drive™

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ST3

User Manual

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INTRODUCTION

Thank you and congratulation on purchasing your new Drive Medical Ltd. Mobility Scooter. It is designed to provide you with transportation ability indoors and outdoors.

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

Please read and observe all warning and instruction provided in owner's manual before you operate with various convenient function of this scooter. Also, please retain this booklet for future reference.

If you have any question, you can contact :

or your local dealer:

Information of European Representative :

EMERGO EUROPE
Molenstraat 15
2513 BH, The Hague
The Netherlands

IMPORTANT PRECAUTIONS

- This scooter is designed for single person use only at any one time.
- Maximum user weight is 130 kg / 287 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 slope exceeding 8 degree, and take extreme care when turning on slope.
- Do not use full power when turning to sharp corner.
- Take great care and drive in low speed when backing up, riding downhill or on uneven surface, and climbing curb.
- Please use the lowest speed when driving through the descending road or uneven terrain. If speed is too fast, leave your hand off the handle bar, let the scooter stop. Make sure safety and start again.
- A slow speed must always be used when ascending, descending or traversing aslope or incline and also on uneven terrain, ramps and soft or loose surfaces, such as gravel or grass.
- To prevent any danger, do not turn around at high speed on ascending, descending ramp.
- 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; may cause the powered scooter to prematurely rust.
- Never put scooter in neutral when staying on slopes.
- Follow traffic laws when riding outside.
- When scooter on moving transport vehicles, do not sit or stay on scooter.

ELECTROMAGNETIC INTERFERENCE AND WARNINGS

CAUTION: It is very important that you read this information regarding the possible effects of Electromagnetic Interference on your motorized scooter.

Powered wheelchairs and motorized 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 cellular phones. The interference (from radio wave sources) can cause the motorized scooter to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the motorized scooter control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each motorized scooter can resist EMI up to certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI. This immunity level of this motorized scooter model is 20 V/m.

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, cellular telephones, and other personal communication devices;

⚠ **Some cellular telephones 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; and

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 motorized scooter.**

Motorized Scooter Electromagnetic Interference：

Because EM energy rapidly becomes more intense as one move 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 motorized scooter movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the motorized scooter.

Warnings：

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect motorized scooters. Following the warnings listed below should reduce the chance of unintended brake release or motorized 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 cellular phones, while the motorized 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 motorized scooter OFF as soon as it is safe;

4.Be aware that adding accessories or components, or modifying the motorized scooter, may make it more susceptible to EMI; and

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

5.Report all incidents of unintended movement or brake release to the distributor listed on the inside front cover 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 20 V/m.

IDENTIFICATION OF PARTS

Before attempting to drive this scooter on your own, it is important that you familiarize yourself with the controls, and how to operate them.

Figure 1 - ST-3 Front View

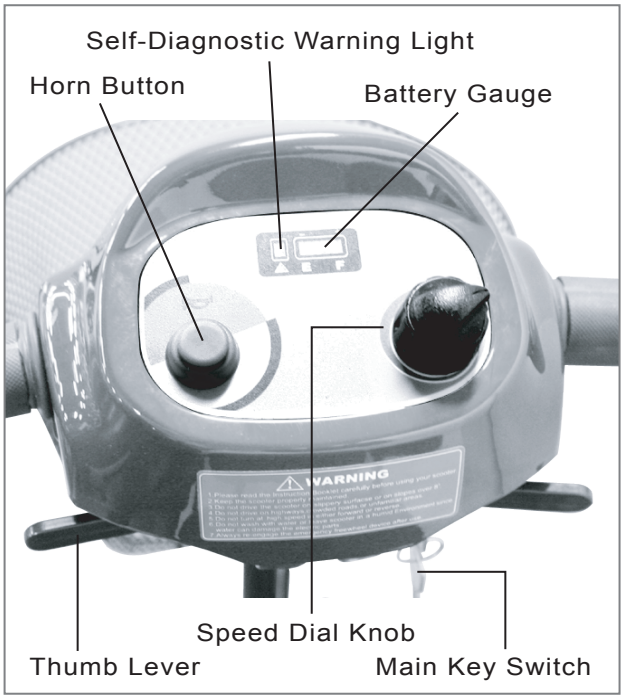

Figure 2 - ST-3 Top Control Panel

Figure 3 - ST-3 Back View

Function Of Parts :

TOP CONTROL PANEL

• Speed Dial Knob

The image of rabbit means fast or high speed. The image of turtle means slow or low speed. By turning this knob towards chosen image you can control overall speed of the vehicle.

• Self Diagnostic Warning Light

Flashing light indicates there is a problem within scooter. See page 18 for more information.

• Battery Gauge

The meter gives an approximation of battery strength. Green indicates a fully charged battery. Without any Green light means no power, required to charge batteries immediately.

ADJACENT TO TOP CONTROL PANEL

• Thumb Lever

Pushing right thumb lever forward moves scooter forward. Pushing left thumb lever forward will move scooter backward. (This configuration can be reversed if required by local authorized dealer.) While in use this lever is also your accelerator. The further you depress the thumb lever, the faster you will go. (NOTE: subject to the position of the rabbit/turtle control). Releasing the thumb lever engages the automatic brake.

AT BASE OF TILLER

• Tiller Angle Adjustment

Rotate the Hand Wheel Tiller Angle Adjustment to adjust your most comfortable angle.

BELOW SEAT

• Seat Lock Knob

There are three holes on seat post to adjust seat height. Be sure detent pin is fully inserted at its new height and bolt is tightened.

• Seat Rotation Lever

Lift lever to rotate seat. Please be careful when getting on or off scooter with seat in a swiveled position. The stability of seat may be compromised.

• Armrest Width Adjustment Thumbscrews

Loosen two thumbscrews to adjust arm width; tighten again to lock in desired position.

REAR BODY

• Anti-Tip Wheels

Added safety feature to keep scooter from tipping over.

• Free-Wheel Lever

The scooter carn be pushed manually. To do this you must push the free wheel lever upward to the N position. pull free wheel lever to D to engage brake system.

OPERATING YOUR SCOOTER

Before beginning your journey with your new scooter, make sure that scooter is on a level surface and clear of any obstacles. Although your scooter is able to climb slopes, it is safer to practice on a level surface.

You could make the following adjustments to increase your comfort when driving :

- adjust seat height and location.
- adjust armrest width to comfortable position.
- adjust the tiller angle.

1.Before operating your scooter, check the following:
- free-wheel lever is engaged.
- speed dial knob is at picture of turtle.

2.Sit on scooter and turn on the key. All Battery gauge LED lights should lit. The self-diagnostic warning light should not be flashing.

3.When your hands rest comfortably on handlebars, the thumb levers should be within reach. Right lever moves the scooter forward; left one moves it in reverse. When you release the thumb lever, the scooter will stop.

> ⚠ **This scooter has an automatic braking system. Release the thumb control and brakes will engage.**

4.Steering the scooter is done by turning the whole tiller in the direction of intended travel.

5.Practice driving the scooter in an area with no obstacles to familiarise yourself with the turning and starting/stopping operations Start at the slowest speed and drive forwards and backwards. As you become comfortable you can increase the speed by turning the speed dial towards the picture of the rabbit.

6.If the only two-battery gauge LED lights are lit, you should recharge the batteries as soon as possible.

7.If scooter stops and does not function, locate the circuit breaker on top of the battery pack. Push it and try the scooter again.

8.When you driving the scooter, turn off the key before getting off.

9.When the scooter is not being used the batteries should be placed on charge.
See CHARGING THE BATTERIES on page 15.

Keep in mind these rules :

- Release the thumb levers and allow the scooter to stop completely before changing from forward to reverse, or reverse to forward.

- When negotiating a corner always turn slightly wider than necessary as the rear wheels take a sharper and more direct route and not that of the front steering wheels.

- A slow speed must always be used when ascending, descending or traversing a slope or incline and also on uneven terrain, ramps and soft or loose surfaces, such as gravel or grass.

Other Operating Information :

Hill climbing: You may need to use a higher speed for hill climbing. For a higher speed, set the speed control toward the image of the rabbit.

Down Slopes: To proceed down steep slopes slowly, set the speed control in the proximity of the turtle. This enables driver control, as the closer the speed control is set toward the turtle, the slower the scooter will travel. However, this scooter will not self accelerate down hills due to the automatic braking taking effect should you attempt to drive too fast.

Kerb climbing: Approach slowly at right angles to the kerb. A direct approach is needed. Do not attempt to climb curbs greater than a 1.2" for the ST-3.

If Self-Diagnostic Warning Light starts to flash, identify problem from the chart on page 18 and take action.

If scooter does not function and must be moved, dismount the scooter, push Free-Wheeling Lever forward to disable drive and brake system. Move scooter slowly to a safe location, and push Free-Wheeling Lever backward to take scooter out of free wheel mode.

As safety feature, an automatic speed reducer engages when scooter is pushed too quick and in Free-Wheeling mode.

Do not attempt climb an incline grade of over 8 degrees :

Attempting to turn scooter on a slope is not recommended, but if this is necessary turn scooter speed down to its minimum (turtle position) before proceeding.

When turning scooter it is recommended to turn speed down.

Do not attempt to climb kerbs or slopes if surface is rough, wet or slippery.

If you attempt to climb a kerbs or slope and scooter fails or stops, turn power off and ther on again to reset system. Set speed to its minimum (turtle position) and reverse scooter down obstacle. Do not attempt to transverse obstacle or try to turn scooter around.

Do not leave scooter exposed to rain or snow of any kind with out additional protection. Do not leave scooter in a damp area for any length of time. Direct exposure to rain, snow or dampness may cause scooter to malfunction electronically and may cause it to prematurely rust.

DISASSEMBLING YOUR SCOOTER

Taking apart your scooter enables you to save space when keeping it in storage or to carry it along in your vehicle when going away from home. No tools are reguired to disassemble the scooter. Please follow these steps:

Remove seat by pulling up Seat Rotation Lever (A). Then lift the seat up from scooter. (See Fig. 4)

Push Release Lever (B) backward and pull Battery Pack Handle (C) to re-move batteries from scooter. Caution: batteries are heavy. When lifting please use correct lifting posture to avoid injury. Ask for assistance if necessary.(See Fig. 5)

Figure 4

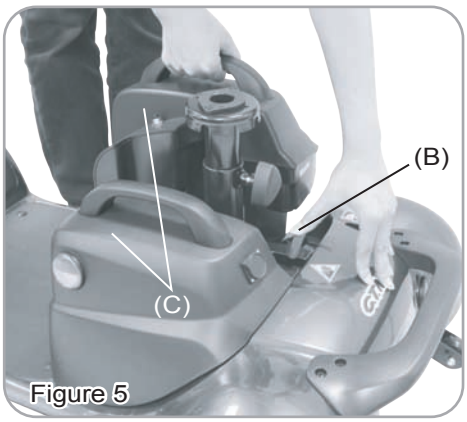

Figure 5

Hold Seat Receiving Post (D) and push the Release Lever (E) backward to unlock battery pack.(See Fig. 6)

Hold Seat Receiving Post (F) and lift up front section. Front and rear sections can be separated.(See Fig. 7)

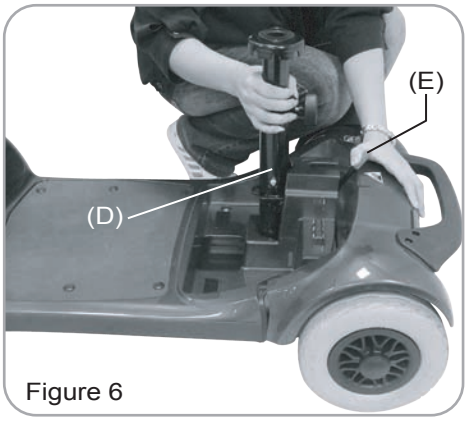

Figure 6

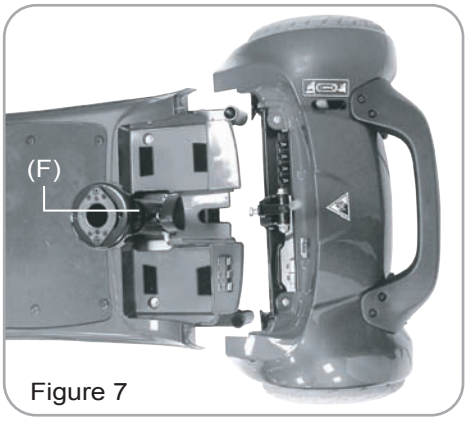

Figure 7

Remove Front Basket (G) by lifting.(See Fig. 8)

Rotate Hand Wheel Tiller Angle Adjustment (H) counterclockwise to adjust tiller down. Rotate Wheel clockwise to lock tiller.(See Fig. 9)

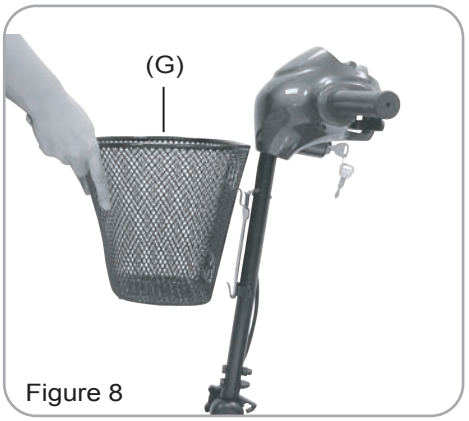

Figure 8

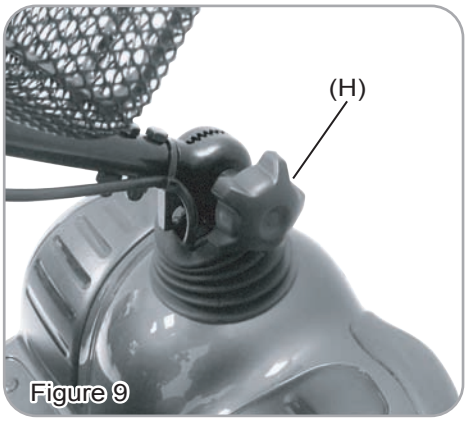

Figure 9

Pictured are 5 main parts after disassembling scooter. These parts consist of Front and Rear Sections, Seat, Basket, and Battery pack.(See Fig. 10)

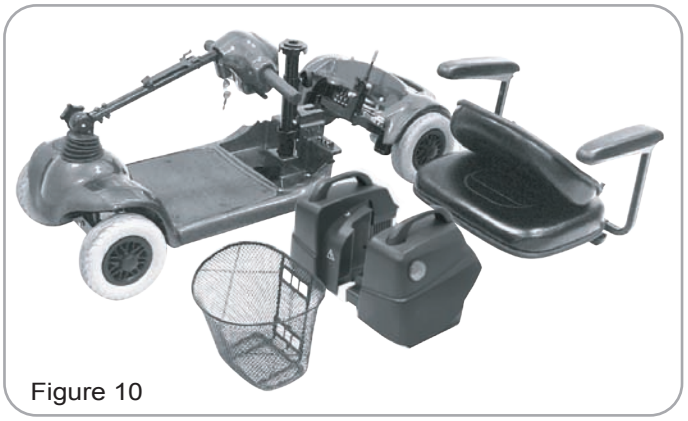
Figure 10

RE-ASSEMBLING YOUR SCOOTER

To assemble scooter, you can repeat disassembly directions in reverse. Abbreviated directions are given below. Refer to Figures on pages 12 - 13 to locate the parts.

1. Rotate Hand Wheel Tiller Angle Adjustment clockwise to adjust tiller and counterclockwise to lock tiller into its upright position.

2. Pivot rear section until it is standing vertically.

3. Hold seat receiving post to align curved locking brackets of front section with corresponding bar on rear section.

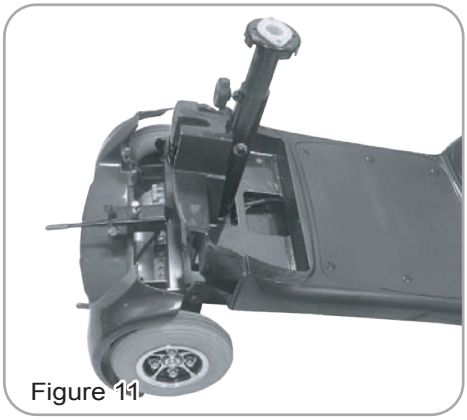

Figure 11

4. Hold seat receiving post slowly pivot rear section forward until release lever locks.

5. Reinstall battery pack in battery compartment.

6. Replace front basket.

7. Replace seat and tighten seat lock knob to secure.

CHARGING THE BATTERIES

Your ST-3 scooter is equipped with two sealed, maintanence free 12V. 18Ah. rechargeable batteries and one 24V/2A charger. Batteries must be charged before using scooter for first time and should be recharged after each day's use. Be sure power switch is in OFF position and free-wheeling lever is not in freewheel mode.

1.Insert battery charger cord into Charging Socket (I) on battery pack.

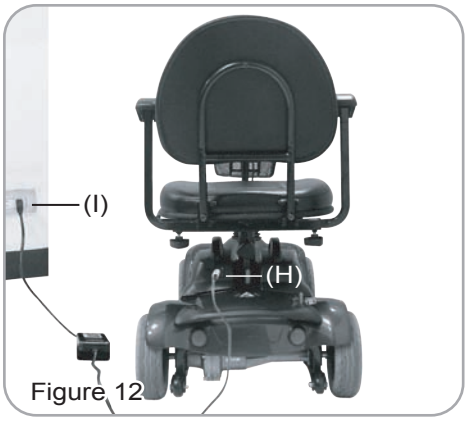

Figure 12

2.Plug other end of power cable into a standard electrical wall outlet.

3.The charging indicator (H) will normally be red or yellow at this point.

4.Allow batteries to charge until charging indicator turns green.

5.After indicator turns green, unplug battery charger from scooter and wall outlet.

6.If at any time battery charger light flashes green over 40 minutes, this indicates abnormal charging occurred. You should check the following:

- Charger plug is correctly positioned
- Scooter is turned off
- If none of these are the problems, contact your local authorized dealer.

The time needed to recharge will vary depending on the depletion of the batteries. Charging for longer than necessary will not harm the batteries. They can not be overcharged.

You can also charge your batteries on & off the scooter :

1. Switch your scooter off at tiller main switch.
2. Remove battery pack from scooter.
3. Please refer to above charging procedure for following actions.

Figure 13

Keep in mind these rules :

Allow charging until the charger light turns green, for fully charged battery please wait for another hour then disconnect the charger.

Fully charged time is approximately 7 hours(according to discharge's depth) Do not continuously charging for over 20 hours.

- Fully charge batteries at least once a month; more if you use scooter regularly. Charge after each trip exceeding 3 kilometers / 1.86 miles.
- If storing your scooter for one month or more, make sure that batteries are fully charged. Upon returning, charge them again before using scooter.

Batteries will only give maximum performance after scooter has been used, and the batteries have been recharged up to 10 times.

For Safety, please follow guidelines below :

1.DO NOT use the charger if power cord is damaged.

2.DO NOT use an extension cord when charging your batteries. A risk of fire and/or electric shock could occur.

3.DO NOT take apart charger, as this will void warranty.

4.Never attempt to open battery pack. If it is necessary to replace batteries, have a certified technician to handle all repairs.

CARE AND MAINTENANCE

Taking care of your scooter will keep it in top-notch condition. It is recommended that you discuss with local authorized dealer for a preventative maintenance schedule scooter. Here are few maintenance guidelines：

BODY COVER: if your scooter is dirty, use a damp or lightly soapy cloth to wipe it down. Do not use running water to wash or rinse scooter in order to protect electrical parts. Polish with an automotive liquid polish.

SEAT AND ARMREST: Use a damp cloth to clean upholstery. Please note that using scooter outdoors can wear out the quality of upholstery material because of the sun. Normal wear and tear conditions are not covered under warranty.

SERVICING: An authorized dealer should do all maintenance and repair that relate to electronics, batteries, motor, and tires.

We recommend that you have your scooter inspected and serviced at least once a year.

Also between uses, your scooter is best stored in a dry area at room temperature.

TROUBLESHOOTING

Flash	Description	Meaning
1	Battery Low	The batteries are running low. • Recharge the batteries
2	Low Battery Fault	The batteries have run out of charge · Recharge the batteries
3	High Battery Fault	Battery voltage is too high. This may occur if overcharged &/or traveling down a long slope. • If traveling down a slope, reduce your speed to minimize the amount of regenerative charging. • Check the battery and associated connections and wiring
4	Current Limit Time-out	The motor has been exceeding its maximum current rating for too long. This may be due to a faulty motor. • Check the motor and associated connections and wiring. • Turn the controller off, leave for a few minutes and turn back on again.
5	Park Brake Fault	Either a park brake release switch is active or the park brake is faulty. • Check the park brake and associated connections and wiring • Ensure any associated switches are in their correct positions.
6	Thumb Lever OONAPU	The Thumb Lever is out of neutral when turning the controller on. • Ensure the thumb lever is in neutral when turning the controller on. • The Thumb Lever may require re-calibration.
7	Speed VR Fault	The thumb lever, speed VR, SRW or their associated wiring may be faulty. • Check the thumb lever and speed VR and associated connections and wiring.
8	Motor Voltage Fault	The motor or its associated wiring is faulty. • Check the motor and associated connections and wiring.
9	Other error	The controller may have an internal fault. · Check all connections & wiring.
10	Push/Rollaway Fault	The scooter has exceeded the Push or Rollaway speed limits. • Turn the controller off and then on again.

Other Problems :

• The scooter will not move when the key is turned on:

1.Check battery gauge on control panel. Battery gauge should be full.

2.Check the Self-Diagnostic Warning Light. It should be steady. If it is flashing, see chart on page 18 for problem identification.

3.Check all electrical connections to be sure they are tight.

4.Verify the shipping stickers at bottom of battery pack are removed.

5.If none of above correct the problem, contact your authorized dealer.

• If charging your scooter over 8 hours and light on charger does not change to green, then contact your authorized dealer.

TECHNICAL SPECIFICATIONS

Overall Length	970 mm / 38"
Overall Width	520 mm / 21"
Overall Height	915 mm / 36"
Wheels: Front	210 mm / 8 1/4"
Wheels: Rear	210 mm / 8 1/4"
Weight w/ Batteries	54 kg / 118 lbs
Max. Speed	6.4 kmph / 4 mph
Maximum Weight Capacity	130 kg / 287 lbs
Ground Clearance	40 mm / 1.6"
Maximum Safe Slope	8 degree
Kerb Climbing	40 mm / 1.6"
Turning Radius	1270 mm / 50"
Suspension	N/A
Brake	Electro-Mechanical
Seat Type	Padded Foldable Swivel
Seat Width	430 mm / 17"
Motor Size	250W, 4250 r.p.m
Battery	(2) 12V. 18Ah
Weight of Batteries	15 kg / 33 lbs
Travel Range	16 km / 9.94 Miles
Battery Charger	2A Off Board
Electronics	On / Off Key Switch, Battery Level Indicator, Speed Control Knob

*Subject to change without notice.

Warranty Information

Drive Medical ST3 Scooters are warranted for 12months (24 months frame) from the date of purchase on side frames and crossbars. (NB Batteries are warranted for 12 months.)

- During the warranty period any parts that have become defective due to faulty workmanship or material will be repaired or replaced without charge by Drive Medical supplier/dealer
- The warranty excludes tyres, punctures and items that become worn due to normal wear and tear such as upholstery and armrest pads
- The warranty excludes all items that have been subject to undue wear and tear and misuse
- Unauthorised changes or modifications will forfeit your warranty
- If a defect or fault is discovered, the Drive Medical supplier/dealer from whom the Wheelchair was purchased should be notified immediately

Limitation of Liability

The warranty does not extend to the consequential costs resulting from fault clearance, in particular freight and travel costs, loss of earnings, expenses, etc. The manufacturer will not accept responsibility for any damage or injury caused by misuse or non-observance of the instructions set out in this user manual.

Dealer Stamp

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