USERS MANUAL

PF2

HEARTWAY

HEARTWAY MEDICAL PRODUCTS CO., LTD.

Part no:70030054

COMPONENTS

Your power scooter is shipped partially disassembled for protection during shipping. After unpacking, please check whether you have received the following main components as our standard specification (See Fig.1).

1. **Chassis**
2. **Seat**
3. **Front Basket**
4. **Headrest**
5. **Charger**

(Fig 1)

SAFETY INSTRUCTION

Operation of Scooter

1.Always ensure that the power is switched off when getting on or off of the scooter. This will eliminate the possibility of causing injury to yourself or others.

2.Always check that the drive wheels are engaged (drive mode) before driving.

3.Set the speed control knob according to your driving ability and the environment in which you are going to operate. We recommend that you keep your speed at the slowest position (press the deceleration button) until you are familiar with the driving characteristics of the vehicle. We also recommend that you use the slowest speed when using your power scooter indoors.

4.Always reduce your speed when making sharp turns.

5.Do not switch off the power when the scooter is still moving forward. This will bring the chair to an extremely abrupt stop.

6.Avoid jerky stop/start motions as it will result in excessive current draw from the batteries, increased tyre wear and the rapid wearing of the gear boxes and motors.

7.To brake in an emergency, simply release the forward/reverse lever.

Ramps and Curbs

8. When driving up or down ramps, be sure to check that the angle of the slope is less than 10 degrees (slopes about 1/6). Also check that ramp surface is roughened to prevent slipping. Never drive across a slope or turn sharply on a slope.
9. When driving up curbs, always check the height of the curb to ensure that it does not exceed 40mm(1-1/2") height.

Transfers, Reaching and Bending

10. Transferring on and off the PF2 requires a good sense of balance. To eliminate the possibility of injury, we recommends performing the following tasks before attempting a transfer:
    - → Position scooter so that the distance between your power scooter and the object to which you are transferring is close enough for a safe transfer.
    - → Turn the power off
    - → Ensure that your power scooter is not in freewheel mode.
    - → Flip up or remove armrests
11. When reaching, bending or leaning while seated on your power scooter, make sure that you maintain a stable center of gravity to keep the power scooter from tipping.

General

12. Always use a seat belt, and keep your feet on the scooter all the time.
13. For safety reasons, make sure that your weight does not exceed the recommended weight limit of the scooter. Consult your dealer for the specified weight limits for your particular model.
14. Do not attempt to lift or move a power scooter by any of its removable parts. Personal injury and damage to the power scooter may result.
15. Never try to use your scooter beyond its limitations as described in this manual.
16. Do not operate your vehicle if it is not functioning properly.
17. Do not connect any electrical or mechanical device to the scooter. Failure to obey this instruction may result in injury and will void the warranty.
18. Never use electronic radio transmitters such as CB, walkie-talkies, portable computers or cellular phones while using the vehicle without first turning the vehicle off.

Use While Under The Influence Of Medication Or Alcohol

19. Check with your physician if you are taking any medication that may affect your ability to operate your power scooter safely.
20. Do not operate your vehicle while you are under the influence of alcohol, as this may impair your ability to operate your power scooter in a safe manner.

Electromagnetic interference (EMI) from Radio Wave Sources

The rapid development of electronics, especially in the area of communications, has saturated our environment with electromagnetic(EM) radio waves that are emitted by television, radio and communication signals. These EM wave 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). The 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 scooters like the PF-1/2. Power wheelchairs and motorized scooters (in this section, both will be referred to as powered wheelchairs) may as susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy emitted from sources such as radio stations, TV stations, amateur radio (HAN) transmitter, 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 scooter's control system. The intensity of the EM energy can be measured in volts per meter(V/m).Each powered scooter can resist EMI up to a certain intensity. This is called "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 scooter 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 scooter 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 scooter off as soon as it is safe.

4.Be aware that adding accessories or components, or modifying the powered scooter, may make it more susceptible to interference from radio wave sources (Note: It is difficult to evaluate the effect on the overall immunity of the powered scooter).

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

TURN OFF YOUR POWERED SCOOTER AS SOON AS POSSIBLE WHEN EXPERIENCING THE FOLLOWING:

- Unintentional scooter movements
- Unintended or uncontrollable direction.
- Unexpected brake release

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

ENVIRONMENTAL CONDITIONS

Environmental conditions may affect the safety and performance of your power scooter. Water and extreme temperatures are the main elements that can cause damage and affect performance.

A) Rain, Sleet and Snow

If exposed to water, your power scooter 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 power scooter are susceptible to change in temperature. The controller can only operate in temperature that ranges between 18°F(-8°C) and 122°F(50°C).

At extreme low temperatures, the batteries may freeze, and your power scooter may not be able to operate. In extreme high temperatures, it may operate at slower speeds due to a safety feature of the controller that prevents damage to the motors and other electrical components.

ASSEMBLY INSTRUCTION

It is very easy to assemble your PF2 scooter. Please follow the procedure below.

1. Tiller Positioning (#1)

   Press down the lever, fold the tiller up to vertical position and let it lock into your preferred position. (See Fig 2)

(Fig 2)

2. Installing the Seat (#2) and Backrest

Note: If the batteries are already installed, proceed with step, otherwise go to No.6 first.

Put the seat (#2) axle into the seat post and let it lock automatically.(See Fig 3)

Turn the armrest adjust lever to up position and adjust the armrest to horizontal position.(Both right and left armrest)(See Fig 4).

(Fig 3) Seat Post

(Fig 4)

Note: If your seat stays in folding position , you can use seat folding lever to position the seat to correct angle.(See Fig 5)

3.Installing the Headrest (#4)

Slide the headrest (#4) into the backrest and make sure it fits tightly. (See Fig 6)

Seat Folding Lever (Fig 5)

(Fig 6)

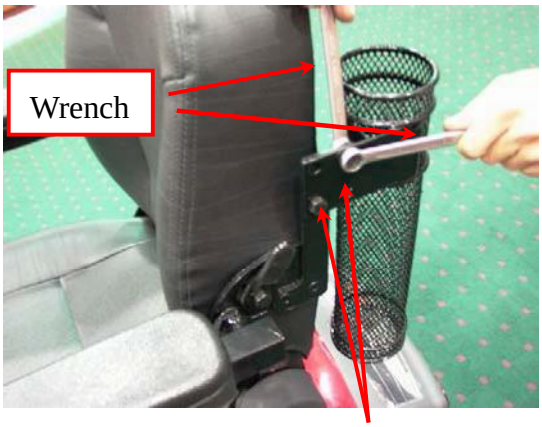
4.Installing the Front Basket (#3)

Install the front basket onto the front basket bracket. You need to make sure the bracket hooks into the grooves of basket. (See Fig 7)

5. Installing the Cane Holder (#5)

Put the bracket of cane holder (#5) to connect the backrest and tighten the 2 bolts with #13 wrench in two correct positions.(See Fig 8)

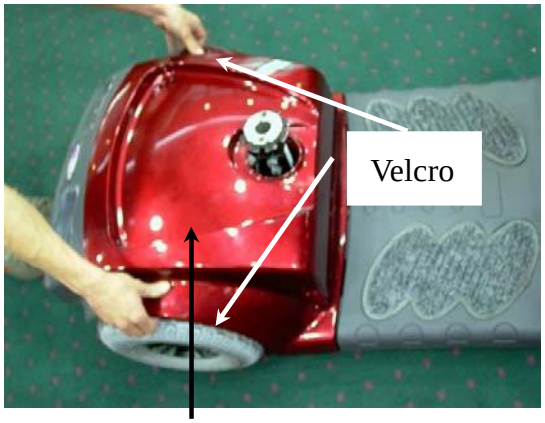
Front Basket Bracket (Fig 7)



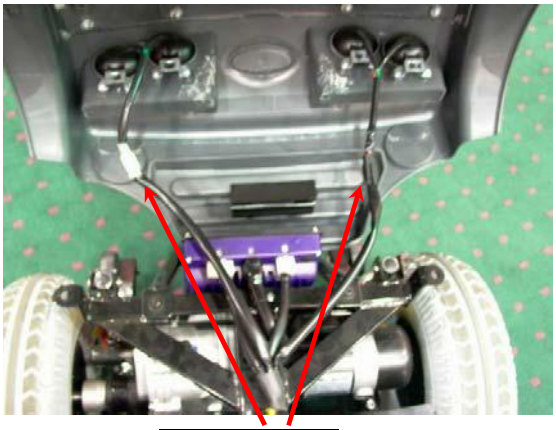
(Fig 8) 2 bolts positions

6. Installing the Batteries (you can omit this step if your scooter is assembled with the batteries)

Lift off the shroud from the base frame slightly (See Fig 9). The shroud is attached by velcro and lifts off simply. Disconnect the cable connectors to totally separate the shroud from the base frame to avoid scratching when assembling the batteries. (See Fig 10). Connect each battery harness ring terminal to the battery terminal posts, observing battery positive and negative coding. Red is positive, black is negative. (See Fig 11)

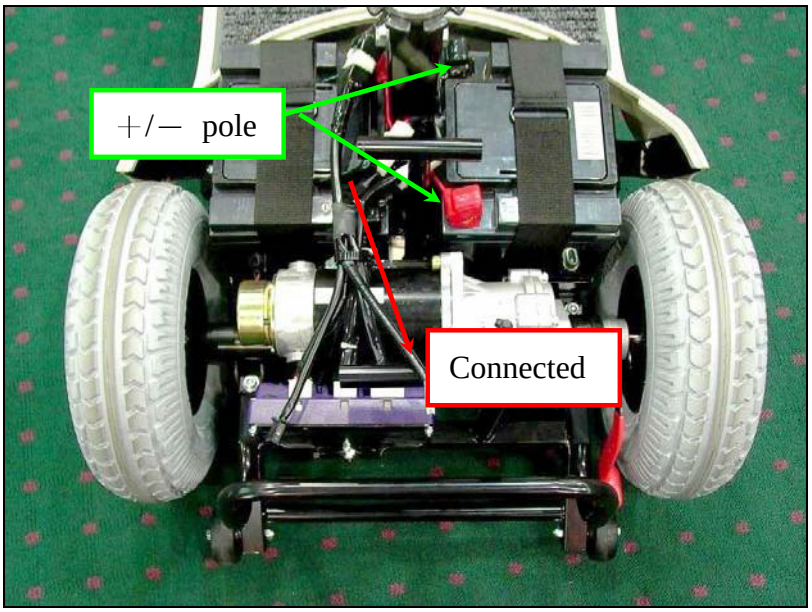


Shroud (Fig 9)



Disconnect (Fig 10)

Note: There is a battery circuit diagram labeled on the backside of the shroud. Please refer this diagram before you assemble the battery.



(Fig 11)

ADJUSTMENTS FOR SEATING CONFORT

To maximize seating comfort, your power scooter lets you adjust:

→Tiller angle

→Armrest position

→Seat rotation and position

→Backrest angle

→Headrest height

A. Tiller Angle Adjustment

→ press down the lever

→ fold the tiller up or down to your desired angle

→ let the lever lock into the corresponding notch,(See Fig 12)

(Fig 12)

B. Armrest Position Adjustment

→ press down the armrest adjust lever to the end position

→ lift the armrest up (See Fig 13)

Note: You can do right and left armrest both sides. (See Fig 14)

(Fig 13)

(Fig 14)

C. Seat Rotation and Position Adjustment

C-1: Seat Rotation Adjustment

→ press down the seat rotation lever

→ rotate your seat by clockwise or counter-clockwise direction. (See Fig 15)

→ let the lever lock into the corresponding notch.

Note: There is a lock in 90° position whenever you turn by clockwise or counter-clockwise direction.

C-2: Seat Position Adjustment

→ lift up the seat position lever

→ slide your seat backward or forward to your desired position

→ let the lever lock into your preferred position. (See Fig 16)

Note: The distance of adjustment from backward to forward is 150mm.

(Fig 15)

(Fig 16)

D. Backrest Angle Adjustment

→ lift up the lever located at the left side of the seat

→ adjust the backrest position to your desired angle

Note: There are 5 different angles ranges to choose from. You can adjust the backrest to fit what is the most comfortable for you, from 105° to 135°. (See Fig 17)

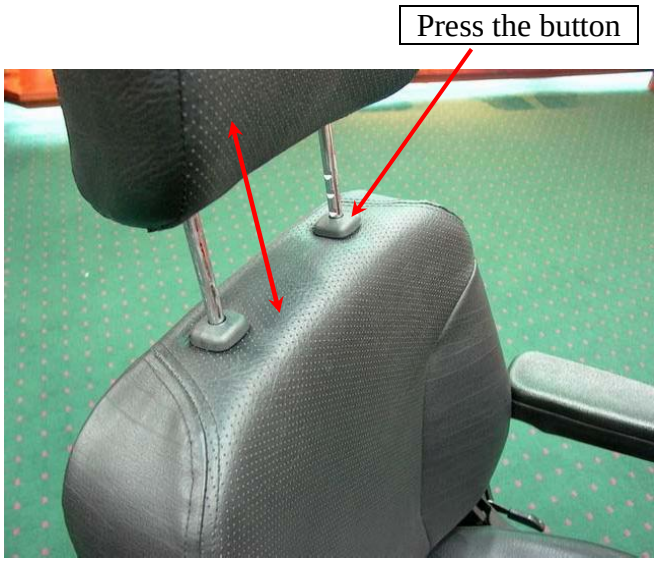
(Fig 17)

E. Headrest Height Adjustment

→ press the button and lift up or down the headrest to your desired position

→ let the button lock into the corresponding notch. (See Fig 18)

Note: There are 4 different positions to adjust your headrest height.



(Fig 18)

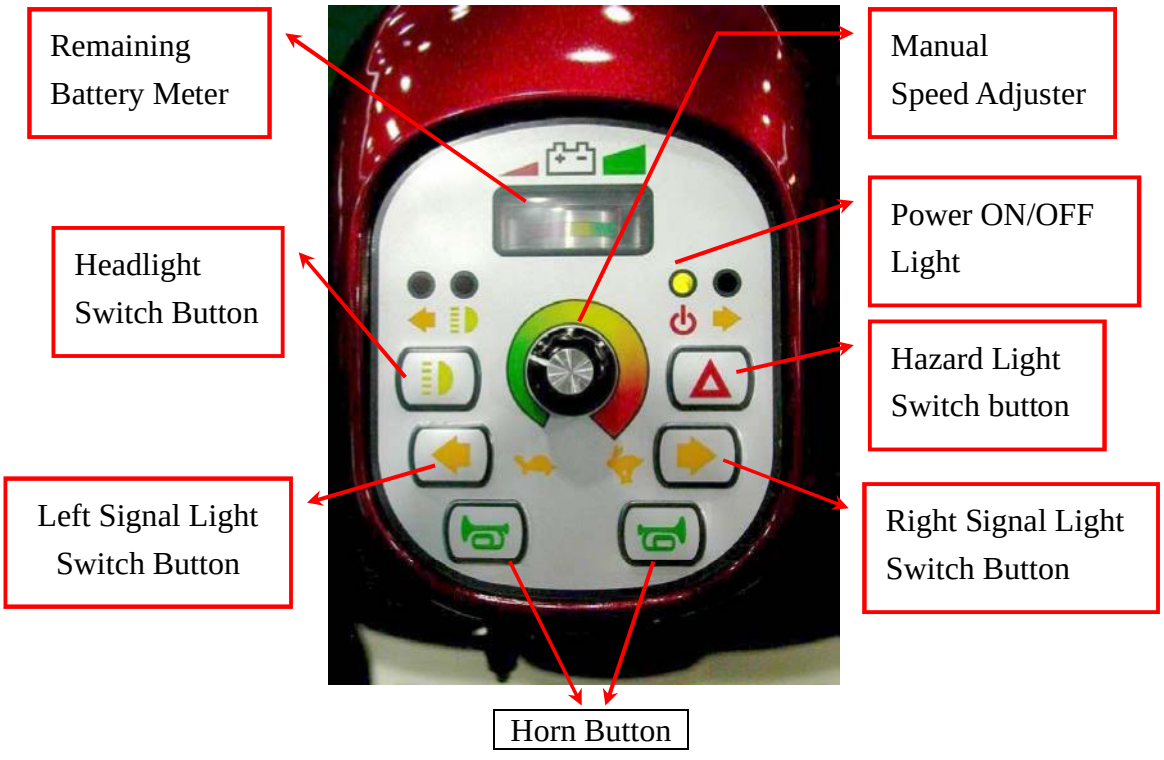
OPERATION

The power scooter is simple to operate. However , we recommend that you read carefully the following instructions to become 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 steps are required to operate your vehicle safely with the controller (See Fig 19).



(Fig 19)

Button functions

1. Remaining Battery Meter: When your scooter is switched on, the needle on the meter will move across the scale from the left 'red' sector towards the 'green' sector, indicating the state of charge in your batteries. As the power is used up in your batteries, the needle will move towards the 'red' sector indicating the state of charge at that precise time. When the needle is fully over to the right, the batteries are fully charged. When the needle falls towards the red sector, your batteries are losing power, but you will still have power to spare. When the needle falls into the red sector, your batteries are low in power and need to be recharged. It is wise to

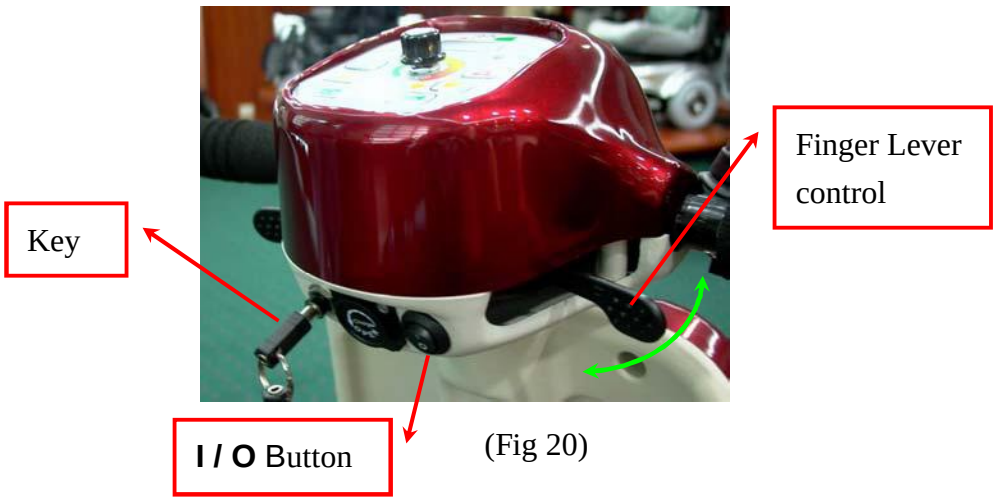
recharge your batteries when the needle enters the red zone (see Batteries and Battery Charging section of this manual).

2. Manual Speed Adjuster: This allows you to pre-select your desired speed. The adjuster is proportional to speed and can be set anywhere between green for low speed to red for high speed. Turn the adjuster knob counter-clockwise to minimum for a very gentle operation, and clockwise towards maximum to increase your speed.
3. Power ON/OFF Light: The light will turn on if you insert the key. The light will turn off if you take out the key.
4. Headlight Switch Button: Press once to turn on the headlight. Press again to turn the headlight off.
5. Hazard Lights Switch Button: Press once to turn hazard lights on, Both right / left front and back signal lights will flash and horn will beep once per second, press again to turn hazard lights off.
6. Left Signal Lights Switch Button: Press once to turn left signal lights on. (Both left front and back signal lights will flash and horn will beep once per second, press again to turn left signal lights off.)
7. Right Signal Lights Switch Button: Press once to turn right signal lights on. (Both right front and back signal lights will flash, and horn will beep once per second, press again to turn right signal light off.)
8. Horn button: Press this button to sound the horn.(Easy operation for left hand or right hand)

A. Driving:

1. Controller ON/OFF Switch

Insert the key to power on the scooter (Remove the key to power off). (See Fig 20)
Swing the finger lever control forward or backward to control the driving direction of the vehicle (The finger lever control is located at both sides of the controller -See Fig 20).



(Fig 20)

Returning of the finger lever control to its neutral position,(center), will reduce the speed and stop the vehicle by automatically applying the electromagnetic brakes.

2.Speed Control

1. Press "**I / O** " button (H/L gear mode): Automatically change H gear to L gear or from L to H gear. (Press O on H gear, press **I** on L gear)
2. Turn the speed adjuster knob clockwise towards maximum to increase your speed, and counter-clockwise toward minimum to slow down your speed.

3.Finger Lever Control

The finger lever control can control the speed of your vehicle, The farther away (forward / backward) the finger lever control is from the neutral position, the faster the vehicle will go.

Notes:

→After inserting the key into controller ON/OFF port, the light of power ON/OFF will turn on for a few seconds during self-checking process.

→When the vehicle is in operation, the surface of the charger will become slightly warm.

→In case of emergency, let go of the finger lever control and the vehicle will come to a stop.

B. Controller Display

The controller display is a multifunction visual display. It can provide a lot of information about the scooter. (Shown as Fig 19)

When the needle falls into the red sector, your batteries are low in power and need to be recharged. It is important to recharge your batteries when the needle enters the red zone. The battery indication meter needle only goes lower when using the battery, regardless of the battery voltage. The battery indication meter needle only goes higher when recharging battery.

System will power off when the battery voltage is lower than 21.0V.

System will lock when the vehicle is not in use over 30 minutes. You need to remove the key and reinsert the key to restart the scooter.

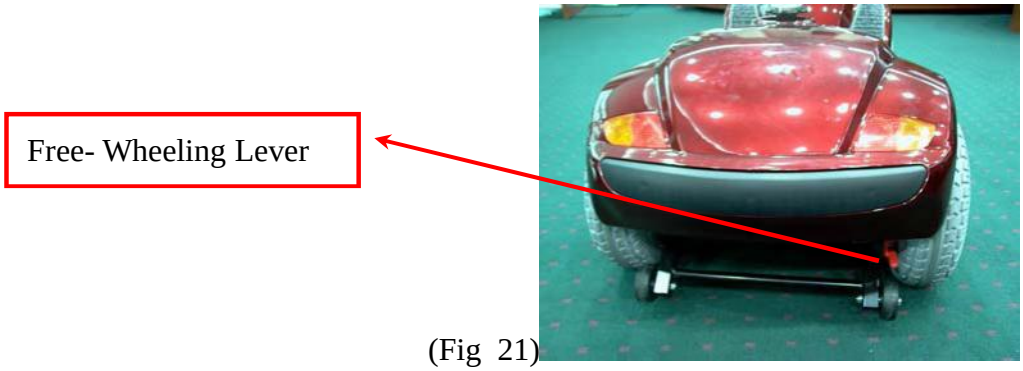
C. Free-Wheeling:

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 adjusting the free-wheeling levers to the free-wheeling position.(See Fig 21)

Warning !→Never free-wheel your power scooter on a slope.

→Never free-wheel the motors while operating your vehicle.

→Always remember to engage the motors before turning the power ON.



(Fig 21)

D. Electromagnetic Brakes:

Your power scooter comes with Electromagnetic Brakes., i.e. an automatic magnetic disc safety brake which is also known as Fail-Safe brake. The electro-magnetic Brakes are automatic and work when the power scooter is ON but in a steady state (i.e. Wigwag is released to the neutral position), even when the scooter is on a slope. The Electromagnetic Brakes will also be set whenever the power scooter is OFF, but the motor levers are in the engaged (vertical) position.

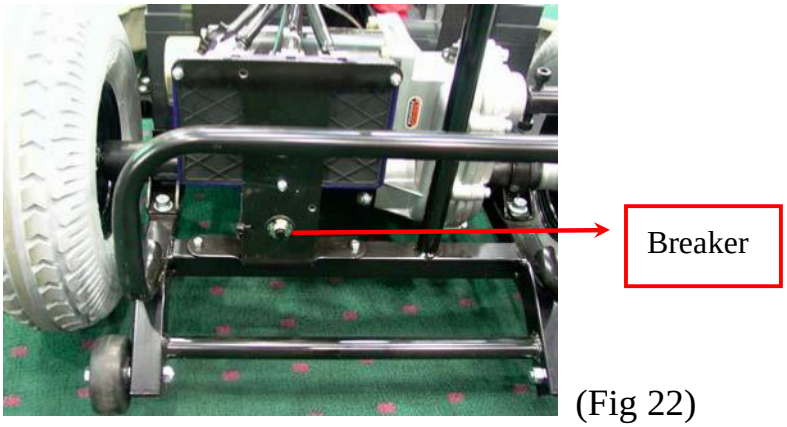
Note: Please refer to the section titled to check brakes in the Maintenance & Repair section in page 21 to make sure brakes are in good condition.

E. Thermal Protection:

Your power scooter 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 reduce the speed of your power scooter to allow the electrical components to cool down. Although your power scooter will resume its normal speed when the temperature returns to a safe level, we recommend that you turn the power off and wait for 5 minutes before restarting to allow the components to cool down if you find that you have lost speed suddenly.

F. Main Circuit Breaker:

The main circuit breaker reset button is located in the rear of the base frame after removing the shroud.(See Fig 22)



(Fig 22)

The main circuit breaker monitors the electric current drawn from the battery. It is a safety feature built in your power scooter for your extra safety. When the batteries and motors are heavily strained (e.g., from excessive loads),the main circuit breaker will trip to prevent damage to the motor and the electronics. If the circuit breaker trips, turn off the scooter, wait for approximately one minute and then depress the button to reset it. Then turn on the scooter, and continue normal operation. If the main circuit breaker continues to trip repeatedly, this could indicate another problem and you should promptly contact your authorized dealer.

BATTERIES & CHARGER

BATTERY

We recommend that you use deep-cycle batteries that are sealed and maintenance free for your power scooter. Both sealed lead-acid (SLA) and gel cell are deep-cycle batteries and are similar in performance. Deep-cycle batteries are specifically designed to provide power, drain down, and then accept a relatively quick recharge. Lead-acid batteries should be charged as often as possible.

Specification of the battery that we recommend: for PF2 is

Type:	Deep –cycle sealed lead-acid or gel cell
Size:	U-1
Voltage:	12V each
Amp Hours:	34 amp hours

Depending on the use, terrain and driving conditions, the batteries will provide a range of 22 miles of travel. However, even if the power scooter is not in use, we recommend that the batteries are charged periodically.

Note:

→Do not use any automotive batteries. They are not designed to handle a long, deep discharge and also are unsafe for use in power scooter.

→The useful life of a battery is quite often a reflection of the care it receives.

CHARGER

The battery charger takes the standard wall outlet voltage (alternating current)and converts it into VDC (direct current).The batteries use direct current to run your power scooter. When the batteries are fully charged, the amperage from the charger is almost at zero. This is how the charger maintains a charge but does not overcharge the battery.

Note: The batteries cannot be charged if they were discharged to nearly zero voltage.

CHARGING INSTRUCTIONS

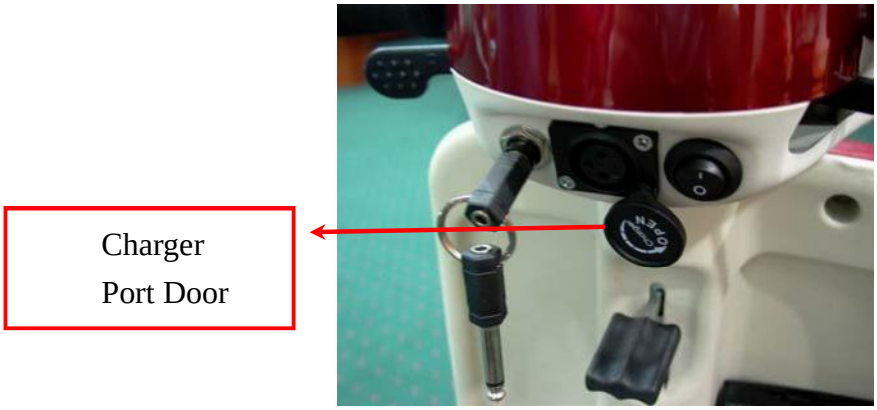
To recharge the batteries, follow the steps below:

→Place your power scooter close to a standard electrical wall outlet.

→Remove your key to turn the power OFF

→Slide the charger port door open.(The direction of opening charger port door is referred to on the printing on the plastic cover- See Fig 23)

→Plug the XLR connector of the charger to the charger port.(See Fig 24)
→Plug the other end of power cord into a standard wall outlet.
→When charging is completed, battery capacity indicator is shown.
→Disconnect the charger power cord from the wall outlet when the batteries are fully charged.



(Fig 23)

Important!

Make sure voltage input is correctly selected for your location (110V or 220V) and adjust manually. (See Fig 25)


plug-in controller plug-in wall outlet
(Fig 24)

(Fig 25)

*. Recharge battery only when the key is in off position. When indicator is showing low status, this confirms battery needs recharge.

Note:

→Always charge your batteries in well ventilated areas.
→The charger is intended for indoor use only. Protect from moisture.
→For maximum performance , it is recommended that you replace both batteries at the same time if the batteries are weak.
→If the vehicle will not be used for a long period of time, arrange to have the batteries recharged at least once every month to avoid deterioration of the batteries..

According to the battery type and condition of the batteries, they usually can be fully charged in 4-10 hours. This will be indicated when the status light in the battery charger side panel turns green. Charging the battery longer than ecessary will not harm the battery. We recommend that you charge the batteries for 8 to 10 hours after daily use. Do not charge the batteries for more than 24 hours.

MAINTENANCE & REPAIR

Your power scooter is designed for minimal maintenance. However, like any motorized vehicle, it requires routine maintenance.

To keep your PF2 for years of trouble-free operation, we recommend the following maintenance checks as scheduled.

DAILY CHECKS

1. Visual check on the conditions of tyres.
2. Inspect the battery condition meter on the controller to determine if batteries need to be charged.

WEEKLY CHECKS

1. Your power scooter comes with standard pneumatic tyres. If your power scooter comes with optional air tires, make sure to maintain the pressure of the tires between 30-35 psi.(Kpa unit)
2. Check the brakes. This test should be carried out on a level surface with at least three feet of clearance around your power scooter.

To check the brakes (your power scooter may move slightly when performing this test):

→Turn on the controller and turn down the speed and response adjustment knob.

→After one second, check that the battery condition meter remains on condition.

→Slowly push the finger lever control forward until you hear the fail safe brakes click. Immediately release the finger lever control. You will be able to hear each fail safe brake operates within a few seconds of lever release.

→Repeat this test of the brake for reversing positions.

MONTHLY CHECKS

1.Visually inspect the controller harnesses. Make sure that they are not frayed, cut or have any exposed wires.

SEMI-ANNUAL CHECKS

1. Check the motor brushes. We recommend that your authorized dealer inspect the brushes every six months, or sooner if your power scooter is not operating smoothly. If inspection determines excessive wear on the brushes, they must be replaced or motor damage will result.

Warning! Failure to maintain the brushes could void the power scooter warranty.

To inspect or replace the motor brushes:

1.Unscrew the motor brush caps. (See Fig 26)

2.Remove the brushes.

3.Inspect the brushes for wear . (See Fig 27)

4.Replace the brushes if necessary.

New Motor Brush Worn Motor Brush

(Fig 26)

Motor Brush caps

(Fig 27)

2. Inspect the state of the battery terminals every six months. Make sure that they are not corroded and the connections are tight. Periodically apply a thin film of petroleum jelly on the surface of terminals to guard against corrosion.

PERIODICAL CHECKS

1. Make sure to keep the controller clean while protecting it from rain or water. Never hose off your power scooter or place it in direct contact with water.
2. Keep wheels free from lint, hair, sand and carpet fibers.
3. Visually inspect the tyre tread. If less than 1mm, please have your tyres replaced by your local dealer.
4. All upholstery can be washed with warm water and mild soap. Occasionally check the seat and back for sagging, cuts, tears and replace if necessary. Do not store your scooter in damp or humid conditions as this will lead to mildew and rapid deterioration of the upholstery parts.
5. All moving mechanism will benefit from simple lubrication and inspection. Lubricate using petroleum jelly or light oil. Do not use too much oil, otherwise small drips could stain and damage carpets and furnishings etc. Always perform a general inspection of the tightness of all nuts and bolts.
6. RHINO controller: Your scooter is fitted with a Rhino controller, which continuously monitors the operating conditions of your scooter. If it detects a problem it will indicate with error message by flashing light on the power ON/ OFF light. You must count the number of the flash, and see the list to check what kind of error has happened according to the number)

Number of Flashes	Fault	Impact on Scooter	Notes
1	Battery needs recharging	Will drive	Battery charge is running low. Recharge the batteries as soon as possible.

2	Battery voltage too low	Drive inhibited	Battery charge is empty. Recharge the batteries. If the scooter is left off for a few minutes, battery charge may recover sufficiently to allow driving for a short period of time.
3	Battery voltage too high	Drive inhibited	Battery charge is too high. If a charger is plugged in, unplug it or turn the Charge/Run switch to Run. Scooters powered by RHINO will charge the batteries when traveling down slopes or decelerating. Excessive charging in this manner may cause this fault. Turn the scooter power off and then back on again.
4	Current limit time out	Drive inhibited	The scooter has drawn too much current for too long, possibly because the motor has been over worked, jammed or stalled. Turn the scooter power off, leave for a few minutes, and then turn the power back on again. The controller has detected a shorted motor. Check the loom for shorts and check the motor. Contact your service agent.
5	Brake fault	Drive inhibited	Check that the park brake release lever is in the engaged position . The park brake coil or wiring is faulty. Check the park brake and wiring for open or short circuits. Contact your service agent.
6	Out of Neutral at Power Up	Drive inhibited	Throttle is not in neutral position when tuning switch key on. Return throttle to neutral, turn power off and back on again. Throttle may need to be re-calibrated Check throttle wiring.
7	Speed Pot Error	Drive inhibited	The throttle or its wiring is faulty. Check for open or short circuits. Throttle may not be correctly set up. Contact your service agent.
8	Motor Volts Error	Drive inhibited	The motor or its wiring is faulty. Check for open or short circuits. Contact your service agent.
9	Other Internal Errors	Drive inhibited	Contact your service agent.

Note:

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

The following symptoms could indicate serious problems with your power scooter. Contact your local dealer if any of the following arises:

1. Motor noise
2. Frayed harnesses
3. Cracked or broken connectors
4. Uneven wear on any of tyres
5. Jerky motion
6. Pulling to one side
7. Bent or broken wheel assemblies
8. Does not power up
9. Powers up, but does not move