Invacare® Cetus

Scooter

Instruction Booklet

CE

INVACARE

Yes, you can.®

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1 INTRODUCTION

Thank you and congratulations on purchasing your new Invacare scooter.

It is designed to provide the transportation ability indoors and outdoors for persons whose ability to walk is impaired, but who are still in terms of their eyesight and physically and mentally able to operate an electric scooter.

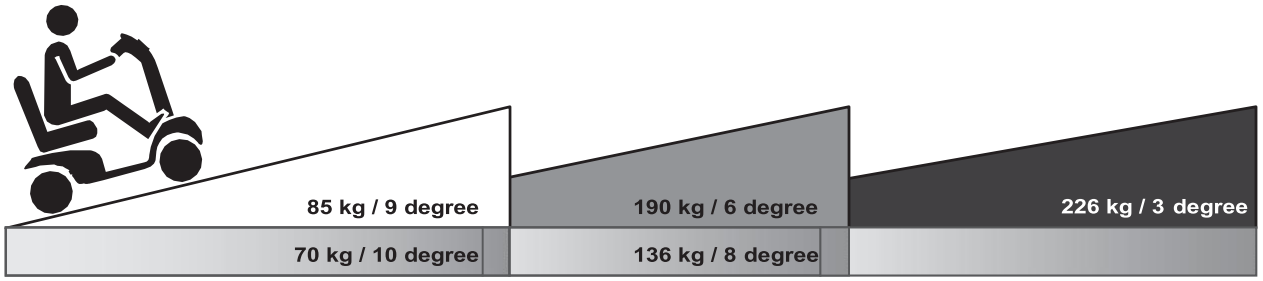
We pride ourselves on providing safe and comfortable products. Our goal is to ensure your complete satisfaction. We sincerely hope you enjoy your Invacare scooter.

Please read and observe all warnings and instructions provided in the owner's manual before you operate the various functions of this scooter. Also, please retain this booklet for future reference.

If you have any questions, please contact your Invacare representative. See addresses at the end of this document.

2 IMPORTANT PRECAUTIONS

- Only one person at a time could ride an Invacare scooter.
- Maximum load is 226 kgs / 500 lbs.
- Turn key off before getting on or off.
- Always drive carefully and be aware of others using the same area.
- Always use pedestrian crossings wherever possible. Take extreme care when crossing roads.
- Do not drive on slopes exceeding 9 degrees and take extreme care when turning on slope.
- Do not use full power when taking a sharp turn.
- Take great care and drive in low speed when backing up, riding downhill or on uneven surface, and climbing kerbs.
- A slow speed must always be used when descending or traversing a slope or incline and on uneven terrain, ramps and soft or loose surfaces, such as gravel or grass. If the speed is too fast, leave your hand off the handle bar, let the scooter stop. Make sure you are safe and start again.
- For the weight capacity limit at different ramp degrees, please refer to following picture:



The grade climbing degree will be affected by weight capacity, driving speed, and ramp degree, and scooter parameter. To prevent any danger from a defected motor, please avoid to drive on long ramp or any uneven terrain.

- The batteries voltage normally will go up when driving on descending road. If the battery voltage becomes too high, the over-voltage protection will be activated by slowing the speed until the scooter stops. (Error code ERR3 will be displaying). Please pull over the scooter to the safe area, release the wigwags and restart the scooter again.
- To prevent any danger, do not turn around at high speed on ascending, descending ramp.
- Stopping distance is much longer on a downhill slope than on even terrain.
- Scooter may not operate well in high humidity.
- Do not leave the powered scooter in a rain storm of any kind.
- Do not use the powered scooter in a shower.
- Direct exposure to rain or dampness will cause the scooter to malfunction electrically and mechanically and may cause the powered scooter to prematurely rust.
- Never put scooter in neutral when staying on slopes.
- Follow traffic laws when riding outside. Do not drive your scooter if you are under the influence of alcohol or medication that may affect your ability to drive.
- When scooter is on moving transport vehicle, do not sit or stay on scooter.

3 ELECTROMAGNETIC INTERFERENCE AND WARNINGS

It is very important that you read this information regarding the possible effects of electromagnetic interference on your mobility scooter.

Scooters may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such a radio stations, TV stations, amateur radio (HAM) transmitters, two-way radios, and mobile phones. The interference (from radio wave sources) can cause the scooter to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the scooter control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each scooter can resist EMI up to a certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection. At this time, current technology can achieve at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI.

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent, and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.

The sources of radiated EMI can be broadly classified into three types:

1. Hand-held portable transceivers (transmitters-receivers) with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, "walkie talkie," security, fire, and police transceivers, mobile phones, and other personal communication devices.

   Some mobile phones and similar devices transmit signals while they are ON, even when not being used

2. Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances, and taxis. These usually have the antenna mounted on the outside of the vehicle.
3. Long-range transmitters and transceivers such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, and cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your mobility scooter.

Scooter Electromagnetic Interference:

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the motorized scooter control system while using these devices. This can affect scooter movement and braking. The warnings listed below are therefore recommended to prevent possible interference with the control system of the scooter.

Warnings:

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and mobile phones can affect scooters.

Following the warnings listed below should reduce the chance of unintended brake release or scooter movement which could result in serious injury.

1. Do not operate hand-held transceivers (transmitters-receivers), such as citizens band (CB) radios, or turn on personal communication devices, such as mobile phones, while the 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 scooter OFF as soon as it is safe.
4. Be aware that adding accessories or components, or modifying the scooter, may make it more susceptible to EMI.

   There is no easy way to evaluate their effect on the overall immunity of the mobility scooter.

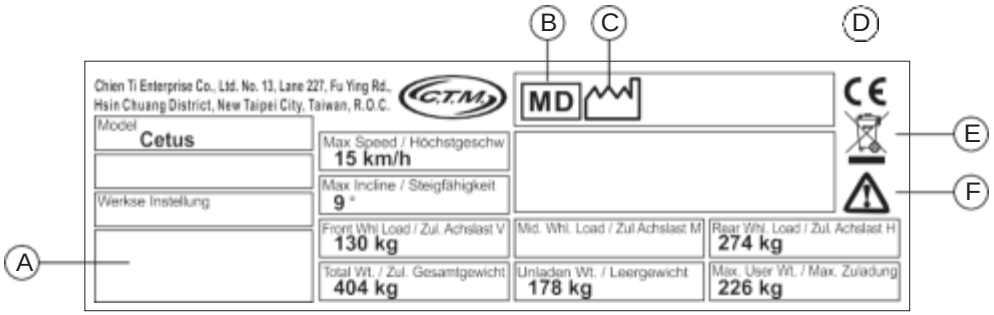
5. Report all incidents of unintended movement or brake release to the distributor listed at the end of this manual. Note whether there is a source of EMI nearby.

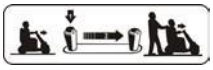
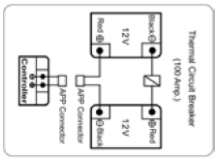
Important Information:

1. 20 volts per meter (V/m) is a generally achievable and useful immunity level against EMI (as of May 1994). The higher the level, the greater the protection.
2. The immunity level of this product is at least 20/Vm.

4 SAFETY WARNING AND INSTRUCTION LABELS

The following labels are positioned on your scooter. They communicate important warnings or instructions regarding the safe operation of your scooter. Please carefully read all labels before driving.

<table>
<tr><td>
</td><td>1. Please read the instruction booklet carefully before using your scooter.
2. Do not drive the scooter on slippery surfaces or on slopes over 8 degree.
3. Do not drive on highways, crowded roads, or unfamiliar area
4. Do not turn at high speed in either forward or reverse.
5. Do not wash with water or leave scooter in humid environment since water can damage the electronic parts.</td></tr>
<tr><td colspan="2"> 

A. Serial number barcode
B. Medical device
C. Date of manufacture
D. European conformity
E. It may contain substances that could be harmful to the environment. Recycling must be carried out in accordance with the respective national legal provisions.
F. Caution</td></tr>
<tr><td> </td><td>Do not hang baggage or other objects on the tiller / tiller adjustment lever.</td><td> </td><td>Tie-down points of the scooter. Do not sit or stay on the scooter during transport.</td></tr>
<tr><td>  </td><td>N-D lever adjustment label which instructs freewheel mode operation.</td><td> 
</td><td>Wiring diagram label</td></tr>
<tr><td>
</td><td colspan="3">The DC 24/2A port is for LED reading light use ONLY. Do not use the port to charge scooter or any other devices. (For 928C only)</td></tr>
</table>

5 IDENTIFICATION OF PARTS

Before you take your first trip, you should familiarize yourself well with the operation of the scooter and with all operating elements. Take your time to test all functions and driving modes.

Figure 1: Cetus Front View

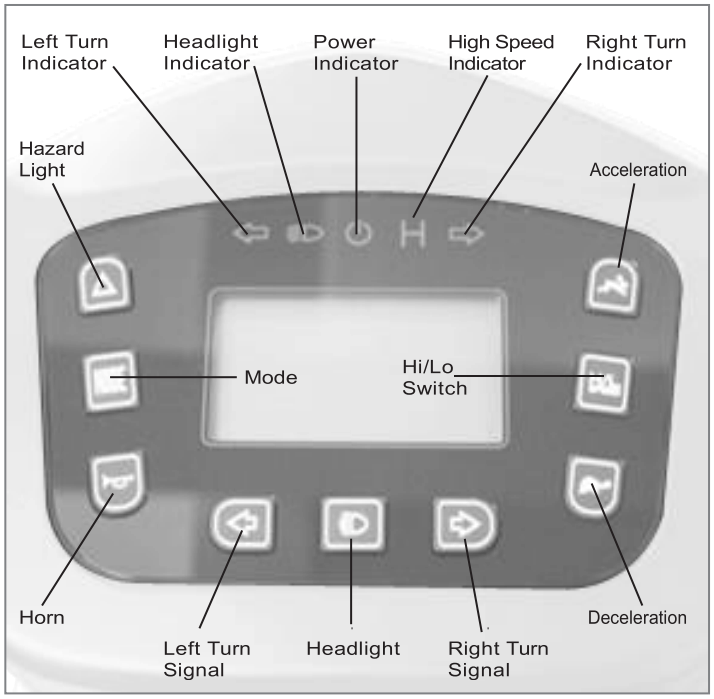


Figure 2: Cetus Control Panel

Figure 3: Cetus Rear View

FUNCTION OF PARTS :

Main Key Switch (A)

1. Turn the key to the right - turn the scooter on.
2. Turn the key to the left - turn the scooter off.

> ⚠ Always ensure that the scooter is switched off before getting on or off the scooter and before removing any items of the scooter

> ⚠ Turning the scooter OFF whilst driving will bring the scooter to an abrupt stop and danger.

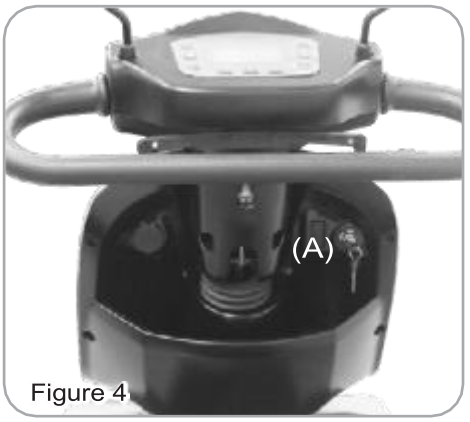


Figure 4

TOP CONTROL PANEL

Figure 5

Hazard Light (B): Switch on by pressing once, switch off by pressing again. Press hazard light button once. The right / left lights and parking indicator start to flash, warning tone acts as well. If the hazard lights are activated, with the key switched to the On position, the lights will continue to flash even when the key is switched off. The hazard light button should be depressed to cancel the flashing.

Mode (C): Change mode by pressing once

A. Clock
B. Temperature
C. Speedometer
D. ODO
E. Trip Meter

Horn (D): Press horn button once to sound warning tone when necessary.

Left Turn Signal (E): Press Left Turn Signal button once. The front and rear left turn indicators start to flash, and warning tone sounds simultaneously. Press button again to switch off the turn indicators / signal and tone.

Right Turn Signal (G): Press Right Turn Signal button once. The front and rear right turn indicators start to flash, and warning tone sounds simultaneously. Press button again to switch off the turn indicators / signal and tone.

※ Right-hand / Left hand direction indicator switches itself off automatically after 30 seconds.

Headlight (F): Press Headlight button once to switch on, switch off by pressing again.

Acceleration (H): Press Acceleration button once to increase speed, fine tune in 1'5 speeds.

Deceleration (J): Press Deceleration button once to decrease speed, fine tune in 1'5 speeds.

Hi / Lo Switch (I): Press Hi / Lo Speed button once. The High / Low Speed Indicator will light on, means driving in high speed mode. Press again, the indicator will extinguish means driving in low speed mode.

(Hi / Lo speed will vary depending on your current speed settings.)

Tiller Storage Compartment (K): Provides you a spacious room to put things.

Hand Brake (L): Hold brake when immediate stop is required.

If you have to brake in an emergency, simply release the throttle and hold hand brake, which will bring you to a halt!

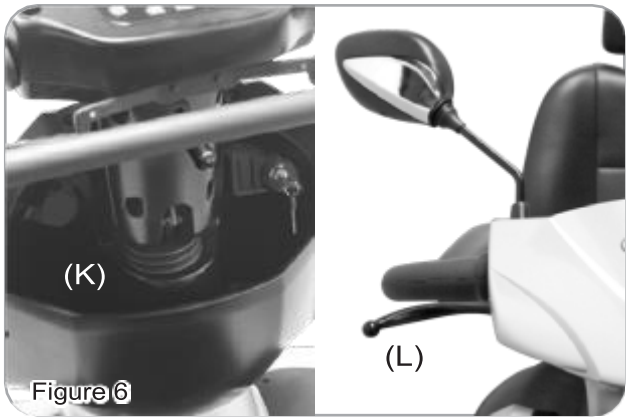


Figure 6

Wigwag Lever Operation

Pull the left-hand drive lever (M) carefully to travel forwards.

Pull the right-hand drive lever (N) carefully to travel in reverse.

(This can be reversed if required by local dealer.) Releasing both engages automatic brake. These are also your accelerator. The further you depress them, the faster you go. (Subject to the position of the Rabbit / Turtle control).

Keep LCD display panel and wigwag lever dry. If panel and wigwag lever get wet, allow to dry out before using.

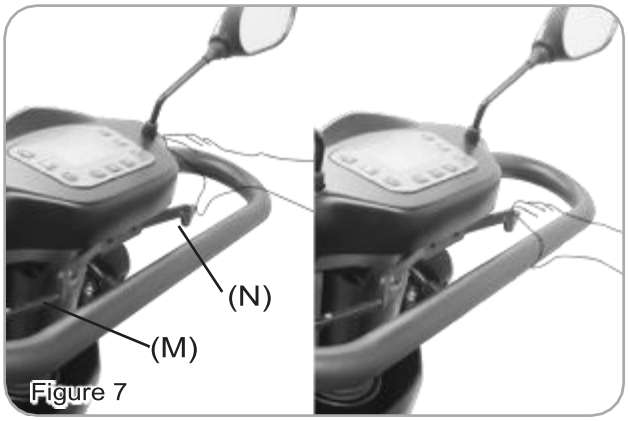


Figure 7

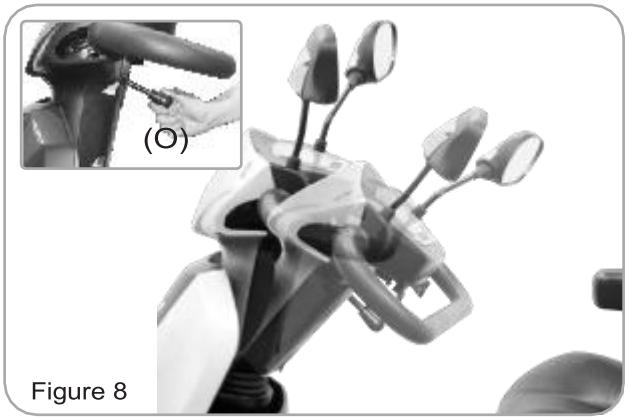


Figure 8

Steering Adjustment

By pressing angle adjustment (O) down to adjust to any comfortable angles.

Adjust angle adjustment while driving is prohibited.
Adjust steering to the foremost position before and after getting on the scooter.

Seat Fore-Aft Adjustment (P)

Pull the Seat fore-aft Adj Lever (Q) to disengage the seat (P). Slide the seat forwards or backwards into the required position. Let go of the lever (Q) again to lock the seat into its required position.

When driving the scooter, set the seat (P) at foremost position to prevent tip over.

Sit firmly on seat after getting on the scooter, do not stand on the foot rest to prevent tipping over or damaging to the scooter.

Angle Armrest Adjustment (R)

Pull the lever (S) and adjust the armrest to the required angle.

Pull the armrest up when get on or off the scooter.
Do not hang heavy parts on the armrests to cause tip over.

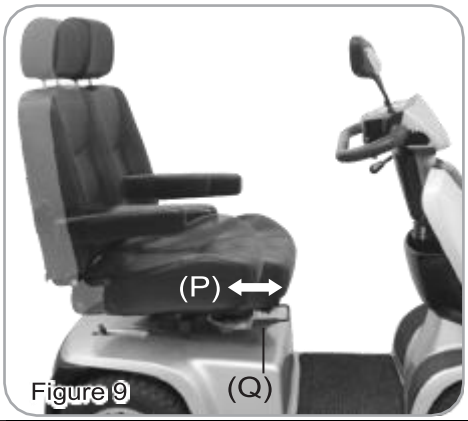


Figure 9

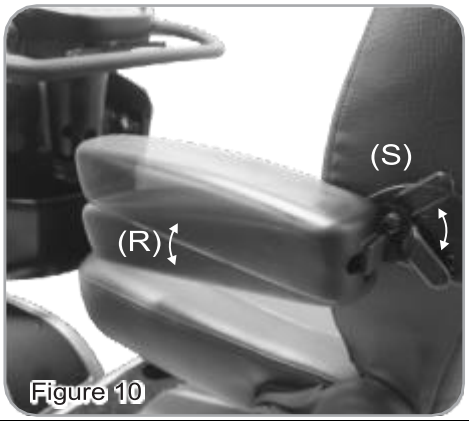


Figure 10

Seat Swivel Adjustment

Pull the lever (T) upwards to disengage and rotate seat (P) to required angle: Let go of the lever (T) to lock the seat into its required position.

Seat Back Angle Adjustment

Pull the lever (U) upwards to adjust backrest's angle, then release the lever when adjusted to required position.

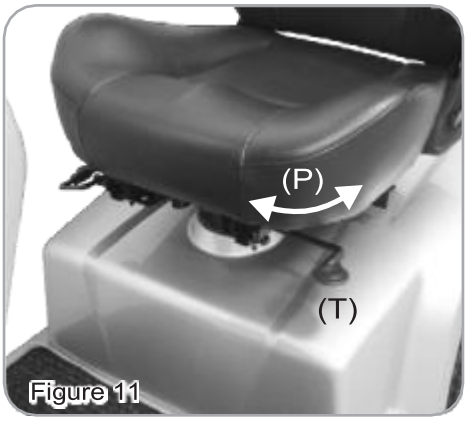


Figure 11

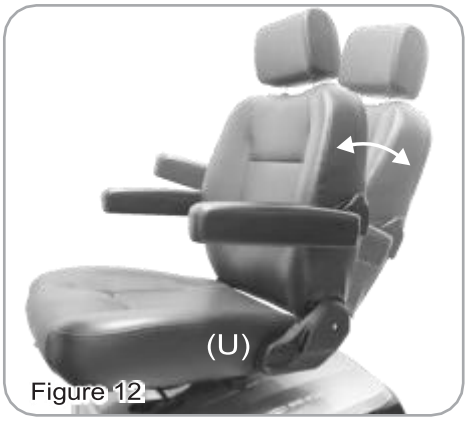


Figure 12

For safety reasons the backrest's position must remain vertical before driving.

Seat (P) Height Adjustment

1. Refer to page 13 for disassembly, then remove seat (P) and rear shroud (Z). (Figures 20 and 21)
2. Remove screw, nut and washer from seat post (V). (Figure 13)
3. Adjust seat post (V) to desired height and attach tightly with screw, nut and washers. (Figure 13)
4. Then assemble the rear shroud (Z) and seat (P) back to its original position. (Figures 20 and 21)

Seat (P) Electrical Lifter (Optional)

1. Press seat lifter button ⇧ (W) lightly. Seat will rise. Press ⇩ lightly. Seat will lower.

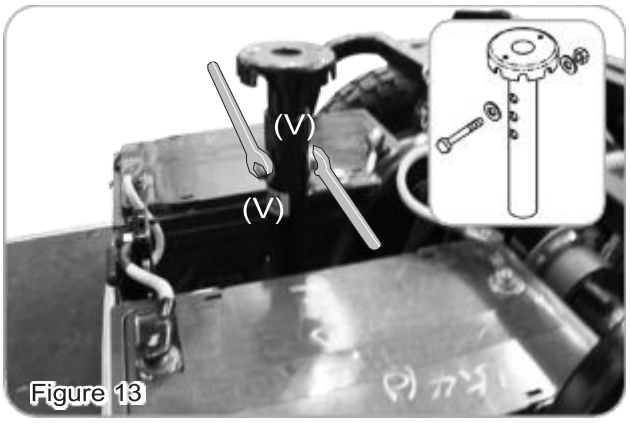


Figure 13

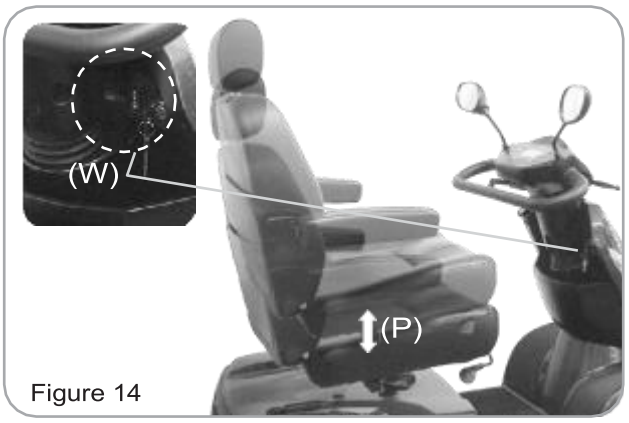


Figure 14

- Do not operate this function on a slope, or in motion or under unstable conditions.
- The main purpose of this function is to assist you to reach certain height.
- Seat's position must remain at the lowest before driving.
- Do not set N-D lever at N before setting the seat at lowest position.
- Please keep the center of gravity of the scooter in the middle to prevent the scooter tipping over.

N-D Lever Adjustment:

1. When scooter stopped or malfunctions, press the unlocking knob on the N-D lever (X).
   Push the N-D lever forwards. This will allow you to push the scooter by hand.

Freewheel operation is only recommended on flat surfaces, never on gradients. Never leave your scooter on a gradient with its motors disengaged. Always re-engage the motors immediately after pushing the scooter.

The scooter will not operate, if the N-D lever is set at N position. To restore to its normal status, you must switch the power off and adjust to D position, then switch the power on.

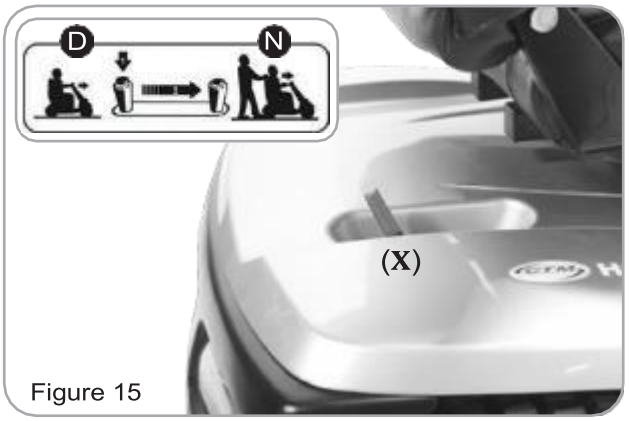


Figure 15

Proportional Speed Reduction:

1. The scooter is equipped with proportional speed reduction. It will automatically reduce speed when encountering a corner, reducing speed corresponding to the angle of turn.
2. For safety reasons, when pushing the scooter by hand, if a pre-determined speed is exceeded, the controller automatically switches on and brakes the scooter.

Avoid shifting your center of gravity as well as abrupt changes of direction when the scooter is in motion.

Reduce speed before negotiating corners! Only accelerate when you have come out of the corner!

Tie-Down Hook:

To enable you to transport your scooter safely and securely there are 2 additional tie-down hooks located on the underside of the scooter. (Figure 16)

When fixed on a transportation system, N-D lever (X) must located at D position. This scooter must not be occupied or used as a seat in a motor vehicle whilst being transported.

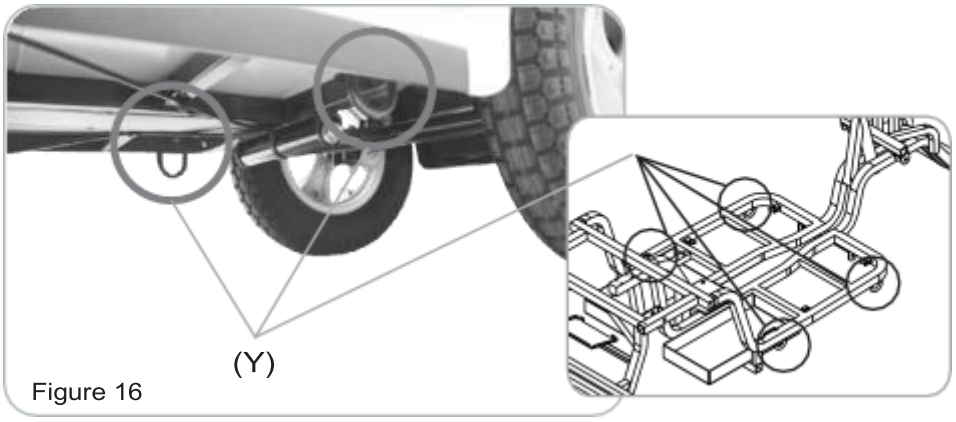


Figure 16

6 CHARGING THE BATTERIES

Batteries must be charged before using the scooter for the first time and should be recharged after each day use. You will need the scooter and the battery charger. Battery charger are available in 8A / 12A, depending on the sizes of batteries and model of the scooter.

Each country may supply different chargers. The charging procedure may be different from below. If you require more details, please contact your authorized dealer. Be sure the scooter key is in the OFF position before charging.

8A/12A Charger:

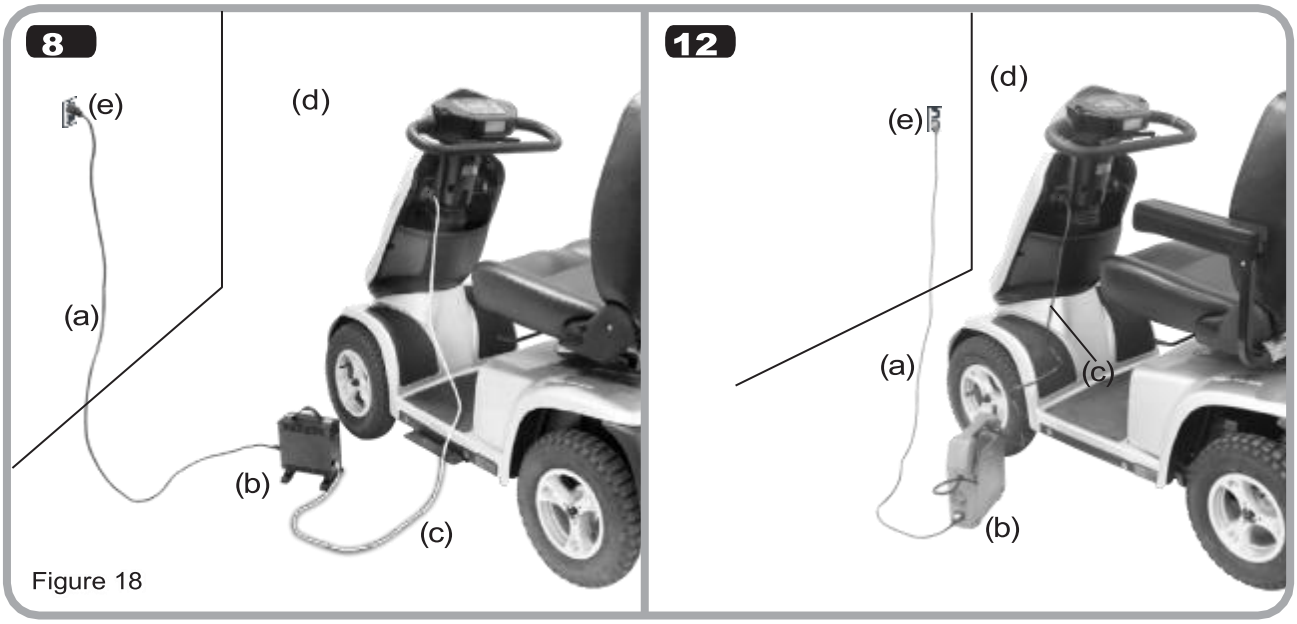


Figure 18

Operating Instructions:

1. Make sure the power cord (a), charger (b), charging cable (c) are in good condition.
2. Make sure the output voltage of charger is the same as the connecting battery / scooter.
3. Connect the connector of charging cable (c) to the charging socket (d).
   Plug In: Follow the index pin to plug in the connector.
   Unplug: Unplug the charging cable (c) from the socket.
4. Make sure the AC voltage is correct and plug in the power cord to power socket (e), the Charge LED light on the charger will turn on to yellow (12 A), orange (8 A) when it is in charging.
5. The Charge LED light on the charger will turn on to green when the battery / scooter is fully-charged.

LED Indication

12A

- Power on: On/off LED - Yellow light on
  Charge on: Charge LED:
  - Yellow light on =Normal charging
  - Green light flashing = 80 % fully charged
  - Green light on = Fully charged
  - Yellow light flashing = No batteries or incorrect batteries fitted
  - Red light on / flashing = Faulty

8A

- Power on: On/off LED - Green light flashing
- Charge on: Charge LED
  - Orange light flashing = Pre-charge
  - Orange light on = Normal charging
  - Green and orange light flashing = 80 % fully charged
  - Green light on = Fully charged
  - Red light flashing = Faulty

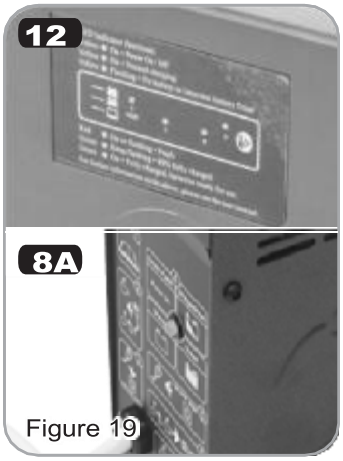


Figure 19

The time needed to recharge will vary depending on the depletion of the batteries. (Approx. 8 hours). Do not charge continuously for more than 15 hours.

Troubleshooting:

1. Charge LED light is off.
   Check to see if the connectors are well connected.
2. Power LED light is off.

Check to see if the input power cord has been connected correctly.

3. If the red light flashes during charging, it means the charger cannot charge normally and enters into protection mode. Please unplug the power cord and plug in again when the light is off.

Maintenance and repair must only be carried out by a competent engineer or authorised dealer or agent.

Warning:

- Only be used for 12 V lead-acid batteries, and not for other types of batteries or other voltage.

Keep in mind these rules:

- Fully charge batteries at least once a month, or more if you use scooter regularly.
- Charge after each trip exceeding 3 kilometers.
- If storing your scooter for some time (1 month or more), make sure that batteries are fully charged, and on returning, charge them again before using scooter.
- Batteries will only give maximum performance after scooter has been used, and batteries have been recharged up to 10 times. A bit like breaking in a new car.

Please be aware that the travelling range of your mobility scooter is impacted by how fast the batteries are discharged. This will depend on many circumstances, such as ambient temperature, condition of the surface of the road, tyre pressure, weight of the driver, driving environment (inclines etc.) and utilisation of your lighting system if fitted. We recommend that you test your local ride with a family member to ensure a safe journey.

7 DISASSEMBLING THE SCOOTER

Seat (P) Disassembling:

Pull the lever (T) upwards to disengage the seat (P), hold the seat (P) firmly by the backrest and front edge and remove it upwards.

If found the seat (P) uneasy to remove, hold seat swivel lever (R), and then rotate the seat to reduce resistance then pull up.

Proceed with caution, if you need assistance, please have some one to help you.

Rear Shroud (Z) and Batteries (C1) Disassembling:

1. Remove rear shroud (Z) upwards (Figure 20).
2. Unplug one battery connector (A1) (Figure 21).
3. Release hook-and-loop fastener (B1) (Figure 22).
4. Remove two batteries (C1) (Figure 23).

Take into account the heavy weight of the batteries (C1). Please consider your physical condition before disassembling.

DO NOT short-circuit battery connector (C1).

Battery's red wire plug connects to red positive location, black wire plug connects to black negative location.

For safety reasons, please wash your hands after disassembly.

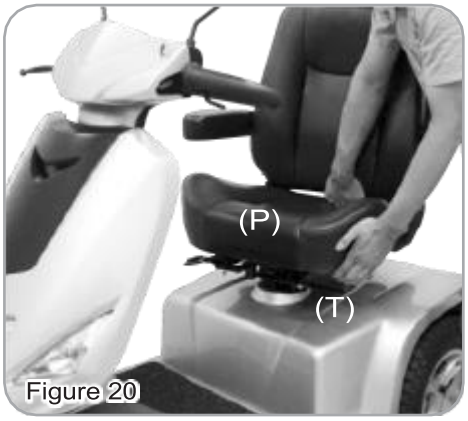


Figure 20

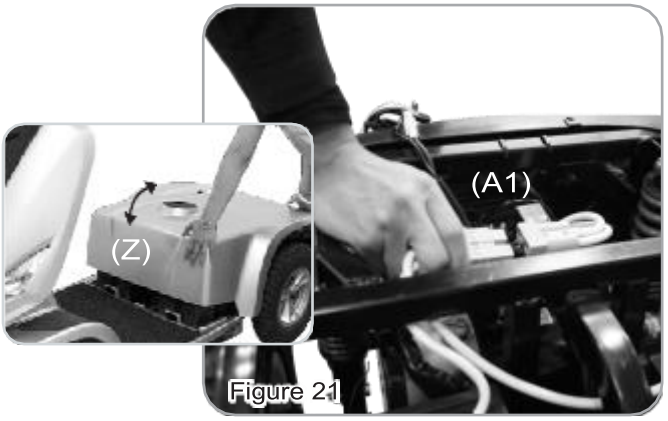


Figure 21

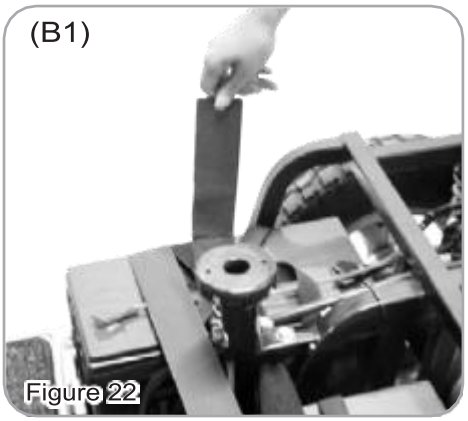


Figure 22

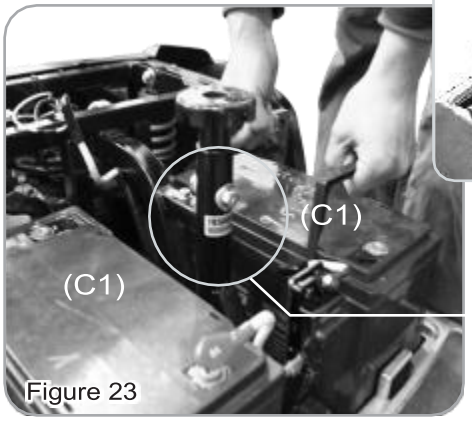


Figure 23

Information sticker of scooter

Resetting the Circuit Breaker:

Resetting the circuit breaker may be needed if scooter does not turn on and when a scooter's circuit over loaded, the circuit breaker will trip.

1. To reset, press the circuit breaker button (D1) upwards.
2. Reassemble the rear shroud (Z).
3. Reassemble the seat.
4. If the circuit breaker trips repeatedly, IMMEDIATELY unplug charger and contact dealer or a qualified technician.

NEVER defeat or bypass the circuit breaker.

ONLY replace with a circuit breaker of the same rating.

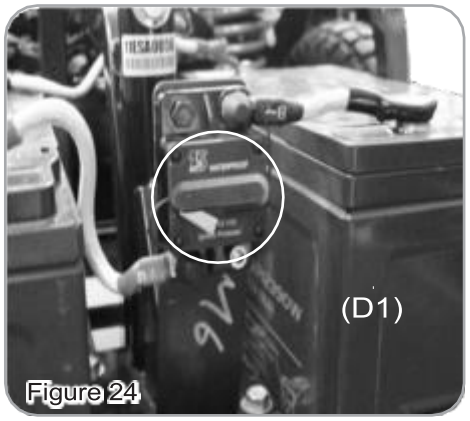


Figure 24

Figure 25

8 LCD DISPLAY PANEL

Figure 26

Function Buttons and Indicators

ITEM	SPECIFICATION
Control Buttons	Hazard Light, Horn, Right Turn Light, Headlight, Left Turn Light, Turtle (decelerate), H/L Speed, Rabbit (accelerate)
LED Indicators	Status Indicator (Green), Headlight Indicator (Green), Left / Right Indicators (Green), High/Low Speed Indicator (Green)
Connector	20PIN
LCD Back Light	Blue LEDs illuminate while power is on.

Function Descriptions

FUNCTION	SPECIFICATION
1. Full Lighting Control	Headlight, Taillight, Left / Right Turn Signal, Hazard Light, Brake Light
2. Speedometer	7 Segment display (2 1/2 digits +1 decimal) "km/h" and "mph" symbol
3. Digital High / Low Speed Control	Low (L) Speed: 1 - 5 Rate, High (H) Speed: 1 - 5 Rate
4. Power Indicator	Battery discharge and charging indicator (6 segments)
5. Malfunction Messages	Error code: 1~7 (1 digit) + LED Indicator
6. Key On Display	LCD full segments display
7. Warning Tone Setup	Volume adjustment for tones of Left / Right turn light, Parking light, Low voltage warning and horn

8.1 Full Lighting Control

Headlight, Taillight

ITEM	SPECIFICATION
Operation Feature	Take exterior headlight switch as determinant signal.
Control Mode	Press button to turn on headlight and turn signal and headlight indicator. Press button again to turn off headlight and turn signal and headlight indicator.
Usage Condition	While (1) controller shut down (2) on power-saving mode, all functions are closed.
Remarks	Loop Load of Headlight: 12 V/50 W Max. Loop Load of Taillight: 24 V/50 W Max. With "short circuit" and "overload" protection

Brake Light

ITEM	SPECIFICATION
Operation Feature	Take accelerator and manual brake as determinant signal.
Control Mode	While (1) Accelerator is moved from Forward to Center position, (2) Accelerator is moved from Backward to Center position or (3) Manual brake is operated, the vehicle is considered to brake. The brake light will be lit after 5 seconds. The light will switch off automatically.
Usage Condition	While (1) controller shut down (2) on power-saving mode, all functions are closed.
Remarks	Loop Load of Brake light: 24 V/50 W Max. With "short circuit" and "overload" protection

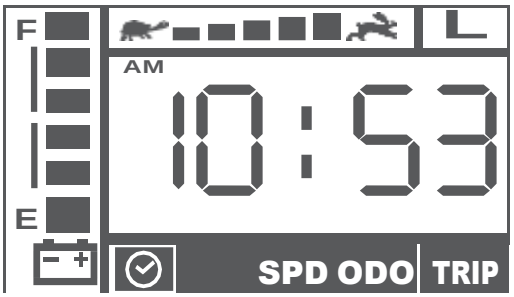
Turn Light and Parking Lights

ITEM	DESCRIPTIONS
(Control Mode) Left Turn Light	Press left-indicator button once. The left light and left indicator start to flash, and warning tone sounds simultaneously. Press button again to switch off the indicator / light and tone.
Right Turn Light	Press right-indicator button once. The right light and right indicator start to flash, and warning tone sounds simultaneously. Press button again to switch off the indicator / light and tone.
Automatic Turn Off	The direction lights and indicators will be turned off automatically while flashing for 30 seconds.
Hazard Lights	Press hazard indicator button once. The right / left lights and hazard indicator start to flash, warning tone acts as well. Press button again to turn off above indicators and tone. To activate the parking lights, press hazard indicator button once while KEY ON. The lights keep flashing even with KEY OFF.

Determinant Condition	There is no priority between left / right lights or parking lights.
Usage Condition	While (1) controller shut down (2) in charging-mode, the function will be disabled.
Flicker Frequency	1 second, Duty 50 %
Warning Tone Frequency	1 second, Duty 30 %
Remarks	(1) Load circuit for left turn light: 24 V/50 W max. (2) Load circuit for right turn light: 24 V/50 W max. (3) With "short circuit" and "overload" protection (4) The volume of warning tones for left / right turn lights, parking lights could be adjusted.

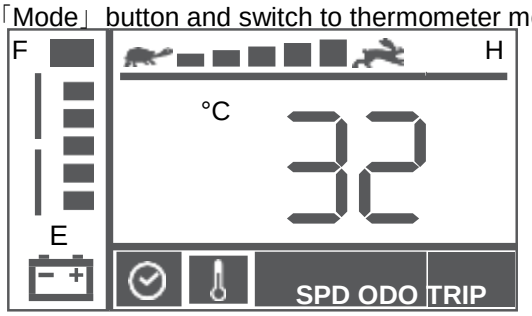
8.2 Mode

8.2.1 Clock

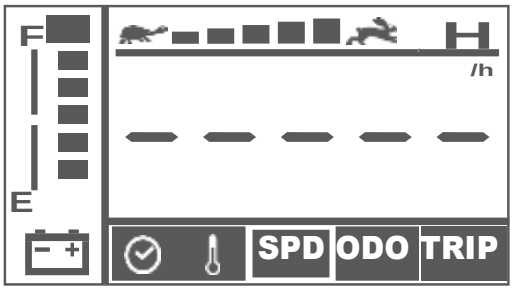
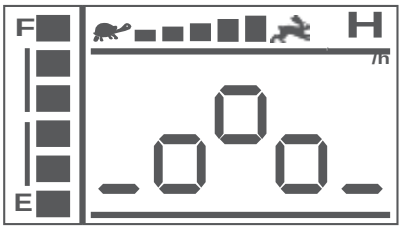
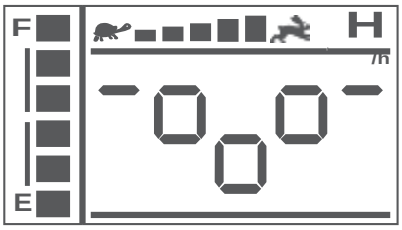
ITEM	DESCRIPTIONS
Timekeeping error per day	± 2 seconds
Initial Display	「HH」 「MM」 Mode:「AM 12:00」
Time Format (12 hours- AM/PM)	Press「Mode」button and switch to Clock mode.  Display range: AM12:00 ~ PM11:59 HH display: The "0 of ten's digit is invisible from 1 o'clock to 9 o'clock.
Setup Mode (Time adjustment)	Press + together for 3 secs to enter setup mode.
	While「HH」is flashing, Press to increase digits and to decrease digits. Press「Mode」to enter「MM」setup mode when finished.
	While「MM」is flashing, Press to increase digits and to decrease digits. Press「Mode」to return「HH」setup mode when finished.
	Press ( ) once to increase (decrease) one digit. The digits can increase (decrease) accumulating when pressing the buttons more than 2 secs. The display is cycling. It takes 2 secs to increase from 0 to 9 for each position.

Quit Setup Mode	The user could quit the setup mode with the following conditions. (1) Leave or buttons alone for 15 secs. (2) Press any button of Parking light, Horn, Turn light or Headlight. The definitive settings will be stored, and mode returns to normal clock mode.

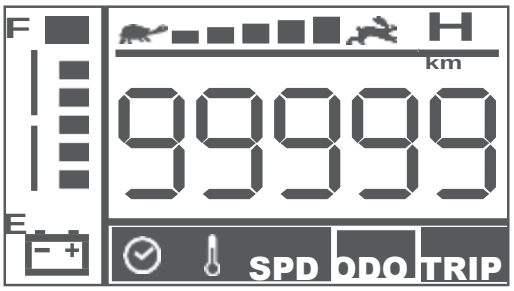
8.2.2 Thermometer

ITEM	DESCRIPTIONS
Operation Feature	Use thermistor (NTC) to detect the signal and transfers to related temperature.
Display Errors	± 2 °C
Operational Mode of Thermometer	Press「Mode」button and switch to thermometer mode  Display range: Centigrade -20~50 °C or Fahrenheit -4~122 °F
Setup Mode (Unit change)	Press + together for 3 secs to enter setup mode. While「°C」/ (「°F」) is flashing, press or to switch to「°F」/ (「°C」)
Quit Setup Mode	The user could quit the setup mode with the following conditions. (1) Leave or buttons alone for 15 secs. (1) Press any button of Parking light, Horn, Turn signal or Headlight, the definitive settings will be stored and return to normal thermometer mode.

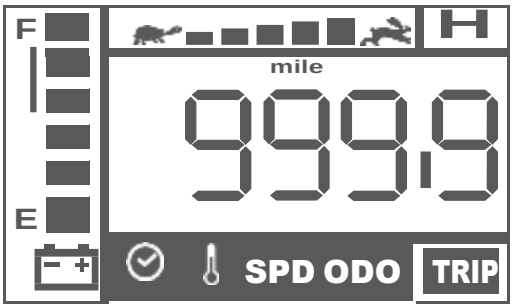
8.2.3 Speedometer

ITEM	DESCRIPTIONS
Operation Feature	Use optical coupler to detect the signal and transfer to related speed. Speed displays 60 km/h while it is on 1500 rpm.
Display Errors	+15~20 %
Display Range Operational mode of speedometer	0.0 ~ 30.0, display resolution: 0.5 Press「Mode」button and switch to speedometer When"km/h" is displayed, speed will be indicated in km per hour. When "MPH" is displayed, speed will be indicated in miles per hour. When "/h" is displayed, the function of speedometer will be disabled. (This display will be applied to the model that is not equipped with optical coupler.) And the display will be replaced to WIP (accelerator) operation indicator as follows: Standby Indication  Forward Indication Backward Indication  
Setup Mode (Unit change)	Press + together for 3 secs to enter setup mode. While「km/h」/ (「MPH」) is flashing, press or to switch to「MPH」/(「km/h」). The user could quit the setup mode with the following conditions. (1) Leave or buttons alone for 15 secs. (2) Press any button of Parking light, Horn, Turn light or Headlight, the definitive settings will be stored and return to normal speedometer mode.

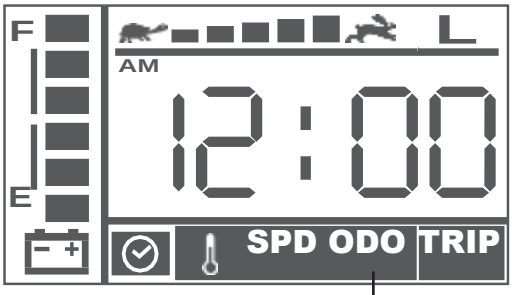
8.2.4 Odometer

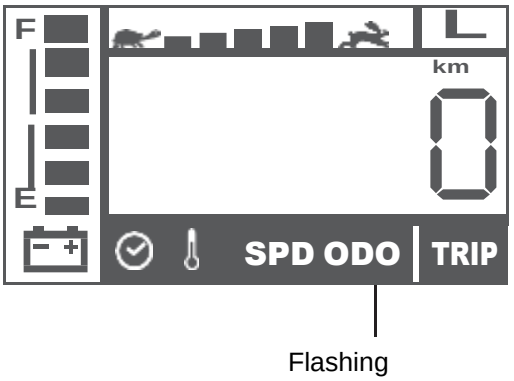
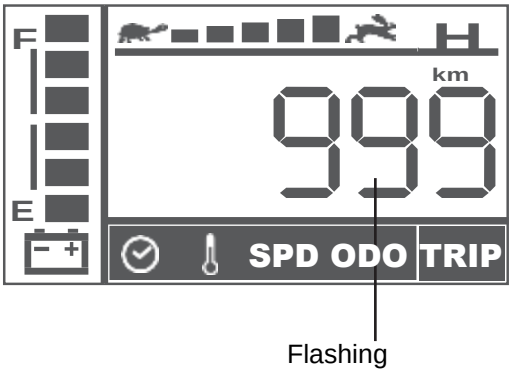
ITEM	DESCRIPTIONS
Operation Feature	Use optical coupler to detect the signal and transfer to related distances.
Unit Switch	When speedometer was set as: 「km/h」, the odometer displays as kilometer, 「mph」, the odometer displays as mile, 「/h」, means the odometer is displaying as travel hours.
ODO Mode	Press「Mode」button and switch to ODO mode.  Display range: 0~99999 When the total distance goes to 99999 km or 62149 miles (99999÷1.609 miles), the digits will be reset to zero "0".

8.2.5 TRIP Mode

ITEM	DESCRIPTIONS
TRIP Mode	Press「Mode」button and switch to TRIP mode.  Display range: 0.0~999.9 When the distance goes to 999.9, the counter will stop.
Reset Mode (Reset TRIP to Zero)	Press + together for 3 secs to enter setup mode. While「TRIP」is flashing, press「Mode」for 3 secs to reset to zero "0.0”
Quit Setup Mode	The user could quit the setup mode with the following conditions. (1) Leave「Mode」button alone for 15 secs. (2) Press any button of Parking light, Horn, Turn signal or Headlight. The definitive settings will be stored and return to normal TRIP mode.

8.3 Notice to Routine Maintenance for certain mileage

ITEM	DESCRIPTIONS
Display I for Routine Maintenance	The initial mileage of routine maintenance is 5,000 km. Display: When it reaches the mileage for routine maintenance, ODO symbol will start to flash for 1 minute. Time to display: 1. When the ODO reaches the mileage for routine maintenance during driving. 2. When the ODO reaches the mileage for routine maintenance during Key On.  Flashing PS. During flashing, the mobility vehicle could be driven normally and the control panel could be operated without any delay.
Display II for Routine Maintenance	After the routine maintenance is finished, the user could setup the mileage for next maintenance. (Count down setting) Setup steps: 1. Press「Mode」button and switch to ODO mode. 2. Key off to shut down the controller. 3. Press「Mode」and「H/L」buttons together. 4. Key on to start the controller. 5. The display will enter setup mode in 2 secs, the mileage will be flashing (as Note 1). 6. Press or button to adjust to the mileage for next maintenance (as Note 2). 7. After setup is finished, press any button of Parking light, Horn, Turn signal or Headlight. The definitive settings will be stored and return to normal working mode. 8. The display will quit to normal working mode when the user does not press a button in 10 secs.

Display II for Routine Maintenance	Note 1: Setup mode The mileage counts down to 0 km  The mileage does not count down to 0 km.  Note 2: Press or button to adjust to the mileage for next maintenance. Press to increase the mileage: 1000→2000→3000→4000→5000→OFF→1000. (displays in cycling) Press to decrease the mileage: OFF→5000→4000→3000→2000→1000→OFF. (displays in cycling)

8.4 Digital High / Low Speed Control

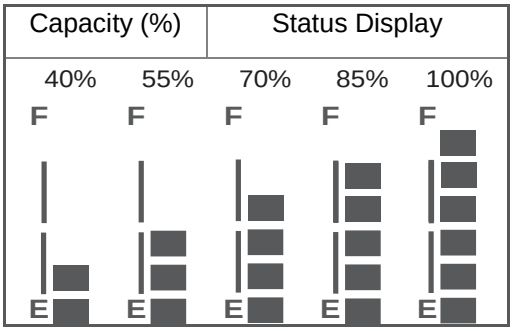
ITEM	DESCRIPTIONS
Operation Feature	Press「H/L Speed」 button to switch High/Low speed. Press or to fine tune in 5 speeds.
Control Mode	Press「H/L Speed」 button once. The High/Low Speed Indicator (H) will light on. Press again, the indicator will light off. Press button to increase the speed. Press button to decrease the speed.

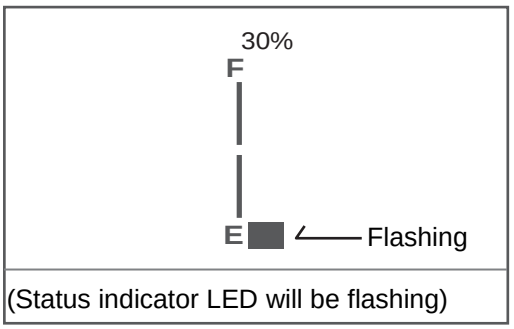
Speed Display	H % (Max)	L % (Max)
	20	10
	40	20
	60	30
	80	40
	100	50

Usage Condition	While (1) controller shut down (2) in charging-mode, the function will be disabled.

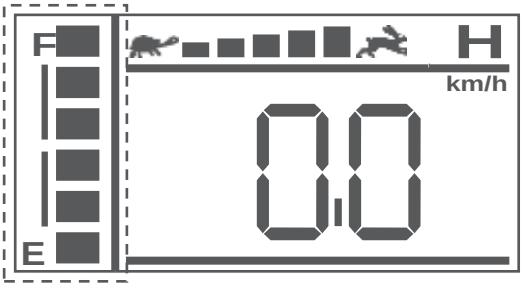
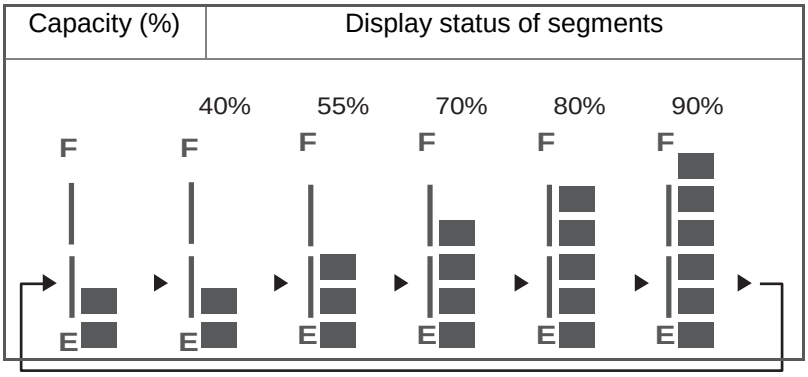
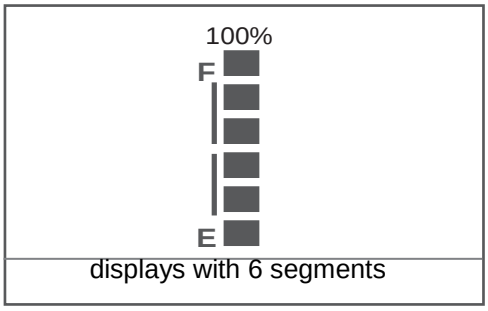
8.5 Power Indicator

ITEM	DESCRIPTIONS
Discharge Capacity	
Operation Characters	The segments will decrease only, will not increase.
Low Voltage Warning Tone	When the battery capacity is lower than 30 %, the warning tone will beep once with "BiBi — BiBi — BiBi" 3 short double beeps.
Flicker Frequency	Once per two seconds.
Usage Condition	While (1) controller shut down (2) in charging-mode, the function will be disabled.





Charge Status

ITEM	DESCRIPTIONS
Charge Status	The charging status displays with segments cycling, increasing only, will not decrease. 
Charging Indication	 
Increasing ratio	0.5 seconds
Operation Feature	1. The segments will increase only, will not decrease. 2. Take PIN3 (CH3) of charger as determinant signal. No matter of KEY ON or KEY OFF, the charging mode will be activated once CH3 is connected to Ground (L). 3. The LCD back light will be ON while any button is pressed. It will light off automatically in 5 seconds if no button has been pressed.
Remarks	Displayed segments are for reference only. Please refer to indicator of charger for more accurate charging status.

8.6 Malfunction Messages

ITEM	DESCRIPTIONS
Operation Feature	Take the connector pin (KEY) of controller as determinant signal, then converts it into digital codes.
Usage Condition	When the controller sends out an error message, ⏻ (LED) starts flashing to wait for confirmation and displays the "Error message code" as follows.

⏻ flashing	LCD code	Status
1	Err 1	Battery needs charging soon.
2	Err 2	Low voltage, needs charging now.
3	Err 3	Over voltage
4	Err 4	Over current
5	Err 5	Park Brake is lost or faulted.
6	Err 6	Accelerator not aligns in center.
7	Err 7	Accelerator is broken or faulted.
8	Err 8	Motor is broken or faulted.
9	Err 9	Others

8.7 Key On Display

ITEM	DESCRIPTIONS
Initial Status	When scooter powers on, the backlight and all LCD segments will be turned on for 3 seconds, then switch to the default working mode automatically.

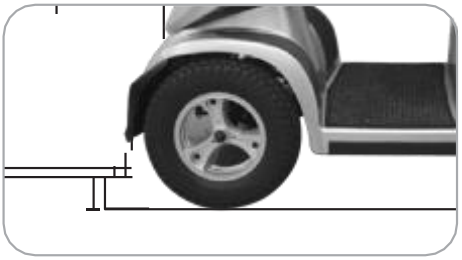
8.8 Warning Tone Setup

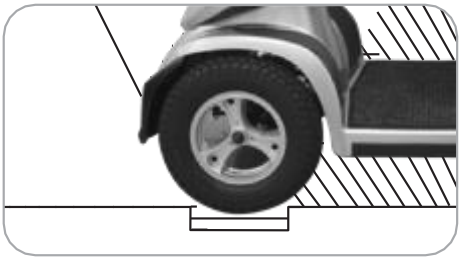
ITEM	DESCRIPTIONS
Operation Feature	The volume of warning tones of Parking light, Reverse, Horn, Low voltage and Turn signal could be adjusted or turned off. (Except you cannot turn off the Horn.)

Function	Buttons (A+B)	Status	Initial	Volume
Parking Light Warning Tone	D + △	SET 1	Less Loud	>> Increase volume << Decrease volume
Reverse Warning Tone	D + MODE	SET 2	Less Loud	Volume
Volume of Horn	D +	SET 3	Loud	Loud Less Loud
Low Voltage Warning Tone	D +	SET 4	Less Loud	Normal
Turn Light Warning Tone	D +	SET 5	Less Loud	Quiet Silent

9 CAUTION

1. Obstacle Climbing:
   Your scooter can climb obstacles and kerbs of up to 6 cm (10 cm with run-up) in height. Never attempt to overcome an obstacle when on an uphill or downhill gradient!
   Always approach obstacles straight on! Ensure that the front wheels and rear wheels move over the obstacle in one stroke. Do not stop halfway!
2. The maximum gap the scooter can drive over is 22cm.





When driving scooter on ramp, adjust body center of gravity to keep scooter safer.

General driving posture

On ramp, forward your body will let scooter more safety.

In the unlikely event of a panel display error, you need to re-set the display system by cycling the on/off main switch. The display circuitry is independent of the motor control system. A display console error does not affect scooter speed control.

OTHER

1. Charge the batteries after each trip. If the scooter is not used for some time, batteries must be charged at less once a month. Make sure that batteries are fully charged, and on returning, charge them again before using scooter.
2. Check the battery gauge before driving to prevent power depletion.
3. Do not disassemble battery and open sealed parts by yourself to prevent electric shock and burns from acid leakage.
4. Adjust speed to a slow speed when starting off to prevent sudden acceleration.
5. Never attempt to drive downhill backwards.
6. Try not to drive scooter at night or in rain or bad weather.
7. If storing your scooter for a long time (1 month or more), make sure that batteries are fully charged, then disconnect the two batteries plugs (W), and store the scooter in a dry, well-ventilated environment. Do not leave the scooter in direct sunlight for prolonged periods. Metal parts and surfaces such as the seat and armrests can become very hot.

10 CARE AND MAINTENANCE

Cleaning Your Scooter

Do not use any abrasive or scouring liquids for cleaning. Only use a damp cloth and gentle detergent. Do not use a hose pipe or splash water directly onto the scooter as this may cause damage to electronics.

Tires

User should inspect the tires frequently for damage, the presence of foreign bodies, unusual wear and sufficient tread depth. If replacement tires are needed, please contact the nearest provider.

Front wheels: 15 inch air tires

Rear wheels: 15 inch air tires

The following areas require periodic inspection:

- Tire pressure between 2.4-2.8 bar (35-40 psi)
- Tread depth drops below 1/16 inch

Follow these easy steps to replace the tire:

1. Use a ratchet and socket to remove the drive wheel screw from the centre hub of the wheel.
2. Pull off the wheel of the axle.
3. Separate the tire from the rim.
4. Remove the old tire and replace it with a new tire.
5. Slide the wheel back onto the shaft.
6. Install the drive wheel nut into the centre hub and verify the key is lined up with axle and wheel. Then tighten to secure it in place.

All maintenance and repair of scooter should be done by an authorized dealer.

Recycling and Disposal

- The equipment wrapping is potentially recyclable.
- The metal parts are used for scrap metal recycling.
- The plastic parts are used for plastic recycling.
- Electric components and printed circuit boards are disposed of as electronic scrap.
- Exhausted or damaged batteries can be returned to your medical equipment supplier.
- Disposal must be carried out in accordance with the respective national legal provisions.
- Ask your city or district council for details of the local waste management companies.

Service life

We estimate a service life of five years for this product, provided it is used in strict accordance with the intended use as set out in this document and all maintenance and service requirements are met. The estimated service life can be exceeded if the product is carefully used and properly maintained, and provided technical and scientific advances do not result in technical limitations. The service life can also be considerably reduced by extreme or incorrect usage. The fact that we estimate a service life for this product does not constitute an additional warranty.

11 TECHNICAL SPECIFICATIONS

Overall Length	1600 mm / 63.0 inch
Overall Width	720 mm / 28.3 inch
Overall Height	1280 mm / 50.0 inch
Front Wheels	380 mm / 15 inch
Rear Wheels	380 mm / 15 inch
Weight with Batteries	178 kg / 392 lbs
Max. Speed	15 kmph / 9.3 mph (12.8 kmph / 8.0 mph)
Weight Capacity	226 kg / 500 lbs
Ground Clearance	110 mm / 4.3 inch
Climbable Grade	9 degree
Climbable Kerb Height	90 mm / 3.5 inch
Turning Radius	1860 mm / 73.2 inch
Min. Turn Around Width	Reversing width 2270 mm / 89 inch Pivot width 3470 mm / 137 inch
Suspension	Front and rear
Brake	Hand brake and electro-mechanical
Seat Type	Swivelling Captain seat with seat sliding mechanism and back angle adjustment
Seat Width	559 mm / 22 inch
Motor Size	800W, 4300 r.p.m.
Battery Size	(2) 12V. 100Ah
Weight of Battery	65.3 kg / 144 lbs

*Subject to change without notice.

1. The travel range is tested according to ISO 7176-4. Range will be affected by external factors, such as the weight of user, status of the batteries, speed setting of scooter, condition of the road, temperature, tire pressure, drive style, and utilization of batteries for lighting, heater, etc.
2. The travel range will be 44km without using electric heater. If using the electric heater for the entire journey, the travel range will reduce to 33km.
3. The curb climbable is measured with run-up.

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Invacare representatives/distributors

Belgium & Luxemburg:
Invacare nv
Autobaan 22
B-8210 Loppem
Tel: (32) (0)50 83 10 10
Fax: (32) (0)50 83 10 11
belgium@invacare.com
www.invacare.be

Danmark:
Invacare A/S
Sdr. Ringvej 37
DK-2605 Brøndby
Tel: (45) (0)36 90 00 00
Fax: (45) (0)36 90 00 01
denmark@invacare.com
www.invacare.dk

Deutschland:
Invacare GmbH,
Alemannenstraße 10
D-88316 Isny
Tel: (49) (0)7562 700 0
Fax: (49) (0)7562 700 66
kontakt@invacare.com
www.invacare.de

Eastern Europe, Middle East & CIS:
Invacare EU Export
Kleiststraße 49
D-32457 Porta Westfalica / Germany
Tel: (49) (0)57 31 754 540
Fax: (49) (0)57 31 754 541
webinfo-eu-export@invacare.com
www.invacare-eu-export.com

España:
Invacare SA
c/Areny s/n, Polígon Industrial de
Celrà
E-17460 Celrà (Girona)
Tel: (34) (0)972 49 32 00
Fax: (34) (0)972 49 32 20
contactsp@invacare.com
www.invacare.es

France:
Invacare Poirier SAS
Route de St Roch
F-37230 Fondettes
Tel: (33) (0)2 47 62 64 66
Fax: (33) (0)2 47 42 12 24
contactfr@invacare.com
www.invacare.fr

Ireland:
Invacare Ireland Ltd,
Unit 5 Seatown Business Campus
Seatown Road, Swords,
County Dublin
Tel : (353) 1 810 7084
Fax: (353) 1 810 7085
ireland@invacare.com
www.invacare.ie

Italia:
Invacare Mecc San s.r.l.,
Via dei Pini 62,
I-36016 Thiene (VI)
Tel: (39) 0445 38 00 59
Fax: (39) 0445 38 00 34
italia@invacare.com
www.invacare.it

Nederland:
Invacare BV
Galvanistraat 14-3
NL-6716 AE Ede
Tel: (31) (0)318 695 757
Fax: (31) (0)318 695 758
nederland@invacare.com
www.invacare.nl

Norge:
Invacare AS
Grensesvingen 9, Postboks 6230,
Etterstad
N-0603 Oslo
Tel: (47) (0)22 57 95 00
Fax: (47) (0)22 57 95 01
norway@invacare.com
www.invacare.no

Österreich:
Invacare Austria GmbH
Herzog-Odilo-Straße 101
A-5310 Mondsee-Tiefgraben
Tel: (43) 6232 5535 0
Fax: (43) 6232 5535 4
info-austria@invacare.com
www.invacare.at

Portugal:
Invacare Lda
Rua Estrada Velha, 949
P-4465-784 Leça do Balio
Tel: (351) (0)225 1059 46/47
Fax: (351) (0)225 1057 39
portugal@invacare.com
www.invacare.pt

Suomi:
Camp Mobility
Patamäenkatu 5, 33900
Tampere
Puhelin 09-35076310
info@campmobility.fi
www.campmobility.fi

Sverige:
Invacare AB
Fagerstagatan 9
S-163 53 Spånga
Tel: (46) (0)8 761 70 90
Fax: (46) (0)8 761 81 08
sweden@invacare.com
www.invacare.se

Schweiz / Suisse / Svizzera:
Invacare AG
Benkenstrasse 260
CH-4108 Witterswil
Tel: (41) (0)61 487 70 80
Fax: (41) (0)61 487 70 81
switzerland@invacare.com
www.invacare.ch

United Kingdom:
Invacare Limited
Pencoed Technology Park, Pencoed
Bridgend CF35 5AQ
Tel: (44) (0) 1656 776 222
Fax: (44) (0) 1656 776 220
uk@invacare.com
www.invacare.co.uk

EC REP

European representative:
EMERGO EUROPE
Prinsessegracht 20
2514 AP, The Hague
The Netherlands

Manufacturer:
CHIEN TI ENTERPRISE CO. LTD. No. 13, Lane 227, Fu Ying Road Hsin Chuang, Taipei, Taiwan R.O.C