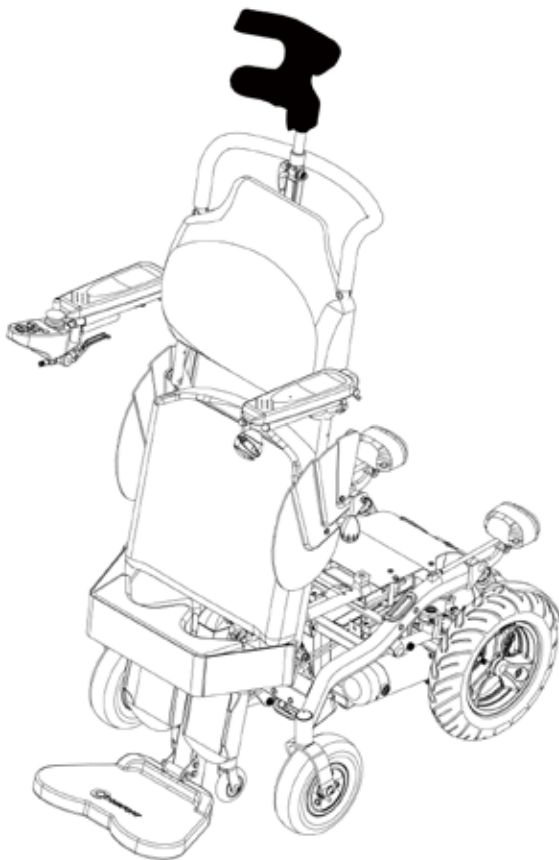




# Angel

## STANDING WHEELCHAIR

### USER'S MANUAL



Dear Customer,

We would like to thank you for putting your trust in Comfort standing wheelchairs - **Angel**. The Comfort standing wheelchair is a unique aid for being used to by those facing difficulties in walking and standing up. As well as performing all the functions of an active wheelchair, the **Angel** enables you to stand up on your own. We are certain that the design features and troublefree operation of Comfort standing wheelchair will add convenience to your daily living and ensure complete satisfaction.

At Comfort, your safety is important for us. Please read and follow all of the instructions in this manual before you attempt to operate your **Angel** for the first time. These instructions were produced for your benefit. Your understanding of these instructions is essential for the safe operation of your new Comfort standing wheelchair- **Angel**.

As a Comfort customer, you have a valuable contribution to make to the ongoing further development of our products. We put great store by your suggestions which ensure that Comfort still offers the most comprehensive service and satisfy for the widest possible range of needs.

Yours faithfully,



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## WARNING

Failure to heed the warnings in this user's manual may result in personal injury.



## CAUTION

Failure to heed the cautions in this user's manual may result in damage to your Angel.



## SUGGESTION

To enhance user's driving experience and to maximize comfort and convenience we suggest you to follow.

**The batteries have to disconnect the red wire (the positive(+))terminal) to conserve batteries power during transportation. Please connect the red wire before use the Angel.**

# INTRODUCTION

---



Congratulations on the purchase of **COMFORT** standing wheelchair— **Angel**.

The **Angel** is a manual wheelchair with power standing technology for indoor and outdoor use.

The **Angel** is designed for people who will benefit from the ability to stand up at will.

The **Angel** offers comfortable sitting and standing on every stage in its operation.

This users manual is compiled from the latest specifications and product information available at the time of publication. We reserve the right to make changes as they become necessary. Any change to our products may cause slight variations between the illustrations and explanations in this manual and the product you have purchased.

Please read the maintenance warranty, and make sure the authorization and the seal. Keep the maintenance warranty to protect your rights.

---

The user's manual is one part of your **Angel**. If you want to sell your **Angel** don't forget to give the user's manual. Please take the user's manual when driving. If you are experienced in any problem with your **Angel** that you are not able to solve, or if you do not feel capable of safely following any of the instructions and/or recommendations contained in this manual, please contact your authorized Comfort provider for assistance.

 **WARNING**

Do not modify your **Angel** in any way not authorized by Comfort. Unauthorized modifications may result in personal injury and/or damage to your **Angel**.

# SAFETY

## SAFETY INSTRUCTIONS

### General safety instructions

For your own security we recommend to read and obey all the instructions carefully in this manual.

- Comfort is not liable for damage to property or personal injury arising out of the unsafe use of a Comfort **Angel**. Comfort is also not liable for any property damage or personal injury arising out of the failure notice of the instructions and recommendations set forth in this manual or affixed on the product by Comfort.
- Before using the **Angel**, have the instructions explained by your **Angel** dealer. It also helps if you have a friend to listen to as well. Study the instruction manual yourself or if you cannot understand it, get a friend to help you doing so. Don't hesitate to ask for any explanation.
- As you begin to use your **Angel** during daily activities, you will probably encounter situations in which you will need some practice. Simply take our time and you will soon be in full and confident control as you maneuver through doorways, on and off elevators, up and down ramps, and over moderate terrain.

On the **Angel** you find the following symbols attached:



- The serial number of the **Angel**: it is the ID number; located on the left side frame of **Angel**.



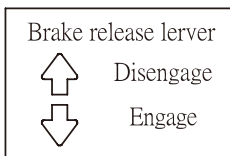
- Information for the **Angel**: please read user's manual!



- Warning, risk of pinching! Make sure no parts of the body, clothing or other items get jammed.



- Anchorage points (Hook sticker)



- Label for the brake release.

# SAFETY

---

## Operation

- Never switch off the joystick module during driving. Otherwise the wheelchair will stop abruptly, so that you run the risk, to be thrown forward from the wheelchair. Just release the joystick to stop the wheelchair from moving. Be aware that your **Angel** can produce electromagnetic emissions and disturb other devices.
- If unintended movement or brake release occurs, turn the **Angel** OFF as soon as it is safe.

## Driving

- The **Angel** is designed for outdoor and indoor use. **Angel** doesn't being recommended driving on uneven, soft or steeply slopping ground. Using the **Angel** outdoors, switch on the lights at dawn and dusk and in the dark of course.
- Don't let children drive with the **Angel** without supervision.
- Avoid driving through puddles with the **Angel**. The **Angel** and especially electrical components are very sensitive to too much water, some splashes of water don't harm. (There is a danger of malfunction regarding some electrical parts getting too wet.)
- The **Angel** is not designated to take along passengers.
- Look further ahead while driving, so that you have sufficient time to react to obstacles and avoid accidents in your way. Pay attention to pedestrians, children, dogs etc. close to and especially in front of you, since they can stop suddenly or change the direction.
- Consider the road permission regulations: These are different from country to country. It is usually prescribed by law about which kinds of streets can be used for your purposes. Inquire in this regards at your road traffic licensing department.



- Avoid steep edges, hillside situations or stairs if you push the **Angel** manually (brake release lever in lower position), because there is a risk to lose the control over the **Angel** because of its weight and measurements. There is even the risk that the user can fall out of the **Angel**. To overcome an obstacle we recommend, using a ramp or an elevator.
- The necessary force to push the **Angel** manually can possibly be a bit higher, than you used to do with other manual wheelchairs. Depending on the floor surface and the constitution of the person which is pushing the **Angel**, it can be helpful to have a second person around to help pushing the **Angel** if necessary.

### Stand-up-function

- You should under no circumstances attempt to stand up without following all safety precautions. Standing up stresses your body in ways you may not be used to. Therefore we recommend consulting your doctor or physical therapist before using the **Angel**.
- The **Angel** is only allowed to bring you into the stand-up position when the free wheel device is "ON", this guarantees the motor brakes function correctly.
- You should only bring the **Angel** into standing position if the **Angel** is on even, solid ground. If this condition is not ensured, the danger of tilting exists.
- It is not recommended to drive long distances in the standing position in outdoor areas. This function is meant for moving around standing indoors, as in the kitchen or in the office for examples.
- We recommend to stand-up only when accompanied in case of sudden spasticity, convulsions and similar problems.

# SAFETY

## WARNING

There are the squeezing hazards when lowering the seat from the standing position. Please be careful when you are operating.

### Safety belt system

- It's absolutely essential to mount the knee support and the chest and leg belt correct before you use the stand-up function.
- The chest and leg belt are exclusively intended to hold the torso of the user while driving and the stand-up function. It is not used to be a protection device at collisions and/or accidents. If you require a positioning belt to safely operate your **Angel**, make sure it is fastened securely.



### Safety belt

- It's absolutely essential to mount the knee support and the chest belt correct before you use the stand-up function.
  - The chest belt is exclusively intended to hold the torso of the user while driving and the stand-up function. It is not used to be a protection device at collisions and/or accidents.
- If you require a positioning belt to safely operate your **Angel**, make sure it is fastened securely. (The way to fix safety belt, please see page 37)

---

## Servicing and maintenance

- The **Angel** is a complicated piece of machinery. Do not attempt to maintain it yourself. For all maintenance work, please contact an authorized dealer. It is recommended that your authorized dealer is in charge to service the wheelchair once every year.
- You should only use original **Angel** spare parts at possible repairs or modifications. If you use other parts, the function and the security of the **Angel** can be influenced. This also means that the **Angel** is no longer covered under warranty.
- Programming should only be conducted by healthcare professionals with full knowledge of electronic controller systems. Incorrect programming could result in an unsafe setting of a wheelchair for the user. **Angel** accepts no liability for losses of any kind if the drive or stability characteristics of the **Angel** are altered without prior notification and discussion with the manufacturer.
- All inappropriate changes of the **Angel** and its different systems can lead to an increased accident risk. All changes and interventions have to be made by an authorized dealer, if you're unsecure about any issue, please ask your dealer first.

## Preparing the wheelchair for use and operation

- For delivery all **Angel** are packed in a big cardboard box. The back is detached for careful packing. Especially sensitive parts have extra protection to avoid any damages caused by transportation.

# SAFETY

## Transportation

The wheelchair must only be transported in a vehicle that is approved for such purposes. Check that the wheelchair is properly fastened and that the wheel locks are engaged. The wheelchair can be locked into position by running fastening straps through the brackets in the front and the back, each marked with a blue sticker. Secure the wheelchair according to the manufacturer of the vehicle restraint systems instructions. Always make sure that the fastening points on the transport vehicle are well-anchored.



Sticker



### WARNING

#### Use Prohibited in Motor Vehicles

- Currently, the Department of Transportation has not approved any tie-down or restraint system in a moving vehicle of any tire to transport a person while seated in a wheelchair.
- COMFORT recommends that users NOT be transported in any kind of vehicle while in their wheelchair. The only safe alternative is that users be transferred into factory vehicle seating for transportation and use safety restraints made available by the auto industry. COMFORT does not recommend any wheelchair transportation systems.
- Never sit in your wheelchair while in a moving vehicle. In an accident or sudden stop you may be thrown from the chair and seriously injured or killed.

- COMFORT positioning belts are designed to position the user only and will not protect you in an accident. You may even receive further injury from the belts. When transporting the wheelchair in a vehicle, ensure that the wheelchair is properly secured.
- If the chair is not properly secured and comes loose, it can cause serious injury to persons in the vehicle and serious damage to the vehicle.

### **WARNING**

- If the wheelchair has to be transported with the user in the chair into the vehicle through a ramp, the wheelchair shall be secured against tipping backwards by a person behind. Wheelchair users should transfer to the vehicle seat and use the vehicle-installed restraint system whenever it is feasible.
- The vehicle restraint belt should not be worn twisted. Always make sure that the vehicle restraint belt is not adjusted over sharp edges of the wheelchair.
- The vehicle restraint belt should not be held away from the body by wheelchair components or parts, such as the wheelchair's armrest or wheels. All wheelchair-mounted trays shall be removed and secured separately in the vehicle, or be secured to the wheelchair.
- When possible, other auxiliary wheelchair equipment should be either secured to the wheelchair or removed from the wheelchair and secured in the vehicle during transit, so that it does not break free and cause injury to vehicle occupants in the event of a collision. A poorly fastened chair can cause extensive damage and injury both to the people in the transport vehicle as well as to the vehicle itself and the wheelchair if it comes loose.

# SAFETY

## Transportation

To have a bit smaller dimensions of the chair, when you like to transport it, there are two things you can do:

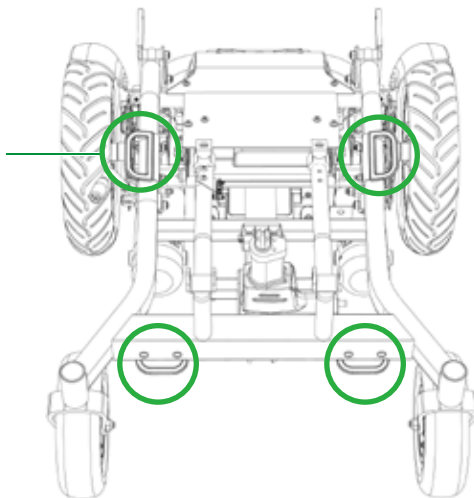
- Flip up the footrest
- Fold down the backrest  
(The way to fold down the backrest, please see pag 35 )



Transportation in a vehicle without the person in the wheelchair

When transporting the wheelchair in a motor vehicle, make sure that the wheelchair is so secured as to prevent it sliding about or tipping over. Just use the licensed fastening systems and secure the wheelchair at the marked anchorage points (hook sticker).

**Here's an example how the chair should be strapped down in a motor vehicle:**



## Delivery

Because of the complex nature of this wheelchair it will be delivered and demonstrated to you by your local agent.

- The wheelchair comprises the following components:

	<b>Component</b>	<b>Quantity</b>
<b>1</b>	Wheelchair base	<b>1</b>
<b>2</b>	Seat unit	<b>1</b>
<b>3</b>	Backrest unit	<b>1</b>
<b>4</b>	Knee support	<b>1</b>
<b>5</b>	Chest and leg safety belt	<b>1</b>
<b>6</b>	Joystick unit	<b>1</b>
<b>7</b>	Joystick Module	<b>1</b>
<b>8</b>	Set of batteries	<b>1</b>
<b>9</b>	Battery charger	<b>1</b>
<b>10</b>	Tool set	<b>1</b>
<b>11</b>	Options and accessories	Corresponding to order form

# SAFETY

## Storage

- The ideal condition to store the **Angel** is a temperature between – 40° and + 60° Centigrade (between -30° and +140° Fahrenheit). The humidity should not be above 90%. Please take care to guarantee these mentioned conditions to provide a long life time for the **Angel** . We also recommend charging the batteries at least every 1 month if the chair is not used.
- **Angel** batteries are heavy. See specifications table. If you are unable to lift that much weight, be sure to get help. Lifting beyond your capacity can result in personal injury.

## First adjustment

- Because the **Angel** was ordered with your personal measurements, it should fit your personal constitution when the chair is delivered to you. If there should be any variations, please take a look at Chapter — INDIVIDUAL ADJUSTMENT. There you can see how the different elements can be adjusted.



### WARNING

Please have authorized Comfort provider to do the adjustment for you. In order to avoid the dangers, don't do any adjustment without any professional suggestion.



## Checking list before using the Angel

Getting on and off of your **Angel** requires a good sense of balance. Please observe the following safety tips when getting on and off of your **Angel**.

### Before Getting On Your Angel

- Fully charge the batteries
- Push the manual freewheel lever to the drive position.

### Pre-ride Adjustment and Checks

- Is your proposed path clear of people, pets, and obstacles?
- Have you planned your route to avoid adverse terrain and as many inclines as best as possible?
- Are you positioned comfortably in the seat?
- Is the seat locked securely in place?
- Is the speed adjustment dial set to a slower setting?
- Does your **Angel's** horn work properly?

### WARNING

- Position yourself close in the **Angel** seat to prevent the **Angel** from tipping and causing injury.
- Avoid using your armrests for weight bearing purposes. Such use may cause the **Angel** to tip and cause personal injury.
- Avoid putting all of your weight on the footrest. Such use may cause **Angel** to tip and cause personal injury. (Exception on standing situation)
- Never attempt to get onto and off your **Angel** without turn off your **Angel** first.

# SAFETY

- Never drive your wheelchair onto an escalator.

## Circuit breaker



When your **Angel** is overheat, please press the button of circuit breaker to reset your **Angel**.

## DRIVING THE Angel

### Driving in general

- Before starting to drive your wheelchair take time to read all the instructions regarding the **Angel** and to get to know the controls. When first learning to drive your **Angel**, practice in an area you know well. We suggest a large flat smooth area such as your living room or the driveway to your home. Do not attempt to drive the **Angel** in confined areas or where there is traffic until you are sure you can control the **Angel** safely. When driving outdoors always have the seat plate in a horizontal position or tilted backwards (in case seat angle tilt is an optional function).

- Switch on the joystick module and practice driving the **Angel** slowly forwards, backwards and turning side to side. When you have more confidence increase the speed and practice until you have mastered driving the **Angel**. It is possible to drive the **Angel** in the standing position. Speeds are cut to half the speed as soon as the seat leaves the lowest seat position. When indoors practice standing up in the **Angel** and slowly driving it across the room. The **Angel** allows driving absolutely safely in a sitting position on slopes with a maximum gradient up to 10 degree. When driving up or down steeper slopes than this or over uneven ground, braking and steering response will be limited due to reduced traction. When on a slope don't lean out of the **Angel** down the slope.
- Danger of tipping; Driving in a standing position is no problem up to a gradient of 3 degree. A limit switch with some important security features programmed is a standard of the **Angel**. In correlation of the current position of the chair and the inclination of the ground the speed is automatically reduced. In extreme situations the system prohibits to continue driving for the safety of the user. It is possible to go on as soon as the seat plate is lowered. Please read the detailed information below.

### Ramp \ Obstacle \ Aqueduct

- Approach slowly, as you encounter a ramp or incline.
- Do not attempt to climb over an obstacle which is more than 45mm high or a gap more than 100mm wide.
- Do not drive up or down an incline that is more than 10 degree.
- If you must stop when going down slope, decelerate slowly.
- Avoid prolong climbing

# SAFETY

- When driving down a ramp, keep your **Angel**'s speed adjustment set to the lowest speed setting and driving in the forward direction only.
- On any sort of an incline or decline, never place your **Angel** in freewheel mode while sitting in it or standing next to it.
- Do not attempt to have your **Angel** proceed backwards down any step, curb, or other obstacle.

## Cornering Information

Excessively high cornering speeds can create the possibility of tipping. Factors which affect the possibility of tipping include, but are not limited to, cornering speed, steering angle( how sharply you are turning ), uneven road surfaces, inclined road surfaces, riding from an area of low traction to an area of high traction( such as passing from a grassy area to a paved area — especially at high speed while turning ), and abrupt directional changes. High cornering speeds are not recommended. If you feel that you may tip over while cornering, reduce your speed and steering angle to prevent your **Angel** from tipping.

## Unlock the drive brakes-Angel



### MANUAL TRANSMISSION

- **Normal Driving**

When you sit on **Angel**, please PUSH free-wheel lever to be normal driving mode.

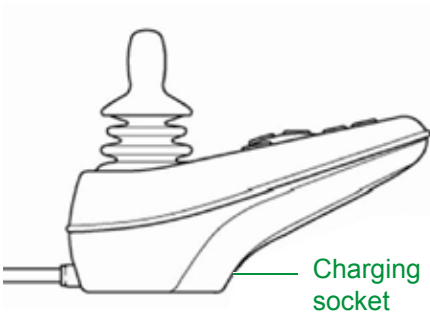
- **Freewheel Mode**

When you sit on **Angel**, please PULL free-wheel lever to be manual driving mode.

## WARNING

- Do not use your **Angel** in freewheel mode without an attendant.
- Avoid freewheel mode when driving down a slope.
- Do not attempt to personally place your **Angel** in freewheel mode when sitting in the **Angel**.
- Do not place your **Angel** in free wheel mode while on an incline.

## Charging the batteries



Only use the charger **Angel** delivered with the chair. To charge the batteries, switch off the control unit and plug the charger into the socket beneath the front of the joystick. If the joystick is switched on, the batteries won't charge. If the batteries are completely discharged, it takes at least 10 hours to fully charge them.

## Public streets and roadway

- It may be difficult for traffic to see you when you are seated in your **Angel**. You should not operate your **Angel** on public streets and roadways.
- Never use your **Angel** to negotiate steps or escalators.

## Elevator

- If you are in the doorway of an elevator when the door begins to close, push on the rubber door edge or allow the rubber door edge to contact the **Angel** and the door will reopen.

# SAFETY

## Doors

- Determine if the door opens toward or away from you. Drive your **Angel** gently and slowly forward / backward to push / pull the door open.
- Keep a watch for pedestrians, obstacle, and pothole particularly when reversing.

## Reaching and Bending

- Do not bend, lean, or reach for objects .If you have to pick them up from the floor by reaching down between your knees, such use may cause your **Angel** to tip and result in personal injury.

## Prescription Drugs / Physical Limitation

- Consult your physician if you are taking any prescribed or over-the-counter medication which may impair your operation of **Angel** .

## Alcohol

- Do not drive under the influence of alcohol or drugs: Speak to your doctor first if you are unsure about driving or taking medication.

## Weight

- Avoid putting all of your weight on the floorboard. Such use may cause your **Angel** to tip and result in personal injury.
- Comfort **Angel** is designed for one person only,passengers are prohibited.

## WARNING

When cornering sharply, reduce your speed. When using your **Angel** at higher speeds, do not corner sharply. This greatly reduces the possibility of a tip or fall. To avoid personal injury or property damage, always exercise common sense when cornering. Take wide swings with your **Angel's** front wheel around any tight corners, and your **Angel's** rear wheels will follow a wide arc. Not cut the corner short, and not bump into or get hung up on any railing corners.

## Outdoor Driving Surfaces

Your **Angel** is designed to provide optimum stability under normal driving conditions—dry, level surfaces composed of concrete, blacktop, or asphalt.

However, Comfort recognizes that there will be times when you will encounter other surface tires. For this reason, your **Angel** is designed to perform admirably on packed soil, grass, and gravel. Feel free to use your **Angel** safely on lawns and in park areas.

- Reduce your **Angel** 's speed when driving on uneven terrain and/or soft surfaces.
- Avoid tall grass that can become tangled in the running gear.
- Avoid loosely packed gravel and sand.
- If you feel unsure about a driving surface, avoid that surface.

### Inclement Weather Precautions

- Comfort recommends that you do not operate your **Angel** in icy or slippery conditions or on salted surface. Such use may result in an accident, personal injury, or adversely affect the performance and safety of your **Angel** .
- Comfort recommends that you do not expose your **Angel** to any tire of moisture at any time( rain, snow, mist, or wash ). Such expose can damage your **Angel**. Never operate your **Angel** if it has been exposed to moisture until it has dried thoroughly.

### Stairways

- Do not attempt to move an occupied **Angel** between floors using a stairway. If moving a **Angel** between floors by means of a stairway, the occupant must be removed and transported independently of the **Angel**.
- Do not attempt to lift the **Angel** by any removable parts. Lifting by means of any removable parts of a **Angel** may result in injury to the user or damage to the **Angel**.

### Follow these instructions for moving the Angel between floors when an elevator is not available:

1. Remove the occupant from the **Angel**.
2. Remove batteries from **Angel**. Refer to installing / removing batteries.
3. Hold non-removable parts of the **Angel**, lift the **Angel** off the ground and transfer the **Angel** up or down the stairs.
4. The **Angel** should not be lowered until the last stair has been negotiated and the **Angel** has been carried away from the stairway.

# FEATURE

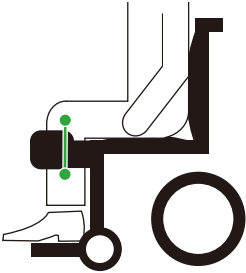
## CHARACTERISTIC OF Angel

- Prevents joint contracture of lower extremities.
- Improves bowel & bladder's function.
- Helps prevent pressure sores from prolonged sitting.
- Slackens osteoporosis and calcium loss in bone.
- Increase personal confidence and overcome the physiological obstacle.
- Effective on the leg to weight bearing adaptation \ mechanism of body weight support training.
- Prevents postural hypotension and improve cardiopulmonary function.
- Rebuild the working ability in standing position, and become more independent & self care ability.
- Can use standard appliance, increase adaptation ability.



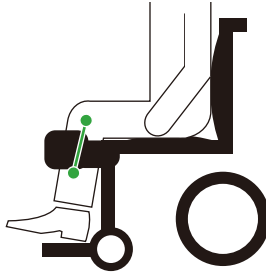
## Seating and Standing Assessment

○ Correct



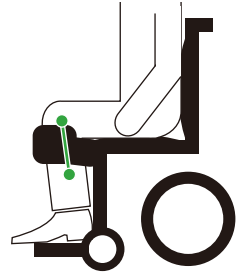
Knee support attachment screw even with center of knee

✗ Too long

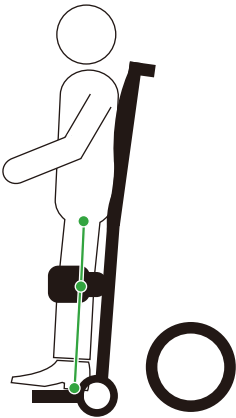


Knee support attachment screw beyond center of knee

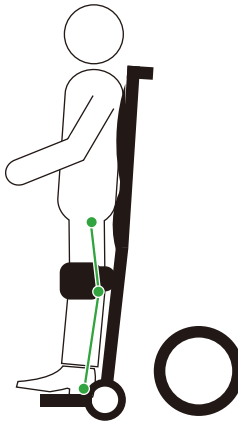
✗ Too short



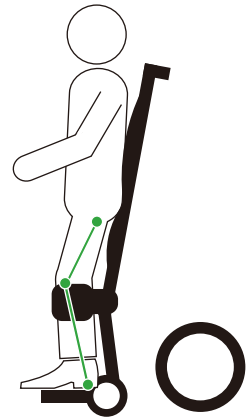
Knee support attachment screw short of center of knee



Ankle/Knee/Hip joint straight



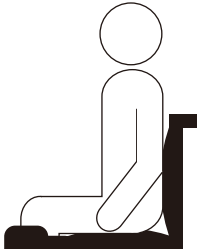
Knee joint hyper extended



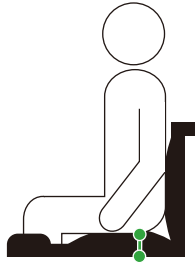
Incomplete knee extension

# FEATURE

**○** Correct position

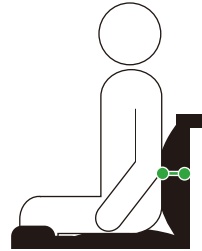


**✗** Seat cushion too high

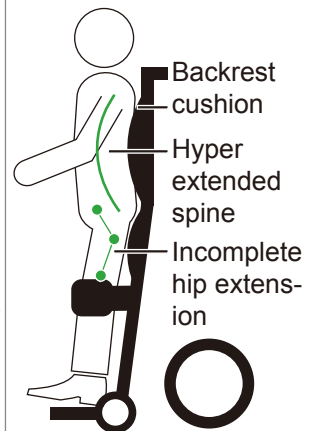
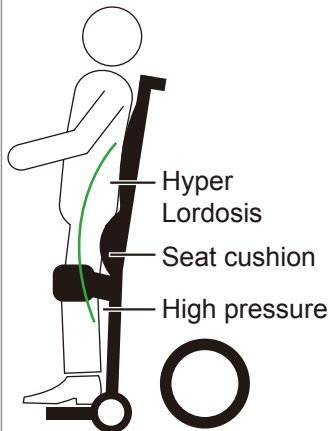
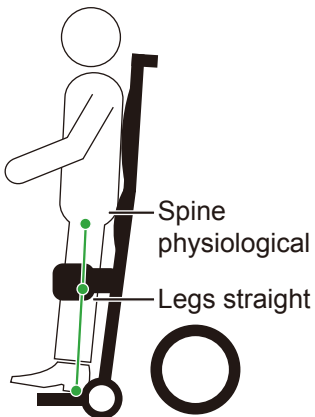


Cushion for pressure relief in seated position

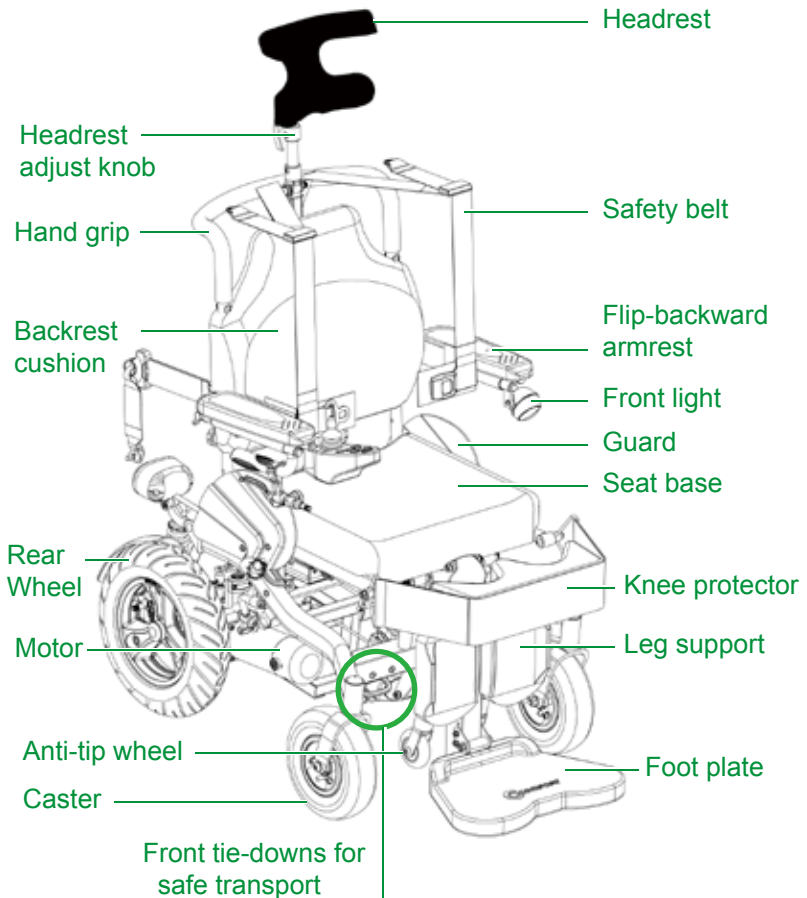
**✗** Back too deep/thick



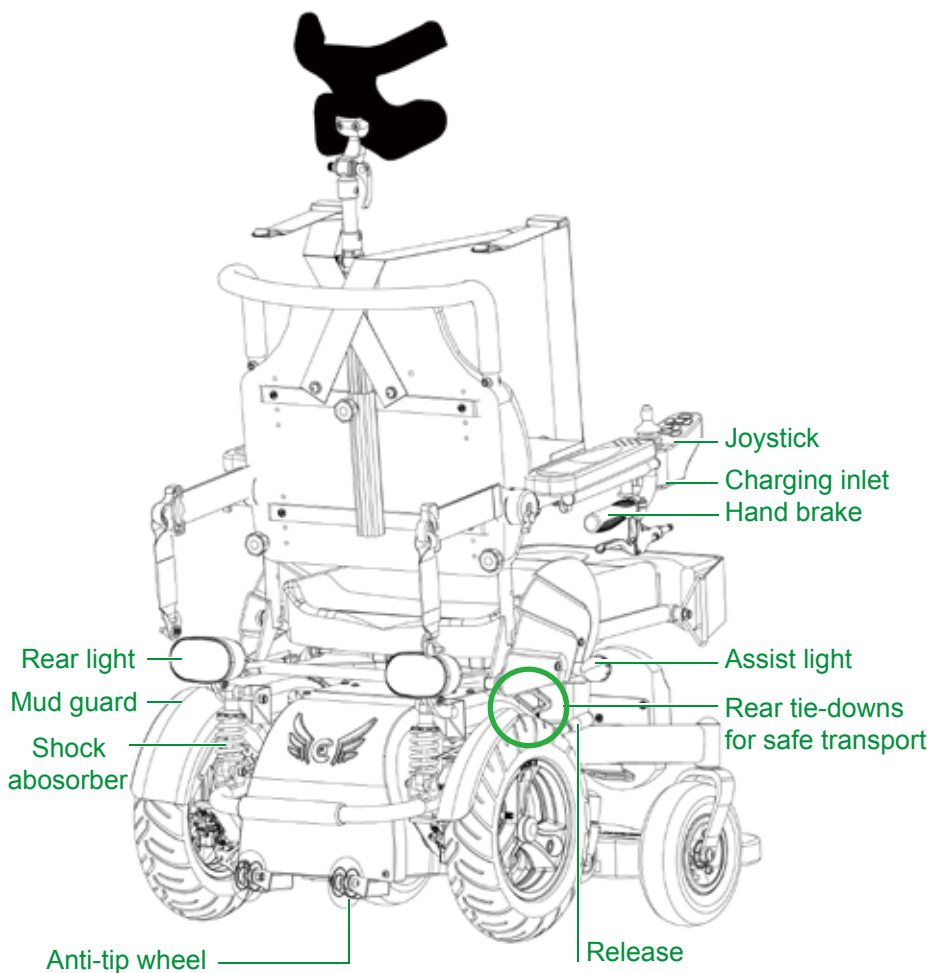
Backrest cushion or solid back for more comfort or stability



## FEATURE GUIDE



# FEATURE



## SPECIFICATIONS

Item no	Angel LY-ESB240
<b>Motor Output</b>	450W*DC24V*2PCS
<b>Battery</b>	50AH*12V*2PCS
<b>Batteries Weight</b>	31kgs (15.5kg*2PCS)
<b>Charger</b>	DC24V*8AMP
<b>N.W.(all size)</b>	62.7Kgs
<b>Brakes</b>	Magnetic brake
<b>Max loading</b>	L : 160kg A : 135 kg D/S : 120KG
<b>Range</b>	About 25 km (on the flat road, 160kg loading)
<b>Front Wheels</b>	9"(2.80/2.50-4) pneumatic castor
<b>Rear Wheels</b>	14"(3.00-8) pneumatic tire
<b>Maximum Speed</b>	9.15km/hr

# OPERATION ADJUSTMENT

## CONTROLLER AND OPERATION



### VR2-control

- On the control unit you can find a joystick, buttons and symbols where we take a closer look as follows.

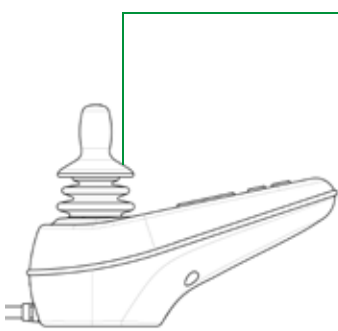
### On-/ Off-button

- On-/ Off-button is for switched on or off. Don't use this button to stop the wheelchair unless there is an emergency



### Battery gauge

- The battery gauge shows the wheelchair is on and it shows how much power it is left in the batteries. The gauge is also used as electronic fault detection.



### Joystick

- The joystick controls the direction and speed of the wheelchair. To drive forwards push the joystick forwards. The further you push it from the centre the faster the wheelchair will move. Let go of the joystick and the wheelchair will stop and the brakes come on. For backwards driving push the joystick backwards. Pushing the joystick to the right side means a right hand curve as a reaction. Pushing the joystick to the left then the chair will drive to the left hand side. The joystick can be used to choose and to move the actuators as well.

### ! CAUTION

When the batteries approach a discharged state, the first red light will begin to slowly flash, reminding you the batteries need to be charged immediately.

### Speed



- This is a gauge that shows the maximum speed setting for the wheelchair. This gauge also indicates if the speed of the wheelchair is being limited or if the control system is locked. If one LED is illuminated, you drive with the slowest speed, 5 illuminated LED's mean that you drive with the highest programmed speed. If the LED's are flashing, it means the speed is reduced. That happens when you go into standing position. If the LED's are ripple up and down, it means the chair is locked.

### ! CAUTION

We recommend to set speed to the lowest setting at the first few times operations until you become familiar with your **Angel** .

# OPERATION ADJUSTMENT



## Horn Key

- The horn key activates the horn.



## Hazard Button & LED

- This button activates/inactivates the wheelchairs hazards lights. this function is used when the wheelchair is positioned in a way making it a obstruction for others.
- The button to activate the hazard lights and push it again to inactivate them. When activated the indicator LED will flash in sync with the wheelchair's indicators.



## Light Button & LED

- This button activates/inactivates the wheelchair lights. Push the button to activate the lights and push it again to inactivate them. When the lights are activated the light LED lights up too.



## Actuator Button

- If the wheelchair is fitted with actuators, this button will enter and exit actuator adjustment mode.



- By pressing the actuator, the LED light up, and then you can activate the stand-up function. If you move the joystick forward, the chair is rising upwards, if you move the joystick backwards, the chairs moving downwards.
- When you press the actuator button again, **Angel** will be back driving mode.



### Indicator Button & LED

- This buttons activates and deactivates the wheelchair's left/right indicator. Depress the button to turn the indicator on and depress the button again to turn it off. When activated the indicator LED will flash in sync with the wheelchair's indicator.

### Locking / Unlocking the wheelchair

The VR2 has a feature that enables you to lock your **Angel** to prevent unauthorized use. The locking method is via a sequence of key presses and joystick movements, as detailed below:

# OPERATION ADJUSTMENT

## To Lock the VR2 ( Please follow the steps )

1. With the VR2 powered on, press and hold the on / off key. After 1 second, the VR2 should beep.
2. Release the on / off key.
3. Push the joystick to the full forward position until the VR2 beep.
4. Push the joystick to the full rearward position until the VR2 beep.
5. Release the joystick. There should be a long beep.
6. The VR2 is locked now.



## To Unlock the VR2 ( Please follow the steps )

1. Press the on / off key and power on the VR2. The maximum speed / profile indicator should ripple right and left.
2. Push the joystick to the full forward position until the VR2 beep.
3. Push the joystick to the full rearward position until the VR2 beeps.
4. Release the joystick. There should be a long beep.
5. The VR2 is unlocked now.



## ! CAUTION

When the batteries approach a discharged state, the red lights will begin to flash, reminding you the batteries need to be charged immediately.

---

## Off-board Charger / Programming Socket

You charge the power chair batteries through the 3-pin socket located on the front of the VR2. Off-board charger current should not exceed 12 amps. Contact your Comfort Specialist for more information.

## Thermal Rollback

The VR2 controller is equipped with a thermal circuit. The circuit monitors the temperature of the controller which roughly translates to motor temperature. In the event that the VR2 controller becomes excessively hot (above 140°F) motor current (amperage) is reduced. For every degree above 140°F, the motor current limit is reduced by .55 Amps until the VR2 controller reaches 158°F. At that time the current output is reduced to zero. This reduces your **Angel's** "power" which could also reduce your **Angels** speed, and allows the electrical components and motors to cool down. When the temperature returns to a safe level, your **Angel** resumes its normal operation.

The VR2 controller is designed with the user's safety as the prime consideration. It incorporates many sophisticated self-test features which search for potential problems at a rate of 100 times per second. If the VR2 detects a problem either in its own circuits or in the **Angel1's** electrical system, it may decide to stop the **Angel**, depending on the severity of the problem. The VR2 is designed to maximize the user's safety under all normal conditions. The table below identifies the individual error codes. Error codes are displayed as a rapid flashing. If you get one of these error codes, contact your Comfort Specialist.

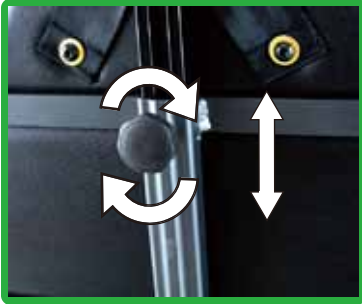
# OPERATION ADJUSTMENT

## TROUBLE CODES FOR CONTROLLER

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Trouble Code	Diagnosis an Solution
1	The batteries need charging or there is a bad connection to the batteries. Check the connections to the batteries. If the connections are good, try charging the batteries.
2	The left motor has a bad connection. Check the left motor connection.
3	The left motor has a short circuit to a battery connection. Contact your Comfort Specialist.
4	The right motor has a bad connection. Check the right motor connection.
5	The right motor has a short circuit to a battery connection. Contact your Comfort Specialist.
6	The power chair is being inhibited by the battery charger. Unplug the battery charger.
7	A joystick fault is indicated. Make sure that the joystick is in the neutral (center) position before turning on the controller.
8	A controller fault is indicated. Make sure that all connections are secure.
9	The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the controller system connections are secure.
10	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection. Check the battery connections.

## INDIVIDUAL ADJUSTMENT



### Adjustable Headrest

- **Adjust 1**

Turn the back button of headrest anti-clockwise. Adjust the height and turn the button clockwise for locking.

- **Adjust 2**



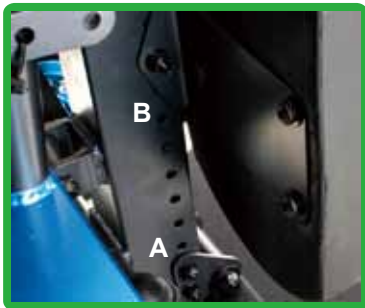
- Move the **A** lock upwards (as left photo), then you can adjust the headrest forwards and backwards. (Please see the middle and right photos)
- Move the **B** lock upwards (as left photo), then you can adjust the headrest forwards and backwards as show on the middle and right photos.

# OPERATION ADJUSTMENT



## Detachable Backrest

1. Release the two sides of knobs, and take off the knobs.
2. Hold two sides of hand grip and heave the backrest.
3. Finish.



## Adjustable Footplate- A

As the photo, please adjust the part **A**, you can choose the correct hole to fix **Angel's** footplate to make you feel comfortable to put your foot on it.

## Adjustable PU Shank Support-B

As the photo, please adjust the part **B**, you can choose the correct hole to fix **Angel's** shank's support to make you feel comfortable.



### Adjustable SPONGE Knee Protector

Release the knee protector belt to adjust the belt to be tight or loose.

## OPERATION



- **A** : Footplate-upwards



- **B** : Footplate-downward

You can use your hand to move the footrest upwards **A** or downward **B**.

# OPERATION ADJUSTMENT

## Flip-backward Armrest



- Turn the armrest release lever **A** Counterclockwise and move the armrest upwards.

## Safety Belt



- Remove the safety belt.
- Put yourself comfortable on the seat, and adjust the safety belt to a proper position.
- Fasten the chest safety belt, and make sure it is fixed.

## Indicator light



- **Angel's** indicator light.

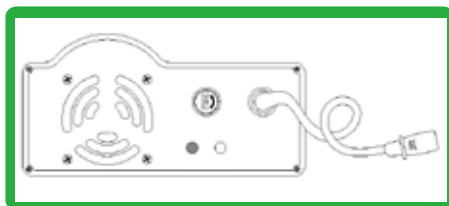


# WARRANTY INFORMATION

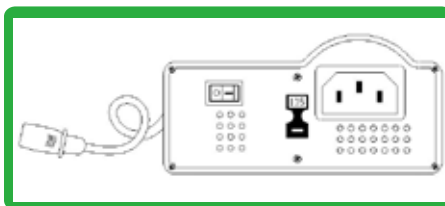
## THE CHARGER OPTION 1 - 5A

The charger is an electronic intelligent exchangeable charger. It is designed for the electric vehicle powered by lead-acid battery.

### Introduction: HP8204B



Front View



Rear View

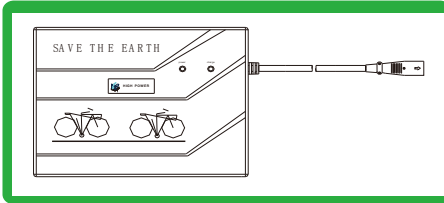
### Operation Instruction (Please Follow The Steps)

1. Position your power chair close to a standard wall outlet.
2. Turn the power off
3. Make certain that freewheel lever is in the drive position.
4. Please switch the AC power input "O"(power off) and plug into the round hub, on the charging socket of **Angel** another plug into the wall outlet.
5. Check the input voltage, and then switch 115V/230V to the voltage correctly.
6. Check the batteries are 12V/50AH above lead acid batteries.
7. Check if all the connectors have good contact.
8. After completing the actions above, switch the AC power input " 1 ". If the normal charging procedure begins, the fan would start and the indicator would show red and yellow light. If there are irregular signal, please turn off the charger instantly and repeat step 3-7, then restart again.
9. Yellow indicator will become green when the batteries are fully charged.
10. Standard charging needs 5-6.5 hours.(It takes more time in winter)

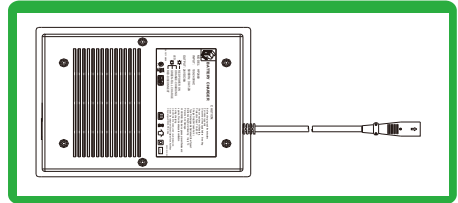
# WARRANTY INFORMATION

## THE CHARGER OPTION2 - 8A

### Introduction: HP2480B



Front View



Rear View

### Operation Instruction (Please Follow The Steps)

1. Remove the battery from equipment.
2. Make sure the power cord, battery cable, battery terminals are in good condition.
3. Make sure the charge output voltage is the same as the connecting battery.
4. Connect the connector of battery charger to the connector of battery.
5. Make sure the socket AC voltage is the same with the charger voltage, then connect the power wire to the charger, and plug in the socket, the LED (orange) light will turn on when it is in charging condition.
6. The LED (green) light will turn on when the battery is fully-charged.
7. When the charging time is over 15 hours, LED (red) will flash and the charger will stop charging in the mean time.

### LED Indication:

**Power LED:** Red On: Power on

### Charge LED:

- Red On : Ready
- Red light flash: Low voltage or short-circuited.

- Orange on: Fast-charge in constant current.
- Green on: Full charged.

### **Troubles Shooting:**

#### **1. The power LED is off.**

- Check if voltage output of socket exists, if the voltage output appeared to be in normal condition, please contact Comfort supplier for repair.

#### **2. Charge LED(orange) is off .**

- Check if the connectors of the charger are correctly connected.
- Check the voltage output of socket exists, if the voltage output appeared to be in normal condition, please contact Comfort supplier for repair.
- If the above are correct, please send the material back for repair.

#### **3. The red LED flash**

- Check if the battery voltage is too low.
- If the output DC + - is short circuited, please send the material back for repair.

### **Safety notice**

- To extend the charger's life, do not let the DC cord being short-circuited for long.
- The charger is suggested to be used in a well-ventilated area.
- The charger is suggested to be used with 75Ah Lead-Acid battery or under 75Ah.
- Do not dismantle the charger, contact technical engineer if necessary.
- Do not touch the charger with watery hands.

# WARRANTY INFORMATION

## WARNING

- Keep other objects at least five centimeters away from the charge ventilator to release heat.
- Avoid putting the charger on the battery.
- Check if the output DC voltage corresponds to the batteries tire and voltage. Wrong batteries and voltage tire would expose the batteries and damage the user.
- When the batteries are charging, keep away from smoke or flame to avoid ignition or explosion.
- Charging in a well ventilated place.
- Avoid electric shock, do not touch power with wet hub or hands.
- It may result in personal injury and/or damage to your Angel, when you use the charger which is not recommended by Comfort.

## CAUTION

- Switch the charger to “O” before connecting the charger circuits and batteries.
- Avoid exposing charger in the rain, water or damp condition.
- Do not take apart or transform the charger.
- Please charging in 0°C~40°C temperature, extra-range would not charge or result in damage to the batteries.
- Do not stop charging until the indicator light turns green.
- If the charger indicator is not bright, take off the hub about ten minutes and plug again. If not working, contact your authorized Comfort provider for assistance.

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## Malfunction And Trouble Shooting

1. No voltage indication when power is on.
  - Check if the input wires connector works.
  - Check if the input socket connector works.
  - Check if the fuse works.
2. Red/yellow light loom, fan stays still when powered on.
  - Check if the output line is short circuit.
3. Red light on, green light blink, no charging signal when powered on.
  - Check if the output fuse works.
  - Check if the connector of output batteries is well connected
  - Check the polarity of the batteries
  - Check if batteries are well positioned

# WARRANTY INFORMATION

## THE BATTERIES

1. Only use deep-cycle batteries that are sealed and maintenance free. Both sealed lead-acid and gel cell are deep-cycle batteries that are similar in performance in your power chair. Do not use wet-cell batteries which have removable caps as used for car.
2. Following situations will combust batteries.
  - Incline
  - Winter
  - Over-weight
3. Following rules will keep the batteries work longer.
  - Avoid charging after the batteries use out, charging after all day power chair use on a daily basis.
  - Unplug the hub in 40 hours after the batteries fully charged.

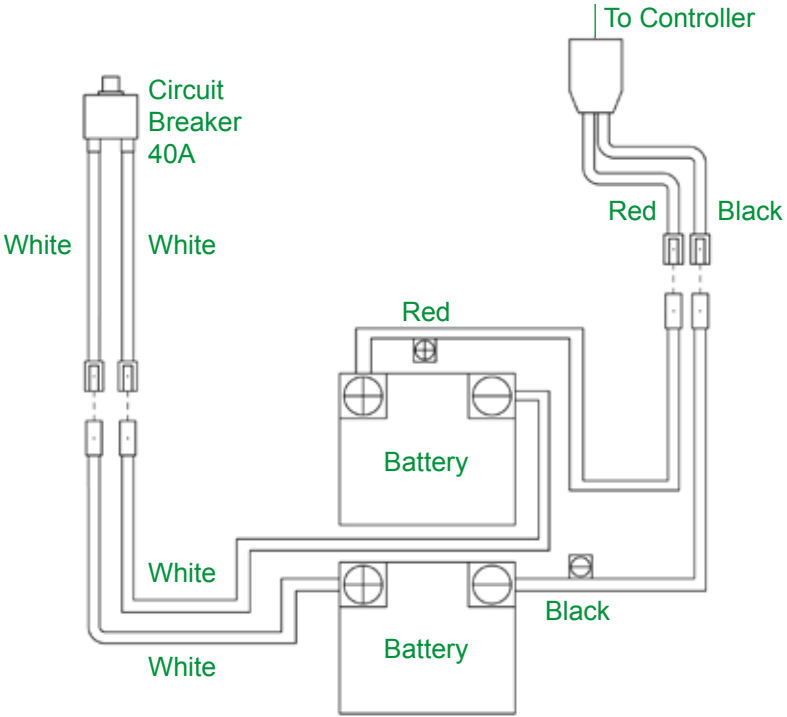
### **WARNING**

- Do not remove the caps from sealed batteries. Water cannot be added to sealed batteries.
- Avoid using the batteries in an airless place.
- The batteries acid could cause blindness or burning. If the batteries acid contacts eyes, skin, clothes, or articles, rinse with water as soon as possible. If battery acid is ingested, drink lots of water, and seek medical assistance immediately.
- Do not use other power chair's batteries to avoid damage to your power chair.
- When your power chair is being transported, make sure your power chair and its batteries are secured.

# BATTERY WIRING LOOM

## VR2 CONTROLLER

Battery wiring diagram



# WARRANTY INFORMATION

## CAUTION

Wrong connection would damage the batteries, and your **Angel** would not turn on. If your **Angel**'s batteries become frozen, do not attempt to charge them. Cold or frozen batteries should be allowed to warm up for several days prior to recharging.

## SUGGESTION

If you not sure how to change the batteries, contact your authorized Comfort provider for assistance.

## EMI/RFI

### EMI/RFI WARNINGS

Laboratory tests performed by the Food and Drug Administration (FDA) have shown that radio waves can cause unintended motion of **Angel**. Radio waves are a form of electromagnetic energy (EM). When electromagnetic energy adversely affects the operation of an electrical device, that adverse effect is called Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI).

### EMI/RFI FREQUENTLY ASKED QUESTIONS (FAQS)

The following FAQs summarize what you should know about EMI/RFI. Use this information to minimize the risk that EMI/RFI will adversely affect your **Angel**.

#### Where do radio waves come from?

Radio waves are emitted from the antennas of cellular phones, mobile two-way radio (such as walkie-talkies and CBs), radio stations, TV stations, amateur radio (HAM) transmitters, wireless computer links, microwave sources, and paging transmitters. Radio waves are a form of EM. Because EM is more intense closer to transmitting antennas (sources of emission), the EM fields from two-way radios are of special concern to **Angel** users.



### **If EMI/RFI affects my Angel, what kind of motion should I expect?**

This is difficult to predict. The answer would depend on a number of factors:

- The strength of the radio waves.
- The construction of your particular **Angel**.
- The location of your **Angel** (whether it is on level ground or on an incline)
- Whether or not your **Angel** is in motion.

The motion of any **Angel** affected by EMI/RFI can be erratic.

The **Angel** may come to a sudden stop or move in an uncontrolled manner. Some intense EMI/RFI can even damage the control system components of a **Angel**.

### **Is there any way to know for certain whether or not radio waves are the cause of any unintended motion of my Angel?**

Unfortunately, EMI/RFI may be difficult to recognize, since the signals from radio sources are invisible and may be intermittent. However, the FDA recommends that you report all incidents of unintended motion or unintended brake release of your **Angel** to the wheelchair's manufacturer and, if possible, determine whether or not there was a radio wave source nearby at the time of the incident.

One precaution you can take against inadvertent motion of your **Angel** is to make certain that you or someone else is not the cause of the unintended motion.

- Turn off your power chair by pressing the On/Off button when you are getting on or off your power chair.
- By following these steps, you greatly reduce the risk of you or anyone else inadvertently bumping the throttle control levers and causing the standing wheelchair to move unintentionally.

# WARRANTY INFORMATION

## **Are all standing wheelchairs susceptible to EMI/ RFI?**

Each make and model of standing wheelchair differs in its ability to resist EMI/RFI. That is, each standing wheelchair has a particular level of resistance to EMI/RFI. This resistance is measured in volts per meter ( V/m ). A higher resistance level offers greater protection against EMI/RFI. In other words, a standing wheelchair with a high resistance level is less likely to be affected by a strong radio source than is a standing wheelchair with a low resistance level.

## **What is the FDA doing about the problem?**

The FDA has written to standing wheelchair manufacturer and requested that those manufactures test their new models of standing wheelchairs to be certain that they provide a reasonable degree of resistance against EMI/RFI. The FDA has stated that all newly manufactured models of standing wheelchairs should have a resistance level of at least 20 V/m. This resistance level provides a reasonable degree of protection against the common sources of EMI/RFI.

## **The FDA has also requested or recommended that:**

- Standing wheelchair manufacturers clearly label new products with that product's resistance level or state that the resistance level is not known.
- The labeling or informational material supplied with new **Angel** must explain what the resistance level means and warn users about the possibility of EMI/RFI and how to avoid it.
- Standing wheelchair manufacturers undertake an educational program to inform standing wheelchair users and their caregivers about the problems associated with EMI/RFI and about the actions they can take to minimize the risk of EMI/RFI.
- While there is no exact way to tell if your **Angel** is totally safe, an immunity level of 20 V/m is generally achievable and useful. This product has been tested and passed at an immunity level of 20 V/m. Adding accessories and components or modifying the unit may change the susceptibility to EMI/RFI.

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## **What can I do to find out if my Angel is likely to be affected by EMI/RFI?**

If you have had your **Angel** for some time and have not experienced any unintended motion, it is not likely that you will have a problem in the future. However, it is always possible that EMI problems could arise if you are close to a source of radio waves. Therefore, it is very important for you to be alert to this possibility.

## **What can I do to reduce the risk of my Angel being affected by EMI/RFI?**

Here are some precautions you can take:

- Do not turn on or use hand-held personal communications devices, such as citizen's band (CB) radios or cellular phones while your **Angel** is turned on.
- Be aware of nearby radio wave transmitters, such as radio or TV stations and hand-held or mobile two-way radios. Try not to operate your **Angel** too close to those transmitters. For example, if you are on a **Angel** with a resistance level of at least 20V/m, you should remain at least three feet from a hand-held two-way radio and at least ten feet from a mobile two-way radio.
- Be aware that adding accessories and/ or components, or modifying your **Angel** in any way, may change its EMI/RFI resistance level and may make it more susceptible to interference from radio wave sources.
- **What should I do if my power chair moves unexpectedly?**  
If unintended motion or unintended brake release occurs, turn off your **Angel** (by removing key) as soon as it is safe to do so.

# WARRANTY INFORMATION

## MAINTENANCE

### Daily Care

- Please charge after prolong driving.
- Keep your **Angel** in a dry place or put a waterproof over it to prevent moisture ingress when it is not being used.
- Please wipe your **Angel** with dry clean cloth as often as possible. Using water may damage the electronic assembly.
- Avoid using benzene, gasoline..., these would deface your **Angel**.
- Avoid keep your **Angel** exposed in the external sources of heat, e.g. sunlight; it will raise the temperature of the **Angel**.

### Monthly Maintenance

- Please check all the connectors to prevent from disconnecting.
- Check if all screws of controller, batteries and differential have been tightly screwed.
- Charge at least every month to maintain high efficiency of battery.

### Half-year Maintenance

- Check front/rear wheel bearing if there is abnormal sound in axles.
- Please check if the grip is easy to operate.
- Please check if the seat is easy to adjust.

### Annual Maintenance

- Please get your annual maintenance by the authorized Comfort provider.

### Recommended tire pressure(s) of Angel

- Front wheel : **Normal pneumatic castor**  
**40-50PSI.(Max:50PSI)2.8~3.5bar**
- Rear wheel : **Normal pneumatic tire**  
**30-36PSI.(Max:36PSI)2.1~2.5bar**

## **WARNING**

When pneumatic tyre punctures happens, please stop driving **Angel** immediately, and call your Comfort provider to help you.

### **Recycling**

If you would like to recycle the used battery or any part of the **Angel**, please connect with the Comfort provider.

## **WARRANTY**

This warranty is extended only to the original purchaser/user of our products. Your original sale receipt will be necessary as proof of purchase before any warranty service is rendered.

**PLEASE COMPLETE FILLED OUT AND RETURN YOUR COMFORT WARRANTY REGISTRATION CARD WITHIN 30 DAYS OF YOUR PURCHASE.**

**COMFORT** warrants products sold through authorized dealer/distributor only. **COMFORT** warrants your products to be free from defects in material and workmanship under normal use for the following time periods.

- Main Frame: 3 years
- Drive train : 1 year (including controller, transaxle, motor, brake)
- Charger: 1 year

### **Warranty Exclusions**

- ABS plastic shrouds and footrest covers (wear items and not warranted)  
Batteries (the battery manufacturer provides a six-month limited warranty)  
Tires and tire tubes (wear items and not warranted)  
Upholstery and seating (wear items and not warranted), labor, service calls, shipping, and other charges incurred for repair of the product
- If the original purchaser/user finds a defective frame, and or a specific part, and believe it is due to manufacture defect, that component will be repaired or replace, at **COMFORT**'s option and discretion. This warranty does not cover any labor charges including, but not limited to, charges incurred for installation of replacement parts or additional fees may be imposed by the dealer or service agent.

# WARRANTY INFORMATION

All transportation costs and shipping damage incurred while submitting parts for repair or replacement are the responsibility of the original purchaser.

- For warranty service, please contact your authorized dealer/distributor from whom you purchased your Comfort product.
- **Controller, motor, charger, transaxle (gear box) warranty void if disassembly or modify.**

## LIMITATIONS AND EXCLUSIONS

The forgoing warranty shall not apply to purchase Comfort products from unauthorized dealer/distributor, improper operation, serial number has been removed or defaced, modification through the use of unauthorized parts or attachments, accidental damage, or problem cause by neglect or misuse, damage repairs made to any components/parts without consent of **COMFORT**, or products damaged by circumstance beyond **COMFORT**'s control, and such evaluation will solely determined by **COMFORT**. The warranty shall not apply to problems arise from normal wear and tear or failure to adhere to the instructions.

The forgoing warranty shall not be applied to the following:

1. If it is not inspected regularly according to the stipulations of Comfort.
2. If it is incorrectly maintained.
3. If the **Angel** is not operated according to user's manual or exceeding the limitation or capacity stated in the user's manual (with respect to rider or weight).
4. If extra components or accessories are used or carried in conjunction.
5. If the power chair is driven in inhospitable places or under extraordinary conditions.
6. If the **Angel** is modified without Comfort's permission.
7. If it is affected by smoke, medical / chemical substances, bird droppings, salt, acid rain, flying rock and metal particles, and other external factors etc.

**If it is affected by causes such as typhoon, flood, fire and earthquake, and other natural disasters etc.**

The forgoing warranty is exclusive and in lieu of other express and implied warranties. **COMFORT** shall not be liable for any consequential or incidental damages whatsoever.

## TROUBLE SHOOTING

1. Wheelchair will not travel in a straight line or doesn't sit square on the ground  
Solution: Pump up or repair the tire. Have a technician check and if the rear wheel axle mounting, front fork mounting, etc need to be adjusted.
2. Uncomfortable in seated or standing position.  
Solution: Have a technician check and if the rear wheel axle mounting, front fork mounting, etc need to be adjusted.
3. Leg supports don't rest on the ground in the uppermost standing position.  
Solution: Caution: no guarantee of stability when standing! Imperative! Have a technician check and if the rear wheel axle mounting, front fork mounting, etc need to be adjusted.
4. Wheelchair tips over backwards too easily. Solution: Have a technician check and if the rear wheel axle mounting, front fork mounting, etc need to be adjusted. Attach anti-tip rollers (see accessories)
5. Brakes don't brake effectively.  
Solution: Have a technician check and if the brakes need to be adjusted.
6. Mechanism works only very slowly.  
Solution: Recharge batteries and have batteries replaced
7. Mechanism doesn't always function at the same speed, i.e. quicker going up or coming down.  
Solution: Check gas spring strength corresponds to user body weight. If springs need to be replaced.
8. Mechanism inoperative (neither up nor down, no perceivable motor noise)  
Solution: Connect motor lead with battery and electronic unit Connect control panel with battery and electronic unit. Recharge batteries. Have batteries replaced. Have control panel replaced. Have motor replaced. Have battery and electronic unit replaced. Have charger replaced.



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