USER'S MANUAL MOBILITY SCOOTER - ES400

WARNING Read the User Manual carefully before operating the ***ES400***. If you do not fully understand any part of this manual, please contact your dealer or any of our Service Centres. Read this manual step by step, as injury or damage may occur from misuse!
WARNING Electromagnetic Interference ("EMI") can cause powered vehicles to behave erratically, which could be dangerous to the user. For your safety and protection, it is IMPERATIVE that you take time to read Chapter V ("EMI WARNING") before operating the ***ES400***.

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I. **INTRODUCTION**

Thank you for choosing Orthoquad ES400 mobility scooter. This scooter is a mobility assistive device designed for senior citizens who have walking difficulty or are weak in physical strength and for also for the disabled people.

We designed this scooter to restore your personal freedom, to provide convenience and comfort to you.

This manual contains important information concerning the safe operation and proper maintenance of your scooters.

Your ES400 has many unique features not found on other scooters. With proper care and maintenance, you should enjoy many years of dependable service from your unit.

Your scooter should receive regular maintenance according to the schedule outlined in this manual, and the recommendation from the authorized dealer. By following the maintenance instructions, you will be able to take care of most of your unit's needs.

Above all, follow all service recommendation outlined in this manual to achieve the most trouble free, safe and enjoyable operation of your scooter.

II. SPECIFICATIONS

ES400

PERFORMANCE DATA

Maximum forward speed	9 km/h
Maximum Climbing Grade	6° - 10.5%
Load Capacity	120kg - 265 pounds
Ground Clearance	6 cm
Range with Full Charge	Up to 40km
Turning Radius	1.2m

DIMENSIONS

Length	51''
Width	25''

WEIGHT

Total (with battery) 98kg – 215lbs

BATTERY SPECIFICATIONS

12V/38 Ah Lead-acid battery

BATTERY CHARGER

Input AC /110V/60Hz Output DC24V/ 5amp

MOTOR POWER 400W

III. FEATURES

- Swing away armrests
- 360 degrees swivel seat
- Adjustable Forward/Reverse Seat
- Adjustable tiller
- Dynamic regenerative braking
- Rear wheel direct drive with differential
- Fully solid state controller
- External Battery Charger
- 24-volt permanent magnet heavy duty DC motor
- ON/OFF switch lock
- Horn
- Head light
- Turning lights
- Rear lights
- Battery-charging indicator
- Anti-tip-off safety wheels
- Front and rear bumpers
- Accessories adapter
- Electronic High/Low speed switch
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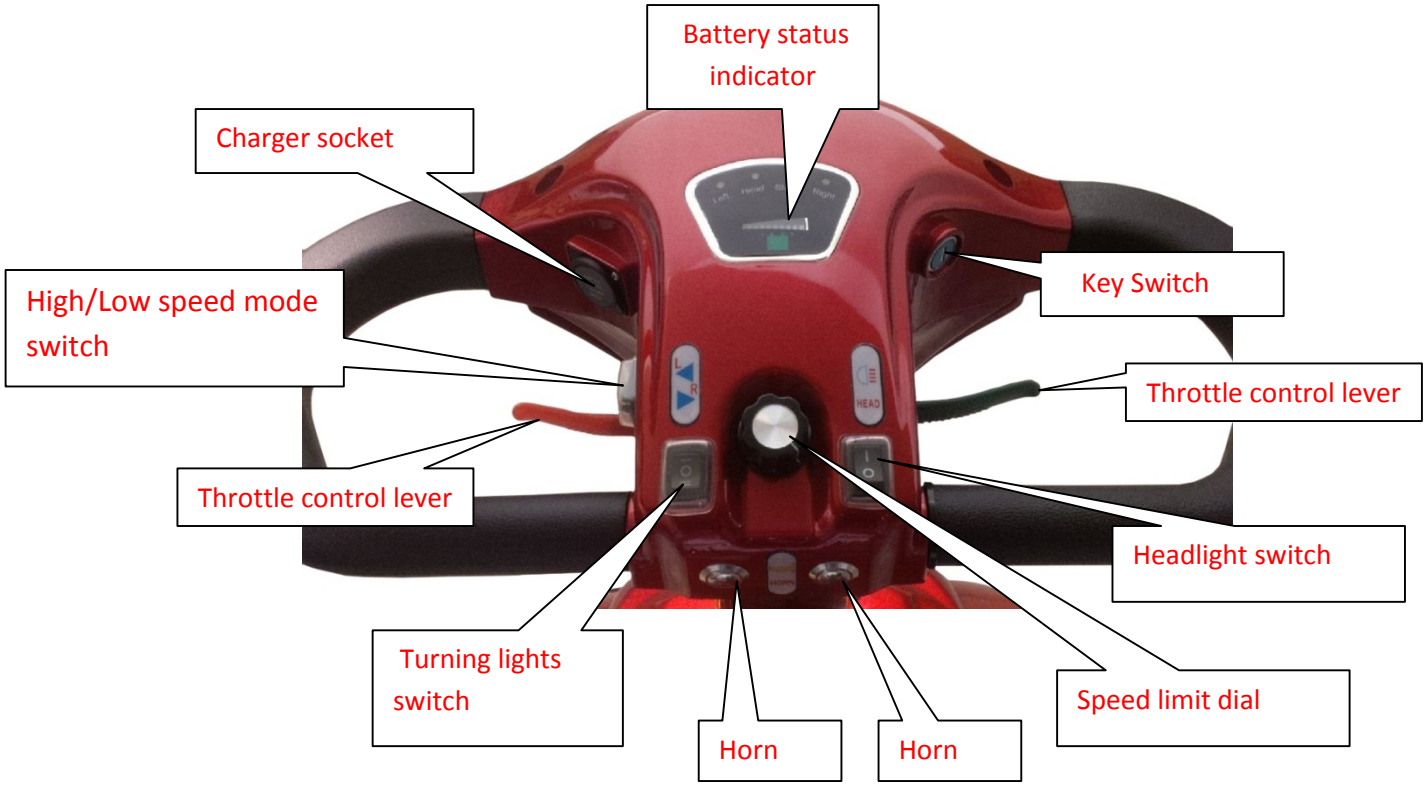
IV. OPERATING YOUR SCOOTER

The photo below shows the operating controls of your mobility scooter.



1, BEFORE OPERATION

1). Insert the power key into the switch lock and turn clockwise to the ON position.

2). Check the battery charge indicator to make sure the batteries are fully charged.

3). Make sure that clutch lever is at close position.

2, TURN POWER ON

Insert the key into the key switch on the upper tiller and rotate clockwise to the “ON” position.

3, FORWARD MOTION

To move forward, pull the right thumb lever under the control console forward. The further you pull, the faster the scooter will go. The maximum speed may be selected by the speed selection switch located on the top of the control console.

3. REVERSE MOTION

To reverse, pull the left side of the thumb lever under the control console forward.

4. STOP

To stop the scooter, just release the thumb lever. The scooter will quietly come to a smooth stop and electromechanical brake will automatically engage to hold the scooter in position on horizontal surface or an incline of up to 12 degrees, with a load of no more than 265 lb. (120 kg). Quick smooth stops are made possible by the dynamic braking feature built in the controller.

WARNING

The brake may not be effective when engaged on inclines greater than 15 degrees or 21% if the occupant's weight exceeds 265 pounds.

TEST DRIVE

- Insert the ignition key into the main switch.
- Check the battery charge indicator to ensure that the batteries are fully charged.
- Make sure the clutch lever is engaged.
- Set the speed by turning the dial knob on top of the console.
- Go back and forth a short distance to make sure your unit is in good working condition.

FREEWHEEL MODE

Your **ES400** is equipped with a manual freewheel lever that, when pushed forward, allows the **ES400** to be pushed manually.

- ✓ Disengage the drive motors only on a level surface.
- ✓ Stand beside the **ES400** to engage or disengage freewheel mode. Never do this while sitting on the **ES400**.
- ✓ After you have finished pushing your **ES400**, always return it to the drive mode to lock the brakes (pull the manual freewheel lever backward).
- ✓ When using the freewheel lever, be careful not to touch the internal surface of the motor, as it could be very hot and cause injury. See the warning label at the rear of the scooter near the lever.

V. SAFETY INSTRUCTIONS

Your scooter can move on grass , gravel, dirt, and sand surfaces, as well as hard paved or carpeted surfaces. However, extra caution should be taken when operating your unit on uneven surfaces other than flat surfaces.

- Slow the scooter when approaching an uneven or soft surfaces.
- Avoid gravel and sand.
- Avoid stop your scooter in the middle of a slope too steep. If you have to, start up again slowly and then accelerate cautiously.

Inspect the following points before setting off:

- Check tire pressure (40-45 psi)
- Check electrical connections.
- Check the brakes
- Check the battery charge.

CAUTION:

IT IS VERY IMPORTANT THAT YOU READ THIS INFORMATION REGARDING THE POSSIBLE EFFECTS OF ELECTROMAGNETIC INTERFERENCE ON YOUR POWERED SCOOTER.

Electromagnetic Interference (EMI) From Radio Wave Sources

Powered wheelchairs and motorized scooters (in this text, both will be referred to as powered wheelchairs) 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 powered wheelchair to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the interfering EM energy can be measured in volts per meter (v/m). Each powered wheelchair can resist EMI up to certain intensity. This is called its "immunity lever." 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. The immunity level of this powered scooter as shipped, with no further modification, is not known.

There are ample 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. **Note: 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.

Note: 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 powered wheelchair.

Powered Scooter Electromagnetic Interference (EMI)

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 powered scooter's control system while using these devices. This can affect powered scooter movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered 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 powered scooter and motorized scooters. Following the warnings listed below should reduce the chance of unintended brake release or powered 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 powered 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 powered scooter OFF as soon as it is safe.

4) Be aware that adding accessories or components, or modifying the powered scooter, may make it more susceptible to EMI (Note: There is no easy way to evaluate their effect on the overall immunity of the powered scooter.

5) Report all incidents of unintended movement or brake release to the powered scooter manufacturer, and note whether there is a source of EMI nearby.

If unintended motion or brake release occurs, turn the power OFF as soon as it is safe.

FDA recommends that you report all incidents of unintended motion or brake release to us or your dealer, and if possible, note whether there was a radio wave source nearby at the time of the incident. You may also report to FDA's MedWatch problem reporting program. Call 1-800-FDA-1088 and ask for Form 3500.

The following warning label is included in order to make users always aware that a possibility of electromagnetic interference exists.

WARNING: Radio wave sources may affect scooter control Radio waves sources, such as radio stations, TV stations, amateur radio (HAM) transmitters, cellular phones, and two-way radios, can affect motorized 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 turn ON or use hand-held personal communication devices, such as citizens band (CB) radios and cellular phones, while your scooter is turned ON; 2). Be aware of nearby transmitters, such as radio or TV stations and hand-held or mobile two-way radios, and try to avoid coming close to them. 3). If unintended movement or brake release occurs, turn the power OFF as soon as it is safe. 4). Be aware that adding accessories or components, or modifying your scooter, may make it more susceptible to interference from radio wave sources. (Note: There is no easy way to evaluate their effect on the overall immunity of the scooter), and 5). Report all incidents of unintended movement or brake release to the scooter manufacturer, and note whether there is a radio wave source nearby. Important Information: 1) 20 volts per meter (v/m) is a generally achievable and useful immunity lever, against interference from radio wave sources (as of May 1994) (the higher the lever, the greater the protection); 2) The immunity level of this product is not known.

In summary,

- DO NOT try to climb sharp curbs.

- DO NOT drive off or over obstacles exceeding 5 cm in height.

- DO NOT make abrupt changes in direction at high speed or while

traveling on an incline.

- **DO NOT** climb inclines greater than 12 degrees or a rise of

- DO NOT move backward on uneven surfaces or inclines.

- **DO NOT** travel on highways and freeways; ALWAYS stay in the bike lanes or sidewalks.

- **DO NOT** carry adult and child in any manner.

- **DO NOT** operate your unit when the red battery indicator light is flashing.

- **DO NOT** operate your unit with the clutch lever in the disengaging position.

-DO NOT mount or dismount your batteries with power switch in the "ON" position.

- **DO NOT** turn ON or use hand-held personal communication devices, such as citizens band (CB) radios and cellular phones, while your scooter is turned ON.

- **ALWAYS** make sure that the steering tiller adjustment knobs are tight.

- **ALWAYS** make sure that the seat is locked so that it will not swing during operation.

- **BE AWARE** of nearby transmitters, such as radio or TV stations and hand-held or mobile two-way radios, and try to avoid coming close to them.
-BE AWARE that adding accessories or components, or modifying your scooter, may make it more susceptible to interference from radio wave sources.

VI. BATTERY CHARGING

To ensure the best performance and maximum battery life, we recommend to charge your scooter after use. Your scooter comes with an external battery charger for your ease and convenience. The console battery display makes charging simple and easy. Follow these steps for battery charging.

The console battery level display has two green lights (100% and 50%), one yellow light (25%), you'd better charge now), and one red light (almost empty, you must charge them right now).

There is no possible way to overcharge the battery as the charging voltage is set constant. In general, you may start charging before you go to bed at night and disconnect it in the next morning.

CHARGING BATTERIES (see Figure C)

1. Insert the charger plug (8) in the charging socket (10) located on the right side of the tiller column.
2. Plug the charger power cord (9) into a wall socket (11).
3. When charging is complete, remove the charger power cord (9) from the wall socket (11) and then remove the charger plug (8) from the charging socket (10).
4. Under ideal storage conditions, batteries that were charged to full capacity and were not used should be recharged every month.
5. If you expect not to use your **ES400** for an extended period of time, we recommend charging it for two days and then disconnecting the batteries.
6. If you have not used your **ES400** for an extended period of time, charge the batteries for at least 24 hours before driving.

- **Note: There is NO need to disconnect the charging plug immediately after the charging is complete.**
- **However, DO NOT leave the charger connected to the batteries FOR MORE THAN TWO WEEKS.**
- **As long as the charging plug is in the charging socket, the electronic control of the ES400 automatically cuts all power to the electric system and it cannot be driven.**
- **The charger supplied is suitable for charging lead acid dry/gel batteries. Use only the defined type of charger. Before using any other type of charger, check with your dealer.**

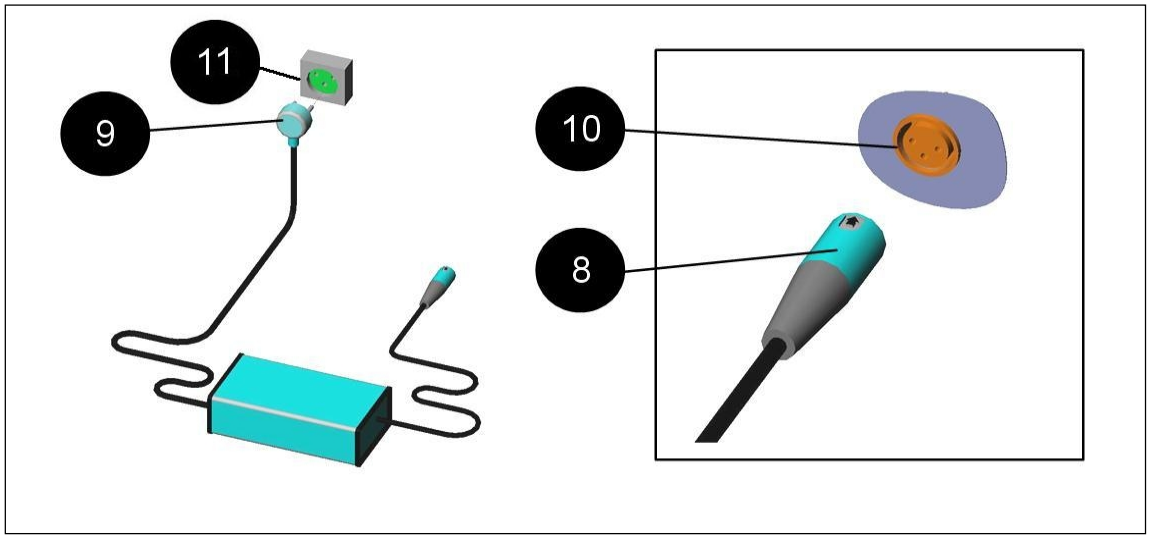


Figure C

VII. MAINTENENCE SCHEDULE

In order to obtain the best performance and lasting service life, please maintain your unit according to the following schedule and instructions:

DAILY

Test brake effectiveness before you drive. Recharge battery fully every night.

WEEKLY

1. Check tire pressure. Pressure should be 40 - 50 psi.
2. Clean seat upholstery, plastic body and covers. To avoid the electrical failure, do not spray water directly to your unit. Use a damp clean rag to clean all parts.
3. Check and tighten the throttle screw.

MONTHLY

1. Check battery condition. Clean terminals if necessary.
2. Check all electrical wire connectors to eliminate loose connections.
3. Tighten all exposed bolts and nuts.
4. Check wheel bearings by spinning tires and checking for free rotation.

YEARLY

IMPORTANT - Visit your Orthoquad dealer and let technician check your scooter completely.

<u>TROUBLE SHOOTING AND REPAIR</u>

CASE : The scooter seems completely dead.

• Make sure the ignition key is ON.

• Check the battery charge.

• Check for loose battery connections and cables of the controller power supply.

CASE: The scooter does not move when I press the accelerator.

• When the manual clutch lever is raised the scooter is on freewheel mode and the current is cut.

Simply push the hand lever down and turn off the ignition with the key and turn the key in the ignition to the ON position.

If you have problems you can not solve, contact your ORTHOQUAD dealer.

VIII. WARRANTY

- The Orthoquad ES400 are covered by a full warranty on all components of the product for 1 year.
- Batteries guaranteed for 3 months.

FOR MORE INFORMATION CONTACT YOUR ORTHOQUAD DEALER

STORAGE INSTRUCTIONS

Always store in a dry area protected from freezing to avoid damage to the scooter and premature wear of the batteries.

Avoid exposure to rain, snow, ice, salt or stagnant water. Keep your scooter clean and dry.

Never expose the electronic components of the scooter to humidity (rain, snow, mist, or water from washing), as it may damage electronic circuits.

Always store your scooter with batteries fully charged. When storing the scooter for more than two weeks, charge the batteries and disconnect them.

During the storage, check the charge once a month and recharge the batteries as needed. You must complete a full charge cycle every month or damage to batteries can occur.

Avoid extreme temperature of hot and cold during storage. Freezing can damage low charged batteries and they may become unusable.

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