



KARMA MEDICAL PRODUCTS CO., LTD.
POWER SCOOTER SERIES

Owner's Manual



KS-747 • 2



KS-737 • 2



KS-646 • 2



KS-545 • 2

GENERAL WARNING

IMPORTANT

Do not attempt to use the scooter before a qualified person has explained to your satisfaction how to operate the it without risk to yourself or others.



WARNING:

DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT A DEALER, HEALTHCARE PROFESSIONAL OR TECHNICAL PERSONNEL IF APPLICABLE BEFORE ATTEMPTING TO USE THIS EQUIPMENT--OTHERWISE, INJURY OR DAMAGE MAY RESULT. PROCEDURES OTHER THAN THOSE DESCRIBED IN THIS MANUAL MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.



WARNING:

As a manufacturer of power scooters, KARMA endeavors to supply a wide variety of power scooters to meet the many needs of the user. However, the responsibility of final selection of the type of power scooter to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.

KARMA recommends that power scooter users NOT be transported in vehicles of any kind while in a power scooter. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while on a power scooter in a moving vehicle of any type. It is the position of Karma that users of power scooters should be transferred into appropriate seating in vehicles for transportation and make use of the restraints made available by the auto industry. Karma cannot and does not recommend any power scooter transportation systems.

It Is the Obligation of the Durable Medical Equipment (DME) Dealer,

THERAPISTS AND OTHER HEALTHCARE PROFESSIONALS TO DETERMINE IF A SEAT POSITIONING STRAP IS REQUIRED TO ENSURE THE SAFE OPERATION OF THIS EQUIPMENT BY THE USER. SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM A POWER SCOOTER.

Operating Information

- ⊙ Performance adjustments should ONLY be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver or bystanders and damage to the power scooter and surrounding property.
- ⊙ To determine and establish your particular safety limits, practice bending, reaching, mounting and dismounting activities in several combinations in the presence of a qualified healthcare professional BEFORE attempting active use of the power scooter.

- ⊙ For individuals with balance problems, practice mounting and dismounting activities **WITH AN ASSISTANT** in the presence of a qualified healthcare professional.
- ⊙ If so equipped, **DO NOT** operate the scooter without anti-tippers being installed. Anti-tippers **MUST BE** attached at all times.
- ⊙ **DO NOT** attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees as this may cause loss of balance.
- ⊙ **DO NOT** lean over the back of the chair to reach objects behind you as this may cause the power scooter to tip over.
- ⊙ **DO NOT** shift your weight or sitting position toward the direction you are reaching as the power scooter may tip over.
- ⊙ **DO NOT** use an escalator to move a power scooter between floors. Serious bodily injury may occur.
- ⊙ **DO NOT** operate on roads, streets or highways.
- ⊙ **DO NOT** attempt to move up or down an incline with a water, ice or oil film.
- ⊙ **DO NOT** attempt to ride over curbs or obstacles. Doing so may cause your power scooter to turn over and cause bodily harm and/or damage to the power scooter.
- ⊙ **DO NOT** make sharp turns, in forward or reverse, at excessive speeds.
- ⊙ **DO NOT** attempt to lift the power scooter by its casings, seat or steering column.
- ⊙ **DO NOT** attempt to lift the power scooter by any detachable parts. Lifting by means of any detachable parts of a power scooter may result in injury to the user or damage to the power scooter. Please hold onto the frame when lifting your scooter.
- ⊙ **DO NOT** operate the power scooter until you have checked that the surroundings are clear and that the area is safe for travel.

- ◎ **DO NOT** use parts, accessories or adapters other than those authorized by Karma. Before attempting to sit in or exit the power scooter, REMOVE the key from the ignition. This will ensure that the POWER is OFF and the power scooter will not drive. Remove the key from the ignition while the scooter is not in use. Otherwise, injury and/or damage to the scooter and surrounding property may occur.
- ◎ **DO NOT** connect any medical device (i.e., a ventilator, life support machine, et cetera) to the battery. This could cause unexpected failure of the device and the power scooter.
- ◎ KARMA specifically disclaims responsibility to all personal injury and property damage that may occur during use which does not comply with applicable federal, state and local laws and ordinances.
- ◎ **DO NOT** stand on the front or rear casing of the power scooter.

RAMPS

- ◎ **DO NOT** climb, go up or down ramps or traverse slopes greater than the climbing angle for your model specified in section 9.
- ◎ When negotiating ramps, if the variable speed lever is released while moving forward, the power scooter will roll backwards approximately one foot before the brake engages. If the variable speed lever is released while in reverse, the power scooter will roll backwards approximately three (2.5) feet before the brake engages.
- ◎ Be sure to reduce your speed when driving on curved roads or making a turn; do not drive at full speed. Please drive at a slower speed so you have complete control of the scooter.

ELECTRICAL

- ⊙ Check to ensure that all electrical connections are secure at all times.
- ⊙ Grounding Instructions: **DO NOT**, under any circumstances, cut or remove the round grounding prong from any plug. Some devices are equipped with three-prong (grounding) plugs for protection against possible shock hazards. Where a two-prong wall receptacle is encountered, it is the personal responsibility and obligation of the customer to contact a qualified electrician and have the two-prong receptacle replaced with a properly grounded three-prong wall receptacle/outlet in accordance with the National Electrical Code and local laws. If you must use an extension cord, **ONLY** use a three-wire extension cord having the same or higher electrical rating as the device being connected.

BATTERIES

- ⊙ The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell or sealed lead acid batteries. KARMA strongly recommends their use as the power source for this unit.
- ⊙ Carefully read the battery and charger information prior to installing, servicing or operating your scooter.

RAIN TEST

- ⊙ KARMA has tested its power scooter in accordance with ISO 7176 Part 9 Rain Test. This test provides the end user or his/her attendant sufficient time to remove his/her power scooter from a rainstorm and retain operation.
- ⊙ **DO NOT** leave your power scooter in a rain storm of any kind.
- ⊙ **DO NOT** use your power scooter in a shower or leave it in a damp bathroom while taking a shower.

- Ⓢ **DO NOT** leave your power scooter in a damp area for any length of time. Direct exposure to rain or dampness could cause the power scooter to malfunction electrically and mechanically and may cause the power scooter to prematurely rust.

WEIGHT LIMITATION

- Ⓢ The weight limitation is 300lbs (135kg) for all models (including goods in the basket).

STAIRWAYS

- Ⓢ **DO NOT** attempt to move an occupied power scooter between floors using a stairway.
- Ⓢ Use an elevator to move an occupied power scooter between floors.
- Ⓢ If moving a power scooter between floors by means of a stairway, the occupant **MUST** be removed and transported independently of the power scooter. Extreme caution is advised when it is necessary to move an **UNOCCUPIED** power scooter up or down the stairs. Karma recommends disassembling the scooter and transporting the six components independently up or down the stairs. Make sure to use **ONLY** secure, non-detachable parts on each component for hand-hold supports.
- Ⓢ **DO NOT** attempt to lift a power scooter by any removable (detachable) parts. Lifting by means of removable (detachable) parts may result in injury to the user or assistants or damage to the scooter.

ESCALATORS? SORRY!

- Ⓢ **DO NOT** use an escalator to move a power scooter between floors. Serious bodily injury and damage to the scooter may occur.

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1. PREFACE

1. PREFACE

Please carefully read this owner's manual before using the vehicle. Improper use of the vehicle could result in harm, injury or traffic accidents. Therefore, for safe and enjoyable use of the vehicle, please read this owner's manual.

- ⊙ This owner's manual includes operation instructions for the aspects of the vehicle, assembly instructions, and instructions on how to deal with possible accidents.
- ⊙ This owner's manual is written for Karma Scooters: **KS-545 • 2**, **KS-646 • 2**, **KS-737 • 2** and **KS-747 • 2**.
- ⊙ The symbols used in this manual are explained below. Pay special attention to the parts marked with these symbols.

 WARNING	Improper use could lead to serious injury or death.
 CAUTION	Improper use could lead to injury and/or damage to you scooter.
 SUGGESTION	Follow these instructions to keep the scooter in good condition.

- ⊙ This manual includes the repair and maintenance chart as well as the Warranty. Please keep it in a safe place or with the scooter.
- ⊙ If someone else uses the scooter, make sure that you give him or her this owner's manual for his or her reference.
- ⊙ As designs change, some illustrations and pictures in this manual may not correspond to the vehicle that you purchased. We reserve the right to make design modifications without further notice.

2. SAFETY

2.1 Before Driving

The user must be familiar with the use and operation of this vehicle before driving. Therefore, please always keep these safety guidelines in mind.

■ Traffic Rules

- ⊙ Pedestrian traffic rules apply to this vehicle. Please be safe.
- ⊙ Drive only on pedestrian areas such as the sidewalk. Never drive the scooter on the highway.
- ⊙ Be aware of other vehicles when crossing all roads.
- ⊙ Be extremely cautious when driving your scooter in heavy traffic or the shopping mall.
- ⊙ Do NOT drive your scooter when you feel tired or consume alcohol.
- ⊙ Please do not drive your scooter at night.
- ⊙ Please follow pedestrian traffic lights.

■ Practice Driving

- ⊙ Before you are familiar with the operation of your scooter please practice in a wide and open area, like a park.
- ⊙ To avoid falling off your scooter practice all kinds of driving motions, such as accelerating, stopping, turning, reversing and going up and down ramps.
- ⊙ Please set the speed dial on "3" when you first start practicing.
- ⊙ Be safe. Make sure someone accompanies you in case you need assistance.
- ⊙ Be sure you are able to control and operate your scooter easily and confidently before you move the speed dial higher.

2. SAFETY

■ No Passengers

- ⊙ KARMA Scooters are limited to one driver.
- ⊙ Do not carry passengers (including children) on your scooter.

■ No Hauling Heavy Goods

- ⊙ Do not use this vehicle to carry or haul heavy goods.
- ⊙ The maximum weight that can be carried, including goods, is stated beside "Max. Capacity" in section 9. SPECIFICATIONS.
- ⊙ Maximum loading weight for the basket is 3kg (6.6lbs).

2.2 While Driving

Please carry out daily inspections. Refer to section 7.1 DAILY CHECK.

■ General Warning

- ⊙ Do not lean over the side of the vehicle as such an action may cause you to lose balance and fall.
- ⊙ Use caution to assure your clothing doesn't get tangled with the wheels.

■ Railroad Crossing

- ⊙ Before crossing the tracks, please stop completely and look both ways.
- ⊙ Cross the tracks perpendicular to avoid your wheels getting stuck.

■ Circumstances to Avoid

- ⊙ Avoid roads with heavy traffic, mud, excessive gravel or bumps, snow and ice. These conditions may damage your scooter.
- ⊙ Avoid roads that are too narrow or by a canal/waterway without any fence/hedge.
- ⊙ Also avoid places where your wheels might get stuck, slip or not have traction.

2. SAFETY

- ⊙ Do not drive in a gale, at night or in rainy/snowy/foggy/misty weather. These conditions may cause you scooter to rust.
- ⊙ Do not drive in a figure 8, S curve, do doughnuts or make sudden turns.
- ⊙ Do not take an escalator.

■ Mobile Phones and Other Electric Equipment

- ⊙ Do not use a mobile phone or other wireless communication devices while driving.
- ⊙ Do not charge the mobile phone or other electric devices from your scooter's batteries.

■ Ramps, Inclines and Drops

- ⊙ Do not drive onto a steep ramp. Refer to "Climbing Angle" in section 9. SPECIFICATIONS for your scooter's maximum climbing angle.
- ⊙ When climbing up to an inclined road, please set the speed dial higher than "5" and drive carefully. When going down an inclined road, set the speed dial to "1" and never use reverse.
- ⊙ Do not drive on a road with many bumps and holes close to each other, such as potholes or washboard roads. Refer to "Ground Clearance" in section 9. SPECIFICATIONS.
- ⊙ Do not cross a ditch wider than 10 inches as the wheels might get stuck.
- ⊙ Please lower your speed when driving down a hill.
- ⊙ Do not make sudden turns when driving on gravel roads or ramps.



WARNING:

Do not set the scooter in freewheel mode when on an incline or decline.

2. SAFETY

■ Maximum User Weight Limit

Refer to "Max. Capacity" in section 9. SPECIFICATIONS.

Loads exceeding maximum capacity can damage your scooter and cause malfunctions yielding a safety hazard. The warranty does not cover damage caused by improper operation of the scooter.

2.3 Labeling

Please carefully read all the labeling on the scooter before driving it. Do not remove them. Protect them for future reference.



NEVER LIFT SCOOTER
UP BY THE FRONT OR
REAR CASING

The manufacturer disclaims all responsibilities for any personal injury or property damage which may occur as a result of improper or unsafe use of its products.

NOTICE:

- Make sure that the freewheel lever is secure before starting the electric vehicle.
- In order to avoid damage or injury, do not disengage the freewheel lever while going up or down an incline.
- The manufacturer is not responsible for damage to persons or property caused by improper use of the scooter.

2. SAFETY

③ **WARNING:**

Do not operate the scooter unless the steering column is locked into position. Do not lean against or pull forward on the handlebars while mounting or dismounting the scooter. Serious harm or injury may occur.

④ **WARNING:**

Radio waves can influence the operation of motor driven vehicles.

Radio wave sources: broadcasting/TV stations and personal wireless telecommunication equipment that transmits waves can affect the normal operation of the vehicle. Therefore, follow the items below to lower the chance of abnormal vehicle operating conditions or brake system failure, which may lead to injury.

1. Do not use personal telecommunication devices (for example, mobile phones or walkie-talkies) when the power source of the electric powered vehicle has been turned on.
2. Try to avoid locations that broadcast radio waves, such as TV stations or radio stations.
3. If the electric vehicle acts abnormally or the brake system fails, turn off the power source as soon as safely possible.
4. Remember that the installation of non-genuine KARMA parts makes it difficult to predict what effects radio waves will have on the vehicle. (Note: it is not possible to make a direct calculation how radio waves will influence the vehicle).
5. If the vehicle moves abnormally or the brake system fails after turning on the power source under normal operating conditions, notify the manufacturer immediately.

3. EMI

This section provides the user with basic information about the problems with EMI, known sources of EMI and protective measures either to reduce the possibility of exposure or to minimize the degree of exposure. This section also shows some conditions in which unexpected or erratic scooter movements may occur.



CAUTION:

It is very important that you read this information regarding the possible effects of electromagnetic interference on your electric KARMA Scooter.

■ Electromagnetic Interference From Radio Wave Sources

Powered vehicles 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 vehicle to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered vehicle's control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each powered vehicle can resist EMI up to a certain intensity. This amount of resistance 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 powered vehicle model, with no further modification, has an immunity level of 20 V/m without any accessories.

3. EMI

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

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

1. Hand-held portable transceivers (transmitter-receivers) with the antenna mounted directly on the transmitting unit, such as citizens band (CB) radios, walkie-talkies, security and fire or police transceivers, cellular telephones and other personal communication devices;

NOTE:

Some cellular telephones or similar devices transmit signals while they are ON, even though they are not in use.

2. Medium-range mobile transceivers used in police cars, fire trucks, ambulances and taxis usually having 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 (cordless phones, laptop computers, AM/FM radios, TV sets, CD players, cassette players, and small appliances such as electric shavers and hair dryers, et cetera) so far as we know, are not likely to cause EMI problems.

■ **Powered Vehicle 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 too close to the powered vehicle's control system while using these devices. This can affect your powered vehicle's movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered vehicle.

■ **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 vehicles and motorized scooters. Following the warnings listed below should reduce the chance of unintended brake release or powered vehicle movement which could result in serious injury.

1. Do not operate hand-held transceivers-receivers such as citizens band (CB) radios or turn ON personal communication devices such as cellular phones, while the powered vehicle is turned ON.
2. Be aware of nearby transmitters, such as radio or TV stations, and try to stay away from them.
3. If unintended movement or brake release occurs, turn the powered vehicle OFF as soon as it is safe.

3. EMI

4. Be aware that adding accessories/components or modifying the powered vehicle may make it more susceptible to EMI. There is no easy way to evaluate their effect on the overall immunity of the powered vehicle.
5. Report all incidents of unintended movement or brake release to your powered vehicle dealer or KARMA, and note whether there was a source of EMI nearby.

■ Important Information

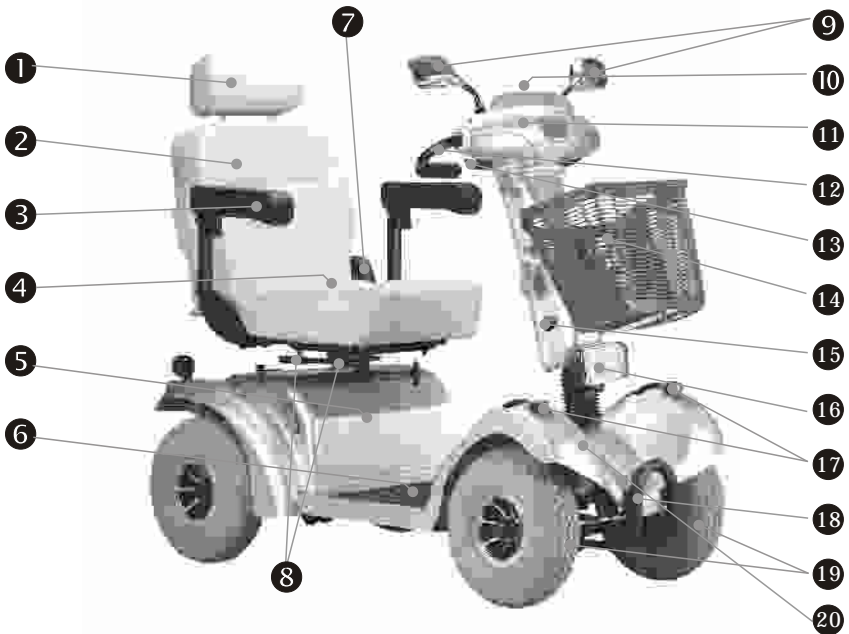
1. 20 Volts per meter (V/m) is a generally achievable and useful immunity level against EMI (the higher the level, the greater the protection).
2. This product has an immunity level of 20 V/m without any accessories connected to it.

4. PARTS

4. PARTS

■ Parts Description

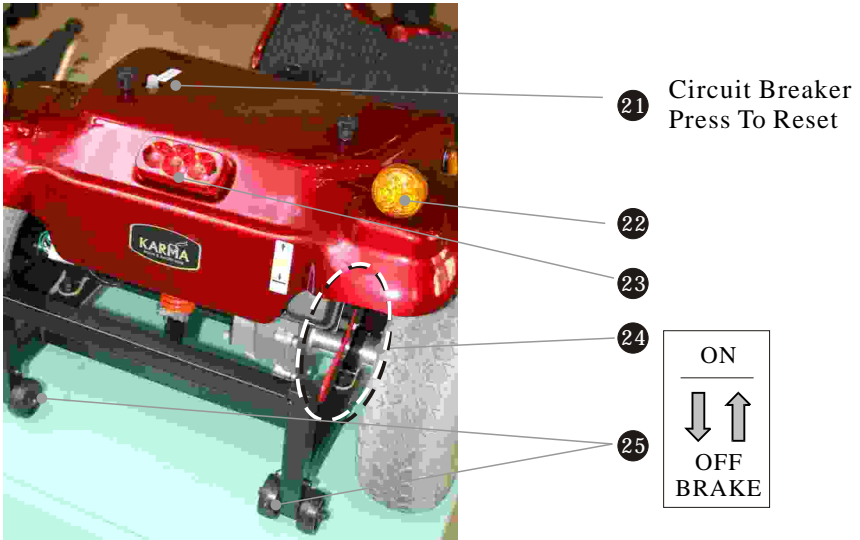
1. Headrest	8. Slide & Swivel	14. Basket
2. Back Rest	Levers	15. Steering Column
3. Armrests	9. Rear View Mirrors	Adjustment
4. Driver's Seat	10. Control Panel	16. Headlight
5. Rear Casing	11. Nameplate Casing	17. Turn Signals
6. Floorboard	12. Handlebars	18. Front Bumper
7. Recline Lever	13. Variable Speed	19. Wheels
	Levers	20. Front Casing



(Figure 4.1)

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4. PARTS



(Figure 4.2)

- 21. Circuit Breaker
- 22. Turn Signal
- 23. Taillight
- 24. Freewheel Lever
- 25. Anti-tippers

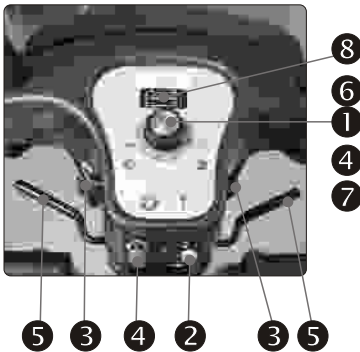
5. OPERATION

5. OPERATION

5.1 Control Panel

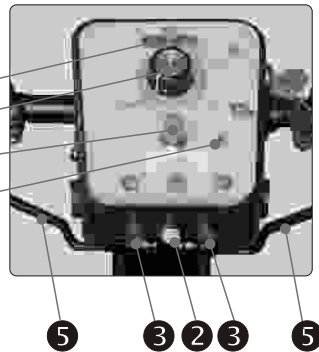
1. Speed Dial
2. Horn Button
3. Turn Signal Buttons
4. Headlight/Taillight Button
5. Variable Speed Levers
6. Battery Indicator
7. Status Indicator
8. Battery & Diagnostics Indicator

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(Figure 5.1)

KS-646 • 2/KS-545 • 2



(Figure 5.2)

5.2 How to Operate Your Scooter

■ Ignition

- ⊙ Turn the key forward (clockwise) to turn your scooter ON.
- ⊙ Turn the key toward yourself (counter-clockwise) to turn the scooter OFF. Make sure you come to a complete stop before you turn the scooter OFF. (See Figures 5.3-5.5)

5. OPERATION



KS-747 • 2/KS-737 • 2
(Figure 5.3)



KS-646 • 2
(Figure 5.4)



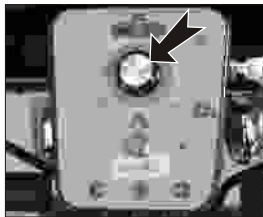
KS-545 • 2
(Figure 5.5)

■ Speed Dial

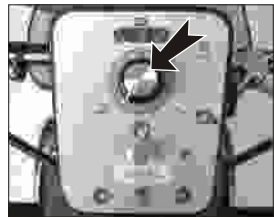
Allows you to set various forward and reverse speeds. The settings are not traditional gears, but are a percentage of maximum power. This is gross power, while the variable speed levers help you to fine tune your speed and act similar to an accelerator.



KS-747 • 2/KS-737 • 2
(Figure 5.6)



KS-646 • 2
(Figure 5.7)



KS-545 • 2
(Figure 5.8)

■ Forward, Reverse and Braking

- ⊙ Pull the right variable speed lever backward with your right hand to make the scooter move forward.
- ⊙ Pull the left variable speed lever backward with your left hand for the scooter to move backward.
- ⊙ A small speaker will "beep" when the vehicle is in reverse.
- ⊙ If you release the variable speed lever while in forward or reverse, the electromagnetic brake will be activated to stop the vehicle.

5. OPERATION

■ Turn Signal Buttons

- ⊙ The signal light will flash and a small speaker will make a "beep-beep" sound if you press either the right or left button.
- ⊙ Press the button again to turn off the turn signal.

■ Horn Button

The horn will sound for the duration of time the button is pressed.

■ Headlight/Taillight Button

The headlight and taillight will be turned on when this button is pressed. Push the button again and the lights will turn off.

■ Electromagnetic Brake

Release the variable speed lever completely and the electromagnetic brake will automatically activate.

⊘ WARNING:

NEVER use the freewheel mode when going down an incline. The electromagnetic brake won't function in freewheel mode.

■ Driver's Seat

- ⊙ Lift up the swivel lever completely to rotate the seat up to 90 degrees to either side.
- ⊙ Lift up the slide lever completely to move the seat forward or backward.
- ⊙ Lift up the recline lever completely to recline or raise the seat to the full upright position. The recline lever also allows you to fold the seat down.
- ⊙ The KS-545 • 2 is not equipped with swivel or recline levers.



(Figure 5.9)

5. OPERATION

■ Headrest Adjustment

1. To raise headrest, lift headrest up to desired position.
 2. To lower headrest, push release button and lower headrest to desired position.
- ⊙ Headrest is locked in position when an audible "click" is heard. If the "click" cannot be heard, consult an authorized technician for safety.



WARNING:

When raising the headrest, never exceed the marked line to ensure safety.



Headrest Lock Release Button

(Figure 5.10)

5. OPERATION



CAUTION:

Be sure to rotate the seat to the forward position and the seat locks into place before driving.

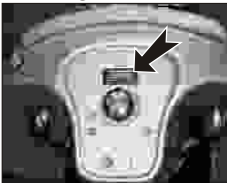
■ Battery Indicator

For KS-737 • 2/KS-747 • 2

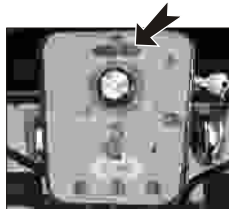
- ⊙ When the ignition is turned on, the battery indicator will light up with a possible total of three red, four orange and three green lines indicating the remaining power of the batteries. The positive/plus sign under the green lines indicates that the batteries are fully charged. The negative/minus sign under the red lines indicates that the batteries are (nearly out of or) out of power.

For KS-646 • 2/KS-545 • 2

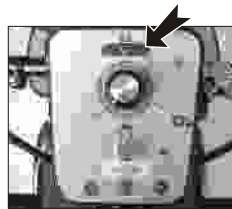
- ⊙ When the ignition is turned on, the battery indicator will light up. The green light (with orange and red lights also lit) indicates that the batteries are fully charged. Only the red light being lit indicates your batteries are out of (or nearly out of) power.
- ⊙ The remaining power shown by the battery indicator will vary according to the actual driving time and how you drive. Repeated starting, stopping and climbing will consume more power and drain your batteries faster than steady, conservative driving.



KS-737 • 2/KS-747 • 2
(Figure 5.11)



KS-646 • 2
(Figure 5.12)



KS-545 • 2
(Figure 5.13)

5. OPERATION

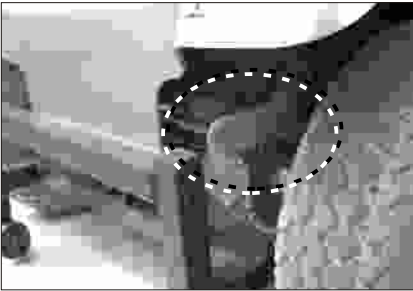
SUGGESTION:

1. It is recommended that you charge the batteries immediately when the battery indicator shows only three or less red lines (KS-737 • 2/KS-747 • 2) or when only the red light is lit (KS-646 • 2/KS-545 • 2).
2. After charging or replacing new batteries, drive the vehicle for 2-3 minutes to make sure the batteries are fully charged.
3. In winter time, the batteries may respond slowly and the drive range may also be reduced. You must store your scooter indoors above freezing temperatures.
4. When driving on an incline, the battery indicator light might move up and down. This is normal.
5. Even if the batteries are used properly their capacity will decay over time, thereby reducing the drive range (maximum distance traveled per full charge). Thus, when the drive range becomes about 50% of what brand new batteries would offer, it's time to replace them with new batteries. Otherwise, the batteries may die unexpectedly leaving you in a possibly precarious situation.
6. The drive range will be shortened when driving frequently on slopes or uneven ground, as this consumes more battery power.

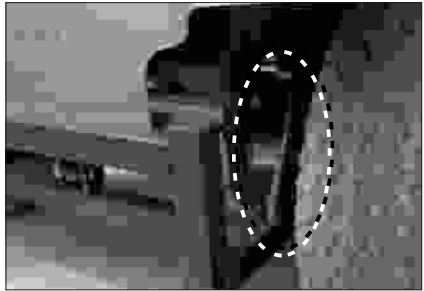
5. OPERATION

5.3 How to Set the Freewheel Mode

- ⊙ Drive Mode: lift the lever up completely and the scooter can be driven by motor power. (See Figure 5.14)
- ⊙ Freewheel Mode: push the lever down completely and the scooter can be pushed manually. Again, the electromagnetic brake does not work in freewheel mode. (See Figure 5.15)



(Figure 5.14 Drive Mode)



(Figure 5.15 Freewheel Mode)

■ Steering Column Adjustment

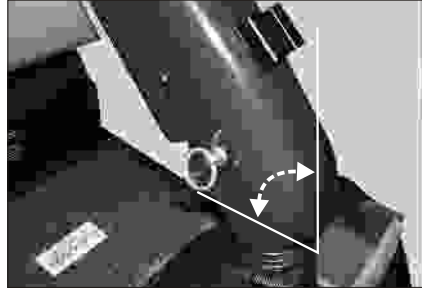
The steering column can be adjusted to four positions.

1. Pull and hold the adjustment ring away from the adjustment plate. (See Figure 5.16)
2. While holding the adjustment ring, adjust the steering column angle to the desired position.
3. Let go of the ring when the steering column angle matches one of the four designed positions in the adjustment plate.
4. Gently push/pull against the steering column to ensure that the steering column is securely engaged into the locking mechanism. The adjustment pin will automatically slide into the hole and make a "click" sound. (See Figure 5.17)
5. Be sure the steering column is securely locked into position, otherwise, you may fall from the scooter and get injured.

5. OPERATION



(Figure 5.16)



(Figure 5.17)

■ Starting and Driving

1. Make sure the driver's seat is installed properly.
2. Make sure the steering column has been secured properly.
3. Make sure the armrests have been returned to the proper down position.
4. Turn the ignition ON. If necessary, turn on the headlight and taillight.
5. Check the battery indicator and make sure there is enough power for your trip(s). If you have any doubt about the remaining power, please charge the battery before you depart.
6. Set the speed dial to the proper level.
7. Be sure the variable speed levers are in good condition.
8. Make sure the electromagnetic brake is in good working order.
9. Always make sure that your surroundings are safe to operate the scooter.



ATTENTION:

1. Do not pull both variable speed levers simultaneously, since you might not be able to control your scooter and may cause permanent damage.
2. Do not turn the ignition OFF while driving, as this will lead to an abrupt stop and possible injury.

5. OPERATION

3. Do not set the speed dial on high while driving indoors.
4. Do not adjust the speed dial while driving. A sudden change to the highest speed may endanger you and cause failure to your scooter.
5. Do not place magnetic devices near the control panel as this may affect the operation of your scooter.
6. Be careful while driving in heavy traffic and crowded areas.
7. While reversing the vehicle be aware of people and objects behind you.

■ Driving Speed

The speed scale is printed on the speed dial label, ranging from 1 to 10, with 10 being the maximum speed. Please refer to "Max. Speed" in section 9. SPECIFICATIONS.

Speed Scale	Speed Equivalencies and Recommended Circumstances
1-3	<ul style="list-style-type: none">⊙ Speed equivalent to walking slowly on foot⊙ On an incline or decline⊙ Driving indoors or in a narrow space
4-6	<ul style="list-style-type: none">⊙ Equivalent to walking at a normal speed⊙ Driving outdoors on flat ground
Over 7	<ul style="list-style-type: none">⊙ Speed equivalent to a brisk walk⊙ Driving in an open space

5. OPERATION

■ To Stop

1. Release the variable speed lever completely and the electromagnetic brake will stop the vehicle.
2. Come to a complete stop before turning the ignition OFF.
3. Remove the key from the ignition for safety reasons.



CAUTION:

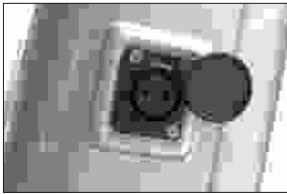
1. The stopping distance will vary with your forward/reverse speed. Therefore, please gradually slow down and come to a complete stop well before any obstacles or danger.
2. To park the scooter, be sure to park on flat ground and then turn the ignition to OFF and remove the key before you exit the scooter.

6. BATTERIES AND CHARGER

6.1 Charging the Batteries

Be sure to precisely follow the procedures listed below.

1. Turn the scooter OFF and remove the key.
2. Connect the charger's cord to a power outlet.
3. Open the charging socket cap on the steering column. Then connect the charger's round plug to the charging socket.
4. Turn on the charger using the power switch.
5. Both the charger's red and orange LED will light up as soon as the charging starts. The charging time is at least 6 hours, but it could be as long as 10 hours, depending on the status of the batteries and temperature.
6. The orange LED will change to green when the charging is completed.
7. Turn off the charger, disconnect the cord and pull out the round plug from charging socket.



Charging Socket
(Figure 6.1)



Charger
(Figure 6.2)

i SUGGESTION:

1. Do not disconnect the charger cord if the charging is not completed. The battery life will be seriously shortened or decayed if the batteries are repeatedly used without being fully charged. Therefore, be sure to always charge the batteries fully.

6. BATTERIES AND CHARGER

2. Always complete the charging by letting the charge LED light turn green. NEVER stop charging before it is complete.
3. When finished charging, disconnect the charger plug from the charging socket as soon as possible. Even when the charger is turned OFF, the electric power will slowly discharge if the cord is not disconnected. DO NOT leave the charger ON connected to the scooter for more than 24 hours.
4. If you will not use your scooter for a long time, it should be charged at least once every two weeks to keep the battery at full power. Charging time depends on the surrounding temperature; it takes longer in the winter.



CAUTION:

Please follow the guidelines below to avoid accidents while charging.

1. Be sure to only use a KARMA Scooter charger and charge the battery completely every time. The battery can be damaged if a non-genuine charger is used.
2. Never disassemble or modify the charger. This will negate the warranty.
3. Please charge in a well-ventilated area where the battery is not directly exposed to sunlight. Do not charge the battery under rainfall, in morning dew or in an area where the humidity is high.
4. Do not cover the scooter with any waterproof cloth or other objects while charging. Don't charge in temperatures less than -10°C (14°F) or higher than 50°C (122°F) as the charger may not work well and the battery may become damaged.

6. BATTERIES AND CHARGER

WARNING:

1. Keep your scooter away from flammable objects while charging, as it may lead to fire or explosion of the battery.
2. Since the battery may produce hydrogen, do not smoke while charging and charge in a well-ventilated area.
3. Never connect or disconnect the plug (cord) with wet hands or if the plug (cord) is wet to avoid possible electric shock.

WARNING:

1. Never attempt to recharge the batteries by attaching cables directly to the battery terminals or clamps. **DO NOT** jump start your scooter!!!
2. Do **NOT** attempt to recharge the batteries while the power scooter is in operation.

CAUTION:

1. New batteries **MUST** be fully charged prior to initial use of the power scooter.
2. Always charge new batteries before initial use or battery life will be reduced.
3. As a general rule, recharge batteries as frequently as possible to assure the longest possible life and to minimize required charging time. Plan to recharge them when use of the power scooter is not anticipated.

The drive range per battery charge using recommended batteries should be approximately 7-8 hours of typical operation.

Extensive use on inclines may substantially reduce per charge mileage.

6. BATTERIES AND CHARGER

6.2 Charger

Both the charger's red and orange LEDs will be ON during charging. The orange LED will turn green when the charging is completed.



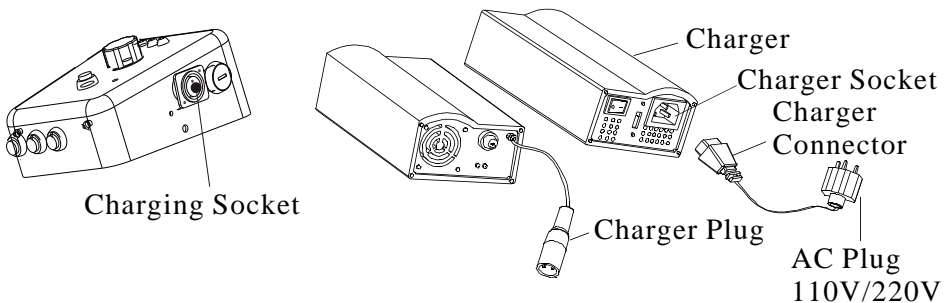
WARNING:

The fan inside the charger will be activated accordingly when you turn on the charger. If you find that the fan does not function properly, DO NOT use the charger. Otherwise, the charger may overheat and start a fire.

Required Items:

Model	Battery Charger	Power Cord
KS-545 • 2	High power 5A	Supplied
KS-646 • 2		
KS-737 • 2		
LS-747 • 2		

NOTE: AC Power Cord (3-prong plug, 15 Ampere current rating)



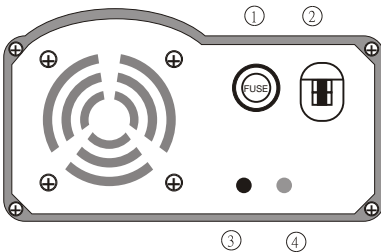
(Figure 6.3)

6. BATTERIES AND CHARGER

Charger Indicator and Status

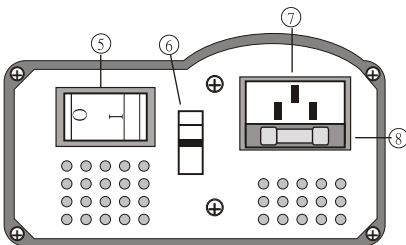
ON/OFF Indicator	Status
Solid Red	Charger ON
LED (OFF)	Charger OFF

Charging Indicator	Status
LED (OFF)	Abnormal Wiring
Orange	Charging
Blinking Orange and Green	Almost fully charged
Solid Green	Fully Charged



Front

1. OUTPUT FUSE
2. OUTPUT
3. LED INDICATOR (POWER)
4. LED INDICATOR (CHARGE)



Rear

5. POWER SUPPLY SWITCH
6. 115 OR 230 VOLT SWITCH
7. AC POWER SUPPLY
8. INPUT PROTECTION FUSE

6. BATTERIES AND CHARGER

6.3 Batteries

- ⊙ Do not expose the batteries to temperatures below -10°C (14°F) or above 50°C (122°F) when charging or storing the vehicle. Exceeding the specified temperature range can lead to either freezing or overheating of the batteries. This will damage the batteries and shorten their lives.
- ⊙ The batteries used on your scooter are maintenance free sealed lead acid batteries. Thus, it is not necessary to change or refill the battery liquid.



WARNING:

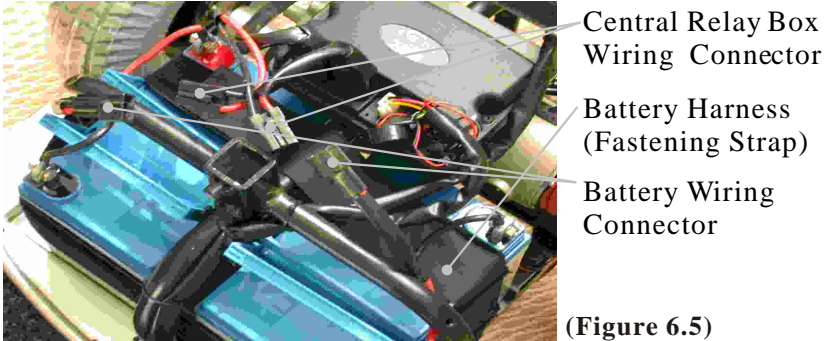
1. Do not open the battery seal cap at any time.
2. After ANY adjustments, repair or service and BEFORE use, make sure that all hardware is tightened securely. Otherwise, injury or damage may occur.
3. When removing/installing batteries, keep all foreign objects, especially metal, away from battery terminals.

■ Removing/Installing the Batteries

When moving a battery, ALWAYS use its handle.

It is the most convenient method and also helps to prolong the life of the battery. DO NOT tip the batteries. Keep the batteries in an upright position. The use of rubber gloves and chemical goggles is recommended when working with batteries.

6. BATTERIES AND CHARGER



1. Turn your scooter OFF and remove the key from the ignition
2. Remove the seat from the scooter. (See **Figure 7.4**)
3. Remove the rear casing. (See **Figure 7.5**)
4. Disconnect top battery harness
5. Disconnect red and black connectors of the battery from red and black connectors of the central relay box. (See **Figure 7.1**)



CAUTION:

Place the power scooter in a well-ventilated area where work can be performed without risking damage to carpeting or floor covering.



WARNING:

The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell or sealed lead acid batteries. Karma strongly recommends their use as the power source for this unit. We also recommend you go to an authorized Karma dealer to have a qualified technician perform this work.

6. BATTERIES AND CHARGER



CAUTION:

Failure to use the correct battery size and/or voltage may cause damage to the powered scooter and give unsatisfactory performance.

SCOOTER MODEL	QTY	VOLTS	AMP/HOURS
KS-545 • 2	2	12	34
KS-646 • 2	2	12	34/40
KS-737 • 2	2	12	50
KS-747 • 2	2	12	50

NOTE: Charge batteries daily. It is critical not to let them run low at any time.

NOTE: Karma recommends that both batteries be replaced if one battery is defective.



WARNING:

NEVER allow any of your tools and/or battery cables to contact BOTH terminal posts at the same time. An electrical short may occur and injury or damage may occur.



CAUTION:

When tightening the clamps, always use a box or crescent wrench. Pliers will round off (strip) the nuts. NEVER wiggle the terminal when tightening as the battery may be damaged.

6. BATTERIES AND CHARGER

6. Remove the batteries and cable assemblies from the scooter.
7. If necessary, lift the battery cable connector/boot off the battery terminal.
8. Position and secure battery cables onto new battery terminals.
Connect the black cable to the negative (-) terminal.
Connect the red cable to the positive (+) terminal.



CAUTION:

1. The positive (+) connector **MUST** be connected to the positive (+) terminal/post. Otherwise, serious damage will occur to the electrical system.
2. Connect the battery wiring connector to the central relay box wiring connector.



WARNING:

1. Always connect the black cable to the negative (-) terminal first. Otherwise, injury may result.
2. Dispose of unwanted batteries according to federal, state, and local regulations. Do not burn the batteries. Batteries should be recycled. Contact authorized dealers for more information.

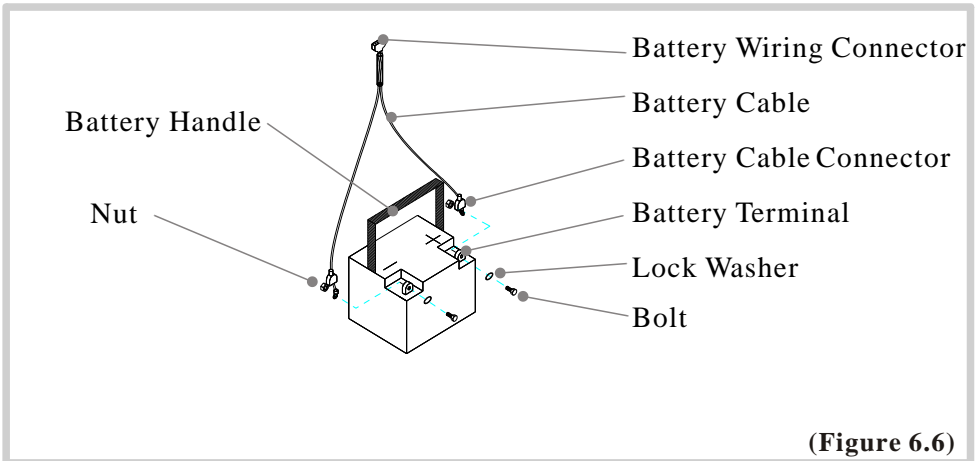


WARNING:

DO NOT improperly dispose of unwanted batteries or injuries may occur. Contact with battery acid causes injuries or damage to skin. Mishandling can result in 2nd or 3rd degree burns or blindness. Swallowing battery acid will cause fatal burns to internal organs. Breathing fumes from a battery may cause discomfort and damage your respiratory system.

6. BATTERIES AND CHARGER

9. Repeat steps 7-8 for the other battery.
10. Verify that all connections are correct and terminals are secure.
11. Install the new batteries with cable assemblies onto the scooter.
12. Charge the batteries.



6. BATTERIES AND CHARGER

■ **Cleaning the Batteries**

If a battery is contaminated by dirty water, battery acid, dust or other soil, the battery will discharge quickly. Therefore, please follow the following steps to clean the battery:

1. Turn the ignition OFF and remove the key;
2. Remove the driver's seat;
3. Remove the rear casing and unplug the taillight and signal lights from the electrical system;
4. Use a clean cloth to wipe off the soiled area;
5. Take out the battery; and
6. Clean the battery with a clean cloth.

SUGGESTION:

If necessary, ask for help from your KARMA Scooter dealer for cleaning and replacing the batteries.

SUGGESTION:

1. Do not use the battery to charge telecom equipment or other items.
2. Battery capacity will vary with outside conditions; the maximum drive range will decrease in the winter. If the vehicle is not going to be used for a long time, please remember to charge the batteries at least once every two weeks.
3. Replace both batteries simultaneously.

6. BATTERIES AND CHARGER

WARNING:

1. Do NOT allow conductive material such as a wrench to join the two (2) battery terminals. This will result in a dead short that can cause burns to you and damage to the battery.
2. Most batteries are not sold with instructions. However, warnings are frequently noted on top of the batteries. Read them carefully.
3. Do NOT allow the liquid in the battery to come in contact with skin, clothes, or other items. It is a form of acid and may cause harmful or damaging burns. Should the liquid come into contact with skin, rinse the area immediately and thoroughly with cool water. If liquid comes into contact with eyes, flush eyes immediately and seek medical attention as soon as possible.
5. The use of rubber gloves and chemical goggles are recommended when working with batteries.
6. NEVER smoke or strike a match near batteries.

7. Examine battery clamps/terminals for corrosion, if the terminal is covered by white powder, please clean it using warm water.

WARNING:

If there are any cracks or leaks replace batteries IMMEDIATELY.

8. Clean the terminals and inside of the battery clamps by using a battery cleaning tool, wire brush, or medium grade sandpaper. Upon completion, these areas should be shiny, not dull.
9. Carefully dust off all metal particles.

7. INSPECTION AND MAINTENANCE

7. INSPECTION AND MAINTENANCE

7.1 Daily Check

Check the following items before driving. If you find anything abnormal, visit your KARMA Scooter dealer for further inspection before using it.

Item	Inspection Content
Handlebars	<ul style="list-style-type: none">⊙ Are they loose and/or making noise?⊙ Can they be turned left and right smoothly?
Speed Dial	<ul style="list-style-type: none">⊙ Can it be adjusted freely and does it function well?
Variable Speed Levers	<ul style="list-style-type: none">⊙ Does the scooter move when a lever is pressed?⊙ Does the scooter stop when the lever is released completely?
Motor	<ul style="list-style-type: none">⊙ Is there any abnormal motor noise?⊙ Does the electromagnetic brake work properly?
Freewheel Mode	<ul style="list-style-type: none">⊙ Does the freewheel lever work properly?
Battery Indicator	<ul style="list-style-type: none">⊙ Does it light up when the power is ON?⊙ Is there enough power for your trip?
Horn	<ul style="list-style-type: none">⊙ Does the horn work well?
Turn Signals	<ul style="list-style-type: none">⊙ Do the turn signals work?
Headlight	<ul style="list-style-type: none">⊙ Does the headlight work?
Taillight	<ul style="list-style-type: none">⊙ Does the taillight work?
Driver's Seat	<ul style="list-style-type: none">⊙ Does the driver's seat recline, slide and swivel smoothly?
Reflectors	<ul style="list-style-type: none">⊙ Are they broken?
Rearview Mirrors	<ul style="list-style-type: none">⊙ Are they broken? Are they adjusted properly?
Tires	<ul style="list-style-type: none">⊙ Are there any cracks or other damage to the tires?⊙ Check the tire tread depth and air pressure.
Other	<ul style="list-style-type: none">⊙ Is there any abnormal noise?⊙ Is there any oil leakage from the transmission box?

7. INSPECTION AND MAINTENANCE



CAUTION:

Visit a KARMA Scooter dealer for inspection and maintenance if you find anything abnormal.

7.2 Regular Maintenance Record

To make sure your scooter is in good condition, visit your KARMA Scooter dealer regularly for maintenance (and keep records accordingly) every six months after purchasing.

A maintenance/service fee may apply.



SUGGESTION:

Even if you don't use the vehicle for a long time, the scooter should still be maintained regularly. You should clean your scooter, inside and out, regularly to keep it beautiful and safe.

I - Inspection A- Adjustment - Repair
3 - Replacement T -Tightening L -Add Oil

Item/Period		1 mth	6 mth	12 mth	18 mth	24 mth	30 mth
Control Panel	Variable Speed Levers		I	I	I	I/3	I/3
	Speed Dial and Other Buttons		I	I	I	I/3	I/3
	Connection to the Electrical System			I		I	I/A
Motor	Operation and Noise		I	I	I/A	I/A	I/3
	Electromagnetic Brakes		I	I	I	I/3	I/3
	Connection to the Electrical System			I		I	
Trans- mission	Freewheel Mode Lever			I		I/A	

7. INSPECTION AND MAINTENANCE

Item/Period		1 mth	6 mth	12 mth	18 mth	24 mth	30 mth
Batteries	Loose or Corroded Terminals			I		I	
	Connection to the Electrical System			I		I	
	Damage to the Electrical Cord/Cable			I		I	
Charger	Charging Function and LED Lights	I	I	I	I/	I/	I/
	Socket, Plug and Cords			I		I	
	Fan Functions Properly			I		I/	
Driver's Seat	Slide, Swivel and Recline Levers			I/L		I/L	
Steering Column	Turns Smoothly		I	I	I	I/3	I/3
Tires	Cracks/Surface Damage	I/3	I/3	I/3	I/3	I/3	I/3
	Tread Depth		I	I/3	I	I/3	I
	Abnormal Wear Pattern			I/3		I/3	
Wheel Rim	Tightness of Bolts and Nuts			T		T	
	Wear or Deformation Around Tires			I/3		I/3	
Shock Absorbers	Tightness of Bolts and Nuts			I		I/T	
	Damage to Shock Absorbers			I		I/3	
Inspector	Checked by	I	I	I	I	I	I
	Inspection Date	I	I	I	I	I	I

7.3 Batteries, Fuses and Tires

■ Batteries

Refer to 6.3 BATTERIES in 6. BATTERIES AND CHARGER.

■ Fuses

There are two fuses on your scooter. One is located inside of the control panel; the other is near the batteries. If the ignition is turned ON and the battery indicator does not light up, check the fuses as one may be broken.

7. INSPECTION AND MAINTENANCE

SUGGESTION:

Ask for help from your KARMA Scooter dealer for inspecting or replacing the fuse(s), since the rear casing or control panel cover must be removed to replace a fuse.

Tires

The condition of the tires is affected by the way you drive and use your scooter.

- Ⓢ Inspecting Tire Tread: please check the tread depth regularly. Replace the tires when the tread depth is less than 0.5mm.

CAUTION:

1. When the tread depth is below 0.5mm, the tire does not have good traction. This may lead to vehicle slippage and makes braking distances much longer. Thus, replace the tire as soon as possible if it has less than a 0.5mm tread depth.
2. The tire pressure must be kept at between 40-50 PSI (approx. 1.8kg/cm) for the best drive range (maximum distance traveled per charge) and usage/handling.

7.4 General Maintenance

- Ⓢ You must maintain the vehicle more frequently if you drive on grass, sand or gravel roads often.
- Ⓢ Do not use water, oil or other chemical solutions to clean your scooter. Be sure NOT to spray the vehicle with water, as not to damage the electronic components and PC circuit board. Please clean the vehicle by wiping it with either a dry or moist cloth.
- Ⓢ Please take the vehicle to an authorized KARMA Scooter dealer for repairs and adjustments. Improper adjustments could lead to scooter malfunction or an accident.

7. INSPECTION AND MAINTENANCE

- ⊙ Please use a soft and dry cloth to keep your scooter clean. Use moderate or mild detergent to clean the scooter, if necessary.



CAUTION:

- ⊙ Before performing any maintenance, be sure to turn the ignition OFF and unplug the charger if connected.
- ⊙ DO NOT over-tighten hardware. This could cause damage to the frame and hardware.



SUGGESTION:

- ⊙ Do not directly spray water on your scooter to wash it as this could lead to a malfunction in the electric system.
- ⊙ Do not use gasoline, solvents or other abrasive solutions; the casing may become deformed or damaged.



WARNING:

After ANY adjustments, repair or service and BEFORE use, make sure that all hardware is tightened securely, otherwise injury or damage may occur.

■ Suggested Maintenance Procedures

- ⊙ Before using the power scooter, make sure all nuts and bolts are tight. Check all parts for damage or wear and have a qualified technician replace it if necessary. Check all parts for proper adjustment.
- ⊙ Ensure that the batteries are properly maintained and charged as required.
- ⊙ Inspect brake for proper operation.
- ⊙ The wheels and tires should be checked periodically for cracks and wear, and should be replaced by a qualified technician.

7. INSPECTION AND MAINTENANCE

- ⊙ Regularly check for loose nuts and/or bolts in the front and rear wheels. If loose, have them adjusted by a qualified technician.
- ⊙ Clean dirt, dust and grease from exposed components.
- ⊙ A qualified technician can be found with an authorized distributor/dealer.

7.5 Transporting and Storing

Make sure the vehicle is stored with the seat set to the forward position, with the ignition turned OFF and the key removed.

ⓘ SUGGESTION:

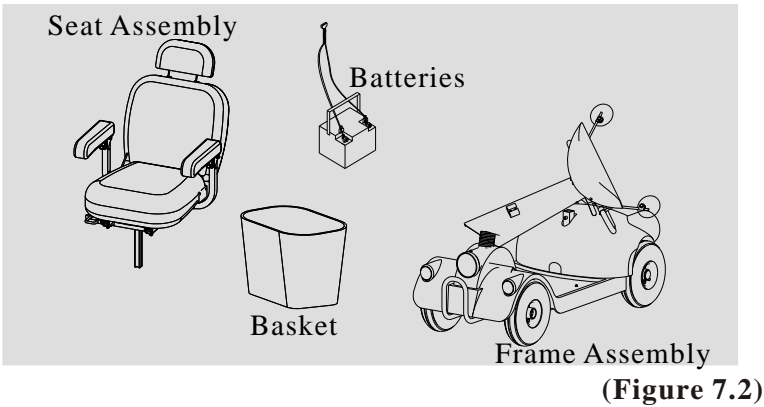
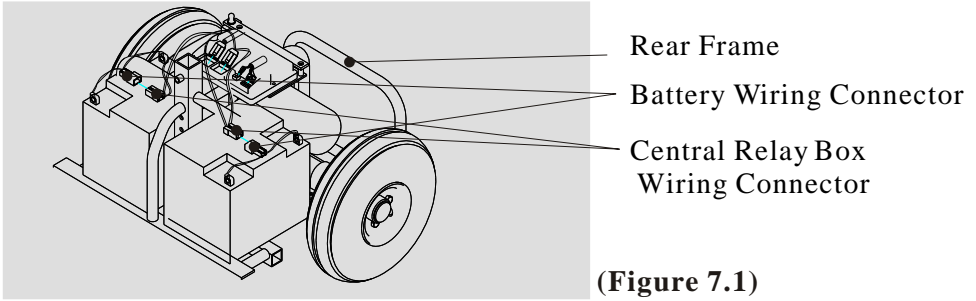
Please store the scooter in a location where it is out of direct sunlight, rain and dew. When stored for a long time, please charge the batteries to full and then disconnect the battery terminals. For more details, consult your KARMA Scooter dealer.

■ Disassembling the Scooter

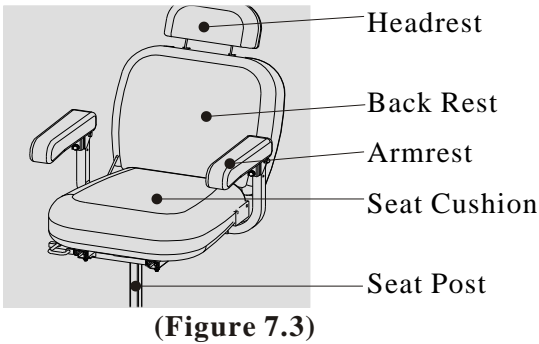
NOTE: To reassemble the scooter, reverse the following procedure.

1. Remove front basket, if applicable.
2. Fold back rest down.
3. Remove driver's seat. **(See Figure 7.4)**
4. Remove the rear casing. **(See Figure 7.5)**
5. Remove the batteries by disconnecting them from the central relay box. **(See Section 6.3 and Figure 7.1)**
6. Replace rear casing.
7. Tilt down the steering column all the way. **(See Figure 7.2)**

7. INSPECTION AND MAINTENANCE



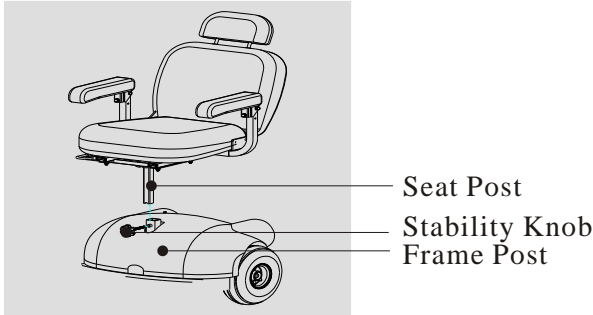
■ Removing/Installing the Seat



7. INSPECTION AND MAINTENANCE

Removing the Seat

1. Remove the stability knob located under the seat on the frame post.
2. Lift the seat up and remove it from the frame post.



(Figure 7.4)

Installing the Seat

1. Position the seat post all the way into the frame post with the seat in the forward position.
2. Reinstall the stability knob, and hand tighten until snug.

If the ride feels shaky, check to see if the stability knob is tight.

REMOVING/INSTALLING THE REAR CASING

Removing

To install the rear casing, reverse this procedure.

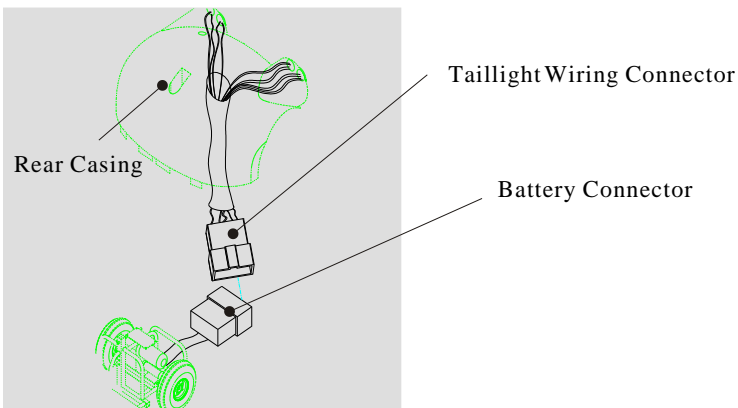
1. Remove the seat.
2. Slowly remove the rear casing and place it on the floor close to the scooter. Disconnect the taillight wiring connector from the battery wiring connector. Arrange wires neatly with the rear casing.

7. INSPECTION AND MAINTENANCE



CAUTION:

CAREFULLY remove the rear casing because the wiring connector for the taillights is connected to the batteries connectors. Otherwise, damage may result.



(Figure 7.5)

8. TROUBLESHOOTING

■ Trouble or Problems with Your Scooter

You can inspect the following before taking your scooter to a KARMA Scooter dealer.

Problem	Checking Points and Corrective Action
My Scooter Does Not Start	⊙ Is the ignition turned OFF? ↓ Turn ON the ignition.
	⊙ Do the batteries still have power? ⊙ Is the battery indicator light not on? ↓ Charge the batteries.
	⊙ Is the charger plugged into the scooter? ↓ Unplug the charger and put it away.

If you cannot solve the problem by yourself, contact your KARMA Scooter dealer for help.

■ Status Indicator (LED) and Battery & Diagnostics Indicator

- ⊙ The status indicator (KS-545.2 and KS-646.2 only) shows you that the scooter is switched on. It also indicates the operating status of the scooter. Turn on the ignition. A single bulb (LED) status indicator will turn on immediately.
- ⊙ During the first half-second after the scooter is switched on, the central relay box (controller) is performing important safety checks within itself and the rest of the scooter's electrical system. Therefore, if you push the variable speed lever during this time, you will not be able to drive until you have returned the variable speed lever to the rest position. This condition is indicated by a rapid flashing.

8. TROUBLESHOOTING

- ⊙ If you do not push the variable speed lever (throttle) as you switch the scooter on and the status indicator flashes rapidly, then there may be a fault.
- ⊙ If a fault occurs and you have a scooter model fitted with a TruCharge (Battery & Diagnostics Indicator) display, you can find out what has happened by counting the number of bars that are flashing on the battery gauge. The information below gives an overview of the fault types and a list of self-help actions. Try to use this list before you contact your service agent. Go to the number in the list which matches the number of flashing bars and follow the instructions.
- ⊙ The Diagnostic Flash Code Feature is a factory programmed feature that allows a single status lamp or LED to display the Trucharge fault code. This is done by pulsing/flashing the lamp on for a number of times equivalent to the number of Trucharge bars that would be flashing for a given fault. The information below still applies, so for example, if your scooter had a variable speed lever fault, the status lamp would flash 7 times, pause briefly, flash 7 times, pause briefly and so on.

Number of Flashing (Bars)	Battery & Diagnostics Indicator (KS-747 • 2/KS-737 • 2)	Status Indicator (KS-545.2)
1 Bar/Flash	The Battery Voltage	The Battery Voltage
	The batteries need charging or there is a bad connection to the batteries. Check all connections between the central relay box and the batteries. If the connections are good, try charging the batteries.	

8.TROUBLESHOOTING

2 Bar/Flash	Motor Disconnected	Motor Disconnected
	There is a bad connection to the motor. Check all connections between the motor and the central relay box.	
3 Bar/Flash	Motor Wiring Trip	Motor Wiring Trip
	The motor has a short circuit to a battery connection. Contact your service agent.	
4 Bar/Flash	Freewheel Lever	Not used, No meaning
	The freewheel mode is enabled. Check the position of the lever.	
5 Bar/Flash	Not used, No meaning	Not used, No meaning
6 Bar/Flash	Charger Connected	Charger Connected
	The central relay box is being inhibited from driving, this may be because the battery charger is connected or the driver's seat is not in the driving position.	
7 Bar/Flash	Variable Speed Lever Trip	Variable Speed Lever Trip
	A variable speed lever fault/error is indicated. Make sure the variable speed lever is in the rest position before switching on the scooter.	
8 Bar/Flash	Possible Control System Trip	Possible Control System Trip
	A central relay box (controller) fault has been indicated. Contact you service agent.	

8. TROUBLESHOOTING

9 Bar/Flash	Electromagnetic Brake Trip	Electromagnetic Brake Trip
	There is a bad connection to the electromagnetic brake. Check all connections between the brake and the central relay box.	
10 Bar/Flash	High Battery Voltage	High Battery Voltage
	An excessive voltage has been applied to the central relay box. This is usually caused by a poor battery connection. Check all connections between the batteries and the central relay box.	

KS-646.2 Status Indicator (Fault Diagnostics-Penny & Giles Controller)

1. Fast flash, about one flash per second continuously.
 - ⊙ The batteries need to recharge (battery voltage has fallen below 23.3 volts). Check connection between the central relay box and the batteries. If the connection is correct, recharge the batteries.
 - ⊙ The variable speed levers are engaged when the ignition is turned on. Disengage the levers and try starting your scooter again.
2. Slow flash, about one flash every other second continuously.
 - ⊙ The batteries may need to be charged or the connection may be poor. Check the connections between the central relay box and the batteries. If the connection is correct, recharge the batteries.
 - ⊙ The connection to the motor may be poor. Check the connection between the motor and the central relay box.
 - ⊙ The connection between the motor and the batteries may have short circuited. Contact an authorized Karma technician.
 - ⊙ The scooter does not drive. The charger may still be connected to the scooter or the seat may not be correctly positioned.

8. TROUBLESHOOTING

- ⊙ The variable speed levers are engaged. Make sure the variable speed levers are in the neutral/rest position when the ignition is turned on.
 - ⊙ The central relay box may be defective. Contact an authorized Karma technician.
 - ⊙ The connection between the brake and central relay box may be poor. Check the connection.
 - ⊙ There is an abnormally high current in the central relay box. The battery connections are probably poor. Check all connections between the central relay box and the batteries.
3. After following the above guidelines and eliminating improper operations, if the scooter still does not function, contact an authorized Karma technician immediately.

9. SPECIFICATIONS

9. SPECIFICATIONS

Model	KS-737 · 2
Dimensions (L x W x H)	1230 x 640 x 1120mm 48 x 25 x 44 inches
Weight W/ Batteries	98.4kg (216lbs)
Weight W/O Batteries	70.6kg (156lbs)
Motor	550W* 1
Battery	12V, 50Ah x2 (sealed lead acid)
Charger	DC24V 5A
Front Tire	10" x 1pcs
Rear Tire	12" x 2pcs
Drive System	Direct Rear Wheel Drive(with differential gear)
Brake System	Automatic Electromagnetic Brakes
Control Method	Variable Speed Levers
Max. Speed	15km/h (9.3mph)
Climbing Angle	15°
※Drive Range	50km (30 miles)
Min. Turning Radius	1275mm (47 inches)
Ground Clearance	100mm/3.9"
Max. Cross Width	127mm/5"
Max. Capacity (including goods)	135kg/300lbs

Remark -- The manufacturer reserves the right to modify the specifications w/o further notice. The final specifications are subject to change.

※ Drive Range (the maximum driving distance per complete charge) is estimated based on the following conditions: 20°C (68°F), a 80kg (176lb) driver, brand new fully charged batteries and a constant driving speed of 15km/h (9.3mph).

9. SPECIFICATIONS

Model	KS-747 • 2
Dimensions (L x W x H)	1260 x 680 x 1120mm 50 x 27 x 44 inches
Weight W/ Batteries	97.9kg (216lbs)
Weight W/O Batteries	70.1kg (155lbs)
Motor	550W* 1
Battery	12V, 50Ah x2 (sealed lead acid)
Charger	DC24V 5A
Front Tire	12" x 2pcs
Rear Tire	12" x 2pcs
Drive System	Direct Rear Wheel Drive(with differential gear)
Brake System	Automatic Electromagnetic Brakes
Control Method	Variable Speed Levers
Max. Speed	15km/h (93mph)
Climbing Angle	15°
※Drive Range	50km (30 miles)
Min. Turning Radius	1660mm (65 inches)
Ground Clearance	100mm/3.94"
Max. Cross Width	152mm/6"
Max. Capacity (including goods)	135kg/300lbs

Remark -- The manufacturer reserves the right to modify the specifications w/o further notice. The final specifications are subject to change.

※ Drive Range (the maximum driving distance per complete charge) is estimated based on the following conditions: 20°C (68°F), a 80kg (176lb) driver, brand new fully charged batteries and a constant driving speed of 15km/h (9.3mph).

9. SPECIFICATIONS

Model	KS-646 • 2
Dimensions (L x W x H)	1200 x 640 x 1120mm 47 x 25 x 44 inches
Weight W/ Batteries	79.6kg (175lbs)
Weight W/O Batteries	58.2kg (128lbs)
Motor	550W* 1
Battery	12V, 36Ah x2 (sealed lead acid)
Charger	DC24V 5A
Front Tire	10" x 2pcs
Rear Tire	12" x 2pcs
Drive System	Direct rear Wheel Drive (with differential gear)
Brake System	Automatic Electromagnetic Brakes
Control Method	Variable Speed Levers
Max. Speed	12km/h (7.26mph)
Climbing Angle	12°
※Drive Range	40km (24 miles)
Min. Turning Radius	1520mm (60 inches)
Ground Clearance	80mm/3.15"
Max. Cross Width	127mm/5"
Max. Capacity (including goods)	135kg/300lbs

Remark -- The manufacturer reserves the right to modify the specifications w/o further notice. The final specifications are subject to change.

※ Drive Range (the maximum driving distance per complete charge) is estimated based on the following conditions: 20°C (68°F), a 80kg (176lb) driver, brand new fully charged batteries and a constant driving speed of 15km/h (9.3mph).

9. SPECIFICATIONS

Model	KS-545 • 2
Dimensions (L x W x H)	1200 x 590 x 940mm 48 x 23 x 37 inches
Weight W/ Batteries	75kg (165lbs)
Weight W/O Batteries	58.6kg (129lbs)
Motor	350W* 1
Battery	12V, 36Ah x2 (sealed lead acid)
Charger	DC24V 5A
Front Tire	10" x 2pcs
Rear Tire	12" x 2pcs
Drive System	Direct Rear Wheel Drive(with differential gear)
Brake System	Automatic Electromagnetic Brakes
Control Method	Variable Speed Levers
Max. Speed	10km/h (6mph)
Climbing Angle	12°
※Drive Range	40km (24 miles)
Min. Turning Radius	1490mm (58 inches)
Ground Clearance	85mm/3.3"
Max. Cross Width	127mm/5"
Max. Capacity (including goods)	115kg/250lbs

Remark -- The manufacturer reserves the right to modify the specifications w/o further notice. The final specifications are subject to change.

※ Drive Range (the maximum driving distance per complete charge) is estimated based on the following conditions: 20°C (68°F), a 80kg (176lb) driver, brand new fully charged batteries and a constant driving speed of 15km/h (9.3mph).

10. CLEANING & RECYCLING

10. CLEANING & RECYCLING

■ CLEANING

In order to lengthen the life of your scooter, it is suggested that you clean the scooter periodically (if not daily), especially after it is used in the rain or snow. We suggest that you don't use your scooter in the rain or snow. If you are traveling and get caught in the rain, we suggest you try to find shelter and turn OFF your scooter while waiting it out. If you can't find shelter proceed to your destination, but we do not recommend you do this often as it may shorten the life of your scooter or cause damage.

Driver's seat upholstery: use soapy water. Wring out the sponge/cloth before scrubbing. Do not use the scooter until it is dry.

Frame: wipe with a damp cloth, but be sure not to splash/spray the scooter with water, as doing so may damage the motor, electrical wiring and battery. If compressed air is available, you can use the compressed air to clean you scooter (do not to exceed 7K and keep the nozzle at least 10cm away from your scooter).

Casing: wipe with a damp cloth. After it is dry, coat the casing with a light layer of wax, if desired.

10. CLEANING & RECYCLING

■ POST-CONSUMER RECYCLING

A post-consumer recycling plan should follow the Environmental Protection Administration's regulations. The items listed below are for reference only as local law and regulation may vary.

Material	Part Name	Method
Steel	Frame	Recyclable
ABS	Casing	Recyclable
Various	Battery	Recyclable
Various	Motor/Reduction Gear	Recyclable
Various	Electric Parts	Recyclable

11. WARRANTY

11. WARRANTY

11.1 Vin (Vehicle Identification Number)

To ensure after-sale service and warranty, please record and fill in the vehicle identification number. The VIN can be found on the steering column below the control panel.

Model	KS-545 • 2/KS-646 • 2 /KS-737 • 2/KS-747 • 2
VIN	

11.2 Warranty Policy

11.2.1 Contents and Duration of Warranty

■ Contents of Warranty

1. Repair will be provided free of charge if the problems are due to manufacturing or defective components within the warranty period (*a repair of this kind will hereafter be called warranty repair*).
2. The warranty repair can be performed by authorized KARMA Scooter dealers only.
3. KARMA is not responsible for the transportation costs for repair and replacement.
4. Replaced parts will be the property of KARMA.

■ Warranty Duration and Parts Covered by the Warranty

Parts	Warranty Duration
General Items	One year from the date of purchase.
Frame	Three years from the date of purchase.
Batteries	Provided by the battery manufacturer. Batteries are not warranted by KARMA.

11. WARRANTY

11.2.2 Items Not Covered by the Warranty

■ Items Not Covered

The items listed below are not covered:

1. Consumable parts such as brake shoes or pads, clutch shoe and lining, light bulbs, fuses, upholstery and seating, brake cable, oil seal packing and gasket, screws/bolts and washers, lubricant oil and grease, carbon brush inside the motor, battery liquid, footrest carpet, et cetera;
2. Those that do not affect the quality and functioning of the scooter such as noise or vibration;
3. Wear and tear resulting from usage as well as conditions resulting from lapse of time (e.g., normal aging and deterioration of paint, electroplating, plastic parts, etc);
4. Damage due to a lack of maintenance or improper operation and storage;
5. Fees for routine inspections, adjustments, adding oil, cleaning and other maintenance;
6. Fees for regular inspections and maintenance; and
7. Any fees incurred as a result of warranty repair, loss or compensation because of the unavailability of the scooter (telephone use, shipping, car rental, travel costs, et cetera).

■ Problems Not Covered

Problems caused by the following reasons are not covered:

1. Failure to carry out the regular inspection and maintenance recommended by this owner's manual;
2. Improper storage;
3. Tampering by changing or adding components to the vehicle, which are not approved by KARMA;

11. WARRANTY

4. Damage caused by using non-KARMA genuine parts or other parts not recommended by KARMA;
5. Abuse or misuse of the vehicle such as driving over curbs and overloading the scooter with passengers or goods;
6. Driving in places where the vehicle should not normally be driven or used;
7. Damage or surface corrosion from environmental factors such as airborne fallout (chemicals, tree sap, et cetera), stones, hail, windstorms, lighting, floods and so on;
8. Change of any material or component parts not authorized by KARMA (Don't carry objects that may lead to the scooter being unbalanced);
9. The scooter shall not be pulled or pushed by another vehicle when there is a person on the scooter or the rear wheels are not set to the freewheel mode; and
10. Do not drive a scooter that is older than 10 years without having the structure inspected.

11.2.3 The Responsibilities of the User

The following items are the responsibility of the user:

1. Proper use of the vehicle in accordance with this Owner's Manual;
2. Performance of the daily inspections;
3. Performance of the regular maintenance recommended by KARMA; and
4. Keep a record of vehicle inspection and maintenance in the back of this Owner's Manual.

1.2.4 Warranty Effectiveness

The warranty form must be completely filled out and stamped by the KARMA Scooter dealership where the scooter was purchased.

11. WARRANTY

11.2.5 Transfer of Warranty Rights

If you purchase a second-hand KARMA Scooter while it is still with in the warranty period, bring the Owner's Manual and the vehicle to the dealership where the scooter was purchased for registration.

Warranty Form(You may photocopy this from)

Full Name:	
Gender:	<input type="checkbox"/> Male <input type="checkbox"/> Female
Date of Birth:	Year Month Day
Address:	
Model:	KARMA <input type="checkbox"/> 737 · 2 <input type="checkbox"/> 747 · 2 <input type="checkbox"/> 646 · 2 <input type="checkbox"/> 545 · 2
VIN:	
Date of Purchase:	Year Month Day
Purchaser Signature:	

Dealer's Data

Name of Store:	
Telephone and Address:	

If you have any suggestions on how to improve our products, please don't hesitate contacting your local dealer to let us know what you think of your scooter. Thank you and enjoy.



Research and Technology Development

- Combining close attention to our worldwide customers with the dedicated efforts of the R&D team, we have proudly attained over 30 patents globally in the past few years.
- Rapid product development and shortened time-to-market are achieved through the simultaneous and relentless efforts of more than 20 engineers in Australia, the United Kingdom, and Taiwan.
- Optimal design is achieved through numerous 3D modeling, parameter setting simulation, etc.
- Thirty different countries with different customers equals different needs.

"Customers come first." We start with meeting the needs of our customers.



- Thanks to the vigorous efforts of our 200 dedicated colleagues in Taiwan and Thailand facilities, our monthly capacity has exceeded 6,000 units of manual and powered products.
- Always growing, our offices in the United Kingdom, U.S. and Taiwan continue to expand the distribution of our products in the global market under the brand names of KARMA, SOMA and Discovery.



Karma's second generation KS • 2 Series features upgraded mechanical and electrical integration, a highly efficient transaxle, a multi-level shock absorbing platform, adjustable wide-angle headlight, and a well-ventilated synthetic leather automobile driver's seat, all of which will enable you to have a comfortable and enjoyable driving experience.

Product series: mini, economic, standard, agile, heavy duty and super models.

NATIONAL AGENT:

SOLD AND SERVICED BY:

Karma reserves the right to modify information herein without further notice



Headquarters/Factory in Taiwan

Branch in U.K.

Factory in Thailand

