Electric Bicycle
Owner's Manual
Europa & Callisto

American Electric Cycle and Fitness
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Part number: 100001
Version 1.6
Spring, 2006

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I. Introduction: A word about this Owner's Manual and your safety…

Dear Customer, (And anyone else that looks at this page…)

We like you a lot. You bought our bike! For geeky engineering and electric bike people like us-- that makes you one of our favorite people. Thanks!

Preventing injury is what reading this manual is all about.

Cycling (electric or otherwise) can be a hazardous activity, no matter what type of bicycle you ride. Traffic, weather, distractions, and many other factors can endanger you while using any type of bicycle or vehicle. Mistakes and accidents (and bad luck) can lead to severe injury or death. (We hate those words, but they must be said.).

Our Promise: If you read this manual (all of it), you will find the jokes that we have inserted in unlikely places. Oh, and you will also be a safer rider with a bike that will last longer and work better.

Electric bikes have several kinds of energy and one of them is kinetic energy. This means that when the bike (and rider, and stuff attached to the bike) is in motion, it tends to stay in motion, and if you make a mistake piloting the vehicle, or failed to maintain the bike, kinetic energy is going to slam you into something – a car, the pavement, etc. (Cars have kinetic energy also – a lot more that bikes do! So caution around cars is a first priority.)

We have worked hard to provide a quality product, well designed and free from defects. That's our responsibility. You have a responsibility also – learn how to operate your new bike safely and correctly. Keep it in good shape by maintaining it and making sure that anyone who uses it knows how to operate it safely.

Please take the time to read and understand the following warnings and cautions. Throughout this manual we will attempt to reinforce the guidelines that we have summarized below. This is important. If your bike is used by others, please show this section to them so that they are aware of these important guidelines to help avoid accidents and reduce the severity of injuries when they occur. Thank you.

- **Helmets**: There is no single factor that works better at reducing the severity of injuries sustained in bicycle accidents more than a quality bicycle helmet. Please don't ever ride your bike without one. You won't look like a geek; you'll look like someone who cares about himself. (Lance Armstrong does NOT look like a geek, and he is usually seen in a helmet.)

- **It's not a tandem**: Your bike was engineered to carry one (1), [that is a single rider,] person safely. The rack on the back is for luggage or a battery, not your buddy. Overloading the bike with a second rider is a bad idea that can lead to severe injury or death! (Yeah, the bad words again.) Not to mention the fact that

you will severely impact the performance of the bike. Talk your buddy into buying his own Tres Terra Bike.

- **It's the law; obey it**: Obey all traffic laws. Always ride on the right (that's RIGHT as opposed to LEFT – but it's also RIGHT as in CORRECT) side, with, not against, traffic. The STOP sign and light means you too. Bike riders always, always, always lose when a bike and a car collide –no matter who was "in the right". (We call this being "dead" right.)

- **Look out!** Unfortunately, a motorist that has successfully parallel parked his/her car is not always thinking about the cyclist fast approaching from behind. An impact with a car door suddenly opened into your path will ruin your day.

- **Weather**: Bikes brakes don't work well when they're wet. Don't ride in the rain or snow if you can avoid it. If you forgot to watch the Weather Channel before leaving home, and you get caught in the rain, please be aware that distance to stop your bike may double or triple over the distance that it takes under dry conditions. Ride more slowly, and anticipate your stops by applying the brakes MUCH earlier. Also don't forget that the roads are a lot slipperier when they're wet. Those skinny little bike tires don't grip wet pavement as well as dry pavement. So take the corners carefully.

- **Night time**: Don't ride after dark. Motorists have a hard time seeing you when the sun goes down. We've tried to make the bike easier to see with lights and reflectors, but you're still not as visible as in the daytime. If you must ride at night, wear light-colored clothing, preferably with reflective strips. Buy a flashing LED light and use it. Make sure that the reflectors on your bike are properly positioned and clean. Use a headlight so that you can see the obstacles in your path. Ride more slowly. Be wary of cars and assume that they do not see you. Better yet – **DON'T RIDE AT NIGHT!**

- **Maintenance**: It worked fine when we put it in the box: Please maintain your bike. There are instructions here in the manual. We're smart guys, but we haven't figured out how to make a bike that takes care of itself. Check the brakes and the tires and the tightness of all those important fasteners before each and every ride. Pretend that you're a pilot doing a walk-around of his airplane before taking-off. The pilot knows that his life depends on the airworthiness of his plane; your life depends on the roadworthiness of your bike. Please have your bike checked by a qualified bike mechanic AT LEAST once a year. It's a small investment in your well-being.

- **Battery**: We have equipped your Tres Terra electric bike with a state-of-the-art lithium ion battery. This is the same battery chemistry that powers your cell phone and laptop, but on a bigger scale to drive your bike. Lithium ion batteries feature the highest gravimetric energy density available. (How's that for engineering techno-speak? What it means is that you get more power per pound

of battery than on any other e-bike.) We have built in a sophisticated battery management system (BMS) that helps control all that energy. But the battery requires care and maintenance to insure that I will perform safely and reliably for many miles of riding. We have devoted an entire chapter of this manual to the battery. Please read and understand this important information. As always, if you have any questions, please don't hesitate to contact us.

If you have a question about any aspect of riding your bike, please don't hesitate to give us a call. We love to talk about the safe use of our products. Or call the Authorized Dealer where you purchased the bike. Remember, we love to do anything that we can to make sure that you remain a healthy and loyal customer.

There is a lot more to this manual …. Keep reading. Please

Thanks for your time and attention.

The three guys at Tres Terra

IN SUMMARY:

1. **WEAR A HELMET EACH AND EVERY TIME YOU GET ON THE BIKE!**
2. **Don't carry passengers.**
3. **Obey the Rules of the Road.**
4. **Ride defensively! Watch out for both moving and stationary cars.**
5. **Be careful in wet conditions. Braking and traction are significantly reduced.**
6. **Don't ride at night.**
7. **Please, please maintain your bike.**
8. **Care for your battery.**
9. **Read and study the rest of this manual.**
10. **If you don't understand any aspect of the use and care of your bike, PLEASE call us: Tres Terra Customer Service: (805) 322-0419.**

Important Symbols and Term

This Owner's Manual uses the following symbols and terms to call your attention to Warnings, Cautions and Notes:

Term: **WARNING**
Meaning: This term calls attention to a Warning. A Warning indicates a potentially hazardous situation which, if not avoided, could result in bodily injury or death, in addition to property damage. Read the text accompanying the warning to be aware of the specific hazard.

Term: **CAUTION**
Meaning: This term calls attention to a Caution. A Caution indicates a potentially hazardous situation which, if not avoided, may result in damage to equipment or inadvertent system failure. Read the text accompanying the Caution to be aware of the specific hazard and avoid damage or system failure.

Term: ***Note:***
Meaning: This term calls attention to a Note. The text accompanying a Note provides helpful or other important related information.

Please read, understand and follow all Warning, Caution and Note notices on your Tres Terra electric bike and those included in this Manual. If you do not understand any of this important information, please contact your selling dealer or the Tres Terra Customer Service Department at (805) 322-0419.

Related Manuals: Many of the components that are installed on your Tres Terra electric bike have manuals that provide operating and maintenance instructions regarding those particular components. Specifically, there are manuals included for the lithium ion battery, front hub quick release mechanism, the dynamo hub head light and tail light system, and the cycle computer (if equipped). Please read and understand the important information contained in those manuals as well.

II. Recording Your Bike's Important Serial Numbers:

Your bike and certain key components have unique serial numbers. We urge you to record these serial numbers for warranty purposes or in case your bike is ever lost or stolen.

Bike: The bike's serial number is located on the underside of the frame near the pedal crank:

Bike serial number: _____

Motor: The motor serial number is on a label attached to the left side of the motor hub:

Motor serial number: _____

Battery: The battery serial number is on a label affixed to the right side of the battery:

Battery serial number : _____

Please also record this other important information:

Date of Purchase: _____

Selling Dealer: _____

Street Address: _____

City/State/Zip: _____

Telephone: _____

Salesman: _____

Please keep this information is a safe place for future reference.

We have included with this manual an Owner Registration Card. We ask that you fill out and return this card immediately. This will allow us to notify you regarding important product information that may become available in the future. Please complete the card and mail it today.

You may also register with us at our web site: www.tresterra.com.

Thank you!

III. Specifications

- Performance
  - Maximum speed (motor only): 20 miles/hour (32 kilometers/hour)*
  - Maximum range: 25+ miles (40+ kilometers)*
  - Gross payload: 275 lbs (125 kilograms)

  **__Note__: many factors affect speed and range capabilities of the Tres Terra electric bike. Terrain, average speed, rider weight, tire inflation pressure, winds, hills, etc., all have an impact on how far and how fast you go. Please see the Operations section of this Owner's Manual for more details.*
- Bicycle
  - Frame (Europa): Steel with high impact ABS fairings
  - Frame size (Europa): 14.5"
  - Frame (Callisto): Aluminum
  - Frame size Callisto): 13.5"
  - Suspension: Tres Terra shock-absorbing front fork (80mm travel), Tres Terra suspension seat post
  - Tires: 26" x 1.95" pneumatic with thorn resistant liners
  - Tubes: 26" thorn resistant
  - Derailleur (Europa): Shimano Alivio 7-speed with twist-grip shifter
  - Brakes: Tektro linear-pull caliper
  - Saddle: Tres Terra comfort gel
- Motor
  - Type: Heinzmann brushed hub motor
  - Power rating: 400-watts
- Battery
  - Model: Phylion XH370-10J1
  - Chemistry: Lithium Ion
  - Configuration: 10 prismatic cells connected in series
  - Rated voltage: 37 Volts
  - Rated capacity: 10Ah (370 watt-hrs)
  - Weight: 3.9 kg (8.6 lbs)
  - Max discharge current: 20A
  - Over-discharge limits: 2.30V±0.025V per cell
  - Pack cut-off voltage: 30V±4V
  - Charge method: CC/CV (Constant Current/Constant Voltage)
  - Over-charge limits: 4.25V±0.025V per cell
  - Max charge current: 5A ($0.5C_5$)
  - Maxi charge voltage: 42V
  - Internal resistance: ≤150mΩ
- Charger
  - Model: HP8204L3(10S)/36V2A
  - Dimensions: 188mm x 93mm x 53mm

- Weight: 850g (1.8lb)
- Input voltage: AC110V~264V/47~63HZ
- Output voltage: 42±0.5VDC
- Output amperage: 2.0±0.2A
- AC line fuse rating: 10 amp

- Wheels and tires
  - Rims: 26" Alex DM-18 extruded aluminum w. machined brake surfaces
  - Tires (Europa): 26" x 1.95" Kenda w. thorn-resistant tubes and puncture-resistant tire liners
  - Tires (Callisto): 26" x 2.125" Kenda 'Flame' tires w. thorn-resistant tubes and puncture-resistant tire liners
- Standard features:
  - Power
    - 400-watt hub motor
    - Digital motor controller
    - 370 watt-hr lithium ion battery with integrated battery management system
    - Battery charger
    - Twist-grip throttle
    - State-of-charge indicator
    - Cruise control
    - Brake lever cut-off switches
  - Security
    - Key-lock ON/OFF switch
    - Locking battery compartment (Europa)
    - Locking battery attachment (Callisto)
  - Safety
    - Shimano dynamo front hub
    - Halogen headlight; LED tail light
    - Full reflector package
    - Retro-reflective accent trim (Europa)
    - Tektro linear pull caliper brakes
    - Audible signaling device (bell)
  - Comfort
    - Tres Terra suspension front fork
    - Tres Terra suspension seat post
    - Tres Terra gel saddle
    - Quick release seat height adjustment mechanism
    - Tres Terra adjustable handlebar stem
  - Convenience
    - Alloy rear rack (Europa)
    - CatEye cycle computer
    - Full fenders
    - Aluminum "Y-style" center-stand kickstand (Europa)

IV. Callisto Component Chart

1. Tail light
2. Saddle (seat)
3. Shock absorbing seat post
4. Battery lock
5. Lithium ion battery
6. Battery charger connector
7. Adjustable handlebar stem
8. Bell
9. Throttle/state-of-charge indicator/On/Off key switch
10. Hand brake levers
11. Front reflector
12. Dynamo-powered head light
13. Front linear-pull caliper brake
14. Front fender (mud guard)
15. Front tire/wheel
16. Shock absorbing front fork
17. Dynamo front hub
18. Front wheel reflector
19. Pedal
20. Crank arm
21. Kick stand
22. Drive chain
23. Rear tire/wheel
24. Rear wheel reflector
25. Rear hub motor
26. Rear reflector
27. Rear fender (mud guard)
28. Rear linear-pull caliper brake
29. Quick-release seat post clamp

V. Europa Component Chart

1. Saddle (seat)
2. Shock absorbing seat post
3. Quick-release seat post clamp
4. Battery compartment door
5. Battery compartment key-lock
6. Battery compartment latches (2)
7. Adjustable handlebar stem
8. Audible warning device (bell)
9. Throttle/state-of-charge indicator/On/Off key switch
10. Front reflector
11. Throttle/state-of-charge indicator/On/Off key switch
12. Front fender (mud guard)
13. Front tire/wheel
14. Dynamo front hub
15. Front tire/wheel
16. Front wheel reflector
17. Pedal
18. Crank arm
19. Chain ring
20. Kick stand
21. Drive chain
22. Rear tire/wheel
23. Rear wheel reflector
24. Rear derailleur
25. Rear hub motor
26. Rear reflector
27. Rear fender (mud guard)
28. Tail light
29. Rear carrier
30. Rear linear-pull caliper brake

VI. Unpacking and Assembly

IMPORTANT NOTICE: All Tres Terra electric bicycles are intended to be sold and delivered in a completely assembled and adjusted condition. To insure your total satisfaction, the agreement that we sign with our dealers prohibits the sale of an unassembled Tres Terra electric bicycle. If you are sold an unassembled Tres Terra electric bicycle, please call our Customer Service Department at (805) 322-0419.

Nevertheless, we are including assembly and adjustment instructions in the event you need to repair or replace a component.

As always, if you do not understand any instruction, or are uncertain about the assembly and/or adjustment of the bike, please contact your bike shop, or the Tres Terra Customer Service Department (805) 322-0419 for additional guidance.

> **WARNING: Failure to properly assemble and adjust your bike prior to use may result in an accident resulting in death, serious injury and/or property damage. If you are uncertain about any aspect of the assembly and adjustment of your bike, seek help from a qualified mechanic or the Tres Terra Customer Service Department at (805) 322-0419.**
>
> **WARNING: There are no user serviceable elements incorporated into the motor, motor controller, battery, battery charger, throttle, or wiring harness of your Tres Terra electric bicycle. DO NOT ATTEMPT TO DISASSEMBLE OR ADJUST ANY OF THESE COMPONENTS. Doing so may cause extensive damage to these components, will void your warranty, and may cause a hazardous condition. If you cannot resolve a problem using the troubleshooting guide in Chapter x, contact your Tres Terra authorized dealer, or call the Tres Terra Customer Service Department at (805) 322-0419 for assistance.**
>
> ***Note:*** *Throughout this manual, we will refer to the "right side" and the "left side" of the bike. For clarification purposes, "left" and "right" are relative to your position when sitting on the bike in the normal riding position.*

Required tools for assembly:

You will need the following tools to assemble your bike:

- 5 mm hex wrench
- 6 mm hex wrench
- Small Phillips screwdriver
- 17 mm open end wrench for the pedals

In addition, the following tools are helpful when unpacking the bike:

- Pliers
- Side cutters (for cutting the zip ties used to pack the bike)

- Light grease (white lithium grease or equivalent)

Unpacking:
The Phylion lithium ion battery for your Tres Terra bike is shipped separately from the bike. The battery charger, however, is packed in one of the two accessory boxes packed into the bike box.

> ***Note:*** *It is important to fully charge the battery prior to first use. Unpack the battery and battery charger, and charge the battery per the instructions found in the Battery & Charger Instruction Manual (and in Section VIII of this manual) overnight, or for at least 8 hours before using the bike for the first time.*

Carefully unpack your Tres Terra bike. The top of the carton can be opened by pulling the stapled and glued flaps. It is recommended that the staples used to secure the flaps be completely removed (with a pliers, if necessary), to avoid the possibility of scratching yourself or the bike as it is extracted from the carton.

With the top flaps open, and the staples removed, carefully lift the bike up and out of the box. The bike is cumbersome, so it is best to ask a friend to help lift the bike out of the box. If no one is available, the bike box may be laid flat on the ground such that you can remove the bike from the box horizontally. If you use this method, take care to avoid scratching any unprotected surface of the bike on the ground.

When the bike is out of the box, lay it on a tarp or blanket to avoid scratching any unprotected surface while you remove the packing material from the bike. Remove the two accessory boxes from the bike carton.

Using the side cutters, clip the zip ties that hold various components to the frame. Clip only those zip ties that are used to attach components to the frame, or those that are used to keep components from moving during shipment. There are zip ties installed on the bike that are used to manage electrical and control cable routing on the bike. DO NOT clip those zip ties as they are necessary for the safe operation of the bike.

> ***Note:*** *Rule of thumb: the zip ties used to secure the components for shipping are not trimmed. The ties that must remain on the bike are trimmed of excess length. Only clip those zip ties that are not trimmed.*

Remove all of the protective wrapping from the bike and discard.

Identify the various Parts and Components of your Tres Terra Bike
Please refer to the illustrations on page 10 or 11 for an explanation of the various parts of your Tres Terra electric bike.

Install the Front Fender
This procedure may require the assistance of a friend to hold the front fender in place while you attach it to the bike.

Using the 5mm hex wrench, remove the bolt and washer that holds the front head light to the front fork. Set bolt and washer aside. Position the head light so that it is out of the way. Using the 5mm hex wrench, remove the two bolts and washers from either side of the front fork tubes. Set the bolts and washers aside.

Position the front fender in between the fork legs, with the angle bracket on the top of the fender. Position the fender braces (the long wire pieces attached to the fender with an eyelet at the end) in proximity to the two threaded holes on either side of the fork tubes. Re-install the two bolts/washers through the eyelets on each fender brace and into the threaded holes in the fork tubes. Tighten each bolt securely using the 5mm hex wrench.

Re-install the head light, inserting the attachment bolt and washer through head light bracket, then through the angle bracket on top of the fender, screwing it into the threaded hole at the top of the fork yolk. Tighten the bolt securely using the 5mm hex wrench.

Install the Front Wheel

The bike is shipped with the front wheel removed. To install the front wheel, please follow these steps below.

> **WARNING: Your Tres Terra electric bicycle is equipped with a quick release front (only) hub to facilitate wheel removal and installation. Please follow the instructions provided for the quick release mechanism to insure proper use. Failure to properly install this quick release front hub may result in the inadvertent release of the front wheel while you are riding the bicycle. This occurrence can result in serious injury or death, and property damage. If you are uncertain about any aspect of the assembly and adjustment of your bike, seek help from a qualified mechanic or the Tres Terra Customer Service Department at (805) 322-0419. A comprehensive manual for the use and care of your quick release provided by Shimano (the manufacturer of the front hub) has been added as a supplement to your Owner's Manual. Read this excellent reference for additional instructions regarding this important product feature.**

1. Locate the quick release mechanism that is packed in the accessory kit. See photo below.

2. Insert the quick release mechanism into the front dynamo hub. Be sure that the centering springs are positioned as shown, with the smaller ends pointing to the middle of the hub. Be sure that the quick release lever is on the opposite side of

the hub from the larger of the two flanges as shown. Thread the adjusting knob only several turns onto the spindle.

3. Position the wheel in the front fork so that the quick release lever is located on the left side of the front fork.
4. Move the quick release lever to the OPEN position (lever curves away from the hub) and position the wheel in the front fork so that the axle is located in the fork drop-outs.
5. Turn the adjusting nut on the right side of the hub clockwise such that you feel resistance to closing the lever when the lever is parallel to the centerline of the hub.
6. Firmly grip the fork with your left hand, and push the lever until it is at a 90º angle to the centerline of the hub. The lever is securely tightened when it takes a significant amount of force to position it in the closed position. The appropriate amount of force necessary to close the lever when it is properly adjusted will result in an imprint of the lever in the palm of your hand. Once closed, the "OPEN" designation on the lever will no longer be visible. When properly closed, it is impossible to move unless you open it again by reversing the steps above. If you can easily move it, open the quick release lever and tighten the adjusting nut another 180º and try again.
7. Plug the lighting system power connector onto the dynamo hub connector as shown in the photo below:

Align and Adjust the Front Brake Pads

The rear brakes are set-up and adjusted for you at the factory. However, the front brake pads must be aligned and adjusted in the front caliper brake.

1. Pinch the brake calipers together and pull the end cap and the cable guide out of the linkage slot.
2. Using a 5mm hex wrench, loosen the brake pad fixing bolt.
3. Rotate the brake pad so that the curvature of the brake pad aligns with curvature of the wheel rim (see photo below).

4. Press each caliper brake arm toward the center of the bike, and align the caliper brake pad vertically in the slot so that the pad fully contacts the side wall of the wheel rim.
5. Tighten the brake pad fixing bolt securely.

<u>WARNING</u>: If you are unsure about this brake set-up and adjustment procedure, please take your Tres Terra bike to your selling dealer, or any qualified bike mechanic, and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious injury or death, and property damage. <u>DO NOT</u> ride your bike if you are not confident that the brakes are working properly.

<u>Install the Handlebar and Stem</u>

1. Insert the handlebar stem into the steerer tube of the front fork as shown.
2. Align the handlebar so that the handlebar is perpendicular to the direction of travel.

3. Securely tighten the wedge bolt (located in the body to the handlebar stem) with a 6mm hex wrench.
4. Replace the rubber cap over the wedge bolt.

Adjust the Handlebar Stem

Your Tres Terra electric bicycle is equipped with an adjustable handlebar stem. This feature allows you to set the position of the handlebar stem for optimal riding comfort. To adjust the stem:

1. Using a 6mm hex wrench, loosen the fixing bolt 1 full revolution (see photo below):

2. Rotate the stem up or down to the desired position.
3. Securely retighten the fixing bolt with the 6mm hex wrench.

Install the Seat and Seat Post

Some models of Tres Terra electric bikes are packaged with the seat and seat post removed from the frame.

1. Open the quick release seat post clamp.
2. Insert the seat post into the frame tube.
3. Position the seat post into the frame tube far enough so that the "Maximum Height" mark is hidden inside the frame.

   WARNING: Riding the bicycle with the seat post extended beyond the Maximum Height mark on the seat post can overstress the frame potentially causing frame failure. Frame failure could cause a loss of control resulting in serious injury or death, and property damage. Always check to insure that the "Maximum Height" mark on the seat post is hidden inside the frame. If you cannot raise the seat high enough to ride the bicycle comfortably, contact your authorized Tres Terra dealer for a longer seat post.

4. Securely close the seat post quick release. A properly adjusted seat post clamp will prevent rotation of the seat post when the bike is in use. If, after you have closed the seat post quick release lever, you can force the seat to rotate, open the seat post quick release and turn the adjusting nut on the left hand side of the quick release lever ½ turn, close the lever, and test the retention of the seat post again. Repeat this process until you can no longer move the seat.

   WARNING: An improperly secured seat post could lead to loss of control of the bicycle while riding, causing an accident that may result in serious injury or death, and property damage. If you are not sure how to properly adjust and apply the quick release seat post clamp, please consult your authorized

Tres Terra dealer, or the Tres Terra Customer Service Department at (805) 322-0419 for addition instructions.

Install the Pedals

Two pedals (a left pedal and a right pedal) are supplied with your bike. Each pedal is DIFFERENT. The right pedal has conventional right-hand threads cut into the part of the axle that screws into the crank arm. The left pedal has left-hand threads. It is very important that the pedals be installed on the correct side.

> **CAUTION:** Attempting to screw the left pedal into the right crank arm (or visa versa) will damage the internal threads of the crank arm. This damage is not 'fixable'. The crank arm will have to be replaced.
>
> **WARNING: An improperly installed pedal may fall off the bike while the bike is in use. This situation may cause an accident resulting in serious injury or death, and property damage. Insure that your pedals are properly installed and tight before each ride.**
>
> ***Note:*** *We have placed a small label on each crank arm to assist in making sure that you install each pedal on the correct side. Obviously "R" denotes "Right", while "L" denotes "Left". Also note that there is an "R" stamped on the spindle of the right-hand pedal, and there is an "L" stamped on the left-hand pedal.* Please insure that you install the right pedal on the right-hand side, and the left pedal on the 'left hand side.

Prior to installing each pedal, lightly coat the threads of the pedal axle with light grease. This will make screwing the pedal into the crank arm a little easier, and will help prevent corrosion in the future.

When installing the "Right" pedal, screw the threaded section of the pedal spindle into the crank arm turning the spindle in a CLOCKWISE direction.

When installing the "Left" pedal, screw the threaded section of the pedal spindle into the crank arm turning the spindle in a COUNTER CLOCKWISE direction.

Screw each pedal as far as you can into the crank arm with your fingers. Securely tighten the pedals with a 17mm open end wrench.

Install the Cycle Computer

Please use the instruction sheet included with your cycle computer for instructions on the installation and use of your cycle computer.

VII. Operation

Before you ride:
Use the following checklist to insure that your Tres Terra electric bike is ready for safe and enjoyable use.

- **Quick releases**: Make sure that your front wheel quick release and your seat height adjustment quick release are properly adjusted and tight.

WARNING: Failure to properly adjust and lock your front wheel quick release may result in the inadvertent separation of the front wheel while you are riding the bicycle. This occurrence can result in serious injury or death, and property damage. Please refer to the instructions on beginning on page 14 for the proper installation and adjustment of your front quick release hub. If you are uncertain about any aspect of the assembly and adjustment of your bike, seek help from a qualified bike mechanic or the Tres Terra Customer Service Department at (805) 322-0419.

WARNING: Failure to properly adjust and lock your quick release seat post clamp may result in inadvertent movement of the seat while you are riding your Tres Terra electric bike. This occurrence could result in the loss of control of the bicycle resulting in an accident that could cause serious injury or death, and property damage. Please refer to the instructions on Page 17 for the proper installation and adjustment of your quick release seat post clamp. If you are uncertain about any aspect of the assembly and adjustment of your bike, seek help from a qualified bike mechanic or the Tres Terra Customer Service Department at (805) 322-0419.

- **Wheels**: The front and rear wheels should be centered in the fork and frame. Wheels should be checked regularly for proper spoke tension and rim alignment. Do not ride your Tres Terra electric bicycle if it has broken or missing spokes. Wheels should rotate smoothly without wobbling from side-to-side or up-and-down. Check the hub bearing adjustment periodically by lifting the wheel off the ground and spinning it.

***Note**: The rear wheel turns in the forward direction easily, but with considerable resistance in the reverse direction. This is normal and due to the gear mechanism incorporated into the motor hub.*

To check the adjustment of the hub bearings, try to move the rim from side-to-side between the fork or frame. No lateral movement should occur. If you detect lateral movement, the hub bearings must be adjusted or replaced. The rims must be smooth, without cracks, bulges or flat spots. Rims should be clean and free from dirt, grease or other contaminants. Periodically clean the rims with a solvent, such as denatured alcohol. DO NOT OIL the rims as this will affect braking performance. Take the bike to a qualified bike mechanic to repair and/or adjust your wheels if necessary.

- **Tires**: Your Tres Terra electric bike features a puncture resistant tire liner, in addition to puncture resistant inner tubes to help avoid flat tires. However, bicycle tires normally lose pressure over time. An under inflated tire can cause premature tire failure, and will require significantly more energy (electric and human) to propel the bike. Low tire pressure will have a significant negative impact on range under electric power. Insure that both front and rear tires are inflated to the recommended tire pressure indicated on the sidewall of the tire. Check the tires for any damage or unusual wear. The tire should be properly seated in the rim and the fit of the tire bead in the rim should be periodically checked. Insure that the tire is not cracked or excessively worn. Check for foreign objects in the tread, and that the valve stem is straight in the rim. Damaged or worn tires should be replaced immediately. Take the bike to a qualified bike mechanic to repair and/or replace your tires if necessary.
- **Lights and Reflectors**: Your Tres Terra electric bicycle comes equipped with a halogen head light, an LED tail light and a high performance hub dynamo to power them. Please insure that your lighting system is in proper working order in case you get caught out after dark. Further, your bike comes equipped with eight (8) reflectors (front handle bar, rear fender, front wheel, rear wheel and two each on the left and right pedals) to make you more visible at night. Please insure that those reflectors are in place, properly positioned and clean before each ride.
- **Drive chain**: Your Tres Terra electric bicycle is equipped with a high quality roller chain that needs to be cleaned and lubricated regularly.
- **Brakes**: Check your brakes before each ride.

WARNING: Riding with brakes that are damaged, excessively worn and/or misadjusted will significantly degrade the stopping capabilities of your bicycle. This condition could lead to an accident resulting in serious injury or death, and property damage. Please refer to the instructions on Page 15 for the proper installation and adjustment of your brakes. If you are uncertain about any aspect of the assembly and/or adjustment of your bike, seek help from a qualified bike mechanic or the Tres Terra Customer Service Department at (805) 322-0419.

WARNING: Bicycle caliper brakes lose effectiveness when wet. Avoid riding in wet weather. If it is unavoidable, be aware of the fact that stopping your bicycle will require extra distance. Ride more slowly, keep a greater interval between yourself and other traffic, and begin braking sooner that normal. Failure to take these precautions could lead to an accident causing serious injury or death, and property damage. If you are uncertain about any aspect of the brake operation under any condition, seek help from a qualified bike mechanic or the Tres Terra Customer Service Department at (805) 322-0419.

Test the function of your brakes by riding your bicycle in an area free from traffic and obstructions prior to every ride.

- **Brake cut-off switches**: To maximize the effectiveness and efficiency of the braking system, and to save battery power, your Tres Terra electric bike uses a system that turns power to the motor "OFF" when the brakes are applied. Check the function of the brake cut-off switches before each ride. To do so, turn the power "ON", lift the rear wheel off the ground by pushing the bike onto the lowered kickstand, and actuate the throttle.

CAUTION: Insure that there is no one standing close to the rear wheel, and that all clothing and other objects are a safe distance away from the rear wheel when performing this test. The rear wheel will spin at high speed during this test. If necessary, ask a friend to assist with this test.

With the rear wheel off the ground, actuate the twist grip throttle on the right side of the handlebar. The electric motor will spin the rear wheel. With the throttle partially actuated, alternately apply the left and right brake levers. When the brake lever is applied, power to the motor should turn "OFF". Power will resume when the brake lever is released, assuming that you continue to actuate the throttle.

***Note**: Fully applying the right brake lever will not only turn off the motor, the brake should also stop the spinning wheel.*

If actuation of either brake lever does not cause power to the motor to turn off, consult your Tres Terra authorized dealer, or the Tres Terra Customer Service Department at (805) 322-0419.

- Battery: Use ONLY the battery supplied with your Tres Terra electric bicycle.

CAUTION: Use of any battery not supplied with your Tres Terra electric bicycle WILL void the warranty and may cause damage to the electrical system of the bike and the hub motor. Use only the battery supplied with the bike, or a battery provided by American Electric Cycle and Fitness as a replacement for the battery supplied with the bike.

- ***Note**: Prior to its first use, charge the battery supplied with your bike for at least eight (8) hours. It is recommended that whenever your Tres Terra electric bike is not in use, plug the battery charger into the battery with the charger turned "ON" according to the Battery Charging Instructions given in the Battery & Charger Instruction Manual and in Section VIII of this manual. This will insure that that the bike has a full battery charge each time that you want to use it. However, if you do not plan to use your Tres Terra bicycle for more than one month, see the instructions for long term storage.*

WARNING: Use only the charger supplied with your battery. If you use any other battery charger, you will void the warranty, you may damage the battery and you could cause a fire that would result in property damage and possibly

cause injury or death. Follow the instructions for battery charging in Section VIII, and in the Battery & Charger Instruction Manual supplier with your bike.

Note: *If you plan to store your bike in excess of thirty (30) days, please follow the battery storage guidelines given in the Battery Storage instructions in Section VIII, and in the Battery & Charger Instruction Manual supplied with your bike.*

WARNING: Failure to properly use, charge and store the battery supplied with your Tres Terra electric bike will void the warranty and may cause a hazardous situation. Please read and follow all instructions for the use and care of the battery provided with your bike. If you are uncertain about any aspect of the use and care of your battery, please do not hesitate to call the Tres Terra Customer Service Department at (805) 322-0419.

Safety Responsibilities

It's up to you. We've done everything possible to supply you with a safe and reliable product. We opened our Owner's Manual with these guidelines for safe use. But they are worth repeating. Please read, understand and practice the following guidelines for safe operation of your Tres Terra electric bicycle:

- **Helmets**: There is no single factor that works better at reducing the severity of injuries sustained in bicycle accidents more than a quality bicycle helmet. Please don't ever ride your bike without one.
- **It's not a tandem**: Your bike was engineered to carry one (1), [that is a single rider,] person safely. The rack on the back is for luggage or a battery, not your buddy. Overloading the bike with a second rider is a bad idea that can lead to severe injury or death! Not to mention the fact that you will severely impact the performance of the bike.
- **It's the law; obey it**: Obey all traffic laws. Always ride on the right (that's RIGHT as opposed to LEFT – but it's also RIGHT as in CORRECT) side, with, **NOT AGAINST**, traffic. The STOP sign and traffic light means you too. Bike riders always, always, always lose when a bike and a car collide –no matter who was "in the right". (We call this being "dead" right.)
- **Look out!** Unfortunately, a motorist that has successfully parallel parked his/her car is not always thinking about the cyclist fast approaching from behind. An impact with a car door suddenly opened into your path will ruin your day.
- **Weather**: Bikes brakes don't work well when they're wet. Don't ride in the rain or snow if you can avoid it. If you forgot to watch the Weather Channel before leaving home, and you get caught in the rain, please be aware that distance to stop your bike may double or triple over the distance that it takes under dry conditions. Ride more slowly, and anticipate your stops by applying the brakes MUCH earlier. Also don't forget that the roads are a lot slipperier when they're wet. Those skinny little bike tires don't grip wet pavement as well as dry pavement. So take the corners carefully.
- **Night time**: Don't ride after dark. Motorists have a hard time seeing you when the sun goes down. We've tried to make the bike easier to see with lights and reflectors, but you're still not as visible as in the daytime. If you must ride at

night, wear light-colored clothing, preferably with reflective strips. Buy a flashing LED light and use it. Make sure that the reflectors on your bike are properly positioned and clean. Use the headlight so that you can see the obstacles in your path. Ride more slowly. Be wary of cars and assume that they do not see you. Better yet – **DON'T RIDE AT NIGHT!**

- **Maintenance**: It worked fine when we put it in the box: Please maintain your bike. There are instructions here in this manual. We're smart guys, but we haven't figured out how to make a bike that takes care of itself. Check the brakes and the tires and the tightness of all those important fasteners before each and every ride. Pretend that you're a pilot doing a walk-around of his airplane before taking-off. The pilot knows that his life depends on the airworthiness of his airplane; your life depends on the roadworthiness of your bike. Please have your bike checked by a qualified bike mechanic AT LEAST once a year. It's a small investment in your well-being.
- **Battery**: We have equipped your Tres Terra electric bike with a state-of-the-art lithium ion battery. This is the same battery chemistry that powers your cell phone and laptop, but on a bigger scale to drive your bike. Lithium ion batteries feature the highest gravimetric energy density available. (How's that for engineering techno-speak? What it means is that you get more power per pound of battery than on any other e-bike.) We have built in a sophisticated battery management system (BMS) that helps control all that energy. But the battery requires care and maintenance to insure that it will perform safely and reliably for many miles of riding. We have devoted an entire chapter of this manual to the battery. Please read and understand this important information. As always, if you have any questions, please don't hesitate to contact us.

Riding your Tres Terra electric bicycle

❖ If you have not already done so, install the battery.

***Note**: if you have any questions, concerns or difficulties installing the battery on your Tres Terra electric bicycle, please do not hesitate to contact your Tres Terra authorized dealer, or the Tres Terra Customer Service Department at (805) 322-0419.*

- Europa
  - Using the battery compartment security key, open the battery compartment lock. Rotate the two (2) locking tabs counter clockwise, and open the battery compartment.
  - Open the latch that holds the battery retention door closed. Open the battery retention door.
  - Carefully holding the battery in your right hand, plug the battery connecting cord into the battery power receptacle as shown below.

- Insert the battery into the battery compartment, taking care that the battery connecting cord is positioned into the frame, and not pinched between the battery and the frame.
- Close and latch the battery retention door.
- Turn ON the Battery Master Switch.
- Close the battery compartment door, engage the locking tabs by turning each 1/4th turn clockwise, and re-engage the battery compartment lock.
- Remove the key from the lock before beginning the ride.

<u>WARNING</u>: Failure to remove the battery locking key from the battery case before riding the bicycle will result in a potentially dangerous protrusion on the side of the bike. This protrusion could cause serious injury in the event of an accident. Remove the key before every ride. Never ride the bike with the key on the battery lock.

- Callisto
  - Grasp the battery case by the handle and carefully guide the battery onto the top tube of the bicycle by positioning the battery guide rails into the corresponding slot on the underside of the battery. Place the nose (front) of the battery hard against the rubber stop mounted on the back side of the head tube. See the photo below:

  - Lower the rear of the battery case onto the frame guide rail so that the connector mounted on the frame mates with the power receptacle on the underside of the battery case.

- Firmly push the battery case forward and down, while turning the key lock mounted on the battery case in a clockwise direction. Turning the battery locking key clockwise causes a locking pin in the battery case to engage with the guide rail mounted on the frame, thus securely attaching the battery to the bike.
- Test to insure that the battery is properly attached to the bike by attempting to lift the battery by the handle once it is installed. The battery should remain securely attached to the bike.
- Test to insure that the battery is properly connected to the electrical system by turning "ON" the key switch in the throttle control. If the battery is properly connected to the electrical system, the controller will perform its self-test function as described below. Turn "OFF" the key switch until you are properly positioned on the bike as described below. If the controller does not perform the self-test function, please repeat the instructions for installing the battery, and test again.
- Remove the battery locking key before beginning the ride.

WARNING: Failure to remove the battery locking key from the battery case before riding the bicycle will result in a potentially dangerous protrusion on the top of the battery. This protrusion could cause serious injury in the event of an accident. Remove the key before every ride. Never ride the bike with the key on the battery lock.

WARNING: Do not ride your Callisto electric bicycle with the battery removed from the top tube. There are alignment and attachment hard points mounted on the top tube that present hazardous protrusions when the battery is removed. These protrusions could cause serious bodily injury or death to the rider in the event of an accident. NEVER ride the bike without the battery securely locked on the bike with the locking mechanism. Please read and follow the instructions for properly installing and securing the battery to the bike. If you have any questions regarding these instructions, please do not hesitate to contact your TresTerra dealer, or the TresTerra Customer Service Department at (805) 322-0419.

❖ **Mount the bicycle**

- It is much safer to mount the bicycle BEFORE turning on the power. If the power is turned ON before you get on the bicycle, you may inadvertently actuate the twist throttle and cause the bike to lurch forward before you are ready.

WARNING: Mount the bicycle before turning "ON" the power. Mounting the bicycle may result in the inadvertent actuation of the throttle. If the power is "ON", the bicycle will lurch due to torque generation by the motor, potentially resulting in serious injury or death, and property damage. Insure that the power is "OFF" before mounting the bicycle. Conversely, for the same reasons, turn the power "OFF" before dismounting the bicycle.

- **Turn "ON" the battery power**
  - Once you are comfortably seated on the bicycle, turn the 'ignition' key mounted in the throttle/battery state-of-charge indicator housing 1/4th turn clockwise.
  - Note that the Battery State-Of-Charge (SOC) indicator scrolls through RED-AMBER-GREEN (EMPTY-HALF-FULL) LED sequence 3 times, accompanied by an audible beeping from the on-board controller. This is the electrical system self-test. At the conclusion of the self-test, assuming that you have a full battery, the GREEN (FULL) LED will remain illuminated, and the beeping will cease.

- **Apply motor power by rotating the twist throttle toward you.**

  ***Note**: The electrical system of your Tres Terra electric bicycle allows for gradual application of power, and allows for adjustment of power between OFF and FULL. This feature enables you to set that speed at which you are most comfortable.*

  ***Note**: The electrical system of your Tres Terra electric bicycle will provide instantaneous power whether you are pedaling or not. Therefore, there is no need to pedal as you start-up. However, the motor consumes more power during a start from a standing stop than at any other time. More power is consumed during start-up than even climbing a steep hill. Therefore, in order to conserve battery power, and increase your overall range, pedal during a start from a standing stop to relieve some of the load from the battery.*

  ***Note**: Remember that there are power cut-off switches imbedded in the brake levers. When you apply the brakes, power to the motor will turn "OFF". Therefore, do not hold the brake lever(s) when you want the motor to run.*

- **Cycle Computer**
  - Your Tres Terra is equipped with a state-of-the-art CatEye digital cycle computer. This cycle computer gives important data about your ride, including speed, trip and cumulative distance, elapsed riding time, time-of-day, etc.
  - For operation of your CatEye cycle computer, please refer to the directions included with this manual.
  - If you need additional assistance with the operation of your cycle computer, please do not hesitate to contact Tres Terra Customer Support at (805) 322-0419.

- **Cruise Control**
  - Your Tres Terra electric bicycle is equipped with Cruise Control. Cruise Control is an accessory that, when activated, will hold your bike at a preset speed.

- To actuate Cruise Control, accelerate the bike to the desired speed. Depress and release the green "CRUISE" button below the State-Of-Charge indicator on the throttle body. The Cruise Control will hold the speed selected.
- To disengage the Cruise Control, do one of the following:
  - Depress the green "CRUISE" button and release
  - Apply either the LEFT or RIGHT or BOTH brake levers
  - Turn "OFF" the power with the 'ignition' switch.

***Note**: The Cruise Control works by holding a constant flow of energy (amperage) to the motor. Therefore, if you encounter an up hill climb, expect the bike to slow down as the controller cannot react to the need for more power. When the Cruise Control is engaged, the throttle becomes inactive. Therefore, you cannot apply more power to the motor to climb the hill without disengaging the Cruise Control first by one or more of the methods described above.*

***Note**: The Cruise Control cannot slow the bike down. If you encounter a descent, expect the bike to speed up, as the motor cannot retard your speed. If necessary, use the brakes to slow the bike on the downhill section. Remember, using the brakes will disengage the Cruise Control. If you want to continue using Cruise Control at the end of the descent, you will have to re-engage the Cruise Control at the desired speed.*

❖ **State-Of-Charge Indicator**

- The State-Of-Charger (SOC) Indicator is designed to give you an indication of the amount of charge remaining in the battery while you are using your Tres Terra electric bike.
- Approximate SOC indications:
  - GREEN LED: 45% to 100% of available charge remaining
  - AMBER LED: 30% to 44% of available charge remaining
  - RED LED: 20% to 30% of available charge remaining
  - Flashing RED LED: Below 20% and ready to cut-off
- The motor controller and battery management system are designed to turn off the power to the motor when the voltage of the battery drops to a predetermined point. This is to protect the battery from the harmful effects of over-discharge. When the power turns off due to a low battery, plug the battery into the charger supplied with your bike to recharge the battery. It will take between four (4) and six (6) hours to fully recharge a completely discharged battery. Please see the instructions in Section VIII for proper battery charging.

***Note**: It is OK to 'top-off' your battery at any time. The lithium ion battery supplied with your Tres Terra electric bike does not have a memory effect. In other words, you may recharge the battery at any time, regardless of its state-of-charge. In fact, it's best to leave the charger plugged into the battery whenever*

the bike is not being used. However, if you do not plan to use your Tres Terra bicycle for more than one month, see the instructions below for long term storage.

- **Gears and Shifting**
  - The Tres Terra Europa model features a 7-speed rear derailleur. The derailleur control is a twist-type shifter on the left side of the handlebar. To shift gears, pedal at a steady pace and rotate the shift knob until you find the gear most comfortable for you and the current conditions. To downshift, to make pedaling easier (when encountering a hill, for example), rotate the knob toward you. This will down-shift the bike, but will also make you pedal faster to achieve any given speed. To ride faster (on a flat section or a downhill), rotate the knob away from you. This action will up-shift the bike, allowing you pedal more slowly for a given speed, but with more effort required.

<u>WARNING</u>: Never pedal backward while shifting. This can cause the chain to derail and may cause you to lose control, resulting in an accident that could cause serious injury or death, and property damage. Always pedal forward at a steady pace when shifting gears.

  - The 7-speed rear derailleur operates independently of the motor.
  - To maximize the range that you can ride with electric assistance, and to give yourself a pleasant aerobic workout, we recommend that you pedal to assist the motor. This is best accomplished by using a combination of pedal- and motor-power to achieve your desired speed. Set the Cruise Control (instructions above) at that speed. Then, using the derailleur control, adjust the gear setting to find a gear that makes pedaling comfortable while assisting the motor.

***<u>Note</u>**: Consult your physician before undertaking any form of physical exercise and for guidance regarding aerobic workouts.*

- **Range**
  - Many factors affect the range that you will experience with the bike. These include:
    - Battery state-of-charge
    - Tire inflation pressure
    - Adjustment of the wheel bearings and brakes (tight bearings or a dragging brake shoe will adversely affect range)
    - Rider weight (it takes more energy to accelerate a heavier person)
    - The speed at which you travel, and local wind conditions (air resistance increases exponentially with speed)
    - Terrain (road surface and hills; traveling on a soft surface, such as dirt or gravel, or climbing a hill burns energy faster)
    - Lots of starts and stops (full power from a standing start draws the most amperage from the battery)

- There are many things that you can do to maximize your range. These include:
  - Fully charge your battery before each ride.
  - Check your tire pressure regularly and inflate the tires to the maximum pressure printed on the tire sidewall.
  - Have your bike serviced periodically to insure that the bearings turn freely and the brakes do not rub the rims when they are not applied.
  - Minimize the weight that you carry.
  - Ride at slower speeds.
  - Accelerate more slowly. Assist the system by pedaling as you accelerate to your cruising speed.
  - Pedal! Enjoy the health benefits available from cycling. Every watt of power that you provide is one less watt that the battery has to provide. Make your bike a true human/electric hybrid!

  ***Note**: Consult your physician before undertaking any form of physical exercise and for guidance regarding aerobic workouts.*

- As your battery ages, it will gradually lose capacity. With proper care and maintenance, your battery will retain up to 80% of its capacity over at least 500 discharge/recharge cycles. As capacity diminishes, you will notice a gradual drop-off in maximum range capability. When range falls to an unacceptable level, contact your Tres Terra authorized dealer for information regarding battery replacement.

❖ **Using the dynamo hub-powered headlight and tail light**

- In low light conditions, or anytime that you want to enhance your visibility to surround traffic, switch the slider switch mounted on the body of the head light to the "EIN" position. (Yes, that's German for "ON". We equipped your electric bicycle with a high quality lighting system from Germany.) See the photo below.

- Switching to 'EIN" turns on the hub-powered head light and battery powered tail light. The tail light will illuminate whenever the head light is "ON", and for about 5 minutes after the head light is turned "OFF".

- The head light will only illuminate while the front wheel is turning. It is normal for the head light to 'flicker' at slow speeds, and turn off when the bike is at rest.
- To turn off the lighting system, move the slider switch mounted on the body of the head light to "AUS" (OFF). See the note about the tail light remaining on above.

❖ **At the end of your ride…**

- Fully recharge your battery as soon as possible. A lithium ion battery left in a discharged condition will deteriorate much faster than a fully charged battery. We recommend leaving the charger turned ON and plugged into the battery whenever the bike is not in use. However, if you do not plan to use your Tres Terra bicycle for more than one month, see the instructions in Section VIII for long term storage.

VIII. Battery Use, Care and Maintenance

For the proper use, maintenance and storage of this battery, it is crucially important that you read and understand the instructions given in this manual.

WARNING: Failure to properly use, charge and store this battery will void the warranty, and may cause a hazardous situation. DO NOT use this battery with any other vehicle or appliance. Use of this battery with any other product will void the warranty, and may create a hazardous condition that could cause a fire resulting in severe injury or death, and property damage.

If you have any questions about this battery or its usage, please do not hesitate to contact the Customer Service Department at TresTerra at (805) 322-0419.

WARNING: Never short circuit the discharge terminals of the battery. A short circuit will damage the battery and could cause a fire resulting in severe injury or death, and property damage.

CAUTION: Keep the battery away from excessive heat and/or open flames. Avoid long term exposure to direct rays from the sun.

CAUTION: Protect the battery from water or other moisture. If the battery becomes wet from rain during use, dry it as soon as possible. Remove the battery from the electric bicycle before washing the bicycle.

CAUTION: To avoid damage to the battery, never subject it to intense physical shock or severe vibration.

Charging Instructions

WARNING: Use only the battery charger supplied with this battery. If you use any other battery charger, you will void the warranty, you may damage the battery and you could cause a fire that would result in property damage and possible injury or death.

- Check the Voltage Selector switch on the charger to insure that it is set to your local line voltage (110 volts for the United States).
- Plug the charger into the wall outlet.
- Ensure that the battery Power Switch is switched OFF before connecting the charger to the battery.
- Rotate the charger port cover port on the side of the battery housing clockwise or counter clockwise to expose the charger receptacle.
- Carefully align the connector pins and connect the charger to the battery by plugging the connector into the charger receptacle.
- Turn ON the charger using the ON/OFF switch on the charger.

- LED Indications:
  - ❖ The Power LED will illuminate RED when the charger is plugged into a wall outlet and the ON/OFF switch is in the ON position.
  - ❖ The Indicator LED will illuminate RED while the charger is charging the battery.
  - ❖ The Indicator LED will change to GREEN when the battery is fully charged.

- When charging is complete (the Indicator LED is GREEN), turn "OFF" the charger using the ON/OFF switch on the charger.
- Carefully unplug the charger from the battery by pulling the connector out of the charger receptacle.
- Rotate the charger port cover clockwise or counter clockwise to cover the charger receptacle.
- Your TresTerra electric bicycle is now ready for use.

Important notes about charging your battery

- You can charge the battery while it is on or off the electric bicycle.
- It normally takes three to six hours to fully charge your battery from a fully discharged condition.
- Fully charge the battery for at least twelve hours before using your TresTerra electric bicycle for the first time.
- Fully charge the battery for at least twelve hours for the first three battery charges after using your TresTerra electric bicycle.
- Fully charge the battery for at least twelve hours after every ten charges.
- To maximize the life of your battery, and to ensure that your TresTerra electric bicycle is always ready for use, leave the battery plugged into the battery charger with the charger ON whenever you are not using your TresTerra electric bicycle. It is OK to leave the battery charger ON all of the time. If you do not plan to use your Tres Terra bicycle for more than one month, see the instructions below for long term storage.
- Always connect the charger to the AC power source, with the charger turned OFF, before connecting the charger to the battery.
- Always disconnect the charger from the battery, with the charger turned OFF, before disconnecting the charger from the AC power source.
- To avoid damage to the charger, never subject it to intense physical shock or severe vibration.

- **WARNING: Improper use of the battery charger can result in a fire with property damage and physical injury or death.**

- **CAUTION: Do not block the fan vent on the charger while charging the battery. This can cause the charger to overheat.**

- **CAUTION: The battery charger supplied with this battery is for INDOOR use only.**

- **<u>CAUTION</u>: Avoid any contact with water or other fluids while charging the battery. If the battery, charger or any connections become wet, immediately unplug the charger and thoroughly dry all components prior to charging the battery.**

<u>Long Term Storage</u>

- If you do not plan to use your TresTerra electric bicycle for an extended period of time (1 month or more), remove the battery from the bicycle for storage.
- Fully charge the battery for at least twelve hours before storing the battery.
- Fully recharge the battery for at least twelve hours at least every 60 days of storage.
- Store the battery in a cool (50º to 70ºF, 10º to 21ºC), dry place. Avoid direct exposure from the sun.

If you have any questions about this battery or its usage, please do not hesitate to contact the Customer Service Department at TresTerra at (805) 322-0419.

<u>Battery Disposal</u>

We are confident that you will enjoy many miles of pleasurable riding with your Tres Terra electric bike battery. However, batteries do eventually wear out. When this happens, we urge you to properly dispose of your used battery.

For guidance regarding proper disposal of your battery, please contact the Customer Service Department at Tres Terra. Or, you can find very useful information regarding used battery drop-off sites from the Rechargeable Battery Recycling Corporation (RBRC) at www.rbrc.org.

<u>Battery Warranty</u>

The Phylion batteries supplied with your Tres Terra electric bicycle is warranted against defects in material and workmanship for a period of 12 months from date of shipment to the original purchaser. Phylion agrees to repair or replace any assembly or components found to be defective during this period. Transportation to the factory or service center is to be prepaid by purchaser. If the Phylion battery or charger is defective as a result of misuse, improper repair, alteration, neglect, or abnormal conditions of operation, repairs will be billed at the Phylion normal rate.

This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for Phylion any liability in connection with the sale of our products other than set forth herein.

Amendments reserved.

<u>Damage in Transit</u>

The battery and charger should be tested when received. If the battery or charger is damaged in any way, a claim should be filed with the carrier. A full report of the damage should be obtained by the claim agent, and this report should be forwarded to Phylion. Phylion will advise the disposition to be made of the equipment and arrange for repair or replacement.

IX. Troubleshooting

We have engineered your Tres Terra bike to be a safe and reliable transportation vehicle. However, from time-to-time, things can go wrong. The following is intended to be a general guide for diagnosing and remedying simple issues that may happen. If you are unsuccessful in resolving a problem, please do not hesitate to contact your selling dealer, or the Customer Service Team at Tres Terra at 1-805-322-0419.

Problem:	**Bicycle does not turn**
Possible cause #1:	Dead battery
Solution #1:	Recharge the battery (Please see the instruction for proper charging of the battery in Section VIII and/or in the Instruction Manual supplied with the battery.
Possible cause #2:	The battery is improperly installed on the bike.
Solution #2:	Europa: Open the battery compartment cover. Insure that the power connector is securely plugged into the battery receptacle. (Please refer to page 23.) Callisto: Disengage the battery locking mechanism by turning the battery lock key counterclockwise. Reposition the battery on the frame, forcing the nose of the battery against the rubber stop, and then down onto the top tube. Reengage the battery locking mechanism by turning the battery lock key clockwise 180º. (Please refer to page 24.)
Problem:	**Bicycle turns "ON" (start-up self test happens and state-of-charge indicator LEDs illuminate) but motor does not run.**
Possible cause #1:	A brake lever is applied. (When the brakes are applied, a signal is sent to the controller to turn power to the motor "OFF".)
Solution #1:	Do not apply the brakes when attempting to power the bike. Insure that the brake levers are fully forward when using the bicycle.
Possible cause #2:	The motor power connector is unplugged.
Solution #2:	Insure that the motor power connector is securely connected. (See photo below.)

Problem:	**The head light and/or tail lights does not work**
Possible cause #1:	The power connector to the dynamo front hub is disconnected.

Solution: Insure that the dynamo hub power connector is securely connected. (See photo below.)

Possible cause #2: The tail light batteries are dead.
Solution #2: Replace the tail light batteries. Remove the red tail light lens cover by depressing the lens and disengaging the retaining lugs on the lens. Remove and replace the two (2) AAA batteries. Reinstall the tail light lens cover.

Repairing a flat tire

We have equipped your Tres Terra electric bicycle with thorn resistant inner tubes, and a puncture resistant tire liner. These steps mean that the likelihood of your having a flat tire is very remote. However, if you do have to repair a tire, it is important to know the correct procedure for removing and reinstalling the wheels.

Release the caliper brakes

The following procedure is required to open clearance between the brake pads to allow the wheel/tire to disengage from the frame. The photo sequence shown in the following instructions shows the procedure being used on the rear brake. Nevertheless, the procedure is identical for either the front or rear wheel.

- Pinch the brake calipers together and pull the end cap and cable guide out of the linkage slot. Release the calipers. See photo sequence below.

- **Removing the front wheel (Europa and Callisto)**
  - Your Tres Terra electric bicycle is equipped with a dynamo hub that supplies electrical power to the lighting system. Before you attempt to remove the front wheel, it is important that you unplug the connector to the front hub to prevent damage to the lighting system wiring harness.
  - Unplug the connector to the front hub by grasping the body to the connector and pulling it away from the hub. See photo below.

  - Release the front caliper brakes by following the procedure described above.
  - Release the front hub quick release by rotating the quick release lever away from the hub.

- Turn the adjusting nut on the opposite side of the hub from the quick release lever counter clockwise until the nut and quick release lever body clears the safety protrusions on the fort tip.
- After repairing the flat tire, replace the front wheel according to the instructions provided beginning on page 14.

<u>WARNING</u>: Failure to properly adjust and lock your front wheel quick release may result in the inadvertent separation of the front wheel while you are riding the bicycle. This occurrence can result in serious injury or death, and property damage. Please refer to the instructions on Page 14 for the proper installation and adjustment of your front quick release hub. If you are uncertain about any aspect of the assembly and adjustment of your bike, seek help from a qualified mechanic or the Tres Terra Customer Service Department at (805) 322-0419.

- Re-set the front caliper brake by reversing the 'Releasing the caliper brakes' instructions.

<u>WARNING</u>: If you are unsure about this brake set-up and adjustment procedure, please take your Tres Terra bike to your selling dealer, or any qualified bike mechanic, and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious injury or death, and property damage. <u>DO NOT</u> ride your bike if you are not confident that the brakes are working properly.

- **Removing the rear wheel: Callisto**
  - Remove the rear fender from the bike by unscrewing the retaining bolts holding the fender braces to the frame, and the bolt and nut holding the fender bracket to the brake bridge.
  - Release the rear caliper brakes by following the procedure described above.
  - As your Tres Terra electric bicycle is equipped with a powerful hub motor, an anti-torque bar is added to the motor to prevent the motor from turning in the frame. This anti-torque bar must be disconnected from the bicycle before removing the rear wheel. See photo below:

- Disengage the anti-torque bar by removing the retaining bolt holding it to the frame.
- Disconnect the motor power plug. See photo below:

- Clip the zip tie holding the motor power cable to the frame.
- Using a bicycle chain tool (available at most bike shops), 'break' the chain following the instructions provided with the chain tool.
- Remove the chain and set it aside.
- Using a 17mm (or adjustable) wrench, loosen the hub axle nuts.
- Remove the rear wheel by sliding it backward out of the frame.
- After repairing the flat tire, replace the rear wheel by reversing the removal instructions above.
- Reattach the anti-torque bar. Align the hole in the anti-torque bar with the hole on the braze-on on the chain stay. Replace the bolt and nut, tightening securely.

<u>CAUTION</u>: Failure to re-install the anti-torque bar after re-installation of the rear wheel will allow the motor to rotate in the frame when power is applied to the motor. This will cause extensive damage to the motor wiring harness. If you are uncertain about the removal and re-installation of the rear wheel, consult your selling dealer, or contact the Tres Terra Customer Service Department at 805-322-0419.

- Insure that the wheel is properly centered in the frame. Securely tighten the axle nuts

Note: Insure that the rear wheel is properly centered in the frame before securely tightening the axle nuts.

- Replace the chain on the front and rear chain rings.
- Re-attach the chain using the bicycle chain tool. Follow the instructions provided with the tool to reconnect the chain.
- Re-set the front caliper brake by reversing the 'Releasing the caliper brakes' instructions.

<u>WARNING</u>: If you are unsure about this brake set-up and adjustment procedure, please take your Tres Terra bike to your selling dealer, or any qualified bike mechanic, and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious injury or death, and property damage. <u>DO NOT</u> ride your bike if you are not confident that the brakes are working properly.

- Reconnect the motor power cord. Zip tie the motor power cable to the frame. See photo below:

- Reinstall the rear fender.

- **Removing the rear wheel: Europa**
  - Using the shifter control on the left side of the handlebar, up-shift the derailleur so the chain is riding of the 7th-gear (smallest) cog.
  - Release the rear caliper brakes by following the procedure described above.
  - As your Tres Terra electric bicycle is equipped with a powerful hub motor, an anti-torque bar is added to the motor to prevent the motor from turning in the frame. This anti-torque bar must be disconnected from the bicycle before removing the rear wheel. See photo below.

  - Disengage the anti-torque bar by removing the retaining bolt holding it to the frame.
  - Disconnect the motor power plug. See photo below:

- Clip the zip tie holding the motor power cable to the frame.
- Using a 17mm (or adjustable) wrench, loosen the hub axle nuts.
- Pull the rear wheel down and out of the rear dropouts. The chain should allow the wheel to disengage from the frame. Remove the chain from the 7th gear cog.
- After repair, re-install the rear wheel by reversing the steps above.
- Reattach the anti-torque bar. Align the hole in the anti-torque bar with the hole on the braze-on on the chain stay. Replace the bolt and nut, tightening securely.

<u>CAUTION</u>: Failure to re-install the anti-torque bar after re-installation of the rear wheel will allow the motor to rotate in the frame when power is applied to the motor. This will cause extensive damage to the motor wiring harness. If you are uncertain about the removal and re-installation of the rear wheel, consult your selling dealer, or contact the Tres Terra Customer Service Department at 805-322-0419.

- Insure that the wheel is properly centered in the frame. Securely tighten the axle nuts.

Note: Insure that the rear wheel is properly centered in the frame before securely tightening the axle nuts.

- Reconnect the motor power cord. Zip tie the motor power cable to the frame. See photo below:

- Re-set the front caliper brake by reversing the 'Releasing the caliper brakes' instructions.

<u>WARNING</u>: If you are unsure about this brake set-up and adjustment procedure, please take your Tres Terra bike to your selling dealer, or any qualified bike mechanic, and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious injury or death, and property damage. <u>DO NOT</u> ride your bike if you are not confident that the brakes are working properly.

<u>Finally…</u>

We have tried to provide all of the information necessary for you to have an ongoing enjoyable and fulfilling experience with our electric bicycles. However, if we have overlooked some aspect of the product, or if the information presented is not clear, PLEASE do not hesitate to contact the dealer where you purchased the bike, or the Tres Terra Customer Service Department. It is easy and convenient to do so. You may call Customer Service at +1-805-322-0419 from 8:00 AM until 6:00 PM Pacific Standard Time or you may send an e-mail to www.tresterra.com at any time. We are committed to your satisfaction, and will do everything that we can to help to insure that you are happy with you bike.

Thank you!