



# C.T.M. MOBILITY SCOOTER

HS-290 Instruction Booklet



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## INTRODUCTION

**Thank you and congratulation on purchasing your new C.T.M. 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 C.T.M. 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 :**

**C.T.M.HOMECARE PRODUCT, INC.**

6191 Schaefer Ave Suite B Chino CA 91710

Tel : +909-590-1388 Fax : +909-590-3365

E-Mail : [ctm@ctmhomecare.com](mailto:ctm@ctmhomecare.com) [http : //www.ctmhomecare.com](http://www.ctmhomecare.com)

**or your local dealer:**

## IMPORTANT PRECAUTIONS

Only one person at a time could ride a C.T.M. Mobility Scooter.

Maximum load is 115 kgs / 250 pounds.

Turn key off before getting on or off your scooter.

Always drive carefully with your feet on legroom and be aware of others in your area.

Always use pedestrian crossing 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.

Do not drive scooter unless seat and tiller are locked and secured in driving position.

Do not use scooter if rear anti-tip wheels are damaged for removed.

Take extra care and drive in low speed when backing up, riding downhill or on uneven surface climbing and curb.

Scooter may not operate well in high humidity.

Never put your scooter in neutral when staying on slope.

Follow all traffic laws when you ride in vicinity of public roads.

## SAFETY INFORMATION ON ELECTROMAGNETIC INTERFERENCE (EMI)

**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 as 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 not known.

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 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 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

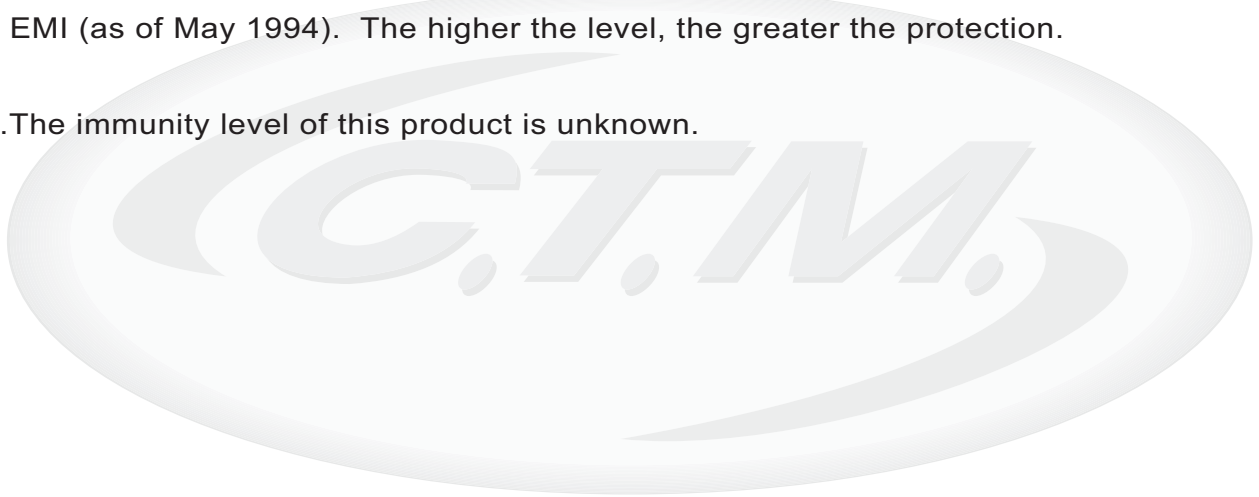


There is no easy way to evaluate their effect on the overall immunity of the motorized scooter.

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 unknown.





## 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.



Figure 1 - HS-290 Front View



Figure 2 - HS-290 Top Control Panel



Figure 3 - HS-290 Back View



**Function Of Parts :****TOP CONTROL PANEL****Speed Dial Knob**

The Rabbit means fast and turtle means slow. By turning this knob, you can control total speed transferred to thumb controls.

**HeadLight Switch**

To switch headlight on & off by pressing the headlight switch.

**Self Diagnostic Warning Light**

Flashing indicates there is a problem within scooter. See page 16 for more information.

**Battery Gauge**

There are five green LED lights. When all LED are on, batteries are fully charged. When only two lights are on, batteries need to be recharged.

**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).

**AT BASE OF TILLER****Tiller Angle Adjustment**

Push downward on the lever to loosen, and move tiller to adjust. The lever will lock tiller automatically in 3 different angles.

**BELOW SEAT****Seat Lock Knob**

Turn seat lock knob counterclockwise to loose. Turn it clockwise to lock seat in position.

**Seat Rotating Lever**

By pulling lever upwards to rotate to different direction.

**Armrest Width Adjustment Thumbscrews**

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



Figure 4

### Legroom Adjuster

There are 4 holes on front and rear frame tube to adjust legroom. First, remove battery pack, pull the toggle latch (figure. 5) to loosen and pull the detent pin (figure. 6) to remove. Once position is located, insert the pin to desired position, and push toggle latch to lock.



Figure 5

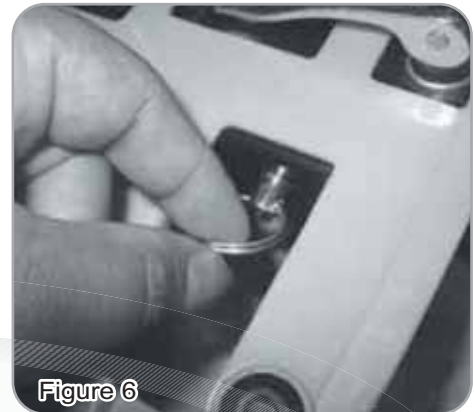


Figure 6

### REAR BODY

#### Rear Compartment Cover

Open the compartment Cover to access on-board charger (A). (figure. 7)

#### Anti-Tip Wheels

Help keep scooter from tipping over.

#### Free-Wheeling Lever

When lever (B) (figure. 7) is in N (Neutral) position, scooter can be moved without power. When lever is in D (Drive) position, scooter can be driven. Normal position is D.

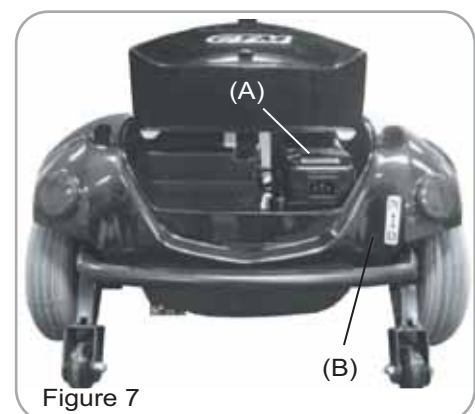


Figure 7

## OPERATING YOUR SCOOTER

Before beginning your journey with your new scooter, make sure that scooter is on a level surface and clear of any obstacle. Although your scooter is able to climb slope, 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 the armrest width.
- adjust the tiller angle adjustment.
- Adjust the legroom.

1. Before operating your scooter, check the following:
  - free-wheeling lever is in drive (D) position.
  - speed dial is at picture of turtle.
2. Sit on scooter and turn on the key; all battery gauge LED Lights should be lighting. The self-diagnostic warning lights should not be blinking.
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 backward. When you release both thumb levers, scooter stops.



This scooter has an automatic braking system. Release the thumb levers and brake will stop scooter.

4. Steer scooter by turning the whole tiller toward direction you want to go.
5. Practice driving where there is no obstacle. Start at the slowest speed and drive forward and backward; and make some turns. As you get more comfortable, you can increase speed by turning the speed dial toward picture of rabbit.
6. If only two-battery gauge LED lights light, you should plan to recharge batteries very soon.
7. If scooter stops and does not function, locate the circuit breaker on top of battery pack. Push it and try driving again.
8. When you are finished riding, turn off the key before getting off.
9. If you are finished riding for the day, immediately recharge batteries.  
See CHARGING THE BATTERIES, page 14.

**Keep in mind these rules :**

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

When turning to a corner, swing the front wheels widely, so back wheels will turn more tightly.

Use scooter only where it is safe for walking.

Use low speed when in reverse, going downhill, climbing curbs, on ramps, or on uneven surfaces.

**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 slope: Proceed with downward slope slowly, and set speed control in proximity of turtle. The closer the speed control is set toward turtle, the slower scooter travels. However, scooter will not self accelerate down hills due to the automatic braking, taking effect when you attempt to drive too fast.

Curb climbing: Approach slowly at right angles to the curb. A direct approach is needed. Do not attempt to climb curbs greater than a 2" curb.

If Self-Diagnostic Warning Light start to blink, identify problem from the chart on page 16 and take action.

If scooter breaks down and must be moved, get off scooter, engage Free-wheeling Lever to N, push scooter slowly to a safe location, and then move free-wheeling lever back to D.

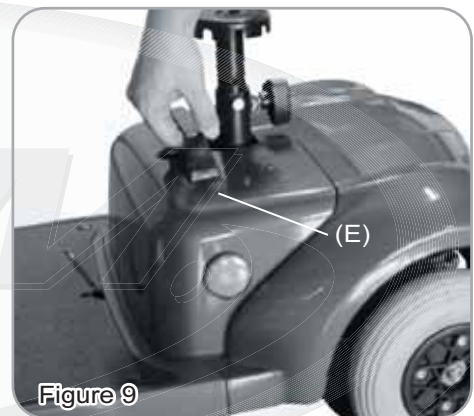
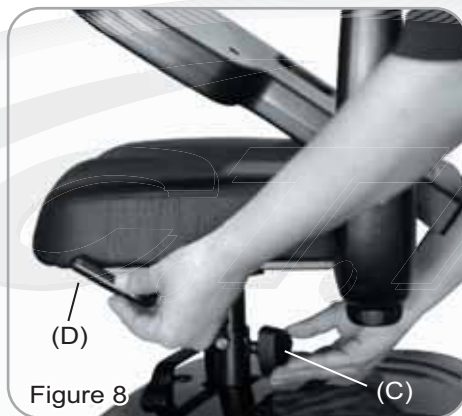


As a safety feature, an automatic speed reducer engages when scooter is pushed too quick and the Free-Wheeling Lever is on N.

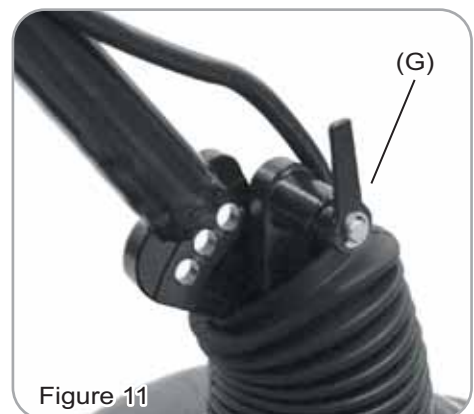
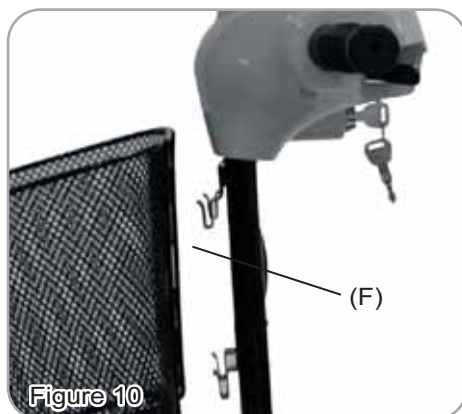
## DISASSEMBLING YOUR SCOOTER

Taking apart your scooter enables you to save space when keeping it in storage or to carry it along in vehicle when going away from home. Having scooter disassembled is easier than ever since no tools are required. Please follow these steps:

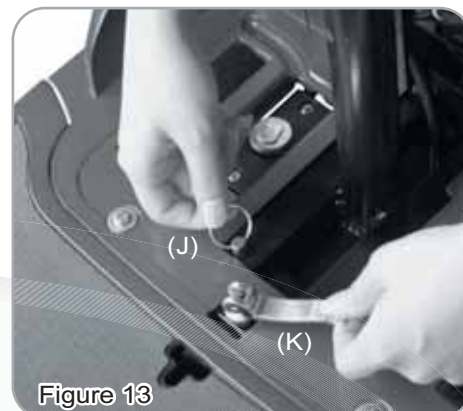
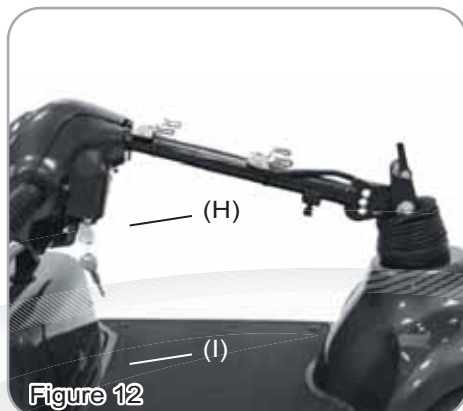
1. Remove seat by loosening the Seat Lock Knob (C) and pulling Seat Rotation Lever (D) upwards then lift off. (See Fig. 8)
2. Use battery pack handle (E) to pull battery pack up and off away from scooter. (See Fig. 9)



3. Remove Front Basket (F) and off to side. (See Fig. 10)
4. Push lever (G) downward to lower tiller. (See Fig. 11)



5. Pull out Locking Lever (H) and place tiller on the end of legroom. (See Fig. 12)
6. Remove guide pin (J) underneath the rear section where battery pack placed. Unlatch the lever (K) to loosen, and slowly extend front section away from rear section until cable is seen. (See Fig. 13)



7. Disconnect cable underneath legroom (L). Once disconnected, front and rear sections can be separated. (See Fig. 14)
8. There are 5 main parts after disassembling scooter. It consists of front, rear seat basket and battery pack. (See Fig. 15)



## RE-ASSEMBLING YOUR SCOOTER

To assemble scooter, you can repeat the disassembly direction in reverse. Abbreviated directions are given below. Refer to the Figures on pages 11 - 12 to locate parts.

1. Connect rear section to front section of scooter together with a guide pin to lock in place. And attach two cables together underneath. Make you push lever in place to latch both sections together.
2. Pull up Tiller Angle Adjustment lever to lock tiller into its upright position.
3. Place front basket.
4. Place battery pack in battery compartment.
5. Place seat on seat post and pulling Seat Rotation Lever upwards to putting down seat into seat post then tighten seat lock knob to secure.



## CHARGING THE BATTERIES

Your C.T.M. scooter is equipped with two sealed, service free 12V. 12Ah. rechargeable batteries and one 24V/2A charger. Batteries must be charged before using scooter for the first time and should be recharged after each day's use. Be sure power switch is OFF and free-wheeling lever (M) is not in Neutral.

1. Insert battery charger cord into charger socket on charger output.

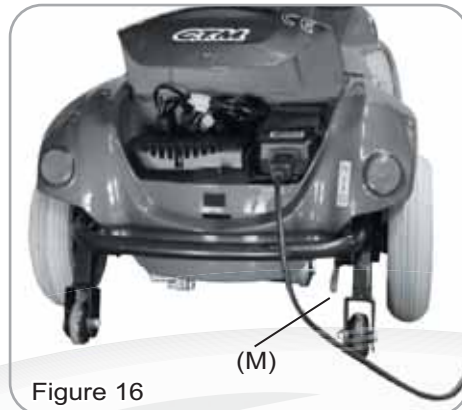


Figure 16



Figure 17

2. Plug the other end (N) of the charger lead into a standard electrical wall outlet.
3. The battery charger light will normally be red and yellow at this point.
4. Allow charging until the battery charger light turns green.
5. After light turns green, unplug battery charger from scooter and wall outlet.
6. If at any time, the charger light flashes green over 40 minutes, this indicates abnormal charging occurred. You should check that:
  - charger plugs are correctly positioned
  - fuse is not burned out
  - scooter is turned off.if none of these is a problem, contact your authorized dealer.



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

### Keep in mind these rules :

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 some time (one 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.

For Safety, please follow the guidelines below.

1. DO NOT use the charger if the power cord is damaged.
2. DO NOT use an extension cord when charging batteries. A risk of fire and/or electric shock could occur.
3. DO NOT take charger apart, as this will void the warranty.
4. Never attempt to open battery pack if it is necessary to replace batteries. Have a certified technician to handle all repairs, and contact your dealer.

## 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. 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 the scooter in order to protect the electrical parts. Polish with an automotive liquid polish.

**SEAT AND ARMREST :** Using a damp cloth helps clean the upholstery. Please note that using scooter outdoor can wear upholstery's material because of sun's rays. Normal wearing or tearing condition is not covered under warranty.

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

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

## TROUBLESHOOTING

To check the Self-Diagnostic Warning Light, turn on the key and count the number of flashes.

| Flash Code/Fault              | Impact on Scooter | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Battery needs recharging   | Will drive        | Battery is running low. Recharge batteries as soon as possible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2. Battery voltage too low    | Drive inhibited   | Battery is empty. Recharge the batteries. If the scooter is left off for a few minutes, battery charge might recover enough to allow driving for a short time.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. Battery voltage too high   | Drive inhibited   | Battery charge is too high. If a charger is plugged in, unplug it or turn the Charge/Run switch to Run. Scooters powered by RHINO charge the batteries when travelling down slopes or decelerating. Excessive charging in this manner can cause this fault. Turn the scooter power off then on again. If necessary, reduce speed when descending the slope.                                                                                                                                                                                                                                                       |
| 4. Current limit time-out     | Drive inhibited   | The scooter has drawn too much current for too long, possibly because the motor has been over-worked, jammed or stalled. Turn the scooter power off, leave for a few minutes, and then turn the power back on again. The controller has detected a shorted motor. Check the loom for shorts and check the motor. Contact your service agent.                                                                                                                                                                                                                                                                      |
| 5. Brake fault                | Drive inhibited   | Check that the park-brake release lever is in the engaged position. Check that the motor/park-brake connector is plugged in firmly. The park-brake coil or wiring is faulty. Check the park brake and wiring for open or short circuits. If necessary, unplug the motor/park-brake connector and check that all four pins are in the correct position. If this flash code does not appear until the throttle has been moved out of neutral, check for a short in the park-brake circuit. If this flash code appears at power-up, check for an open circuit in the park-brake circuit. Contact your service agent. |
| 6. Out of neutral at power-up | Drive inhibited   | Throttle is not in neutral position when turning key switch on. Return throttle to neutral, turn power off, and back on again. Throttle may need to be re-calibrated (see Section 4.2.3). Check throttle wiring.                                                                                                                                                                                                                                                                                                                                                                                                  |
| 7. Speed Pot error            | Drive inhibited   | The throttle or its wiring is faulty. Check for open or short circuits. Throttle may not be correctly set up. Contact your service agent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8. Motor volts error          | Drive inhibited   | The motor or its wiring is faulty. Check for open or short circuits. Contact your service agent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9. Other internal errors      | Drive inhibited   | Contact your service agent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**Other Problems :**

The scooter will not move when the power is turned on:

1. Check battery gauge on control panel. Battery gauge should be in the green area.
2. Check the Self-Diagnostic Warning Light. It should be steady. If it is flashing, see chart on page 16 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.

## SPECIFICATION

|                     |                                                                        |
|---------------------|------------------------------------------------------------------------|
| Overall Length      | 43.7"                                                                  |
| Overall Width       | 18.5"                                                                  |
| Overall Height      | 33.1"                                                                  |
| Wheels: Front       | 8"                                                                     |
| Wheels: Rear        | 8"                                                                     |
| Weight w/ Batteries | 94.4 lbs                                                               |
| Max. Speed          | 5 mph                                                                  |
| Weight Capacity     | 253 lbs                                                                |
| Ground Clearance    | 1.4"                                                                   |
| Grade Climbable     | 8 degree                                                               |
| Curb Climbing       | 1.6"                                                                   |
| Turning Radius      | 45.3"                                                                  |
| Suspension          | N/A                                                                    |
| Brake               | Electro-Mechanical                                                     |
| Seat Type           | Padded Foldable Swivel                                                 |
| Seat Width          | 16.7"                                                                  |
| Motor Size          | 250W, 4600 r.p.m                                                       |
| Battery             | (2) 12V. 12Ah                                                          |
| Battery Weight      | 22 lbs                                                                 |
| Travel Range        | 5.6 Miles                                                              |
| Battery Charger     | 2A On Board                                                            |
| Electronics         | On / Off Key Switch,<br>Battery Level Indicator,<br>Speed Control Knob |

\*Subject to change without notice.