

USERS MANUAL



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SAFETY INSTRUCTIONS

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 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 power wheelchairs like the HP-3:

Powered wheelchairs and motorized 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).

SAFETY INSTRUCTIONS

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 HP-3 AS SOON AS POSSIBLE WHEN EXPERIENCING THE FOLLOWING.

- Unintentional motions.
- Unintended or uncontrollable direction.
- Unexpected brake release.

The FDA has written to the manufactures 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 wheelchair 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.

Your HP-3 has an immunity level of 20 V/m which should protect against EMI.

ENVIRONMENTAL CONDITIONS

The environmental conditions may affect the safety and performance of your HP-3. Water and extreme temperatures are the main elements that can cause damage and affect the performance.

A) Rain Sleet and Snow

If exposed to water, your HP-3 is susceptible to damage to electronic or mechanical components. Water can cause electronic malfunction or promote premature corrosion of electrical components and frame.

B) Temperature

Some of the parts of the HP-3 are susceptible to change in temperature. The controller can only operate in temperatures that range between 18 F (-8 C) and 122 F (50 C),

At extreme low temperatures, the batteries may freeze, and your HP-3 may not be able to operate. In extreme high temperatures, it may operate at slower speeds due to the controller's safety feature to prevent damage to the motors and other electrical components.

ASSEMBLY & DISASSEMBLY

Your HP-3 is shipped partially disassembled to maximize its protection during shipping. Please follow the steps described below to assemble it for immediate use:

Components:

1. Frame
2. Shroud
3. Seat assembly
4. Integral controller/bracket
5. Battery terminals

ASSEMBLY

Only four components are needed for assembly in the following order:

A. Installing the Batteries (not provided)

Place the batteries in your HP-3 battery pan. Be sure to place the Positive (+) contact of each battery adjacent to the Negative (-) of the other battery, as shown in (Fig 2).

Note: The batteries weigh 31 lbs. each, Please seek help if you cannot lift them by yourself.

Connect Positive (+) battery terminals red, one at a time using screws, washers and nuts provided. Then connect the negative (-) battery terminals, black, one at a time and plug the color-coordinated connectors (batteries and motors). Cover the battery posts with caps.

Slide the shroud over the seat pedestal and main (controller) cable. The shroud should also slide over motor free-wheeling levers which should be positioned in the engaged mode and secure the shroud to the frame.

B. Installing the Seat

Lift the seat and slide the seat post stem (bottom of the seat) into the seat pedestal.

Note:

Folding the seat can make it easier to install (Fig 3). Be sure to swivel the seat and push down on the seat until it locks in place.



Fig 1

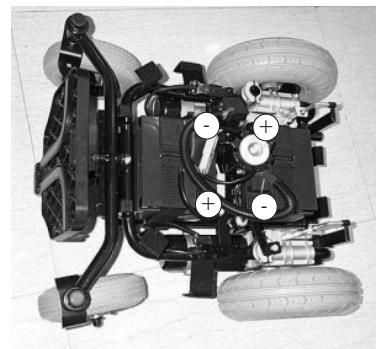


Fig 2

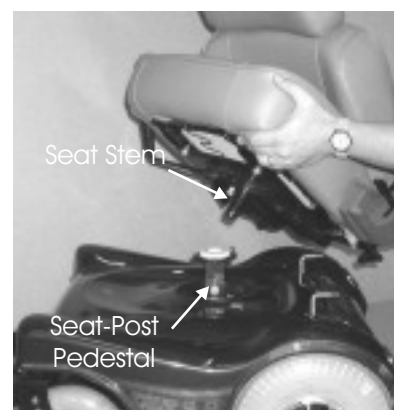


Fig 3

ASSEMBLY & DISASSEMBLY

C. Inserting the Height and Width Adjustable Armrests

Selecting the Width:

- Loosen the knobs on the armrest receivers (Fig4);
- Slide armrests into the horizontal receiver brackets;
- Select desired width and tighten the knobs.

Selecting the Length:

- Pull down the length adjustment T-knobs and slide the armrest forwards or backwards to the desired length, (Fig 5);
- Release the T-knob and let the armrest lock into position.

D. Installing the Controller

For your convenience, your HP-3 comes standard with a swing-away joystick/controller bracket. To install it, simply slide the armrest/bracket assembly into the armrest receiver tubing while pulling down on the T-shaped lock. Now place the controller on the swing-away bracket and fasten it with the two (2) black screws provided (Fig 6).

Adjust the controller/swing-away bracket assembly to the desired length (Fig 5, Fig 8).

Fold down the backrest of the seat for better access to the Socket-Holster (Fig 7) and plug the charger connector and controller Beau connector to the main wire harness.



Fig 7

Secure the main cable to the seat using tie-wraps to prevent it from getting in the way and become damaged. Do not tighten the tie-wraps too tight to allow sliding of the main cable when swiveling the seat or flipping the armrest up.

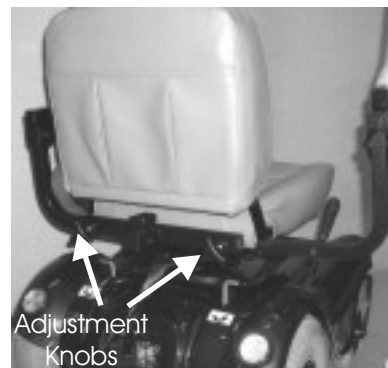


Fig 4



Fig 5



Fig 6



Fig 8

ASSEMBLY & DISASSEMBLY

The disassembly is the reversal of the assembly

A. Seat Removal:

- Turn power off.
- Make sure that the motors are engaged (not in free-wheel mode).
- Disconnect main cable from controller.
- Push the swivel lever forward to unlock it and rotate the seat to the position where you can feel that the seat is beginning to rotate freely.
- Pull seat upward.

B. Shroud Removal:

After removing the seat, simply lift the shroud straight up, making sure that the motor levers are in the engaged position.

C. Battery Removal:

For transportation

After removing the seat and shroud,

- Unplug the battery connectors (2, black).
- Lift batteries one at a time using the battery straps.

For replacement:

After removing the seat and shroud,

- Unplug battery connectors (2, black) to prevent damage to controller.
- Remove battery post caps.
- Unscrew positive terminals (+) one at a time.
- Unscrew negative terminals (-) one at a time.
- Place battery connectors (wire harnesses), screws, washers and nuts in a safe place.
- Remove batteries one at a time using battery straps.

ADJUSTMENTS FOR SEATING COMFORT

To maximize seating comfort, your HP-3 lets you adjust:

- Seat width, and backrest angle.
- Armrest length, and tilt angle.
- Footrest height and angle.
- Controller position.
- Backrest angle.

A. Seat Height:

To adjust the seat height:

- Turn the power off.
- Disconnect the main cable and remove the seat. (Remove the shroud, if it is necessary).
- Using a 17 mm wrench, remove the bolt securing the inner seat pedestal (Fig 9).
- Slide the inner pedestal to the desired height and reinsert the bolt.
- Tighten the bolt and place the seat back.

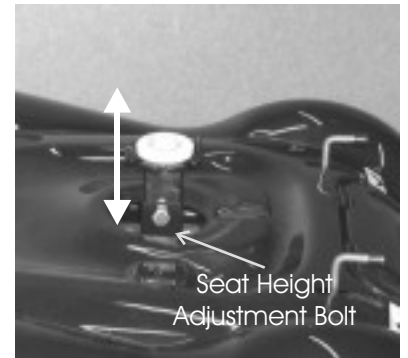


Fig 9

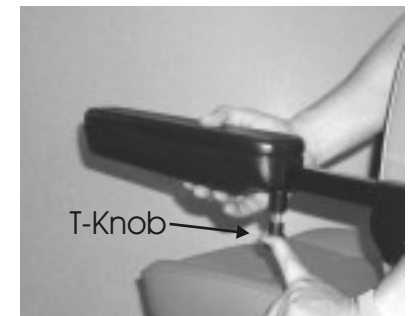


Fig 10

B. Armrest Length, Width & Angle Adjustment:

To adjust the Length:

- Simply pull down on the T-lever, slide to desired length and release the handle until it locks in place (Fig 10).

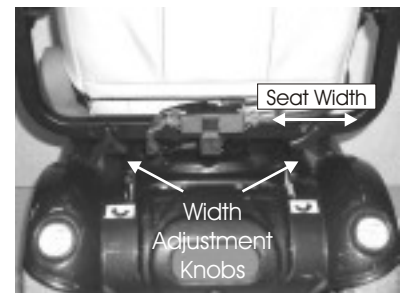


Fig 11

To adjust the Width:

- Locate the knob on the armrest receiver brackets behind the seat and loosen the knobs (Fig 11).
- Slide the armrest in or out for desired width and re-tighten the knobs.

To adjust the Tilt Angle:

- Flip up the armrest for easy access.
- Loosen the hex nut under the armrest pad by turning it counterclockwise with a 5 mm hex wrench (Fig 12).
- Turn the screw counter-clockwise to raise the armrest and clockwise to lower the front of armrest.
- Be sure to re-tighten the nut.



Fig 12

ADJUSTMENTS FOR SEATING COMFORT

C. Foot-Rest Height:

(Adjustable up to 2" in 1/2" increments)

To adjust the foot-rest height:

- Remove the seat and the shroud
- Remove the footrest bracket bolts (10mm wrench and 4mm Allen key). Slide the footrest bracket to the desired height (Fig 13).
- Replace the bolts and nuts and make sure to tighten them.

To adjust the Angle:

- Using a 6 mm Allen key, simply turn the bolt clockwise to increase the angle or counter-clockwise to decrease it to the desired angle (Fig 14).

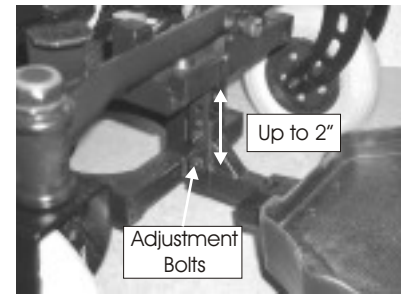


Fig 13



Fig 14

D. Controller Position:

To adjust the controller bracket length:

- Pull down on the T-shaped knob below the armrest.
- Slide the armrest with the controller to the desired length and release the knob.
- Slide the armrest forward or backward until the locking pin fastens the armrest in one of the adjustment holes.

To reverse the controller from right to left (must have left swing-away replacement bracket):

- Disconnect the main cord.
- Remove the two (2) screws that fasten the controller to the swing-away bracket.
- Replace the right-handed swing-away bracket (standard) for the left bracket.
- Switch the armrests from left to right.
- Re-install the controller by fastening the controller to the left swing-away bracket.
- Adjust the controller bracket to the desired length.

ADJUSTMENTS FOR SEATING COMFORT

E. Backrest Angle:

- Pull the lever up while leaning on the backrest until you reach the desired comfort position (Fig 16).
- To bring the seat to an upright position or to fold it forward, pull the lever up while removing any pressure on it until the desired position or complete folding is reached.



Fig 15

OPERATION

The HP-3 is simple to operate. However, we recommend that you read carefully the following instructions to get familiarized with your new vehicle.

A Word of Caution:

Before you turn the power on, always be aware of the environment that surrounds you to select your desired speed. For indoor environments we recommend that you select the slowest speed setting. For outdoor operation of this vehicle we recommend that you select a speed that is comfortable for you to control it safely.

The following are the steps and the components required to safely operate your vehicle:

A. Driving:

1. Controller ON/OFF Switch

Depress the ON/OFF button (I/O) switch located in front of the joystick to activate your HP-3. The battery gauge lamp will light up to indicate the current charge of your batteries. Depressing the ON/OFF button again will deactivate the controller.

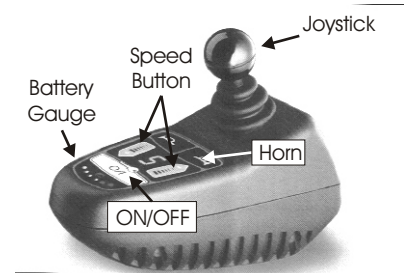


Fig 16

2. Speed Control

The speed control buttons allow you to set the forward speed to your desired setting. Pressing the "down" button will set the speed at the slower settings while pressing the "up" button will set the speed at faster settings (1 being the slowest setting and 5 being the fastest setting). The controller sets the reverse speed, acceleration and deceleration proportionally and automatically for your safety.

OPERATION

3. Joystick

The joystick controls the direction and speed of your vehicle. Pointing the joystick away from the neutral position, center, will move the vehicle in the direction where the joystick is pointing. The farther away (forward/backward) the joystick is from the neutral position, the faster the vehicle will go. The farther away to the right/left the Joystick is pointing, the sharper the turn of the vehicle will be.

To operate the vehicle, gently push the joystick in the direction you want to go. Returning the Joystick to its neutral position, center, will reduce the speed and stop the vehicle by automatically applying the electromagnetic brakes. Gentle operation of the Joystick will result in smoother transitions in speed and direction, while sharp operation of the Joystick will result in drastic transitions in direction and velocity.

B. Controller Display

The controller display is a multifunction visual display. It can provide three types of information: i) ON/OFF status, ii) battery charge and iii) fault diagnostics.

1. ON/OFF Status

When the power is on, the controller's LED will be lit up. If the LED is not lit, the controller is not ON.

2. Battery Charge

The controller LED is composed by 6 segments, two each red, orange, and green. At full battery charge, all 6 segments of the controller LED are lit continuously. With progressive discharge of the batteries, successive segments will extinguish in decanting order. A single lit red LED represents the lowest state-of-charge.

When the battery drops to the low state-of-charge, a warning is given by slowly flashing the left red LED on and off. Depending on age and condition of the batteries, you are then left with a limited driving range before you must recharge the batteries.

To ensure a dependable battery charge, we recommend to charge the batteries overnight. It will not only spare you unpleasant situations on route, but will prolong the batteries service life as well.

3. Diagnostics

The controller's LEDs can also let you know about problems with any of the vehicle components and the possible location of them.

OPERATION

The following chart lists possible problems indicated by the flashing meter:

FLASH CODE	PROBABLE CONDITION
Bursts of 1 flash	Commando may be faulty
Bursts of 2 flashes	Accessory fault (fault related to seating or lighting)
Bursts of 3 flashes	Left motor fault
Bursts of 4 flashes	Right motor fault
Bursts of 5 flashes	One of the brakes is opened circuit
Bursts of 5 flashes	Unused
Bursts of 6 flashes	Batteries dangerously low
Bursts of 7 flashes	Battery voltage is too high. Refer to Battery Charging.
Bursts of 8 flashes	Internal communications fault 1 (CANL)
Bursts of 9 flashes	Internal communications fault 2 (CANH/Wakeup)
Bursts of 10 flashes	Stall time out
Bursts of 11 flashes	Commando is powered up but locked
Quick pulse every 5 seconds	Out of neutral at power up (joystick deflected at power up)

C. Free-Wheeling.

Because the motors are designed to engage the electromagnetic brakes when the vehicle is not in use or when the power is OFF, they also have a manual feature that allows them to "free-wheel." Free-wheeling is accomplished by turning the free-wheeling levers to the free-wheeling position as shown Fig 17.



Fig 17

WARNING!

- Never free-wheel your HP-3 on a slope;
- Never free-wheel the motors while operating your vehicle;
- Always remember to engage the motors before turning the power back ON,

D. Thermal Protection

Your HP-3 controller is equipped with a safety system called thermal rollback. A built-in circuit monitors the temperature of the controller and motors. In case of excessive heat of the controller and motors, the controller will decrease the speed of your HP-3 to ½ of normality to allow the components to cool down. Your HP-3 will resume its normal speed when the temperature returns to a safe level.



Fig 18

F. Main Circuit Breaker:

Protruding through shroud is a black button, the main circuit breaker (Fig 18). It monitors the current drawn from the batteries. The main circuit breaker is a safety feature built in your HP-3 for your extra safety. When the batteries and /or the motors are heavily strained, the main circuit breaker might trip for extra protection of your safety. If it happens, wait for approximately 1 minute and then depress the button to reset it.

OPERATION

Usually, the thermal rollback feature is more sensitive than the main circuit breaker. It is recommended to turn the power off and wait for 5 minutes to allow the components to cool down if you find that you have lost speed or power suddenly.

F. Seat Rotation:

The seat can be swivelled at 45 increments (Fig 19 & Fig 20). The swivel lever will lock the seat rotation in one of five positions. To swivel your seat, push the swivel lever forward to unlock the seat, swivel the seat in the desired direction (right or left) and then release the lever while continue to rotate the seat until it locks in place at the desired angle.



Fig 19



Fig 20

BATTERIES & CHARGER

👉 Note:

Only use the charger that is supplied with the HP-3. Use of any other charging unit voids the warranty and could result in severe damage to the batteries, the HP-3, or may cause a fire hazard.

Depending on the use, terrain and driving conditions, the batteries will provide a range of 15-25 miles. However, we recommend that the batteries are charged periodically.

Charging Instructions:

The charging system includes an on-board system designed for your safety and convenience. To recharge the batteries, follow the steps below:

- Place your HP-3 close to a standard electrical wall outlet.
- Turn the controller power off.
- Lift the trunk lid up and remove the charger power cord that is stowed in a black bag.



Fig 21

BATTERIES & CHARGER

- Plug the charger power cord into a standard wall outlet.
- Disconnect the charger power cord from the wall outlet when the batteries are fully charged.

The batteries will be fully charged in 4 - 6 hours. This will be indicated when the status light in the battery charger side panel turns green..

MAINTENANCE & REPAIR

Your HP-3 is designed for minimal maintenance. However, we recommend that you periodically check the following:

Tire pressure: Be sure to maintain the pressure of the tires between 30-37 psi.

Tire tread: Visually inspect the tire tread. If less than 1/32", please have your tires replaced by your local dealer.

Motor brushes: Have your local dealer inspect the motor brushes every six months.

Joystick/controller: Make sure to keep the controller from the elements.

Battery terminal connections: Inspect the state of the battery terminals. Make sure that they are not corroded.

Clean your HP-3 cover (shroud) only with a damp cloth: The ABS shroud (cover) has a clear coat that is very easy to clean. Please do not use water to clean your HP-3.



Note:

If you experience any technical problems, it is recommended to check with your local dealer before attempting to trouble shoot on your own.

LIMITED WARRANTY

Life Time Warranty: Power chair frame

We will repair the frame with new or refurbished parts, free of charge, in the USA, in the event of defective materials or workmanship.

One Year Limited Warranty: Electronic controller, drive train components

Transworld Mobility Distribution will repair these products with new or refurbished parts, free of charge, in the USA, for one (1) year from the original date of purchase in the event of defective materials or workmanship.

Excluded from the One Year Limited Warranty are: Motor brushes, brake pads.

Six Month Limited Warranty: Plastic parts, rubber parts, bearings, other parts not specifically identified above.

Transworld Mobility Distribution will repair these products with new or refurbished parts, free of charge, in the USA. for six (6) months from the original date of purchase in the event of defective materials or workmanship.

warranty Exclusions:

- ABS plastic shrouds
- Batteries (batteries are warranted by the battery manufacturer)
- Tires and Tubes

This warranty is extended only to the original purchaser. Your original receipt will be necessary as proof of purchase before any warranty performance is rendered.

This warranty only covers failures due to defects in materials or workmanship which occur during normal use and does not cover damage that occurs in shipment or failures which are caused by products not supplied by Transworld Mobility Distribution, or failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, commercial use or by anyone other than an Authorized Dealer, or damage that is attributable to acts of God.