MAYAN AC

Owners Operating Manual

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Introduction

Thank you for choosing the Mayan AC from Horizon Mobility Ltd., a unique vehicle manufactured in the UK using only the highest quality components.

This mobility vehicle is a medical device and may only be used by a qualifying person in accordance with the regulations of the Country in which it is being used.

This Manual is to offer guidance, help and instruction in the correct use, care and maintenance of this product.

If these instructions are not read and followed, or the vehicle is not properly maintained and cared for, it may cause a danger or injury to both the user and third parties.

Correct maintenance together with any tools required is covered on page 15, Technical.

This vehicle should not be used by children and should not be used for the transport of more than one person unless specifically adapted for multiple occupants and legally allowed in the country in which it is being used.

Delivery

Your new Mayan is built to the highest standards and checked carefully prior to despatch from our factory.

Your Dealer or delivery personnel should carry out a complete product familiarisation and instruction as part of their hand over, including a full check and demonstration of all major vehicle functions.

Please ensure that your vehicle is in accordance with your original order documentation, including any accessories or modifications specified on that order.

Provided you follow the simple guides contained in this manual your Mayan vehicle should provide many miles of motoring pleasure. Therefore it is very important you the operator read this entire manual carefully before first using your vehicle, and keep it with you when you are out as an easy reference guide.

Statutory Regulations
UK Regulations (Excerpts)

A mobility scooter is defined as an Invalid Carriage and must comply with the requirements set out in “The Use of Invalid Carriages on Highways Regulations 1988”, The Chronically Sick & Disabled Act 1970 and various other National Acts.
A “Class 3 invalid carriage” means a mechanically propelled invalid carriage which is so constructed or adapted as to be capable of exceeding a speed of 4 miles per hour but in normal operation is incapable of exceeding a speed of 8 miles per hour on the level under its own power.
A Class 3 invalid carriage must not be operated by a person under the age of 14 years old.

Unladen Weight
The unladen weight of a Class 3 invalid carriage shall not exceed 150 kilograms, inclusive of the weight of accumulators (batteries).

Width
The overall width of a Class 3 invalid carriage shall not exceed 0.85 metres.

Brakes
When an invalid carriage is not being propelled, or is left unattended, it shall be capable of being held stationary indefinitely in all conditions of use on a gradient of at least 1 in 5

Speed device & speed indicator
A Class 3 invalid carriage shall be fitted with a device which is capable of limiting the maximum speed of the invalid carriage to 4 miles per hour on the level under its own power and which can be put into operation by the user;
In this regulation, “speed indicator” means a device fitted to an invalid carriage for the purpose of indicating to the user of the invalid carriage whether the device for limiting the speed to 4mph is in operation. The function of this device must be able to be seen in all conditions.

Audible Warning Instrument
Class 3 invalid carriages shall be fitted with a horn, not being a reversing alarm or a 2-tone horn.

Rear view mirror
Class 3 invalid carriages shall be fitted either internally or externally with a rear view mirror.
Any rear view mirror fitted to an invalid carriage shall be so constructed or treated that if fractured it does not fly into fragments likely to cause severe cuts.

Note
If your vehicle is fitted with a Mode 3 function to allow the vehicle to exceed 8mph, operation of this device must only be on private land as the vehicle no longer complies with the Road Traffic Act while in this mode.

The Mayan lighting systems and reflectors are E-Marked and fitted in accordance with The Road Vehicle Lighting Regulations 1989

No. 1976 and The Road Vehicle Lighting (Amendment) Regulations 2005 No.: 2559.

CE Regulations

This vehicle corresponds with the requirements of EC Directive 93/42 EWG. However interference from high frequency radiation emitting from radar, broadcasting, stations, radio telephones and certain retail store security equipment, cannot be excluded.

If interference or unexpected and uncontrolled operation occurs, stop the vehicle and turn it off immediately.

This vehicle is designed and built in accordance with the standards set out in EN BS 12182 and EN BS 12184, and tested in accordance with ISO 7176.

The Mayan is an electric vehicle and is designed to be as environmentally friendly as possible. The vehicle design incorporates as little plastic as possible and the majority of the vehicle components are recyclable

The vehicle is designed and constructed to improve the mobility of persons with age or health related restrictions and meets the demands of handicapped people according to EN 614-1.

The Mayan is designed for driving on a solid surface, both indoor and outdoor, not in standing water where possible, and is exclusively for the carriage of a **single seated**
person,; at no time may a second person be carried on the scooter.

Features and Specification

a) Seat and adjustments
b) Dashboard
c) Control Levers
d) Indicators
e) Batteries
f) Headlight
g) Column Adjustment
h) Wheels & Tyres

i) Freewheel Lever

Seat

The Mayan has an ergonomically designed, high back self-draining weatherproof seat with angle adjustable flip up armrests.

To adjust the seat forwards and backwards move lever under left edge of seat outwards and hold while sliding seat to desired position.

Note: Do not attempt to adjust the seat while vehicle is in motion.

Seat Removal

To remove seat, depending on the model, undo and remove the hand-wheel under front edge of the seat. Lift front of seat about 45 degrees or until the locating hooks clear, once lifted, pull seat forward and up.

To replace seat, tilt seat with back of plate down into hooks mounted on vehicle, lower seat until horizontal then insert and do up the hand-wheel under front edge of seat.

Battery Access

To access the batteries, first tip up and/or remove seat. The batteries are clamped into the scooter by a hand-wheel holding down a metal bar. Once the bar is removed you can move or lift out the batteries as required. To do this first undo the battery terminals, taking extreme care not to touch any two terminals together as this will cause injury such as severe burns and/or permanent damage to the vehicle or batteries may occur. The lead across the two front terminals that contains the 100A fuse should be removed first, followed by the two rear terminals. When reconnecting the batteries, ensure the correct wires go to the correct terminals.

Display Panel

The Mayan AC backlit LCD display is visible both by day and night.

- Battery Indicator

  A multi segment vertical display bar gives the battery state of charge, the top being full and the bottom being empty.

- Speed Indicator

  There is both an analogue and a digital speed display able to be set for both mph and kph.

- Trip meter

  At the bottom right of the screen is a resettable (right button) trip display.

- Service Interval Display

  The left display is a service interval display for use by the engineer.

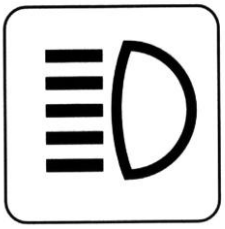
- Function Indicator Lights

  Down both sides of the LCD display indicate operation of lights, indicators and speed modes selected.

Note: If the display at any time the display instruments remain blank with ignition ON, remove a fuse (see fuse Section for location) or disconnect a battery to reset.

Light Switch

Operate by pressing the forward edge of the left switch down. Warning lights will illuminate on the switch and display panel.



Hazard Warning Switch

Operate by pressing the forward edge of the red switch down. Warning lights will illuminate on the switch and display panel.

Speed Limit Adjustment

On the right side of your dash panel there is a small black knob that by rotating clockwise will increase the maximum speed in the Mode selected.

Speed Mode Select Switches

Depending on Model, your Mayan has 3 operating Modes;

Mode 1 – 4mph both the “turtle” and the “lightening” switches are off and not illuminated.

Mode 2 – 8mph the far right “turtle switch is operated by pressing the forward edge down. Warning lights will illuminate on the switch and display panel

Mode 3 – 12mph the “lightening” switch is operated by pressing the forward edge down. Warning lights will illuminate on the switch and display panel

Note: Depending on your country of use, Mode 3 is only for use on Private Land and must not be used under any circumstance on Public Roads or Public Rights of Way.

Horn (Audible Warning) Switch

Below the indicator buttons on each side of the dashboard is a black horn button, press and hold to sound horn.

Note: Please read and observe the Regulations regarding use of a vehicle audible warning device.

Indicator Switches

On either side of your dashboard is a red press in switch, the left one operates your left indicators, the right one your right indicators. A warning symbol illuminates on the display panel to warn you of their function, to cancel press the corresponding button again.

Charger Socket

To charge the scooter insert the 3 pin charger plug into the socket located on the right side of the dashboard, make sure the plug is fully located before turning on the charger.

Key Switch
To operate the key switch located on the left side of your dashboard, insert the key and turn clockwise.
Note: always turn off and remove the key before mounting or dismounting the vehicle.

Column Adjustment
The handle at the bottom right side of the column allows column adjustment. Turn the handle anti-clockwise to release the column, once in the correct position, turn the handle clockwise until tight.

Freewheel Lever
On the end of the motor at the rear of the vehicle is the freewheel lever. To operate, turn vehicle off and stand behind it, push the lever gently towards the wheel and hold it there while pushing the scooter

Throttle Controls
Your Mayan has a single operating lever across the underside of the dashboard, with a green sleeve on one side and a yellow on the other. Pull back on the green lever to go forwards, pull back on the yellow to go backwards. The more you pull the faster the vehicle will respond and move.

Safety Warnings and Operating Tips

General Safety

Safety is very important with any vehicle, especially a motor driven vehicle. The following warnings are not conclusive and should be read in conjunction with this complete manual, which explains operation, function, care and adjustments for your vehicle.

If you are in any doubt about your ability to drive your vehicle due to a medical condition or treatment, always consult your doctor before proceeding.

Always ensure your vehicle is switched off and the key removed before mounting, dismounting or adjusting either the seat or steering column.

Before driving the vehicle always ensure you are seated comfortably and securely, with the armrests down and that both the seat and steering column are securely locked in their correct positions.

Ensure you have read this manual and familiarised yourself with all the controls before using your vehicle for the first time.

Before switching your vehicle on, ensure you can reach all controls from a comfortable seated position and ensure that your rear view mirrors are adjusted properly.

Before driving your vehicle ensure that the lights are clean and work properly, ensure your tyres are correctly inflated and undamaged, and that your batteries are charged.

Always reduce speed when turning corners especially when travelling downhill or over uneven terrain.

Never try to mount or dismount a kerb at an angle, always approach straight on and at a steady speed. Never charge an obstacle at high speed. Wherever possible look for and use drop kerbs, as these are safer and more comfortable.

Wherever possible always drive straight up or down slopes not across them.

Failure to observe these general safety tips could lead to your vehicle starting unexpectedly, being uncontrollable or tipping over.

Batteries

Before each journey always check that the batteries are sufficiently charged.

Though your vehicles batteries are sealed try to keep batteries upright on a flat surface at all times, especially when being transported.

When being transported ensure your batteries are located securely in place to prevent possible damage, short circuit or injury.
Regularly check that your batteries are not damaged, are in good condition with clean tight terminals and that no leakage has occurred.

Batteries naturally discharge over time; always recharge your batteries at least once a month to avoid damaging them.

Warning, battery fluids are very corrosive and every care should be taken at all times to avoid contact with them. If it comes in contact with the skin, clothing or other surfaces, wash immediately with generous amounts of soap and water. If it comes in contact with the eyes, immediately flood the eyes with running fresh cold water for at least 10 minutes and seek immediate medical advice. If it is swallowed seek immediate medical advice, do not induce vomiting.

General information

The batteries in the Mayan are significantly different from other types of batteries such as the ones used in a car. Car batteries are designed to release large amounts of power quickly whilst mobility vehicle batteries (common term for which is deep cycle traction) are designed to release power slowly and evenly.

Mobility batteries are generally more expensive than other types of batteries; this is because the technology is much more complicated and produces a much denser battery.

Battery size for mobility vehicles is always described in amps per hour (e.g. 50A/hr). The higher the number, the larger the battery size, weight and capacity, so potentially the greater the distance you can travel.

Battery type

The batteries in the Mayan are totally maintenance free other than regular charging. The battery case is totally sealed so transporting this type of battery is completely safe as long as the case is not cracked or split. It is the only type of battery approved for transport on an aircraft provided they are disconnected from the vehicle.

Horizon want you to get the best from your vehicle so we do not recommend that you use any other type of battery except GEL or AGM VRLA maintenance free types of batteries.

Battery care

The batteries fitted to your Mayan are expensive so prolonging their life is in the best interests of you the owner. Your batteries will last longer and provide better performance if you follow the care instructions below. If you do not follow the care plan agreed with the battery manufacturers then it might result in lower performance than expected from your vehicle, shorter battery life and invalidate your battery warranty.

Only ever use the approved charger supplied with your vehicle.

Do not interrupt the charging cycle of your charger.

Charge your batteries over night if you have used the scooter that day, regardless of the amount of use your vehicle has had. Keeping your batteries topped up will extend their life and give greater performance. Letting you batteries go flat or allowing the battery gauge to go to the bottom could shorten your battery life significantly.

Do not top up the charge in your batteries during the day unless you have finished with the vehicle for the day then leave them charging until a full charge is shown on the charger.

Turning the mains connection off while the charger is connected to the scooter will begin discharging the batteries and could eventually shorten their life or cause them damage.

If you leave your vehicle for an extended period of time (more than a month), disconnect a battery terminal. Once a month plug your batteries back in and leave on charge until fully charged. To disconnect a battery terminal, first remove the seat (see Seat Removal) and battery cover. Ensure the scooter is turned off then using a spanner (either 10mm or 13mm) undo one terminal, being very careful not to touch two battery terminals with the spanner at the same time.

Failure to recharge your batteries will damage them and lead to shortened lifespan, performance or permanent failure.

Maintenance free VRLA batteries generally take longer to recharge than other types of batteries so be patient, leave them on charge overnight, as the charger is fully automatic.

Regularly check the connections on each battery terminal for signs of corrosion and security. If any corrosion is present clean the lead terminal completely with a wire brush or similar lightly abrasive product, ensuring you do not touch both terminals at once. Re-grease the terminals using petroleum jelly (such as Vaseline) never use ordinary grease products.

Once greased replace the battery connections, tighten the terminal bolts down securely. Cover the terminal connections, bolts and wire tails with petroleum jelly.

Ensure the battery retaining clamp is fitted securely and has not trapped any wires, fuse holder or is touching any battery terminals.

Vehicle range

It is a legal requirement that all manufacturers state the range of their products in their literature or Owners Manuals. There is a common European Standard for measuring the range of a mobility vehicle; this is set out in **ISO 7176 Part 4: Energy consumption of electric wheelchairs and scooters for determination of theoretical range.**

The tests are carried out in strictly controlled environmental condition with new, fully charged batteries, on a level test surface.

The range figures stated should be considered as a theoretical maximum distance obtainable and not what you will generally obtain from your Mayan in everyday use.

Range will reduce due to battery age and state of charge, hilly terrain or slopes, grass, mud or snow, regular kerb climbing, low air temperature, incorrect tyre pressures, stop/start driving or vehicle due a service.

The technical considerations for range may seem daunting and complicated but please remember that battery size and motor efficiency will be the two main factors in determining range. Your Horizon Mobility Mayan has probably the highest battery capacity available on a mobility vehicle today; coupled with a highly efficient 24volt AC transaxle drive system you should find the range of your vehicle is sufficient for the majority of your everyday needs.

Charging instructions

Ensure your Mayan is switched off and the key removed prior to charging.

Always charge your vehicle in a well-ventilated room with no exposed flame present.

Place your battery charger on a hard flat surface; never place it on the carpet or a surface likely to block the ventilation louvers in the charger casing.

Never expose any part of your charger or batteries to direct heat or naked flame (e.g. gas fire).

Never charge your vehicle outside or in an excessively damp room.

Never plug your charger in if any part of the charger or mains plug is wet.

Plug the charger into the charger socket on the steering column A (Fig. 14, see over page)

Fig. 14

Ensure that the mains plug is dry and free from damage before plugging it into the mains socket and switching it on.

Press the plug firmly into the socket, ensure it is fully seated before switching on the charger.

The red power light should come on immediately followed quickly by the yellow charging light. These two indicator lights should remain on while the vehicle is charging.

Once fully charged the yellow light will go out and the green charged light will come on. Charging is now complete and the charger may be unplugged.

Always switch off the mains before unplugging the charger from the vehicle.

Never leave the charger connected to the vehicle batteries with the mains switched off, as this could shorten battery life or cause permanent battery damage.

Always plug the charger into the vehicle before plugging it into the mains and turning it on.

While the charger is plugged into your vehicle its drive system is disabled.

Wheels and Tyres

Regularly check your wheels, tyres and steering for damage or foreign objects that might cause improper operation or a puncture.

Check your tyres regularly for uneven wear, seek service advice from Horizon Customer Care or your local Horizon dealer if found.

Do not inflate your vehicles tyres using a powered airline at a garage. Always use a bicycle or a manual foot pump.

Each tyre should be inflated to a pressure as set out in the Tyre Size Table below.

Routine Maintenance and Service History

The following table gives an indication as to when routine maintenance checks should be made.

	Day	***Week***	***Month***	***Quarter***	***Annual***
Charge batteries	■				
Inspect battery terminals		■			
Wipe vehicle over with damp cloth		■			
Check tyre pressures		■			
Check seat swivel and slide system			■		
Check rear for wire chaff and wear				■	
Check tyres for damage and wear			■		
Check front suspension for damage				■	
Check manual brake function				■	
Inspect motor brushes					■
Full service by main dealer					■

Bulbs and Fuses

	Voltage	***Rating***
Headlight bulb (H4 Halogen)	12v	60/55 watt
Front indicator bulbs (149 Bayonet)	24v	5 watt
Rear indicator bulbs	24v	5 watt
Rear red tail light bulbs	24v	10 watt
Main ignition fuse (Right holder)		8 amp
Main Controller Fuse (Left holder)		1 amp
Main Battery Fuse (between Batteries)		100 amp
Main charger circuit breaker (dealer only)		35 amp

Wheels and tyres

If wheels are removed ensure that the axle shafts are well greased before replacing wheels. Always use the “Binx” self-locking nuts provided with the scooter. If lost contact your dealer for a new one as the thread is not a standard metric one.
Warning: Never tighten the front wheel nuts beyond touching the outer bearing.

Electronics repair

Never try to open the control box, adjust the electronic controller or fix faults in either the rear control systems or dashboard as the electronics have a number of safety critical systems incorporated in them which must not be compromised in any way. Contact your main dealer for help and assistance.

Fault codes

The Horizon Mobility Mayan has a fault diagnostic system built into the electronics. The Display Panel shows all faults, whether critical or warning only. There are 86 possible Fault Codes but many will not be relevant to your Mayan.

All critical faults will cause the Mayan to stop and depending on the fault will either require the Ignition key to be turned OFF then ON again, or an engineer's inspection before the vehicle can be driven again.

Warning Faults usually do not need the vehicle to be reset or an engineer, they may include warnings that you are braking too hard, descending a hill that is too steep, or trying to drive the vehicle while the controls are obstructed.

The table below lists general faults and their codes. If in doubt telephone you're Main Dealer of Horizon Customer Care.

Code	***Probable Fault***	***Solution***
12	Controller Overcurrent	Cycle Key or Contact Horizon
13	Current Sensor Fault	Cycle Key or Contact Horizon
14	Precharge Fault	Cycle Key or Contact Horizon
16	Severe Over Temperature	Switch off for 30mins, Contact Horizon
17	Severe Under Voltage	Battery Connection Loose/Broken
22	Over Temperature Cutback	Switch off for 30mins and try again
23	Under Voltage Cutback	Recharge Batteries
28	Motor Temperature Cutback	Allow Motor to Cool for 30 minutes
32	Electromagnetic Brake Fault	Broken Wire or Replacement Brake
36	Motor Encoder Fault	Contact Horizon
37	Motor Open	Motor Wire Broken or Terminal Loose
38	Main Contactor Welded	Replace Main Contactor (Horizon)
41	Throttle Wiper High	Throttle Is Damaged, Contact Horizon
42	Throttle Lever Low	Throttle Is Damaged, Contact Horizon
46	EEPROM Failure	Contact Horizon
47	HPD Sequencing Fault	Throttle Lever Is Obstructed
49	Parameter Change Fault	Cycle Key Switch
71	OS General	Software Fault, Contact Horizon
73	Stall Detected	Vehicle Obstructed And Stalled
92	EM Brake Failed To Set	Vehicle Moving, Open Throttle To Clear
93	Encoder LOS	Vehicle Obstructed And Stalled

Service record

Date	***Service***	***Engineer***
	Delivery Inspection	
	1st Annual Service	
	2nd Annual Service	
	3rd Annual Service	
	4th Annual Service	
	5th Annual Service	

Horizon Mobility Ltd
WARRANTY

LIMITED LIFETIME WARRANTY

FOR THE LIFETIME OF YOUR HORIZON PRODUCT, FROM THE DATE OF PURCHASE, HORIZON WILL REPAIR OR REPLACE, AT OUR OPTION, TO THE ORIGINAL PURCHASER, FREE OF CHARGE, ANY OF THE STRUCTURAL FRAME COMPONENTS, FOLLOWING EXAMINATION BY AN AUTHORIZED REPRESENTATIVE OF HORIZON, FOUND TO BE DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP

TWO YEAR WARRANTY

FOR TWO YEARS FROM THE DATE OF PURCHASE, HORIZON WILL REPAIR OR REPLACE, AT OUR OPTION, TO THE ORIGINAL PURCHASER, FREE OF CHARGE, ANY OF THE FOLLOWING PARTS FOUND UPON EXAMINATION BY AN AUTHORIZED REPRESENTATIVE OF HORIZON TO BE DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP: ELECTRONICS, MOTOR/GEARBOX ASSEMBLY

BATTERY WARRANTY

BATTERY WARRANTY IS COVERED BY THE MANUFACTURERS OF THE BATTERY AND NOT BY HORIZON

WARRANTY SERVICE IS ONLY CARRIED OUT BY HORIZON. DO NOT RETURN PARTS UNDER WARRANTY TO HORIZON WITHOUT PRIOR CONSENT, ALL TRANSPORTATION COSTS AND ANY DAMAGE CAUSED IN SHIPPING ARE THE RESPONSIBILITY OF THE ORIGINAL PURCHASER.

WARRANTY EXCLUSIONS

* ABS, AND OTHER PLASTIC BODY PANELS
* BATTERIES (BATTERY MANUFACTURER PROVIDES A TWELVE-MONTH LIMITED WARRANTY)
* TYRES AND TUBES
* UPHOLSTERY AND SEATING
* REPAIRS AND/OR MODIFICATIONS MADE TO ANY PART OF THE VEHICLE WITHOUT SPECIFIC PRIOR WRITTEN CONSENT FROM HORIZON
* ANY CIRCUMSTANCES BEYOND THE CONTROL OF HORIZON
* LABOUR, SERVICE CALLS, SHIPPING, AND OTHER CHARGES INCURRED FOR REPAIR OF THE PRODUCT UNLESS SPECIFICALLY AUTHORIZED BY HORIZON

DAMAGE CAUSED BY:

* BATTERY FLUID SPILLAGE
* ABUSE, MISUSE, ACCIDENT OR NEGLIGENCE
* IMPROPER OPERATION, FAILURE TO MAINTAIN THE GOODS IN ACCORDANCE WITH THE REQUIREMENTS OF HORIZON, OR STORAGE
* COMMERCIAL USE, OR USE OTHER THAN NORMAL

THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABLE QUALITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE(1) YEAR FROM THE ORIGINAL DATE OF PURCHASE AND TO THE EXTENT PERMITTED BY LAW. LIABILITIES FOR CONSEQUENTIAL DAMAGES OR LOSS UNDER ANY AND ALL WARRANTIES ARE EXCLUDED.

DATE OF PURCHASE: _____ SERIAL NO._____

AUTHORIZED BY _____

Warning: It is imperative for the maintenance of the above warranties that the product is maintained in accordance with the manufacturers requirements with annual services being performed by an authorized agent of Horizon

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