitate to contact your local dealer, who has the tools and know-how to provide expert servicing for your powerbase wheelchair.

Your satisfaction and opinions are highly valued by your local dealer and our company. Please be sure to fill out the enclosed guarantee form, and return it to your local dealer. The information is necessary for providing you with the best service, and to help us ensure that all of your needs are met.

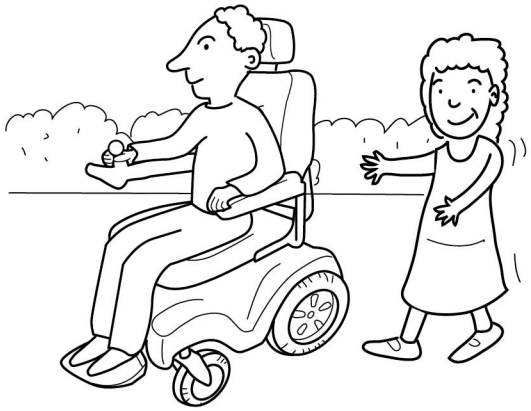
Failure to follow these instructions may result in damage to the powerbase wheelchair or serious injury.

Practice Before Operating

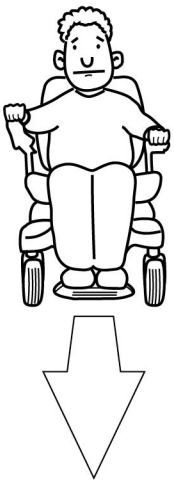
Find an open area such as a park and have an assistant to help you practice until you have confidence operating this vehicle.

Make sure that the power is off before getting in or out of the seat. Set the speed control button according to your driving ability.

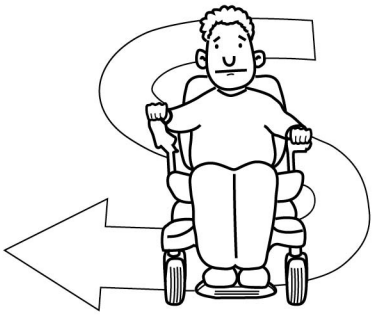
We recommend that you keep the speed control at the slowest position until you are familiar with the driving characteristics of this vehicle.



Getting familiar with this vehicle



First, practice moving forward.
Be sure to set the speed to the lowest setting.



After becoming familiar with moving forward, practice marking "S" turns.

Once you are familiar with "S" turns, practice moving in reverse. Note that at any speed control setting, the vehicle moves more slowly in reverse than forward.

Safety Considerations

DO NOT do any of the following

NO!

Do not carry any passengers

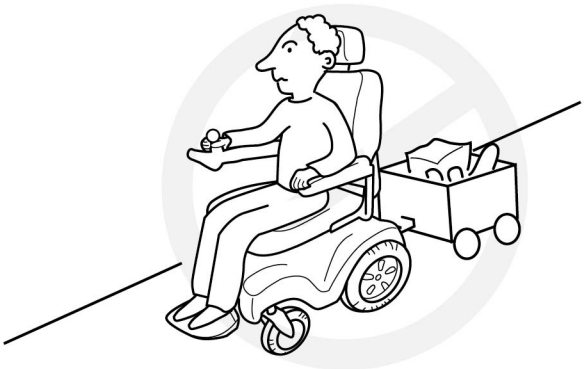
NO!

Do not drive across a slope

NO!

Do not drink and drive

Consult your physician to determine, if your medications impair your ability to control this vehicle



NO!

Do not tow a trailer

NO!

Do not turn on or use hand-held personal communication devices such as citizens band(CB) radios and cellular phones

This vehicle has an immunity level of 20 v/m which should protect it from Electromagnetic Interference(EMI) from radio wave sources. The rapid development of electronics, especially in the area of communications, has saturated our environment with electromagnetic (radio) waves that are emitted by television, radio and communication signals. These EM waves are invisible and their strength increases as one approaches the source. All electrical conductors act as antennas to the EM signals and, to varying degrees, all power wheelchairs and power scooters are susceptible to electromagnetic interference (EMI). This interference could result in abnormal, unintentional movement and/or erratic control of the vehicle. The United States Food and Drug Administration (FDA) suggests that the following Statement be incorporated to the user's manual for all electric power wheelchairs.

Powered wheelchairs and electric power scooters (in this text, both will be referred to as powered wheelchairs) may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two-way radios and cellular phones. The interference (from radio wave sources) can cause the powered wheelchair to release its brakes, move by itself or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the EM energy can be measured in volts per meter(V/m). Each powered wheelchair can resist EMI up to a certain intensity. This is called the "immunity level." The higher the immunity level, the greater the protection. At this time, current technology is capable of providing at least 20 V/m of immunity level which would provide useful protection against common sources of radiated EMI.
Following the warnings listed below should reduce the chance of unintended brake release or powered wheelchair movement that could result in serious injury:

1) Do not turn on hand-held personal communication devices such as citizens band (CB) radios and cellular phones while the powered wheelchair 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 wheelchair off as soon as it is safe.

4) Be aware that adding accessories or components, or modifying the powered wheelchair, may make it more susceptible to interference from radio wave sources. (Note: there is no easy way to evaluate their effect on the overall immunity of the powered wheelchair).

5) Report all incidents of unintended movement or brake release to the powered wheelchair manufacturer, and note whether there is a radio wave source nearby.

TURN OFF YOUR POWER WHEELCHAIR AS SOON AS POSSIBLE WHEN EXPERIENCING ANY OF THE FOLLOWING:

1. Unintentional motions.
2. Unintended or uncontrollable direction.
3. Unexpected brake release.

The FDA has written to the manufacturers of power wheelchairs, asking them to test their new products to be sure they provide a reasonable degree of immunity against EMI. The letter says that powered wheelchairs should have an immunity level of at least 20 V/m, which provide a reasonable degree of protection against the more common sources of EMI. The higher the level, the greater the protection.

Driving Outdoors

When you are on the road, please pay attention to the following:

NO!

Do not drive in traffic.

NO!

Do not drive beside a river, port, or lake without a fence or railing.

NO!

If possible, do not drive during the rain.

NO!

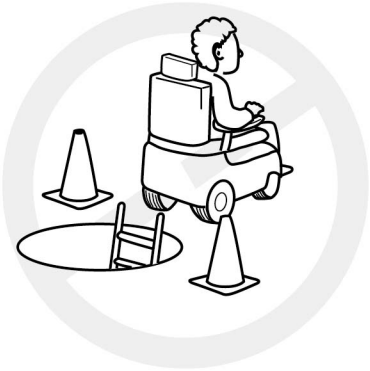
If possible, do not drive during or on snow.

NO!

Do not drive off-road or on any uneven surfaced roads.

NO!

If possible, do not drive at night.



NO!

Make sure that there are no obstacles behind you when in reverse.

We recommend to set the speed at the lowest setting for reversing.

NO!

Do not make sudden stops, weave erratically, or make sharp turns.

NO!

Keep your arms on or inside the armrests and feet on the footrest at all times.

NO!

Do not attempt to climb curbs greater that 2"(5cm).

NO!

Do not attempt to cross over a gap greater that 4"(10cm).

Diving on Various Terrains

Driving on hills is more dangerous than on level surfaces. If you fail to heed these warnings, a fall, tip-over or loss of control may occur and cause severe injury to the vehicle user or others.

NO!

Do not attempt to climb a hill greater than 10˚

NO!

Do not reverse while driving up a hill.

Forward only. If you reverse while moving up a hill, it may cause the vehicle to tip over.

NO!

Do not attempt to drive across a sloping surface greater that 3˚

Driving across a slope greater than 3˚ is very dangerous and may cause the vehicle to tip over.

NO!

Do not drive over soft, uneven or unprotected surfaces such as grass, gravel and decks.

NO!

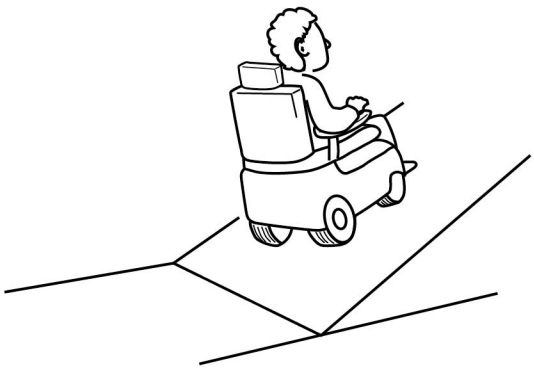
Use low speed while driving down hill.

When braking while moving down hill, the wheelchair will take longer to come to a complete stop.

NO!

Do not get on and off on a hill.

Always stop on the level surface to get in and get out of the vehicle.



YES!

Always climb or descend gradients perpendicular to the slope or ramp.

Warnings

- **WARNING!** YOUR AUTHORIZED DEALER, PROVIDER, THERAPIST(S), AND/OR OTHER HEALTHCARE PROFESSIONALS ARE RESPONSIBLE FOR DETERMINING YOUR REQUIREMENT FOR A SEAT BELT FOR SAFE OPERATION OF YOUR MOBILITY DEVICE.
  WARNING! YOU REQUIRE A SEAT BELT TO SAFELY OPERATE YOUR MOBILITY PRODUCT. MAKE SURE IT IS FASTENED SECURELY IN ORDER TO REDUCE THE POSSIBITY OF A FALL FROM THE MOBILITY PRODUCT.
- **WARNING!** NEVER ATTEMPT TO GET ONTO OR OFF OF YOUR MOBILITY PRODUCT WITHOUT FIRST ENSURING THE UNIT IS POWERED OFF.
- **WARNING!** IF YOUR POWER CHAIR IS EQUIPPED WITH A POWER ELEVATING SEAT FUNCTION, PLEASE ENSURE THAT YOUR SEAT IS IN THE LOWEST POSITION BEFORE TRAVELLING A SLOPED INCLINE. DO NOT USE THIS LIFT FUNCTION WHILE TRAVELING UP/DOWN THE SLOPE.
- **WARNING!** WHEN TRAVELING UP OR DOWN AN INCLINE, DRIVE YOUR POWER CHAIR SLOWLY TO ENSURE A SAFELY CONTROLLED ASCENT OR DESCENT

Feature Diagram

In this section, we will acquaint you with the many features of your powerbase wheelchair and how they work. Upon receipt of your powerbase wheelchair, inspect it for any damage. Your powerbase wheelchair consists of the following components.

1. Controller
2. Joystick
3. Armrest
4. Cover
5. Drive Wheel
6. Caster Wheel
7. Footrest

Specifications

Model No.	P310
Body Length	37.5" (960mm)
Body Width	24" (610mm)
Over Height	41" (1040mm)
Caster Wheel	8"
Drive Wheel	10"
Weight Capacity	300 lbs / 136 kg
Max. Speed	5 mph / 8 kph
Range	18 mi / 28 km
Turning Radius	21" (530mm)
Controller	50A
Gradient	12º
Battery	12V / U1 * 2 PCS
Brake	Intelligent, regenerative, electromagnetic brakes
Unit Weight	197.5 lbs / 89.5 kg
Charger	4A

Terminology

Joystick: The device used to "move" the powerbase wheelchair.

Controller: The device that allow joysticks to function. Not all joysticks have a controller.

Armrests: Where arms can rest during time spent on powerbase wheelchair.

Cover: The plastic piece or pieces that cover the powerbase wheelchair base.

Footrest: Where feet rest during time spent on the powerbase wheelchair.

Anti-tip Wheels: Where that allow slight tipping, or prevent tipping while driving.

Drive Wheel: These are the main wheels. Wheels that move the power chair.

Caster Wheel: The front wheels.

Controller Harness Connectors: Joystick cables connect to the power chair.

Freewheel Lever: L-Shaped levers at the top rear part of the cover.

Freewheel Lever

For convenience, your Powerbase Wheelchair is equipped with two freewheel levers. These levers allow you to disengage the drive motors and maneuver the chair manually.

> **WARNING: DO NOT** use the powerbase wheelchair without the presence of an attendant while the drive motors are disengaged! DO NOT disengage the drive motors when your powerbase wheelchair is on an incline, as the chair could roll down on its own, causing injury!

To engage or disengage the drive motors:

1. Turn the freewheel levers outward to disengage the drive motors.
2. Turn the freewheel levers toward the back of the powerbase wheelchair to engage the drive motors.

Note: It is important to remember that when the powerbase wheelchair is in the freewheel mode, the braking system is disengaged.

Installing The Seat

1. Lift the seat and slide the seat post (bottom of the seat) into the seat pedestal.
   Tip: Folding the seat can make it easier to install.
2. Be sure to swivel the seat and push down on the seat until it locks in place.

Inserting The Height and Width Adjustable Armrests

Setting The Initial Width

1. Loosen the knobs on the armrest receiver.
2. Slide armrest into the horizontal receiver brackets.
3. Select desired width and tighten the knobs.

Setting The Initial Heighht

1. Locate and loosen the knobs on the vertical armrest holder.
2. Insert the armrest into the receiver.
3. Select desired height and tighten the knobs as firmly as possible.

Installing The Controller

1. Insert controller bracket tube into the receiver.
2. Adjust the controller to your desired length, then tighten it with the Allen wrench.
3.Insert the main plug into the controller socket.

Adjust the Seat:

Setting The Seat Back-Angle

There is provision to set the seat back-angle to one of four positions:
a) Back vertical (90 degrees)
b) Back reclined by 10 degrees (100 degrees)
c) Back reclined by 15 degrees (105 degrees)
d) Back reclined by 30 degrees (120 degrees)

For reasons of operator forward visibility and vehicle stability, it is suggested that the most forward back-angle be chosen that is consistenet with operator comfort.

Resetting The Back Angle

1. Note that at the pivot point of the seat back a screw is positioned through the pivot that limits backward motion of the seat back. The left side piovt is imprinted with the stop angles. Observe the current stop position.
2. Remove the nut and screw from the stop position on each pivot.
3. If you need to recline the back more, reposition the stop screws into the stop positions 1 higher than was observed in (1). If you wish to reduce the back angle, reposition the stop screws in the positions 1 lower than was observed in (1).
4. Replace the nuts onto the stop screws to lock the setting.

Adjust The Footrest

Adjusting The Height

(After removing the seat and the cover)

1. Using a 10mm hex wrench, remove the bolts and nuts.
2. Slide the platform to your desired height.
3. Replace the bolts and nuts and be sure to tighten them.

Adjusting The Angle

1. Flip up the foot plate for easy access and loosen the nut.
2. With an Allen key, simply turn the bolt counter-clockwise to increase the angle or clockwise to decrease it.
3. Be sure to re-tighten the nuts.

Adjust the Joystick

Adjust The Joystick Length Forward or Backward

1. Flip up the armrest for easy access.
2. Loosen the bracket bolt with an Allen key. Slide the Joystick bracket in or out to your desired length.
3. Re-tighten the bolt.

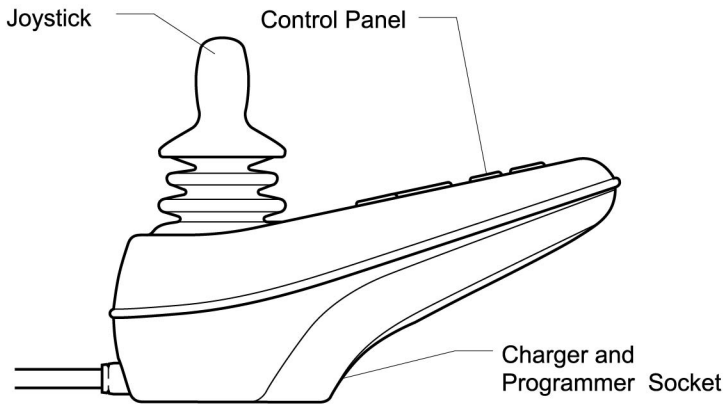
Moving The Joystick to Other Seat Arm

1. Disconnect the joystick cable.
2. Remove both sets of armrests, while the joystick still is secured on one of armrest.
3. Exchange both armrests.
   Be sure to tighten the knobs.

VR2 Controller Operation:

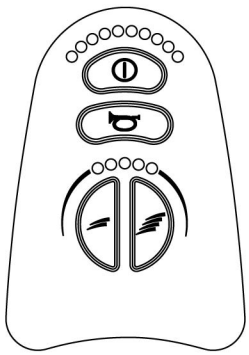
The VR2 control system has two versions of the front control panel - with and without actuaror control. Most of the controls are common to both versions, however, the actuator buttons are only included on VR2 control systems with seat actuator control. Each of the controls are explained within this section.

VR2 USER CONTROLS

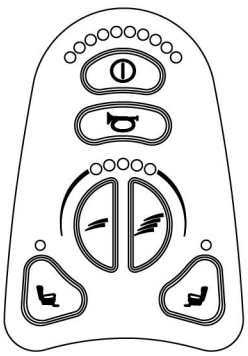


Front Control Panel Details

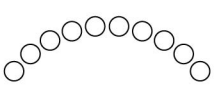
No Actuators



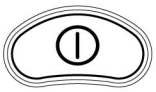
With Actuators



VR2 CONTROL BUTTONS

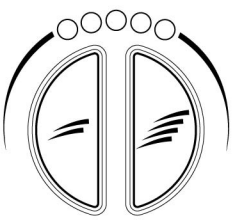


Battery Gauge



On/Off Button

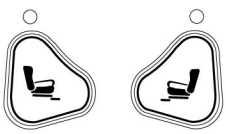
Horn Button



Maximum Speed / Profile Indicator

Speed / Profile Decrease Button

Speed / Profile Increase Button



Actuator Buttons

On/Off Button and Battery Gauge

The on/off button applies power to the control system electronics, which in turn supply power to the wheelchair's motors. Do not use the on/off button to stop the wheelchair unless there is an emergency. (If you do, you may shorten the life of the wheelchair drive components).

The battery gauge shows you that the wheelchair is switched on. It also indicates the operating status of the wheelchair. Details are given in section 1.

1 Control System Status indication

The battery gauge and maximum speed / profile indicator show the status of the control system.

> A number of supposedly defective control systems returned to us are subsequently found to operate correctly. This indicates that many reported faults are due to wheelchair problems rather than the control system.

1.1 Battery Gauge is Steady

This indicates that all is well.

1.2 Battery Gauge Flashes Slowly

The control system is functioning correctly, but you should charge the battery as soon as possible.

1.3 Battery Gauge steps Up

The wheelchair batteries are being charged. You will not be able to drive the wheelchair until the charger is disconnected and you have switched the control system off and on again.

1.4 Battery Gauge Flashes Rapidly (even with the joystick released)

The control system safety circuits have operated and the control system has been prevented from moving the wheelchair.
This indicates a system trip, i.e. the VR2 has detected a problem somewhere in the wheelchair's electrical system. Please follow this procedure.

- Switch off the control system.
- Make sure that all connectors on the wheelchair and the control system are mated securely.
- Check the condition of the battery.
- If you con't find the problem, try using the self-help guide given in section 1.6.
- Switch on the control system again and try to drive the wheelchair. If the safety circuits operate again, switch off and do not try to use the wheelchair.

Contact your service agent.

1.5 Self-Help Guide

If a system trip occurs, you can find out what has happened by counting the number of bars on the battery gauge that are flashing.

Below is a list of self-help actions. Try to use this list before you contact your service agent. Go to the number in the list which matches the number of flashing bars and follow the instructions.
If the problem persists after you made the checks described above, contact your service agent.

* If the programmable parameter, Motor Swap has been enabled, then left and right hand references in this table will need transposing.

1 Bar 	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.
2 Bar 	The left hand motor* has a bad connection. Check the connections to the left hand motor.
3 Bar 	The left hand motor* has a short circuit to a battery connection. Contact your service agent.
4 Bar 	The right hand motor* has a bad connection. Check the connections to the right hand module.
5 Bar 	The right hand motor* has a short circuit to a battery connection. Contact your service agent.
6 Bar 	The wheelchair is being prevented from driving by an external signal. The exact cause will depend on the type of wheelchair you have, one possibitity is the battery charger is connected.
7 Bar 	A joystick fault is indicated. Make sure that the joystick is in the center position before switching on the control system.
8 Bar 	A control system fault is indicated. Make sure that all connections are secure.
9 Bar 	The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the control system connections are secure.
10 Bar 	An excessive voltage has been applied to the control system. This is usually caused by a poor battery connection. Check the battery connections.
7 Bar + S 	A comunication fault is indicated. Make sure that joystick cable is securely connected and not damaged.
8 Bar + A 	An Actuator trip is indicated. If more than one actuator is fitted, check which actuator is not working correctly. Check the actuator wiring.

1.6 Slow or sluggish movement

If the wheelchair does not travel at full speed or does not respond quickly enough, and the battery condition is good, check the maximum speed setting. If adjusting the speed setting does not remedy the problem then there may be a non-hazardous fault. Contact your service agent.

1.7 Maximum Speed / Profile Indicator is Steady

The display will vary slightly depending on whether the control system is programmed to operate with drive profiles.

1.7.1 Maximum Speed Indication

The number of LEDs illuminated shows the maximum speed setting. For example, if the setting is speed level 4, then the four left hand LEDs will be illuminated.

1.7.2 Profile Indication

The LED illuminated shows the selected drive profile. For example, if drive profile 4 is selected, then the fourth LED's from the left will be illuminated.

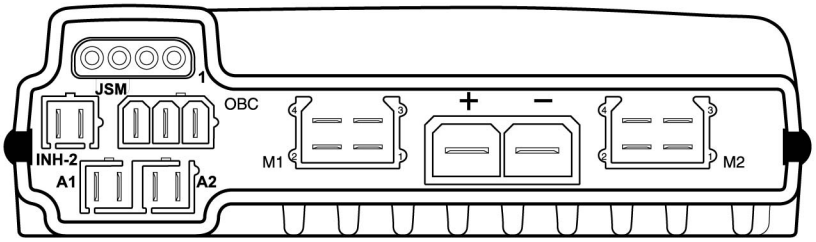
1.8 Maximum Speed / Profile Indicator Ripples Up and Down

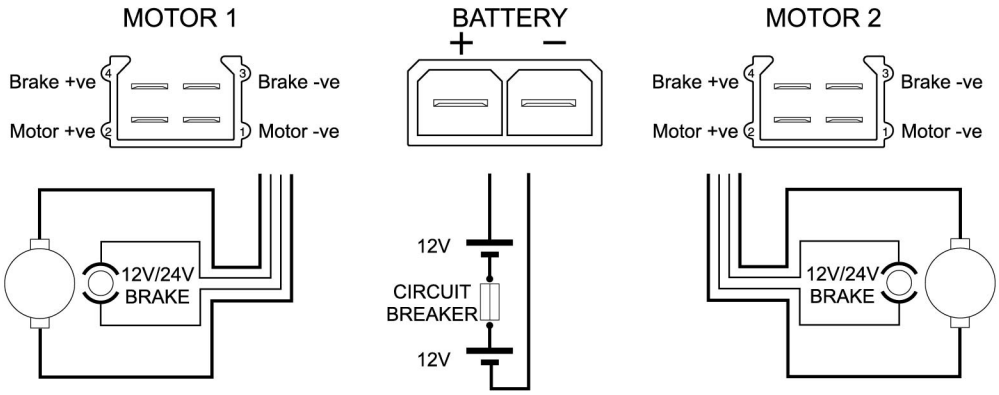
This indicates the control system is locked.

1.9 Maximum Speed / Profile Indicator Flashes

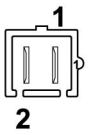
This indicates the speed of the wheelchair is being limited for safety reasons. The exact reason will depend on the type of wheelchair, however, the most common cause is that the seat is in the elevated position.

VR2 POWER MODULE CONNECTIONS



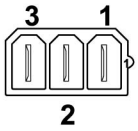


INHIBIT 2



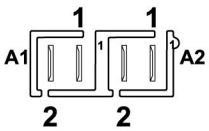
INH-2	Function
1	0V
2	Inhibit 2

ON-BOARD CHARGER



OBC	Function
1	Battery +ve
2	Inhibit 3
3	0V

ACTUATORS



Joystick Movement	Pin 1	Pin 2	Actuator Movement
Forward	+ve	-ve	Channel Up
Backward	-ve	+ve	Channel Down

Push your Powerbase Wheelchair

1. There is a freewheel lever attached to the two motors, which allow you to choose between power drive and manual assist mode.

2. This mode uses wheel-clutches that disconnect the wheel (s) from the drive train. If you require the wheelchair to be pushed, turn the wheel-clutch levers (that protrude through the top cover) through 90 degrees such that the top of each lever points toward the wheel.

3. When the freewheel lever is at the disengaged position, the Powerbase Wheelchair can be manually pushed by an attendant.

4. Switch off the controllers power and it will be easier to push the wheeelchair.

Batteries and Charging

Your Power Wheelchair uses two long-lasting, 12-volt batteries. These batteries are sealed, maintenance free, deep-cycle batteries. Since they are sealed, there is no need to check the electrolyte (fluid) level. Deep-cycle batteries are designed to handle a deep discharge. Though they are similar in appearance to automotive batteries, they are not interchangeable. Automotive batteries are not designed to handle a long, deep discharge, and are also unsafe for use in power wheelchairs.

WARNING! Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

BATTERY BREAK-IN

To break in your power wheelchair new batteries for maximum efficiency:

1. Fully recharge any new battery prior to initial use. This will bring the battery up to about 90% of its peak performance level.
2. Run your power wheelchair about the house and yard. Move slowly at first, and do not stray too far until you become accustomed to the controls and break in the batteries.
3. Give the batteries another full charge of 8 to 14 hours and operate the power wheelchair again. The batteries should now perform at over 90% of their potential.
4. After four or five charging cycles, the batteries will top off at 100% charge and last for an extended period.

IMPORTANT INFORMATION ABOUT BATTERIES

A fully charged deep-cycle battery provides reliable performance and extended battery life. Keep your batteries fully charged whenever possible. Batteries that are regularly discharged, infrequently charged, or stored without a full charge may be permanently damaged, causing unreliable operation and limited battery life.

If you do not use your power wheelchair regularly, we recommend maintaining battery vitality by charging the batteries at least once a week.

Note: If you are storing a power wheelchair for an extended period of time, you may wish to block the unit up off the ground with several boards under the frame. This keeps the tires off the ground and prevent the possibility of flat spots developing.

If you intend to use public transportation while using your power wheelchair, you must contact in the transportantion provider in advance to determine their specific requirements.

Batteries and Charging

Sealed Lead Acid and Gel Cell batteries are designed for application in wheelchairs and in other mobility vehicles. Generally, Sealed Lead Acid batteries that are marked as "Non-Spill" are safe for all forms of transportation such as aircraft, buses, and trains. We suggest that you contact your transportation provider to determine specific requirements of transportation and packaging.

If you wish to use a freight company to ship the power wheelchair to your final destination, repack the power wheelchair in the original shipping container and ship its batteries in separate boxes.

Charging Your Batteries

The battery charger is one of the most important parts of your power wheelchair. optimize your power wheelchair performance by charging the batteries safely, quickly, and easily. Use only the charger supplied with the vehicle.

Charging Procedures

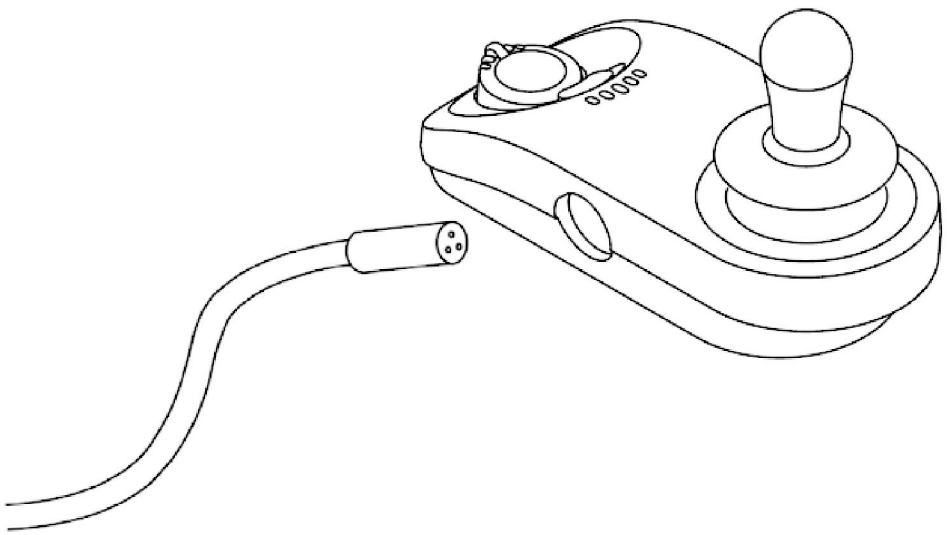
1. Keep charger output plug inserted into the charging socket in the front of the controller before having the charger input plugged into an electrical outlet.
2. Follow the instructions on the front panel of the charger for operating and learn the meanings of the different indicators accordingly.
3. Minimum charging time varies depending on battery condition and discharge level. It is recommended to charge the batteries overnight.

NOTE: The specially designed charger assures that excess power is not consumed regardless of how long it is switched on, and connected to the batteries.

4.Once charging is complete, disconnect the charger from the electrical outlet and then disconnect the charger from the controller socket. Do not leave the charger connected to controller when input power is disconnected. It is dangerous and will jeopardize the power charging to the batteries.

Batteries and Charging

For replacement batteries, contact your dealer.



WARNING: Do not exceed the maximum charging current of 12 A rms. Always use an off-board charger fitted with a Neutrik NC3MX plug. Failure to observe these conditions could result in poor contact resistance in the charger connector resulting in overheating of the charger plugs. This presents a potential burn hazard for the user. Penny & Giles accepts no liability for losses of any kind rising from the failure to comply with this condition.

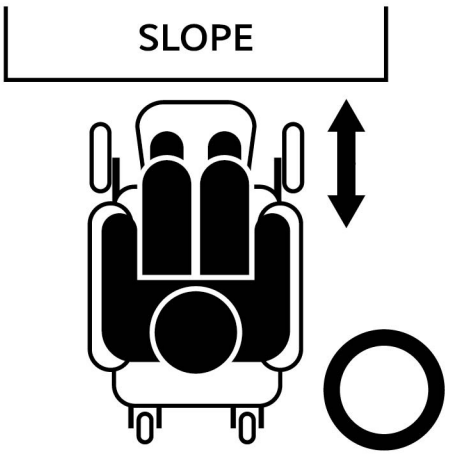
IEC SYMBOLS	
	**Caution, attention or consult accompanying documents.**
	**Alternating Current**
	**Type BF Equipment**
	**Double Insulation**
	**No Smoking or Naked Flames**

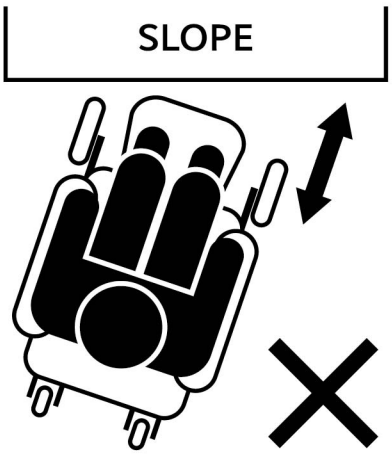
Degree of protection against ingress of water is rated as IPx0.

Serialization format for products

1	The first digit is the last one digit of the year for manufacture.
2	The second and third digits are the month for manufacture.
3	The fourth to seventh digits are a count of how many units were manufactured during the month.

WARNING! Always drive straight up or straight down an incline, ramp, or slope to reduce the possibility of a tip or a fall.





TROUBLESHOOTING TIPS

Figure 1

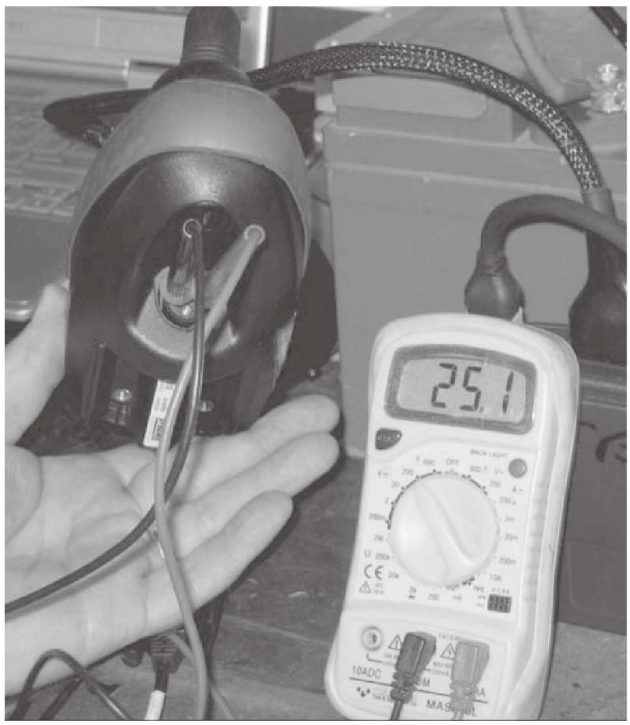


Figure 2

If your power chair or scooter is not operating properly, please take the following steps prior to calling Technical Support.

Load-test Batteries—See Figure 1

1. Attach Battery Load-tester to battery.
   Observe polarity: Red is Positive—Black is Negative

2. Hold load switch on for 10 seconds. A good reading is 11.2 Volts DC, or in the Green.

Note: A Voltmeter cannot load-test batteries.

Test Voltage—See Figure 2

Utilizing a Voltmeter, place meter leads in charging port. The voltage reading should be 25 Volts DC, plus or minus 2 volts.

Note: Batteries are connected in series.

If the above tests are successful, proceed with the following test.

1. For power chairs, place gearbox levers in Freewheel.

2. Turn on controller and run in all four quadrants.

3. If troubleshooting a scooter, elevate rear wheels and run in Forward and Reverse.

If any of the tests fail, call Technical Support for assistance: 1-800-963-7487.

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