

KYMCO Healthcare Limited



VIVIO

Folding Powered Wheelchair User Manual

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1. Introduction

Dear User:

Thank you for purchasing your new KYMCO Healthcare VIVIO Powered Wheelchair.

The VIVIO Powerchair is manufactured with cutting edge technology. Please note that this product requires routine maintenance to keep its performance and safety. This manual contains the key information regarding the correct operation, maintenance, and adjustment of your powerchair which are essential for safe and comfortable use. It is recommended that you read this manual carefully as inappropriate handling may lead to injuries or accidental damage.

※ The descriptions regarding the appearance and use are helpful for preventing possible accidents.

※ This manual is accompanied with a product warranty, which should be kept in a safe place.

2. Notice for Driving Safety

2.1 Before Driving

Before driving users should be familiar with correct usage and operation, and respect the safety of operation.

- **The traffic rules of this Powerchair are the same as those applied for pedestrians.**

Note:

- For your safety, please respect the traffic rules for pedestrians.
- This Powered wheelchair is to be used on pathways, walkways, parks etc but the speed should be limited.
- Follow the indicated direction of the road when the wheelchair proceeds to the end of paths.
- The Powerchair should be carefully handled when traveling through busy roads or business areas.
- Do not use the Powerchair if you are under the influence of alcohol or if you are tired.
- We do not recommend the use of your VIVIO Powerchair in the evening or at night.
- Please follow the traffic signs for pedestrians

- **Practice Using Your New VIVIO Powerchair**

Note:

- While becoming familiar with your Powerchair, try practicing in wide-open areas such as parks and sports fields. Practice should be started from easy tasks, for example, acceleration, deceleration, braking, turning, going backward and going up and downward slopes (observe safe incline for driving).

Note:

- The speed switch should be turned to the range specified. At the beginning of practicing, the switch should be adjusted to "minimum speed".
- For your first drive, you should be accompanied by someone to take care of your safety.
- A higher speed can be selected when you feel confident for safe use of your Powerchair.

- **The VIVIO Powerchair is to be used by a single user only.**

Note:

- Never carry another person (including children) with you on your Powerchair.

- **Do not carry or drag goods with your Powerchair**

※ The maximum load for your Powerchair is 115 kg (goods included) - see specification table

2.2 When Driving

- **Perform daily examinations (refer to 2.5 "daily examinations" for details)**
- **Do not move any body part out of the Powerchair**

Note:

- Moving body parts outside the Powerchair may cause it to lose balance, which may lead to injuries or even falling.
- Avoid getting clothes trapped in the wheels.

- **When proceeding to an intersection or railroad crossing**

Note:

- Before crossing an intersection, please ensure your own safety, avoid getting the wheel into the rail gaps, and respect traffic rules!

- **Do not use Your VIVIO Powerchair under the following environments**

1. Ensure your own safety by staying away from busy, muddy, rocky, narrow roads and paths beside canals or fairways or those without fences or barriers
2. Do not use the Powerchair at night or on rainy, foggy, or excessively windy days.
3. Avoid making make S-shape turns or sudden U-turns.
4. Do not take automatic escalators when using this Powerchair.

- **About mobile phones and other electric devices**

1. Do not use mobile phones or other radio communication equipment when using your Powerchair.
2. Do not charge mobile phones or other electric wares with the battery system.

- **Going up or down a slope**

1. Do not climb onto precipitous slopes.
2. When driving on reasonable slopes, drive slowly and turn down the speed switch to a "minimum".
3. Keep speed slow when going downwards on a slope.

Note:

- Never disengage the drive levers or to neutral while going upward or downward on a slope
- To ensure safety, the magnetic brake will cause the Powerchair to stop when it is used to go downward on a slope.
- To avoid damage of the controller and braking system , never turn the power switch off when going downward on a slope.

2.3 Loading Limitation for Safety

● Maximum loading

See specification table for maximum loading

- ※ A load exceeding the stated limitation may cause damage or failure of your Powerchair which can be a safety concern.



2.4 Information regarding electromagnetic safety

1. Do not use personal communication devices such as mobile phones or stock devices. Turn off the Powerchair when these electromagnetic sources transmit.
2. Keep away from electromagnetic waves from TV or radio broadcasters.
3. To ensure safety, turn off the power when there are problematic functions or any suspected failure.
4. Unpredictable failure of the Powerchair could happen if non-original components are used.
5. Contact your approved Kymco dealer in the rare occasion of malfunction or any abnormal operation.

Note:

- The radio waves from radio / TV broadcasters and personal mobile communication devices may affect the normal operation of your Powerchair. Follow all safety notices to reduce the risk of abnormal conditions and to maintain the normal operation of Powerchair.
- To avoid damage to you Powerchair, do not lean on or pull up the joystick controls.

Note:

The normal operation of the Powerchair could be affected by radio waves from radio / TV broadcasters and personal wireless communication devices. To reduce the risk of abnormal operation and brake failure, the following should be respected:

1. Do not use personal wireless communication devices (e.g. mobile phones) after turning on the power.
2. Avoid using the Powerchair at the source of radio waves such as radio/TV broadcasters and radio stations.
3. Turn off the power if it is safe to do so when there is abnormal operation or brake failure.
4. Do not use non-original components because the radio wave generated by such components could cause unpredictable effects to the Powerchair (Note: it is not possible to determine the effect of radio wave on powered vehicles).
5. Vehicles experiencing abnormal conditions under normal operation should be sent to the KYMCO Healthcare approved Dealer for maintenance.

2.5 Daily Examination

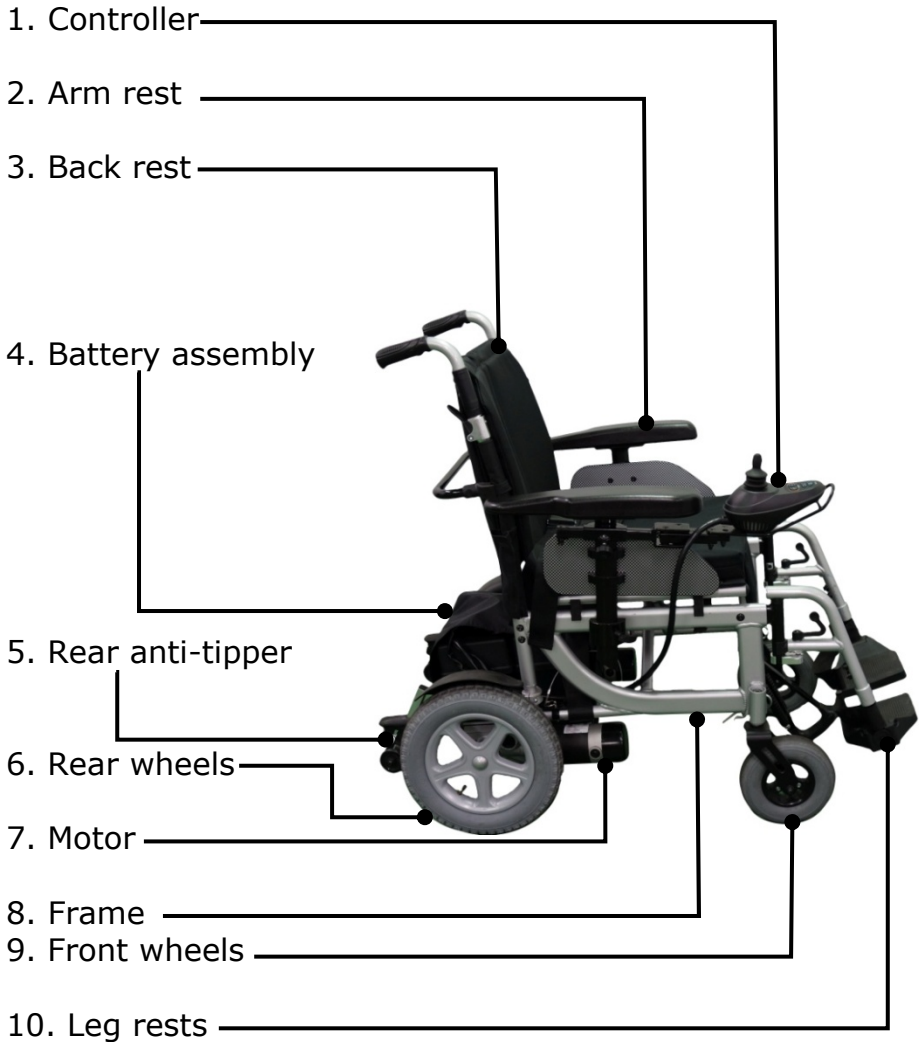
Examine the following items before driving. Ask for further examinations from your Dealer or partners before use if you find any abnormal functioning:

Joystick	<ul style="list-style-type: none">※ Is there any loosening?※ Can it be turned forward, backward, leftward or right?※ Does Powerchair move forward when the joystick is pushed forward?※ Does the Powerchair move backward when the joystick is pulled backward?※ Does the Powerchair stop safely when the joystick is released?
Speed switch button	<ul style="list-style-type: none">※ Does it function well and allow adjustment freely?
Motor	<ul style="list-style-type: none">※ Are there abnormal motor sounds?※ Does the motor drive smoothly?
Power gauge	<ul style="list-style-type: none">※ Does the power gauge light up when the power is turned on?※ Is there sufficient battery power for your journey?
Horn	<ul style="list-style-type: none">※ Does the horn work correctly?
Seat	<ul style="list-style-type: none">※ Is the seat well-locked and secure?
Tire	<ul style="list-style-type: none">※ Are there any breakages or other damage to the tires?※ Check the depth of the tread patterns
Other	<ul style="list-style-type: none">※ Are there abnormal sounds?

Note:

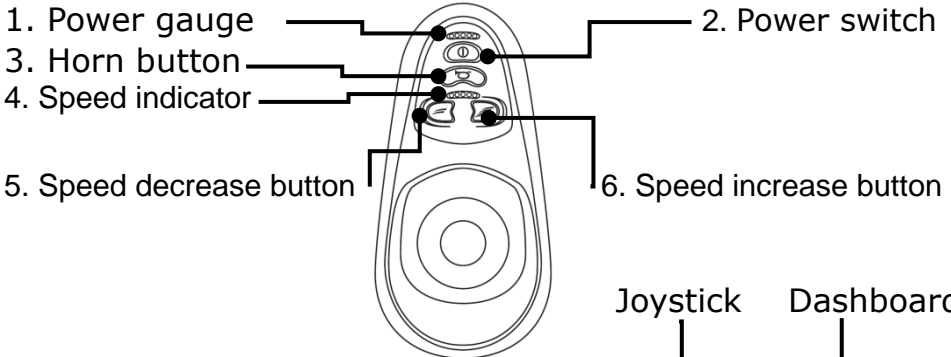
Visit your KYMCO Healthcare approved Dealer for examinations and maintenance if you spot any problem. They are qualified to check your Powerchair.

3. Introduction of Components



4. Operation

4.1 Dashboard




4.2 How to Use Kymco EWC


- **Power Switch**

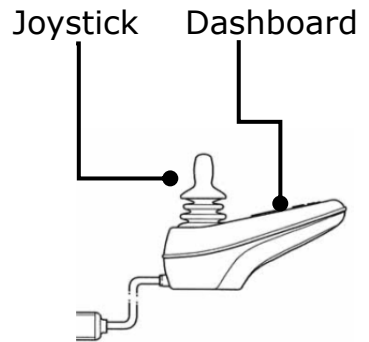
Press the button once and the power gauge lights up (power turned on).

Press the button again and the power gauge goes out (power turned off).

- **Speed Switches**

 : Speed decrease button (the speed gauge is reduced by one level when this button is pressed once)

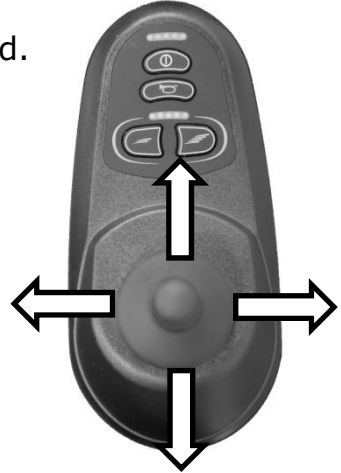
 : Speed increase button (the speed gauge is increased by one level when this button is pressed once)



4.3 How to use the Joystick, Horn, Brake, Battery Overload Protector, Rear Anti-Tippers, Arm Rests and Controller

• Operation

1. Forward: push the joystick forward.
2. Backward: pull the joystick backward.
3. Turning left: push the joystick leftward.
4. Turning right: push the joystick rightward.
5. The electromagnetic brake takes effect and causes the vehicle to stop when the joystick is released from any of four directions it was turned (i.e. forward, backward, leftward, rightward).



• Horn Button

The horn makes sound when this button is pressed and the horn is silenced when the button is released.

• Brake

The electromagnetic brake works like a handbrake and takes effect and causes Powerchair to remain stopped when the joystick is kept at neutral position.

● Battery Overload Protector

1. A wheelchair uses two batteries connected in series (see Figure 1).
2. If the wheelchair is overloaded, the overload protector (100A) is popped out. Press the protector back to turn on the wheelchair again (see Figure 2).
3. Turn off the Powerchair before recharging

Overload protector

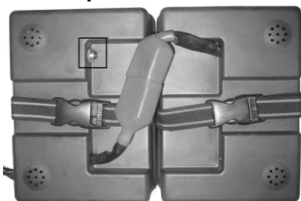


Figure 1



Figure 2

● Rear Anti-Tippers

This is for your safety when driving on an incline and is to help prevent the Powerchair from tipping over. The length of the Anti-Tipper is adjustable.

(Never exceed the safe incline stated in this manual)

1. Lift the bar lock (see Figure 2)
2. Lift the bar lock to adjust bar length (see Figure 3)



Figure 1

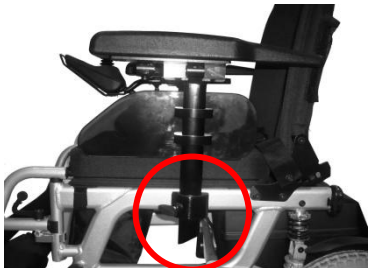


Figure 2



Figure 3

- **Arm Rest**



The height of the armrest can be adjusted when the flat head handle screw is unscrewed.

Flat head handle screw

Note:

● Unscrew the flat head handle screw to a degree that allows the armrest to be adjusted easily. Do not put too much force onto the screw or the plastic coat may be squeezed out.

- **Controller position Bar**



The controller e bar can be installed on either left or right arm rest - unscrew the flat head screw and move it forward or backward to match your need.

Flat head handle screw

4.4 Turning on Driving

1. To maintain safety on your Powerchair, the control joystick should be adjusted to suit your most comfortable driving position.
2. If you are concerned with the remaining electricity available in the battery, check the power gauge and see if the power gauge is full.
3. Set a proper speed with the speed switch.
4. Move the vehicle forward, backward, leftward or rightward with normal operation of the joystick.
5. Check if the electromagnetic brakes work as intended.
6. Before driving on the road, check the safety of the surroundings and confirm that the safety belt is used properly.

(Correctly insert the tongue into the buckle as shown)

Note:

Properly use
the safety
belt when
driving



Note:

- Do not turn off the power during driving because it is similar to the effect of an electromagnetic brake and may be dangerous.
- Do not place electric communication devices at the side of the joystick, as this may be dangerous.
- Drive carefully in busy traffic and crowded areas.
- Pay attention to any object or person around the vehicle when moving and reversing.



Note:

When the lever is turned to this position the Powerchair can be moved manually by pushing.

Note:

When the lever is turned to this position, the Powerchair is locked into drive and can be operated electrically but not manually.



4.5 Dismantling for Transportation

- Disassembling: disassemble the device in the order shown in the figures
 1. Remove the battery binder (see Figure 1)
 2. Remove battery contacts and left/right motor contacts (see Figure 2)
 3. Remove battery (see Figure 3)
 4. Remove battery holder latch (see Figure 4)
 5. Remove battery holder
 6. Remove rear auxiliary handle (see Figure 5)
 7. Remove Kerb-Rider if fitted (see Figure 6)
 8. Remove the cushion and the velcro of back rest (Figure 7)
 9. Retract leg rests to the sides
 10. Pull and fold up the seat base (see Figure 8)
- Assemble: assemble the components in reverse order of disassembling. Connect the battery and main cables, and check that the cables are well-connected, as shown in the figure.



Figure 1



Figure 2

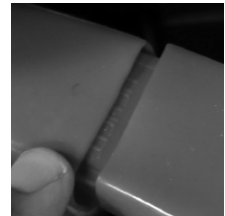


Figure 2



Figure 3



Figure 4

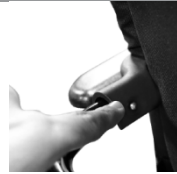


Figure 5



Figure 6



Figure 7



Figure 8

Note:

- Turn off the power before disassembling and assembling.
- The vehicle can be turned on and driven on the road only when the cables and components are assembled properly.
- To avoid hands being caught , keep hands away when disassembling and assembling.

● Parking

1. Release the joystick to allow the Powerchair to slow down and stop
2. Turn off the power

Note:

- The parking distance varies with the speed of moving forward or backward, so the brake should be actuated automatically.
- Park on a flat surface and turn off the power before getting off the vehicle.

4.6 VIVIO Transportation & Securing Points

The VIVIO powerchair has provision for 4 tie-down points in the main frame for securing it during transportation in motor vehicles. Even though the VIVIO has passed the Crash Test to ISO 7176 part 19, we recommend that the user does not occupy the powerchair during transportation, if possible. The tie-down points are clearly labeled for identification:



Front tie-down points



Note: always fit the kerb-climber for tie-down transportation!

Guide for securing the VIVIO using the provided 4 tie-down points:

- Ensure the powerchair is facing in a forward direction in the motor vehicle.

- Only secure the tie-down strapping to the designated points labeled with the anchoring symbols:

Rear tie-down points



- Make sure the straps are tight and that there is no slack present in any of the tie-down strapping.

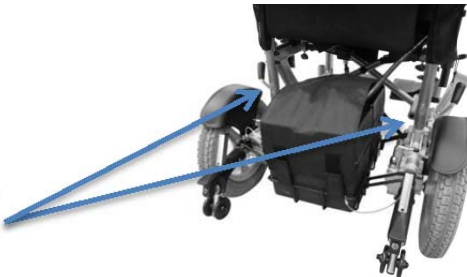
-
- Never use any adjustable, moving or removable parts of the powerchair for fixing and securing purposes, such as footrests, armrests, backrests or wheels etc.

Seek advice form you anchoring system provider on how best to attach the tie-down system correctly to your motor vehicle.

Tie-Down Front



Tie-Down Rear



5. Recharging and Battery

5.1 Recharging Battery

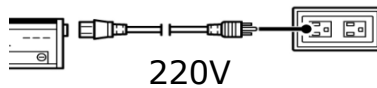
Complete the following procedures:

1. Turn the charger power switch to "OFF" (as shown in the right figure)



O → Turn OFF

2. Connect the round pin of "24V output cable" of charger to the charging socket under the joystick of 3.



Charging socket 24V

Connect the "220V cable" to the "charger socket and household socket".

4. Turn the charger "ON" (see right figure)
5. The charging process starts when the red power indicator of the charger and orange charging indicator light up.

The charging process normally lasts for 8 hours, sometimes it may become 8~12 hours (the battery status is related to the temperature of environment, refer to 5.4 "Battery").

6. The charging process is complete when the charging indicator turns from orange to green.



→ Turn On

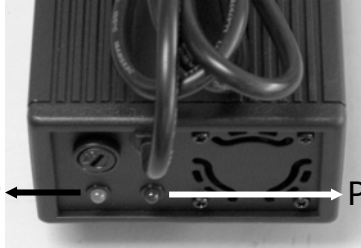
7. Turn off the charger and remove the "24V output cable" from the charging socket.

Note:

- Do not remove the "24V output cable" before the completion of charging. The life of the batteries may be significantly reduced or even be damaged if the battery is frequently used after inadequate charging. Please ensure that the batteries are fully charged.
- Do not interrupt the charging process before the batteries are fully charged.
- If the "24V output cable" is not removed when the charging process is complete, the electricity will be slowly consumed even if the power of the charger is cut off.
- The batteries should be fully charged before use if the Powerchair has not been turned on for a long time.
- The time required for charging varies with the temperature of environment: it is longer in winter than in summer.
- Only the original KYMCO Healthcare charger should be used and the batteries should be fully charged. Failure to do so may cause damage to batteries.
- Unauthorized disassembling and modification of the charger is prohibited.
- Charge the batteries at a location with good ventilation. Do not expose the charger to direct sunlight or places with high humidity such as the presence of rain or dew.
- Do not cover the Powerchair with raincoat or other impermeable objects when charging.
- Do not charge at a temperature lower than $-10\text{ }^{\circ}\text{C}$ or higher than $+50\text{ }^{\circ}\text{C}$ or the charging efficiency is affected, or even causes damage to the batteries.
- Keep away from flammable objects when charging to avoid the risk of fire or explosion.
- Do not smoke during charging because the batteries generate oxygen and hydrogen. Charge the batteries in a well ventilated area.
- Do not plug in or remove the "24V output cable" and pin connector of the charger with wet hands, or plug in or remove these objects when they are wet because of the risk of electric shock.

5.2 Charger

The red and orange indicators light up when charging, the orange indicator turns to green when the battery is fully charged.



Charging indicator ←

→ Power indicator

5.3 Power Gauge

1. When the power gauge is reduced to the last level when the power is turned on, the batteries are short of electricity and require charging immediately.
2. When the power gauge is full, it is okay to drive.
3. Power consumption depends on the time and method of driving. For example, repeated turning, stopping and starting or climbing hills requires more power.

Note:

- The cooling fan in the charger should be operating when the power switch of the charger is turned on. Do not use the charger with a non-functional cooling fan.
- The charger should not be exposed to prolonged sunlight or placed on the ground for a long time. Maintain indoor storage at a cool dry place.

5.4 Battery

1. Do not charge or store the battery at a temperature lower than $-10\text{ }^{\circ}\text{C}$ or higher than $+50\text{ }^{\circ}\text{C}$ to prevent damage or reduced life of the batteries, secondary to icing or overheat.
2. The VIVIO Powerchair uses a closed lead-acid battery which does not require electrolyte supply at maintenance or battery substitution.
3. Do not use motor oil, gasoline, or solvents when cleaning the battery. Use wet clothes instead of dry clothes to prevent static discharge. Wash with copious water if any electrolyte fluid gets onto skin or clothes.

● **Cleaning the Battery**

The battery undergoes rapid discharge when it comes into contact with dirty water, sulfate solution, dust or other waste. Clean the battery with the following procedures:

1. Turn off the power off.
2. Remove the seat and clean any dust.
3. Remove the lid, rear, and signal lighting pin connector.
4. Clean any soiling with a clean cloth.
5. Avoid short-circuiting of the battery pins during disassembling and take out the batteries with caution.
6. Clean the surface of battery with clean, wet clothing.

Warm water should be used if the connector of battery is covered with white powder.

Note:

- When necessary, visit KYMCO Healthcare approved Dealer to clean, maintain or replace the batteries.
- Check if the pins of the batteries and the jackets are installed as correctly.
- Do not use the batteries to charge other communication or electric devices.
- Battery capacity varies with the ambient condition: the driving distance is shorter in winter. Fully charge the batteries before use if the Powerchair has not been used for a long time.
- Both of the batteries should be replaced to avoid the new batteries being non-functional.

6. Tire

● Tire

1. Examine the tire pressure before use – If Pneumatic tires are fitted.
2. Examine for damage and cracking on the side surfaces of the tires.
3. Examine the depth of tread pattern and replace the tires with a depth of less than 0.5 mm.

Note:

1. Slipping may occur and longer braking distances when the depth of tread patterns is less than 0.5 mm. Replace the tires as soon as possible to avoid danger.
2. The tire pressure should be maintained at an optimal value of 2.3~2.5 kgf/cm².

7. Electromagnetic Interference (EMI)

Electromagnetic interference (EMI) may occur on your Powerchair, by the electromagnetic energy from radio stations, TV broadcasters, FM signal emitters, two-way wireless power sources and mobile phones. EMI will cause the control system of the Powerchair to lose function, leading to unintended start-up or random movements. In addition to the possibilities of accidental damage and injuries, EMI may cause permanent damage to the control system. All Powerchairs resist a certain degree of electromagnetic waves, i.e. immunity level, and have passed EMI testing of 20 V/m (the unit of measure for electromagnetic force) which means that it is immune to the possible and negative effects caused by typical EMIs.

Some of the electromagnetic fields can be avoided easily but some are not. You can reduce the risks of EMIs to minimum by gaining of the knowledge shown below:

- **EMI is generated by three major sources:**

1. Mobile radio transceiver (antennae attached)

For example, the transmission unit in the handheld transceivers used by traffic police or rescuers as well as the mobile phones and personal communication devices on the market are all examples of EMI sources.

Note:

- Electromagnetic signals are typically emitted from transceivers when the power is turned on or during use.

-
2. Police cars, firefighting trucks, ambulances, taxis and other vehicles with antennae are equipped with middle-distance handheld transceivers.
 3. Commercial communication systems (radio and TV broadcasters) are examples of long-distance transceivers.

Note:

- Handheld transceivers, hand computer, AM/FM radio, TV, CD stereo and recorder and other devices or equipment may cause EMI.

- **Effects of EMI on the KYMCO VIVIO Powerchair**

The Electromagnetic effect becomes more prominent when the vehicle is driven in proximity of electromagnetic emitters and antennae, especially when the driver uses radio wave sources such as transceivers. Unexpected release of substantial electromagnetic energy leading to controller damages or failures may happen if wireless devices are used when driving. To prevent the dangers associated with EMIs, exercise caution for the following warnings:

Note:

- Your vehicle may be affected by equipment or devices generating electromagnetic force such as radio and TV broadcasters, two-way wireless communication devices and mobile phones. You can prevent your vehicle from uncontrollable operations or brake failures by respecting the following precautions:

1. Do not use mobile radio transceivers such as wireless interphones, mobile phones and personal communication devices, and avoid turning on these devices on.
2. Keep away from radio or TV broadcasters
3. To ensure safety, turn off the power when there are unintended operation and brake failure.
4. Using non-original components may cause the vehicle to be affected by EMI (it is difficult to estimate the effect of EMIs on your vehicle).

8. Maintenance and Troubleshooting

8.1 Maintenance

1. Frequent maintenance is required for your Powerchair if driving on grassy, sandy or graveled roads.
2. To prevent damage of electrical components and computer units, the Powerchair should be cleaned with clothes soaked in water or motor oil but not chemical solvents.
3. Examination and service should be carried out by your KYMCO Healthcare approved Dealer. Unauthorized self-maintenance or self-service may lead to unwanted damage.
4. Clean the vehicle with soft, clean clothes soaked in neutral or mild cleansing agents.

Note:

- Before vehicle maintenance, turn off the power and remove the "24V output cable" of the charger.
- Do not clean with water jet spray as it may lead to malfunction of electric circuits.
- Do not use gasoline or volatile solvents as they may affect the contour of vehicle or cause damage.
- Do not apply vehicle wax.

8.2 Parking

- **Your VIVIO Powerchair should be parked under the following conditions:**

1. Check if power is turned off.
2. Do not park at a place where it is exposed to direct sunlight, rainfall, or dew.
3. If the vehicle is to be parked for a long time, remove the pin cables of battery after it is the fully charged.

8.3 Troubleshooting

- Visit your KYMCO Healthcare approved Dealer for any failures or maintenance.
- ※ You can perform the following examinations before contacting your Dealer:

Problem	Key of Examinations and Solutions
Motor is not operational	Is the power turned off?
	↓
	Turn the power on
	Is the battery charged?
	↓
	Is the power indicator shown in green?
	↓
If not, charge the battery.	
↓	
Is the charger connected to the wheelchair?	
↓	
Remove the charger and "24V output cable"	
Turn on the wheelchair again after charging	

Problem	Key of Examinations and Solutions
Examine joystick	Are there abnormal sounds or loosening of the joystick when pushed forward or pulled backward?
Examine – lighting if fitted	Turn on front/rear lights, check if they are lighted up as intended and see if there is dirt on the housing. Turn on front/rear warning lights, check if they are lighted up as intended and see if there is dirt on the housing.

9. Specification Table

Model	VIVIO (Folding Powered Wheelchair)
Length	1200 mm
Width	680 mm
Weight (battery included)	45/68 kg
Motor Output	250 W
Battery	36Ah x 2pcs
Charger	24V, 5A
Drive System	Direct drive rear wheels
Brake System	Motor electromagnetic brake Hand brake
Front Wheel	200x50,PU Tire
Rear Wheel	12 1/2 x 2 1/4, PU Tire.
Method of Operation	Joy stick
Maximum Speed (Forward)	6.4km/h
Maximum Speed (Backward)	3.0km/h
Angle of Climbing	10°
Travel Distance (surface)	25km
Swing Radius	650mm
Maximum Load	136kg
Vehicle Clearance	110mm

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