OWNER'S MANUAL

36V MODELS

For future reference, please fill in the important information below.

Vehicle Identification Number (VIN#)
(Your VIN# can be found on the inward facing surface of the frame seat stay.)

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Model Code (Printed on the end of your shipping carton.)

☐☐ – ☐☐☐☐☐☐ – ☐

Dealer Name: _____
Address: _____
City/State/Zip: _____
Telephone: _____
Contact: _____

This manual contains important safety, performance and maintenance information. Read the manual before taking your first ride on your new E-Bike™, and keep the manual handy for future reference.

TABLE OF CONTENTS

1. ABOUT THIS MANUAL

WHY YOU SHOULD READ THIS MANUAL

This manual was written to help you get the most performance, comfort, enjoyment and safety when riding your new E-Bike™. The manual describes specific care and maintenance procedures that help protect your warranty and ensure years of trouble free use. Please pay particular attention to the section on battery charging and maintenance.

It is important for you to understand your new E-Bike™, its features and its operation, so you get maximum enjoyment with maximum safety. By reading this manual before you go out on your first ride, you'll know how to get the most from your new E-Bike™.

It is also important that your first ride on a new E-Bike™ is taken in a controlled environment, away from cars, obstacles and other cyclists.

GENERAL WARNING:

Cycling can be a hazardous activity even under the best of circumstances. Proper maintenance of your E-Bike™ is your responsibility as it helps reduce the risk of injury. This manual contains many "Warnings" and "Cautions" concerning the consequences of failure to maintain or inspect your E-Bike™. Many of the Warnings and Cautions say "you may lose control and fall". Because any fall can result in serious injury or even death, we do not repeat the warning of possible injury or death whenever the risk of falling is mentioned.

IMPORTANT SAFETY INFORMATION

Your E-Bike™ can provide many years of service, fun and fitness - if you take responsibility for your own safety. Understand the features of your E-Bike™ and become aware of the challenges that you will meet on the road. There is much that you can do to protect yourself while riding. We will offer many recommendations and safety tips throughout this manual. The following are those that we feel are most important.

Always Wear A Helmet!

Helmets significantly reduce the number and severity of head injuries. Always wear a helmet that complies with your state laws when riding the E-Bike™. Check with your local police department for requirements in your community. Do not wear loose fitting clothing that can become tangled in the moving parts of the E-Bike™. Wear sturdy shoes and eye protection. Also check your state laws concerning other protective gear that may be required when riding the E-Bike™.

WARNING:

Not wearing a helmet significantly increases the chance of serious injury or death in a crash. Always wear a helmet, eye protection and appropriate apparel when you ride.

Know your E-Bike™!

Your new E-Bike™ incorporates many features and functions that have never been built into a bicycle before. Read this manual thoroughly to understand how those features enhance your riding pleasure and safety.

Ride Defensively!

One of the most frequent cycling accidents occurs when the driver of a parked car opens his door into a rider's path. Another common occurrence is when a car or another cyclist moves suddenly into your path. Always be aware of other vehicles around you. Do not assume that the driver or the other cyclist sees you. Be prepared to take evasive action or stop suddenly.

Make Yourself Easy To See!

Make yourself more visible by wearing bright reflective clothing. Keep your reflectors clean and properly aligned. Use your head and tail lights in reduced lighting conditions. Signal your intentions so that drivers and other cyclists can anticipate your actions. Use your horn when needed to make your presence known.

Ride Within Your Limits!

Take it slow until you are familiar with the riding conditions that you encounter. Be especially careful in wet conditions as traction can be greatly reduced and brakes become less effective. Never ride faster than conditions warrant or beyond your riding abilities. Remember that alcohol, drugs, fatigue and inattention can significantly reduce your ability to make good judgements and ride safely.

Keep Your E-Bike™ In Safe Condition

Follow the inspection and maintenance guidelines beginning on page 3. Check critical safety equipment before each and every ride.

Know The Law

Cyclists are required to follow the rules of the road. Additionally, some communities regulate the use of motorized bicycles regarding minimum age requirements and necessary equipment. Check with your local police department for specific details.

Offroad Riding

Offroad riding is not recommended because the E-Bike™ tires are for street use only. Dust and extreme impacts from offroad riding can cause electrical system problems.

REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying EV Global Motors Company.

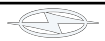
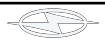
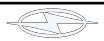
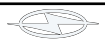
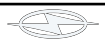
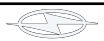
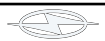
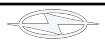
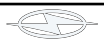
If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer or EV Global Motors Company.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 202-366-0123 in Washington, DC area) or write to: NHTSA, U.S. Department of Transportation, Washington, DC 20590. You can also obtain other information about motor vehicle safety from the Hotline.

INSPECTION AND MAINTENANCE

For your safety and enjoyment, and to insure a long life for your E-Bike™, inspect and maintain your E-Bike™ regularly. Use the table below for guidance. It is very important that you check certain systems and components
before each and every ride. The proper condition and function of these systems is critically important for your safety.

Your E-Bike™ should be returned to your servicing dealer at least once a year for a complete and thorough inspection and tune up. If a problem arises that is not described below, discontinue riding the E-Bike™ and return it to your servicing dealer immediately. For more information about service and maintenance, please refer to page 37.

Refer to Page	Component or Condition	Inspect before every ride	Inspect periodically*	Clean and/or lubricate	Adjust/Tighten	Repair/Replace if necessary
33	Tire pressure (55-65 psi)					
33	Tire wear/damage					
26	Brake pad adjustment					
22	Wheel quick release adjustment					
9	Head/tail/brake lights					
9	Mirror position					
7	Controls and displays					
25	Seat post quick release adjustment					
26	Brake pad wear					
26	Brake cable tension/wear					
39	Spoke tension					
39	Wheel true					
23	Hub bearings					
38	Chain lubrication					
31	Derailleur adjustment					
2	Reflectors					
9	Battery and charger					
38	Headset adjustment					
39	Bottom bracket adjustment					
38	All bolts, nuts, and mounting hardware					

*Every 5 to 10 rides depending on length and conditions of the ride.

2. OPERATIONAL INSTRUCTIONS

Please read and understand these instructions completely before operating your E-Bike™ to prevent serious injury to yourself and others, and to prevent damage to the bike.

IMPORTANT NOTICES

- **Always recharge the battery pack immediately after each use. Failure to do so within 72 hrs may damage the battery.**
- **The charger can remain plugged-in for trickle-charge purposes during long periods of storage.**
- **For storage periods over 3 months, the battery pack should be checked and fully recharged every 3 months.**
- **Do not break the warranty seal from the charger, and do not attempt to repair this component. Always contact an authorized E-Bike™ dealer for repair or service of the charger.**
- **Always pedal assist your E-Bike™ when the pedal-assist beep sounds.**
- **If the overheat warning beep sounds and the yellow LED flashes, pedal your E-Bike™ until the good beep sounds and the yellow LED stops flashing. Do not turn the power knob OFF-ON repeatedly and attempt to override the overheat protection function. This may cause motor or controller damage and will void the warranty.**

BEEP/LED CODES

The three state-of-charge LEDs on the throttle controller indicate battery state of charge. The E-Bike™ uses these LEDs and three distinct beeps to alert you to particular conditions. The following chart describes these signals and their various meanings.

CODE	MEANING	BEEP	LEDs
Good Beep	The system has been checked and is operational.	1 continous beep sounds for 1 second.	
Bad Beep	A problem exists in a system or component	4 sets of 4 short beeps	
Pedal Assist	The system requests pedal assist. Sounds when on a steep hill or when the motor or controller approaches an overheat condition.	3 short beeps every 16 seconds	
System ON	Whenever the power knob is turned ON, the system performs a series of checks. This signal indicates that the E-Bike™ is ON and ready for operation.	Good Beep	The state-of-charge LEDs flash together 3 times.
Throttle Fault	This code occurs whenever you turn the power knob ON while pressing the throttle or if the throttle is faulty. Turn the power OFF, release the throttle, and turn the power knob to ON. If the code persists, have the throttle checked by an authorized E-Bike™ dealer.	Bad Beep	All 3 state-of-charge LEDs flash continous-ly until the fault is cleared and until the power knob is turned OFF then ON again.
Battery state-of-charge	The battery has 100% to 80% of run time remaining.	None	Green LED on.
	80% to 60% of run time remaining.	None	Green and yellow LEDs on.
	60% to 40% of run time remaining.	None	Yellow LED on.
	40% to 15% of run time remaining.	None	Yellow and red LEDs on.
Low Battery	15% to 5% of run time remaining.	None	Red LED on.
Very low battery	Less than 5% of run time or 1 minute of operation remaining.	Bad Beep	Red LED flashes.
Motor shut off	The power to the motor has been shut off. You must pedal.	Bad beep	Red LED flashes.

CODE	MEANING	BEEP	LEDs
Overheat condition	The motor or controller temperature exceeds operating temperature. The controller cuts the power to the motor. You must pedal until the temperature drops to operating temperature.	Bad beep	Yellow LED flashes.
Operating temperature	The motor or controller has cooled to operating temperature. You may resume using the throttle.	Good Beep	The appropriate state-of-charge LED turns on.
Overheat and low-battery condition	The motor or controller temperature exceeds operating temperature and the battery state-of-charge is low.	Bad beep	The yellow and red LEDs flash simultaneously.

RIGHT HAND CONTROLS

Power On/Off

- Turn the power knob **(**A, **Figure 1)** on the throttle controller clockwise to the ON position.
- The three state-of-charge LEDs will flash simultaneously three times and the good beep will sound to indicate the system and controls are ready for operation.

Throttle

Press the throttle lever **(**B, **Figure 1)** with your thumb to apply power to the motor.

Front Brake Lever

The front brake is activated by squeezing the right brake lever **(**C, **Figure 1).** This is the opposite of a traditional bicycle.

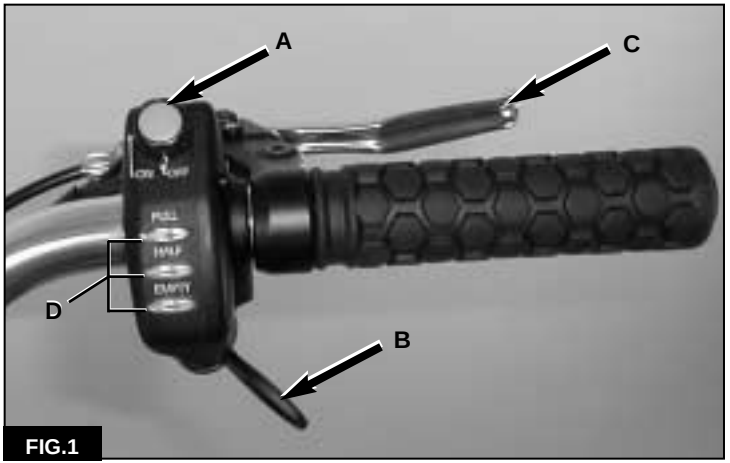


FIG.1

Battery Charge Level

The three state-of-charge LEDs **(**D, **Figure 1)** on the throttle controller indicate the battery charge level.

- Green (or full) indicates the battery is 100% to 80% charged.
- Green and yellow indicate the battery is 80% to 60% charged.
- Yellow (or half) indicates the battery is 60% to 40% charged.
- Yellow and red indicate the battery is 40% to 15% charged.
- Red (or empty) indicates the battery is 15% to 5% charged (low battery condition).
- Red LED flashes indicates the battery is less than 5% charged (very low battery condition).

The motor automatically shuts off when the battery is below a preset limit to help extend battery life. The red LED flashes to signify the motor is off and the battery must be recharged. Recharge the battery pack immediately after use. **Failure to do so within 72 hrs may damage the battery.**

WARNING:

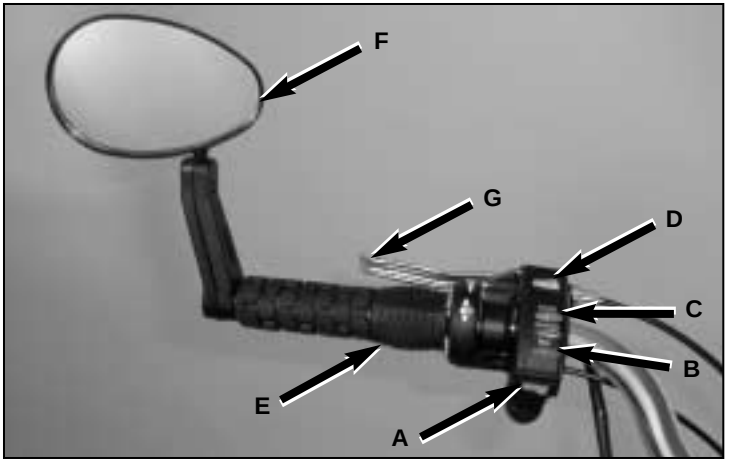
The right hand lever activates the front brake on the E-Bike™. This is the OPPOSITE of a traditional bicycle.

LEFT HAND CONTROLS

Performance or Economy Switch (P/E)

The Blue P /E switch **(**A, **Figure 2)** provides two different power delivery characteristics. In the Performance or P-mode, your E-Bike™ has maximum hill climbing capability and acceleration. Total range, however, is shorter because power usage will be greater.

In the Economy or E-mode, your E-Bike™ has lower top speed, lower hill climbing capability, and accelerates more slowly. Total range is longer because power usage is less.



Horn Switch
Press the red horn button **(**B, **Figure 2)** to activate the horn.

Cruise Control
The green cruise control **(**C, **Figure 2)** button allows you to set a constant throttle setting for throttle-free operation.

To set the cruise control, hold the throttle at a desired speed, press the green cruise button, and then release your thumb from the throttle lever. To cancel cruise control, pull either brake lever, press the cruise button, press the horn button, or turn the power knob OFF.

Headlight On/Off
The yellow headlight switch **(**D, **Figure 2)** activates the headlight, taillight (running light) and the green LED on the accessory controller.

Press the headlight switch to ON for headlight and taillight operation. In the ON position, power consumption will increase and total range will decrease. When the motor is shut-off due to a low battery or overheat condition, the headlight and taillight will continue to operate until the battery is fully discharged if the power knob is ON. They will not operate if the power knob is OFF. **Recharge the battery pack immediately after use. Failure to do so within 72 hrs may damage the battery.**

If you turn the power knob ON while the headlight switch is ON, there will be a 16 second delay before the headlight turns on. This is normal.

Twist Grip Gear Selector
By twisting this grip **(**E, **Figure 2)** while pedaling, you can select any one of seven gears on the rear wheel. The grip is labeled with the corresponding gear selection.

Rear View Mirror
Sit on your E-Bike™ and adjust the rear view mirror **(**F, **Figure 2)** so that you can see behind you. It is intended to be used for added safety but always be sure to look over your shoulder for maximum viewing.

Rear Brake Lever
The rear brake is activated by squeezing the left brake lever **(**G, **Figure 2)**. This is the opposite of a traditional bicycle.

WARNING:
The left brake lever activates the rear brake on the E-Bike™. It is the OPPOSITE of a traditional bicycle.

BATTERY MANAGEMENT

- Always recharge the battery pack immediately after each use. Failure to do so within 72 hrs may damage the battery.

- The charger can remain plugged-in for trickle-charge purposes during long periods of storage.
- For storage periods over 3 months, the battery pack should be checked and fully recharged every 3 months.
- A battery charger is located at the top of the battery pack. The battery can be charged when the battery is on-board the E-Bike™ or it can be removed for remote charging.

On-Board Battery Charging

Perform the following to charge the battery while the battery pack is installed in the E-Bike™.

1. Turn the power knob to the OFF position.
2. Turn the battery-compartment latches clockwise, and open the door.
3. Retrieve the charging cord from the compartment above the bottom bracket.
4. Plug the female end of the cord into the receptacle on the battery charger as shown in **Figure 3**. Plug the male end of the cord into a standard U.S. 110V/60 cycle wall socket.
5. The red LED on the charger and cooling fan will automatically turn on when in the charging mode.
6. The LED turns to green and the cooling fan turns off when the battery pack is fully charged.

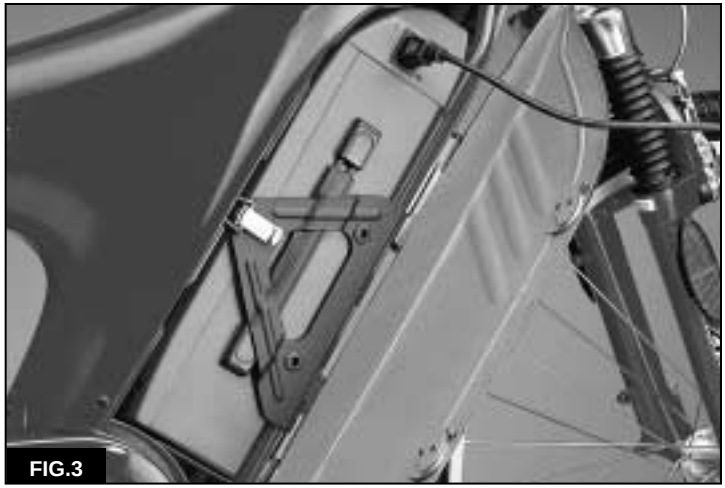


FIG.3

WARNING:

Keep the charger and battery pack away from water to prevent electrical shock and shorting. The charger is intended for indoor use only.

CAUTION:

If the cooling fan does not operate when in the charging mode (Red LED on), immediately unplug the charger from the wall socket. Contact an authorized EVG dealer for advice.

Remote Battery Power Pack Charging

The battery pack can be removed for remote charging.

1. Turn the power knob to the OFF position.
2. Open the battery-compartment door.
3. Release the retainer gate latch.

WARNING:

The battery pack weighs over 20 pounds. Use both hands to remove or install it. Reinstall the battery - pack by tilting the bottom first.

4. Grasp the power-pack handle with one hand. Pull the battery pack from the battery compartment while supporting the bottom of the power pack with your free hand as shown in **Figure 4**.
5. Set the power pack on a bench so the side with the fan faces up and the handle is on the side.
6. Retrieve the charging cord located in the compartment above the bottom bracket.
7. Plug the female end of the cord into the receptacle on the side of the battery charger and the male end of the cord into a standard U.S. 110V/60 cycle wall socket.
8. The red LED and cooling fan will automatically turn on when in the charging mode.

FIG.4

WARNING:

Keep the charger and battery pack away from water to prevent electrical shock an shorting. The charger is intended for indoor use only.

CAUTION:

Be sure the cooling fan vent is unrestricted or facing out when charging the battery to prevent the charger from over-heating. The cooling fan should always be on when the red LED is on to prevent charger overheating.

9. Reinstall the battery pack, and close the retainer gate.
10. Close latch by lifting the latch ring with your left hand and locating it on to the frame hook with your right hand.
11. Close the battery compartment door and turn latches counterclockwise.

CARE AND CLEANING

Remove the battery pack before washing your E-Bike™.

WARNING:
Keep the battery pack and charger away from water to prevent electrical shock and damage to the charger or batteries.

Clean the E-Bike™ with a mild soap and a sponge. DO NOT use a power hose or washer. Gently rinse with water. Avoid spraying water directly onto the control switches, motor and front hub bearings. Do not spray water inside the battery compartment. Dry the frame mounted electrical connector in the battery compartment before reinstalling the battery pack. Use automotive wax to protect painted surfaces. Lubricate the chain periodically to help prevent corrosion and minimize wear.

3. FIT AND SAFETY

FIT

Make sure the E-Bike™ fits. A bike that is too big or too small for the rider is harder to control and can be uncomfortable.

WARNING:
If your E-Bike™ does not fit properly, you may lose control and fall. If your new E-Bike™ does not fit, ask your dealer to exchange it before you ride it.

Standover Height

The first check for correct size is standover height. Standover height is the distance from the ground to the top of the top tube at that point where your crotch would be if you were straddling the E-Bike™ by standing half way between the saddle and the handlebar stem.

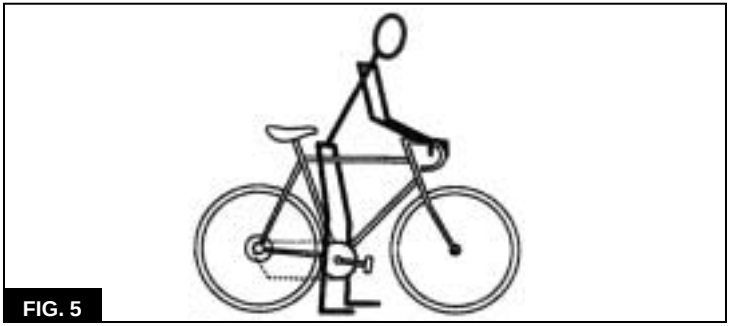


FIG. 5

To check the standover height, straddle the E-Bike™ while wearing the kind of shoes you will wear while riding. See **Figure 5.** Bounce vigorously on your heels. Miminum standover height clearance is one to two inches. If your crotch touches the frame, the E-Bike™ is too big for you. Do not even ride the E-Bike™ around the block.

Saddle position

Correct saddle adjustment is an important factor in getting the most performance and comfort from your E-Bike™. Your dealer will have positioned the saddle where experience tells him most people find it comfortable. If you find the saddle position is not comfortable, there are three adjustments you canmake.(See **Figure 6** to determine the type of saddle attachment used on your E-Bike™.)

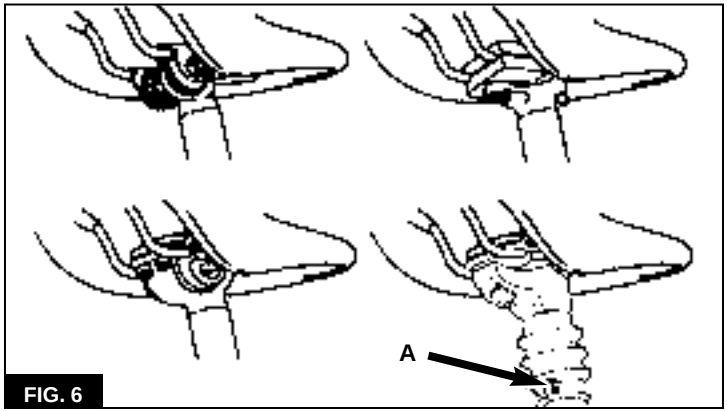


FIG. 6

a. Up and down adjustment.

Your leg length determines the correct saddle height. The saddle is at the correct height if you can just reach the "down" pedal with one heel when you are seated on the saddle and the crank arms are parallel to the seat tube. To check for correct saddle height, perform the following:

1. Sit on the saddle, and place one heel on a pedal.
2. Rotate the crank until the pedal with your heel on it is in the down position and the crank arm is parallel to the seat tube.
3. You leg should be completely straight and just touching the center of the pedal. If this is not the case, your saddle height needs to be adjusted.

To adjust the saddle height, loosen the quick release **(Figure 7)** and move the seat post up or down as required. Make sure that the saddle is parallel to the top tube of the E-Bike™, and retighten the quick release so that you cannot twist the saddle out of alignment. Check the adjustment as described above. Under no circumstances should the seat post project from the frame beyond its "Minimum Insertion" or "Maximum Extension" mark **(Figure 7).**

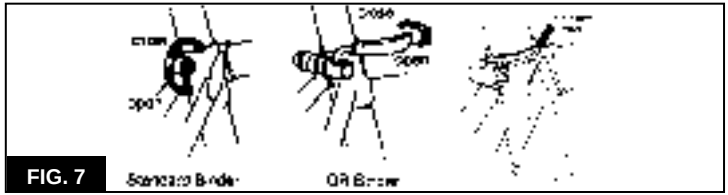


FIG. 7

WARNING:

*If your seat post projects from the frame beyond the Minimum Insertion or Maximum Extension mark **(**see **Figure 7)** the seat post may break, which could cause you to lose control and fall.*

b. Front and back adjustment

Loosen the saddle clamping mechanism **(**see **Figure 6)** and slide the saddle back or forward on its rails. Start with the saddle clamped in about the middle, and adjust it forward or back until you find the position which is most comfortable for you. Retighten the saddle clamping mechanism as tight as you can.

c. Saddle tilt adjustment

Most people prefer a horizontal saddle; but some riders prefer to have the saddle nose tilted slightly up or down. You can adjust saddle tilt by loosening the saddle clamping mechanism, tilting the saddle to the desired position, and retightening the saddle clamping mechanism tight enough so that you cannot move or jiggle the saddle.

Very small changes in saddle position can have a substantial effect on performance and comfort. Consequently, whenever you make a change to your saddle position, make only one directional change at a time, and make the changes in small increments until you have found the position at which you are most comfortable.

WARNING:

After any saddle adjustment, be sure to tighten the saddle adjusting mechanism properly before riding. A loose saddle clamp or seat post binder can cause damage to the seat post, or can cause you to lose control and fall. A correctly tightened saddle adjusting mechanism will allow no saddle movement in any direction. Periodically check to make sure that the saddle adjusting mechanism is properly tightened.

If, in spite of carefully adjusting the saddle height, tilt, and fore-and-aft position, your saddle is still uncomfortable, you may need a different saddle design. Saddles, like people, come in many different shapes, sizes, and resilience. Your dealer can help you select a saddle which, when correctly adjusted for your body and riding style, will be comfortable.

CAUTION:

Extended riding with a saddle which is incorrectly adjusted or which does not support your pelvic area correctly can cause short-term or long-term injury to nerves and blood vessels. If your saddle causes you pain or numbness, adjust the saddle position and your riding position. If pain or numbness persist, talk to your dealer about fitting a different saddle to your E-Bike™.

d. Suspension Seatpost Adjustment

On models equipped with a suspension seatpost, the preload and saddle side-to-side can be adjusted to suit your preferences.

1. To adjust the preload, perform the following:
   a. Release the QR release and remove the seatpost from the frame.
   b. Use a 6 mm Allen wrench to turn the preload adjuster at the bottom of the suspension seatpost. See **Figure 8.** Turning the adjuster clockwise increase the preload, which stiffens the suspension. Turning the adjuster counterclockwise decreases the preload, which softens the suspension.
   c. Insert the seatpost into the frame, and adjust the seat height as described above.

FIG. 8

2. Turn the side-to-side adjuster **(**A, **Figure 7**) in or out to adjust the amount of side-to-side play at the saddle tip.

Handlebar height and angle

On the E-Bike™, you can raise or lower your handlebars a bit by adjusting stem height. Loosen the stem binder **(Figure 9)** bolt by turning it counterclockwise three or four full turns. If the bolt rises but the stem doesn't, get a piece of wood or a soft mallet and give the bolt a good whack to release the wedge. Adjust the stem position as desired, align stem with the tire, and retighten the binder bolt tight enough so that you cannot twist the stem and handlebars out of alignment. Under no circumstances should the stem be retightened with its minimum insertion mark or maximum extension mark visible. Check to make sure that the handlebars rotate freely in both directions without the brake cables catching or binding on anything.

CAUTION:

Changing stem height can affect the tension of the front brake cable, locking the front brake or creating sufficient cable slack to make the front brake inoperable. If the front brake pads move in towards the wheel rim or out away from the wheel rim when you change stem height, take your E-Bike™ to your dealer for correct brake adjustment before riding it.

WARNING:

*The stem's minimum insertion mark must not be visible above the top of the headset (see **Figure 9**). If the stem is extended beyond the minimum insertion mark, the stem may damage the fork's steerer tube or break, which could cause you to lose control and fall.*

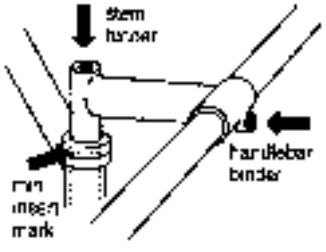


FIG. 9

You can change the angle of the handlebar or bar end extensions by loosening their binder bolt, rotating the bar or extension to the desired angle, recentering it and retightening the binder bolt tight enough so that the bars or extensions cannot move in relation to each other and the stem.

WARNING:

Failure to properly tighten the stem binder bolt, the handlebar binder bolt or the bar end extension clamping bolts may compromise steering action, which could cause you to lose control and fall. Place the front wheel of the E-Bike™ between your legs and attempt to twist the handlebar/stem assembly. If you can twist the stem in relation to the front wheel, turn the handlebars in relation to the stem, or turn the bar end extensions in relation to the handlebar, tighten the bolts.

Control position adjustments: The brake and shifting controls on your E-Bike™ are positioned where they work best for most people. The angle of the controls and their position on the handlebars can be changed. Ask your dealer to show you how, or to make the adjustments for you.

SAFETY EQUIPMENT

WARNING:
Many states require specific safety devices. It is your responsibility to familiarize yourself with the laws of the state where you ride and to comply with all applicable laws, including properly equipping yourself and your E-Bike™ as the law requires.

WARNING:
Do not remove the reflectors or lights from your E-Bike™. They are an integral part of the safety system on the E-Bike™. Removing the reflectors or lights may reduce your visibility to others using the roadway. Being struck by other vehicles often results in serious injury or death. Remember, reflectors are not a substitute for lights. Always ensure your E-Bike™ with is equipped with all state and locally mandated lights.

Pedals

Some higher performance models come equipped with pedals that have sharp and potentially dangerous surfaces. These surfaces are designed to add safety by increasing adhesion between the rider's shoe and the pedal. If you install these high-performance pedals on your E-Bike™, you must take extra care to avoid serious injury from the pedals' sharp surfaces. Based on your riding style or skill level, you may prefer a less aggressive pedal design. Your dealer can show you a number of options and make suitable recommendations.

Eye protection

Any kind of riding involves airborne dirt, dust and bugs, so it's a good idea always to ride with protective eyewear -- tinted when the sun is bright, clear when it's not. Most E-Bike™ shops carry protective fashion eyewear, some with interchangeable lens systems.

MECHANICAL SAFETY CHECK

The mechanical safety check is a simple, sixty-second check you should perform whenever you're about to get on the E-Bike™.

Nuts, bolts & straps

Lift the front wheel off the ground by two or three inches, and then let it bounce on the ground. Does anything sound, feel or look loose? Do a quick visual and tactile inspection of the whole E-Bike™. Any loose parts or accessories? If so, secure them. If you're not sure, ask someone with experience to check these items.

Tires & Wheels

Tires correctly inflated? Check by putting one hand on the saddle, one on the intersection of the handlebars and stem, then bouncing your weight on the E-Bike™ while looking at tire deflection. Compare what you see with how it looks when you know the tires are correctly inflated. Adjust the tire pressure if necessary.

Tires in good shape? Spin each wheel slowly and look for cuts in the tread and sidewall. Replace damaged tires before riding the E-Bike™.

Wheels true? Spin each wheel and check for brake clearance and side-to-side wobble. If a wheel wobbles from side to side or hits the brake pads, take the E-Bike™ to a qualified bike shop to have the wheel trued.

CAUTION:

Wheels must be true for the brakes to work effectively. Wheel truing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge and tools needed to do the job correctly.

Brakes

Squeeze the brake levers. Does the cable guide on the brake cable securely engage the quick release bracket on the left caliper arm? (**Figure 10**) Are the brake pads contacting the wheel rim within an inch of brake lever movement? Can you apply full braking force at the levers without having them touch the handlebar? If not, your brakes need adjustment. Do not ride the E-Bike™ until the brakes are properly adjusted. See Chapter 5 for details.

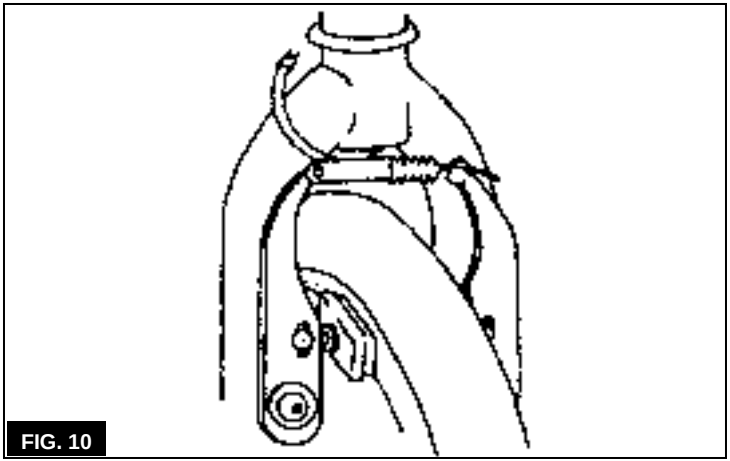


FIG. 10

WARNING:

Riding with improperly adjusted brakes or worn brake pads is dangerous and can result in serious injury or death.

Quick Releases

Are the front wheel and seat post quick releases properly adjusted and in the locked position? Adjust the quick release mechanism as necessary. See Chapter 5 for details.

WARNING:

Riding with an improperly adjusted wheel quick release can cause the wheel to wobble or disengage from the E-Bike™, which can cause damage to the E-Bike™ and serious injury or death.

Handlebar and saddle alignment

Are the saddle and handlebar stem correctly parallel to the top tube of the E-Bike™. Are the binder bolts tight enough so that you cannot twist them out of alignment?

Handlebar ends

Are the handlebar grips secure and in good condition? If not, replace them. Are the handlebar ends and extensions plugged? If not, plug them before you ride.

WARNING:

Loose or damaged handlebar grips or extensions can cause you to lose control and fall. Unplugged handlebars or extensions can act like a cookie cutter on your body and can cause serious injury in an otherwise minor accident.

4. RIDING SAFELY AND RESPONSIBLY

NOTE:

Like any sport, bicycling involves risk of injury and damage. By choosing to ride an E-Bike™, you assume the responsibility for that risk. Not the people who sold you the E-Bike™. Not the people who made it. Not the people who distribute it. Not the people who manage or maintain the roads or trails you ride on. You. So you need to know -- and to practice -- the rules of safe and responsible riding.

THE BASICS

1. Always perform the mechanical safety check described above before you get on a E-Bike™.
2. Always wear a helmet which complies with your state laws when riding the E-Bike™. Check with your local police department for requirements in your community.
3. Keep body parts and other objects away from the sharp teeth of chainring, the moving chain, the turning pedals and cranks, and the spinning wheels of your E-Bike™.
4. Always wear shoes that will stay on your feet and will grip the pedals. Never ride barefoot or when wearing sandals.
5. Be thoroughly familiar with the controls of your E-Bike™.

6. Wear bright, visible clothing that is not so loose that it can catch on moving parts of the E-Bike™ or be snagged by objects at the side of the road or trail.
7. Do not jump with your E-Bike™. Jumping an E-Bike™ can be fun; but it puts incredible stress on everything from your spokes to your pedals. Perhaps most vulnerable to jumping-related damage is your front fork. Riders who insist on jumping an E-Bike™ risk serious damage to the E-Bike™ as well as to themselves.
8. Think about your speed, and keep your speed at a level which is consistent with conditions. Always keep in mind that there is a direct relationship between speed and control, and between speed and component stress

RULES OF THE ROAD

1. You are sharing the road with others -- motorists, pedestrians and other cyclists. Respect their rights, and be tolerant if they infringe on yours.
2. Ride defensively. Assume that the people with whom you are sharing the road are so absorbed with what they are doing and where they are going that they are oblivious to you.
3. Look ahead of where you're going, and be ready to avoid:

- Vehicles slowing or turning in front of you, entering the road or your lane ahead of you, or coming up behind you.
- Parked car doors opening in front of you.
- Pedestrians stepping out in front of you.
- Children playing near the road.
- Pot holes, sewer grating, railroad tracks, expansion joints, road or sidewalk construction, debris and other obstructions that could cause you to swerve into traffic, catch your wheel or otherwise cause you to lose control and have an accident.
- The many other hazards and distractions which can occur on an E-Bike™ ride.

4. Use hand signals for turning and stopping. Learn the local vehicle code for the correct signals.
5. Never ride with headphones. They mask traffic sounds and emergency vehicle sirens, and they distract you from concentrating on what's going on around you. Their wires can also tangle in the moving parts of the E-Bike™, causing you to lose control.
6. Never carry a passenger.
7. Never carry anything which obstructs your vision or your complete control of the E-Bike™, or which could become entangled in the moving parts of the E-Bike™.
8. Never hitch a ride by holding onto another vehicle.
9. Never perform stunts, wheelies or jumps. They can cause you injury and damage your E-Bike™.
10. Do not weave through traffic or make any moves that may surprise people with whom you are sharing the road.
11. Observe and yield the right of way.

12. Never ride your E-Bike™ while under the influence of alcohol or drugs.
13. If possible, avoid riding in bad weather, when visibility is obscured, or when extremely tired. Each of these conditions increases the risk of accident.

WET WEATHER RIDING

WARNING:
Wet weather impairs traction, braking and visibility, both for the rider and for other vehicles sharing the road. The risk of accident is dramatically increased in wet conditions.

Under wet conditions, the stopping power of your brakes (as well as the brakes of other vehicles sharing the road) is dramatically reduced and your tires do not grip nearly as well. This makes it harder to control speed and easier to lose control. To make sure that you can slow down and stop safely in wet conditions, ride more slowly and apply your brakes earlier and more gradually than you would under normal, dry conditions.

NIGHT RIDING

Even if you have excellent night vision, many of the people with whom you share the road do not. A rider is very difficult for motorists and pedestrians to see at dusk, at night, or at other times of poor visibility. If you must ride under these conditions, check and be sure you comply with all local laws about night riding. Follow the rules of the road even more carefully, and you must take the following additional precautions:

Before riding at dusk or at night, take the following steps to make yourself more visible:

- Make sure that your E-Bike™ is equipped with correctly positioned and securely mounted reflectors.
- Be sure the headlight and taillight are operational.
- Wear light colored, reflective clothing and accessories, such as a reflective vest, reflective arm and leg bands, reflective stripes on your helmet, flashing lights ... any reflective device or light source that moves will help you get the attention of approaching motorists, pedestrians and other traffic.
- Make sure your clothing or anything you may be carrying on the E-Bike™ does not obstruct a reflector or light.

While riding at dusk or at night:

- Ride slowly.
- Avoid areas of heavy traffic, dark areas, and roads with speed limits over 35 mph.
- Avoid road hazards.
- If possible, ride on routes already familiar to you.

5. HOW THINGS WORK

It's important to your performance, enjoyment and safety to understand how things work on your E-Bike™. Even if you are an experienced cyclist, be sure to read -- and to understand -- this section of the manual. If you have even the slightest doubt as to whether you understand something, talk to your dealer.

Wheel Quick Release

WARNING:

Riding with an improperly adjusted wheel quick release can allow the wheel to wobble or disengage from the E-Bike™, causing damage to the E-Bike™ and serious injury or death to the rider. Therefore, it is essential that you:
1. Ask your dealer to help you make sure you know how to install and remove your wheels safely.
2. Understand and apply the correct technique for clamping your wheel in place with a quick release.
3. Each time, before you ride the E-Bike™, check that the wheel is securely clamped.

The wheel quick release, which was invented in the 1930s, allows quick, easy wheel removal without the need for tools. It has become standard equipment on most recreational, sports and competition bicycles. Because of its adjustable nature, it is critical that you understand how it works and how to use it properly.

While it looks like a long bolt with a lever on one end and a nut on the other, the wheel quick release uses a cam action to clamp the E-Bike™ wheel in place **(**see **Figure 11)**.

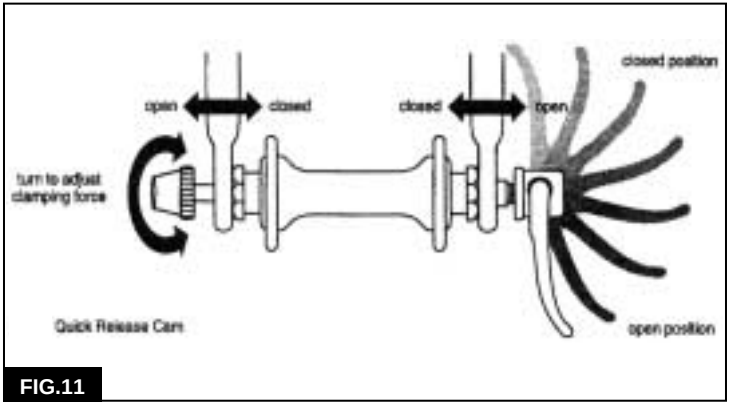


FIG.11

CAUTION:

Holding the nut with one hand and turning the lever like a wing nut with the other hand until everything is as tight as you can get it will not clamp the wheel safely in the dropouts. The full force of the cam action is needed to clamp the wheel securely.

Adjusting the quick release mechanism

The wheel hub is clamped in place by the force of the quick release cam pushing against one dropout and pulling the tension adjusting nut against the other dropout.The amount of clamping force is controlled by the tension adjusting nut. Turning the tension adjusting nut clockwise while keeping the cam lever from rotating increases clamping force. Turning the nut counterclockwise while keeping the cam lever from rotating reduces clamping force. Less than half a turn of the tension adjusting nut can make the difference between safe clamping force and unsafe clamping force.

Once the quick release is installed in the hub axle by the manufacturer or the dealer, it never needs to be removed unless the hub itself requires servicing. If the hub requires servicing, consult your dealer.

Front Wheel Secondary Retention Devices

WARNING:

Secondary retention devices are not a substitute for correct quick release adjustment. Failure to properly adjust the quick release mechanism can cause the wheel to wobble or disengage, which could cause you to loose control and fall, resulting in serious injury or death.

Secondary retention devices fall into two basic categories:

- The clip-on type is an accessory part which the manufacturer adds to the front wheel hub or front fork.
- The integral type is molded, cast or machined into the outer faces of the front fork dropouts.

Your E-Bike™ has front forks which utilize an integral-type secondary wheel retention device to keep the wheel from disengaging if the quick release is incorrectly adjusted. Secondary retention devices are not a substitute for correct quick release adjustment.

WARNING:

Removing or disabling the secondary retention device is extremely dangerous and may lead to serious injury or death. It also may void the warranty.

Removing a Quick Release Front Wheel

1. Open up the brake pads as described below in this chapter.
2. Rotate the wheel's quick release lever from the locked or CLOSED position to the OPEN position **(Figure 12)**.
3. Loosen the tension adjusting nut about six full turns to release the secondary retention device.
4. Lift the handlebar so the front wheel is off the ground.
5. Tap the top of the wheel with the palm of your hand to knock the wheel out of the front forks.

Installing a Quick Release Front Wheel

1. Rotate the quick-release lever so that it curves away from the wheel **(Figure 12)**. This is the OPEN position.
2. With the steering fork facing forward, insert the wheel between the fork blades so that the axle seats firmly at the top of the fork dropouts (the slots at the tip of the fork blades). The quick-release lever should be on the left side of the E-Bike™ **(Figure 12)**.

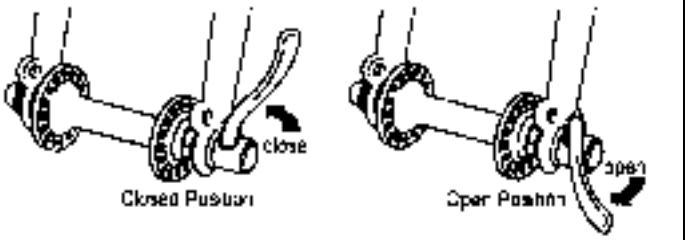


FIG.12

3. Hold the quick-release lever in the OPEN position with your right hand, and tighten the tension adjusting nut with your left hand until it is finger tight against the fork dropout **(Figure 12)**.
4. While pushing the wheel firmly to the top of the fork dropouts, and at the same time centering the wheel rim in the fork, rotate the quick-release lever upwards and push it into the CLOSED position **(Figure 12)**. The lever should be parallel to the fork blade and curved toward the wheel.

CAUTION:

If you can fully close the quick release without wrapping your fingers around the fork blade for leverage and if the lever does not leave a clear imprint in the palm of your hand, the tension is insufficient. Open the lever, turn the tension adjusting nut clockwise a quarter turn, and then try again.

5. If the lever cannot be pushed all the way to a position parallel to the fork blade, return the lever to the OPEN position. Then turn the tension adjusting nut counterclockwise one-quarter turn, and try tightening the lever again.
6. Close the brake pads. Spin the wheel to make sure that it is centered in the frame and clears the brake pads.

Removing a Bolt-On Rear Wheel

1. Open the rear brake pads.
2. Shift the rear derailleur to high gear (the smallest rear sprocket).
3. With a 15 mm box wrench or a six-inch adjustable wrench, loosen the two axle nuts **(Figure 13)**.
4. Remove the motor torque arm bolt from the left side seat stay above the drop out.
5. Disconnect the motor QR-connector and temperature-sensor connector in the QR housing on the inside of the left seat stay above the motor torque arm bolt.

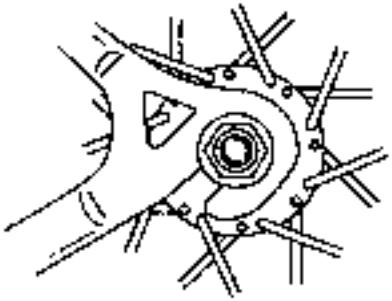


FIG.13

6. Lift the rear wheel off the ground a few inches and pull the derailleur body back with your right hand.
7. With the derailleur still pulled back, push the wheel forward and down until it comes out of the rear dropouts.

Installing a Bolt-On Rear Wheel

1. Shift the rear derailleur to its outermost position and pull the derailleur body back with your right hand.
2. Put the chain on to the smallest sprocket.
3. Insert the wheel into the frame dropouts and pull it all the way into the dropouts. The axle nut washers should be on the outside of the dropouts, between the frame and the axle nut.
4. Reinstall the motor torque arm and bolt.
5. Tighten the axle nuts as tightly as you can, using a six-inch adjustable wrench or a 15 mm box wrench **(Figure 13)**.
6. Push the rear derailleur back into position.
7. Reconnect the motor QR- and temperature-sensor connectors and close the QR housing.
8. Close the brake. Spin the wheel to make sure that it is centered in the frame and clears the brake pads.

Seatpost Quick Release

Most E-Bike™s are equipped with quick-release seatpost binders. The seatpost quick-release binder works exactly like the wheel quick release While a quick release looks like a bolt with a lever on one end and a nut on the other, the quick release uses a cam action to firmly clamp the seat post **(**see **Figure 7)**.

WARNING:

Riding with an improperly tightened seat post can allow the saddle to turn or move and cause you to lose control and fall. Therefore:

1. Ask your dealer to help you make sure you know how to correctly clamp your seat post.
2. Understand and apply the correct technique for clamping your seat post quick release.
3. Before you ride the E-Bike™, first check that the seatpost is securely clamped.

Adjusting the quick release mechanism

The action of the quick release cam squeezes the seat collar around the seat post to hold the seat post securely in place.

The amount of clamping force is controlled by the tension adjusting nut. Turning the tension adjusting nut clockwise while keeping the cam lever from rotating increases clamping force. Turning the nut counterclockwise while keeping the cam lever from rotating reduces clamping force. Less than half a turn of the adjusting nut can make the difference between safe clamping force and unsafe clamping force.

CAUTION:

Holding the nut with one hand and turning the lever like a wing nut with the other hand until everything is as tight as you can get it will not clamp the seatpost safely. The full force of the cam action is needed to clamp the seatpost securely.

BRAKES

NOTE:

For most effective braking, use both brakes and apply them simultaneously.

WARNING:

Sudden or excessive application of the front brake may pitch the rider over the handlebars, causing serious injury or death.

How Brakes Work

It's important to your safety that you instinctively know which brake lever controls which brake. On your E-Bike™. the right brake lever controls the front brake. The left brake lever controls the rear brake.

The braking action of a E-Bike™ is a function of the friction between the brake surfaces -- usually the brake pads and the wheel rim. To make sure that you have maximum friction available, keep your wheel rims and brake pads clean and free of lubricants, waxes or polishes.

Make sure that your hands can reach and squeeze the brake levers comfortably. If your hands are too small to operate the levers comfortably, consult your dealer before riding the E-Bike™. You may need a different brake lever design.

Brakes are designed to control your speed, not just to stop the E-Bike™. Maximum braking force for each wheel occurs at the point just before the wheel locks up (stops rotating) and starts to skid. Once the tire skids, you actually lose most of your stopping force and all directional control. You need to practice slowing and stopping smoothly without locking up a wheel. The technique is called progressive brake modulation. Instead of jerking the brake lever to the position where you think you will generate appropriate braking force, squeeze

the lever, progressively increasing the braking force. If you feel the wheel begin to lock up, release pressure just a little to keep the wheel rotating just short of lockup. It is important to develop a feel for the amount of brake lever pressure required for each wheel at different speeds and on different surfaces. To better understand this, experiment a little by walking your E-Bike™ and applying different amounts of pressure to each brake lever until the wheel locks.

CAUTION:

Some E-Bike™ brakes, such as disc brakes, are extremely powerful. You should take extra care in becoming familiar with these brakes and exercise particular care when using them.

When you apply one or both brakes, the E-Bike™ begins to slow, but your body wants to continue at the speed at which it was going. This causes a transfer of weight to the front wheel (or, under heavy braking, around the front wheel hub, which could send you flying over the handlebars). A wheel with more weight on it will accept greater brake pressure before lockup; a wheel with less weight will lock up with less brake pressure. So, as you apply brakes and your weight shifts forward, you need to shift your body toward the rear of the E-Bike™, to transfer weight back onto the rear wheel. At the same time, you need to both decrease rear braking and increase front braking force. This is even more important on steep descents, because descending shifts weight forward.

The keys to effective speed control and safe stopping are controlling wheel lockup and weight transfer. Practice braking and weight transfer techniques where there is no traffic or other hazards and distractions.

Everything changes when you ride on loose surfaces or in wet weather. Tire adhesion is reduced, so the wheels have less cornering and braking traction and can lock up with less brake force. Moisture or dirt on the brake pads reduces their ability to grip. The way to maintain control on loose or wet surfaces is to go more slowly to begin with.

Brake Release

The brake pads of the V-brakes can be quickly opened so the pads can clear the tire when the wheel is removed or installed. To open the front or rear brake pads, perform the following:

1. Squeeze the caliper arms together.
2. Disconnect the cable guide on the brake cable from the quick release bracket on the left caliper arm **(**A, **Figure 14)**.

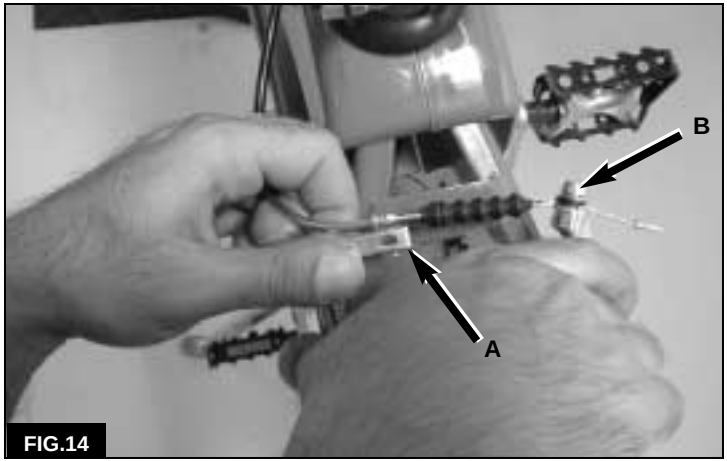


FIG.14

Once the wheel is reinstalled, close the brake pads by performing the following:
1. Squeeze the caliper arms together.
2. Connect the cable guide to the bracket on the left caliper arm **(**A,**Figure 14)**.

Brake Cable Free Play Adjustment (V-Brakes)

If either brake lever fails the mechanical safety check, restore brake lever travel by adjusting the brake lever free play as described below.

1. Pull the brake lever to simulate a panic stop, and then release the brake lever. Repeat this at least ten times. This assures that all components are properly seated.
2. Pull the brake lever until the brake pads just touch the rim.
3. Measure the clearance between the brake lever and the handlebar grip. This distance should be 25 mm (0.98 in.).
4. Loosen the adjuster locknut, and turn the barrel adjuster **(Figure 15)** as necessary to adjust clearance to within specification. (Turning the adjuster out tightens the inner wire; turning the adjuster in loosens the wire.) When the brake lever is within specification, tighten the adjuster locknut.
5. Squeeze the caliper arms together, and remove the cable guide from the quick release bracket on the left caliper arm **(**A, **Figure 14)**. The brake lever free play is properly adjusted if the cable guide can be easily removed from the bracket.
6. If you cannot easily release the cable guide from the bracket, perform the following:
   a. Turn the adjusting barrel at the brake lever in (clockwise) one full turn. Try to remove the cable guide again.
   b. If you still cannot release the cable guide, turn the adjusting barrel in an additional turn.
   c. If the cable guide still does not release, loosen the pinch bolt **(**B, **Figure 14)** and release 2-3 mm (0.079-0.118 in.) of inner wire from the pinch mechanism.
   d. Tighten the pinch bolt, and repeat the adjusting procedure.

Brake Cable Free Play Adjustment (Disc Brake Models)

1. Pull the brake lever to simulate a panic stop, and then release the brake lever. Repeat this at least ten times. This assures that all components are properly seated.
2. Pull the brake lever until the brake pads just touch the rim.
3. Measure the clearance between the brake lever and the handlebar grip. This distance should be 25 mm (0.98 in.).
4. Loosen the adjuster locknut, and turn the barrel adjuster **(Figure 15)** as necessary to adjust clearance to within specification. (Turning the adjuster out tightens the inner wire; turning the adjuster in loosens the wire.) When the brake lever is within specification, tighten the adjuster locknut.

FIG.15

5. If you cannot adjust the free play to specification at the brake lever adjuster, tighten the adjuster locknut and perform the following:
   a. Loosen the adjuster locknut **(**A, **Figure 16)** at the caliper, and turn the barrel adjuster **(**B, **Figure 16)** as necessary to adjust clearance within specification. Tighten the adjuster locknut.

FIG.16

Rear Modulation Adjustment

Rear modulation brakes are equipped with an adjuster that increases or decreases the amount of modulation. Turning the modulation adjuster **(Figure 17)** clockwise increases the brake pressure and stopping ability. Turning the adjuster

adjuster counterclockwise decreases the brake pressure and stopping ability.


FIG.17

Small changes in the modulation adjustment can have a significant effect upon brake pressure and stopping ability. Whenever you adjust the modulation, adjust each caliper in 1/4 turn increments and test the brakes. Always adjust each side of the brakes equally. If you increase the modulation on the left caliper by 1/4 turn, you should also increase the modulation on the right caliper by an equal amount.

SHIFTING

Your seven-speed E-Bike™ uses a derailleur drivetrain, which consists of.

- A rear sprocket cluster, called a freewheel or cogset
- A rear derailleur
- One shifter
- One control cable
- One front sprocket called a chainring
- A drive chain

There are many different types of shifter mechanisms, each preferred for specific applications because of its ergonomic, performance and price characteristics. The designers of your E-Bike™ have selected the twist-type shifter design which will give the best results on your E-Bike™.

To shift to a higher gear, twist the shifter forward or counterclockwise while pedaling forward. To shift to a lower gear, twist the shifter rearward or clockwise. See **Figure 18**.

A downshift is a shift to a lower or slower gear, one which is easier to pedal. An upshift is a shift to a higher or faster gear, one which harder to pedal gear. For example, you can downshift to a lower gear to make pedaling easier on a hill. On the otherhand, you may upshift to a higher gear when you wish to go faster.

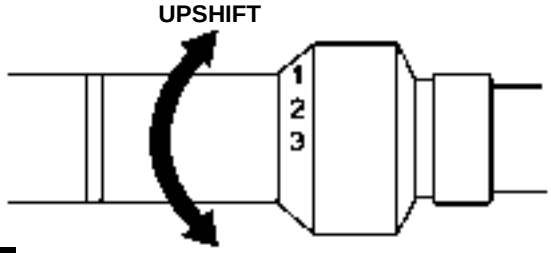


FIG. 18

Whether upshifting or downshifting the E-Bike™, the derailleur system requires that the drive chain be moving forward and be under at least some tension. A derailleur will shift only if you are pedaling forward.

CAUTION:

Never move the shifter while pedaling backward, nor pedal backwards after having moved the shifter. This could jam the chain and cause serious damage to the E-Bike™.

WARNING:

Never shift a misadjusted derailleur onto the largest or the smallest sprocket. The chain could jam, causing you to lose control and fall.

Derailleur Adjustment

The function of the rear derailleur is to move the drive chain from one gear to another on the rear gear cluster, thereby changing gear drive ratio. The smaller sprockets on the gear cluster produce higher gear ratios. Pedaling in the higher gears requires greater pedaling effort, but takes you a greater distance with each revolution of the pedal crank. The larger sprockets produce lower gear ratios. Using them requires less pedaling effort, but takes you a shorter distance with each pedal crank revolution.

Moving the chain from a smaller sprocket of the gear cluster to a larger sprocket results in a downshift. Moving the chain from a larger sprocket to a smaller sprocket results in an upshift. In order for the derailleur to disengage the chain from one sprocket and move it on to another, the chain must be moving forward (i.e. the rider must be pedaling forward).

Three screws, the H-, L-, and B-screws, are used to adjust the derailleur. The H-screw sets the outward limit of the derailleur's movement. The L-screw sets its inward limit. The B-screw adjusts the distance between the bottom of the cogset and the derailleur's guide pulley.

A fourth–hand tool (Park Tool BT-2) is required to perform this procedure.

1. Check the cable attachment to the derailleur pinch mechanism.
   a. Inspect the position of the inner wire in the pinch-mechanism. The inner wire should follow the groove

in the pinch plate, and the tab on the pinch plate should be inboard of the cable when you look directly at the pinch-mechanism stud **(Figure 19)**.

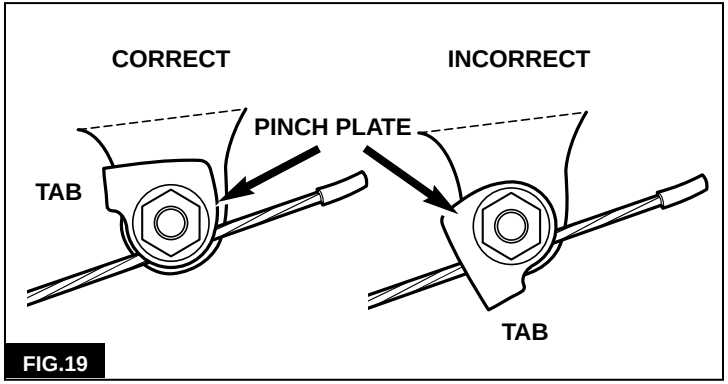


FIG.19

b. Loosen the pinch-mechanism nut. Use the forth-hand tool to pull the slack from the inner wire.
c. Torque the pinch-mechanism nut securely. Torque the nut to 42 kg-cm (36.5 in.-lb.).
d. Check that the inner cable is still contained within the groove in the pinch-mechanism plate.

2. Set the derailleur as close as possible to the cogset by performing the following.
a. Shift the chain to the innermost cog.
b. Completely loosen the B-screw **(Figure 20)**.
c. Back-pedal, and check for bouncing at the guide pulley **(Figure 21)**. The B-screw is too loose if bouncing is noticed.

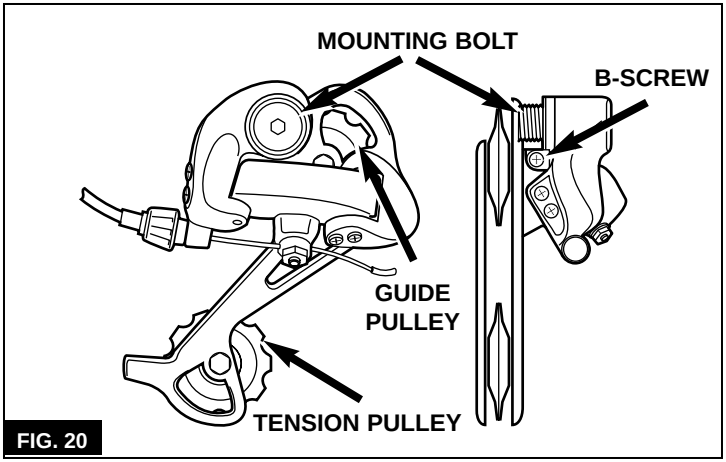


FIG. 20

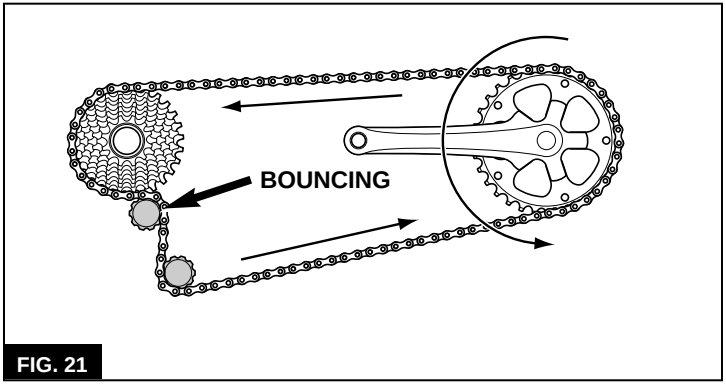


FIG. 21

d. Tighten the B-screw one turn, and repeat the bounce check.

3. Set the derailleur's outward limit by performing the following.

a. Shift the derailleur so the chain is on the outermost cog.

b. Stand behind the E-Bike, and check the position of the derailleur. The guide pulley should align with the outermost cog as shown in **Figure 22**.

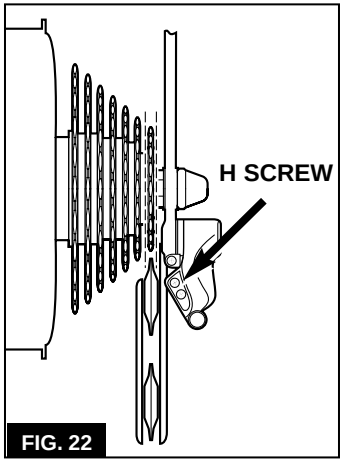


FIG. 22

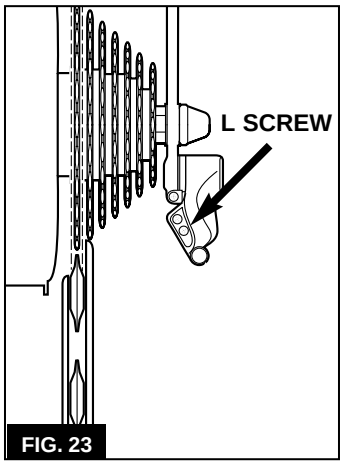


FIG. 23

c. If necessary, adjust the outward limit by turning the H-screw. Tighten the H-screw to adjust the guide pulley inward. Loosen the H-screw to adjust the derailleur outward.

4. Set the derailleur's inward limit by performing the following.

a. Shift the derailleur so the chain rests on the innermost cog.

b. Stand behind the E-Bike, and check the position of the derailleur. The guide pulley should align with the innermost cog as shown in **Figure 23**.

c. If necessary, adjust the inward limit by turning the L-screw. Tighten the L-screw to move the derailleur outward. Loosen the L-screw to move the derailleur inward.

TIRES AND TUBES

Tires

Bicycle tires are available in many designs and specifications, ranging from general-purpose designs to tires designed to perform best under very specific weather or terrain conditions. Your E-Bike™ has been equipped with tires which the manufacturer felt were the best balance of performance and value for the use for which the E-Bike™ was intended. If, once you've gained experience with your new E-Bike™, you feel that a different tire might better suit your riding needs, your dealer can help you select the most appropriate design.

The size, pressure rating, and other information appear on the sidewall of the tire **(Figure. 24)**. The part of this inform-

ation which is most important to you is tire pressure. EV Global recommends that the tires be inflated to 55-65 psi. Note that best performance is achieved when tires are inflated to 60-65 psi. These recommendations apply only to the OEM tires that were originally installed on your E-Bike™. If you use another tire, follow the inflation-pressure recommendations marked on the tire sidewall.

FIG. 24

WARNING:

Never inflate a tire beyond the maximum pressure marked on the tire's sidewall. Exceeding the recommended maximum pressure may blow the tire off the rim, which could cause damage to the E-Bike™ and injury to the rider and bystanders.

The best way to inflate a E-Bike™ tire to the correct pressure is with a bike pump. Your dealer can help you select an appropriate pump.

CAUTION:

Gas station air hoses move a large volume of air very rapidly and will raise the pressure in your tire very rapidly. To avoid overinflation when using a gas station air hose, put air into your tire in short, spaced burst.

Tire pressure is given either as maximum pressure or as a pressure range. How a tire performs under different terrain or weather conditions depends largely upon tire pressure. Inflating the tire to near its maximum recommended pressure gives the lowest rolling resistance; but also produces the harshest ride. High pressures work best on smooth, dry pavement.

Very low pressures, at the bottom of the recommended pressure range, give the best performance on smooth, slick terrain such as hard-packed clay, and on deep, loose surfaces such as deep, dry sand.

Tire pressure that is too low for your weight and the riding conditions can cause a puncture of the tube by allowing the tire to deform sufficiently to pinch the inner tube between the rim and the riding surface.

CAUTION:

Pencil type automotive tire gauges and gas station air hose pressure settings are generally inaccurate and should not be depended on for consistent, accurate pressure. Instead, use a good quality dial gauge.

Ask your dealer to recommend the best tire pressure for the kind of riding you will most often do, and have the dealer inflate your tires to that pressure. Then, check inflation as described so you'll know how correctly inflated tires should

look and feel. Some tires may need to be brought up to pressure every week or two.

Some special high-performance tires have unidirectional treads. Their tread pattern is designed to work better in one direction than in the other. The sidewall marking of a unidirectional tire will have an arrow showing the correct rotation direction. If you use unidirectional tires on your E-Bike™, be sure that they are mounted to rotate in the correct direction.

Tire Valves

The tire valve allows air to enter the tire's inner tube under pressure, but doesn't let it back out unless you want it to. There are primarily two kinds of bicycle tube valves used in the United States: the Schraeder Valve and the Presta Valve. The bicycle pump you use must have the fitting appropriate to the valve stems on your tire.

The E-Bike™ OEM tires use a Schraeder valve **(Figure 25)**, which is like the valve on a car tire. To inflate a Schraeder valve tube, remove the valve cap and push the air hose or pump fitting onto the end of the valve stem. To let air out of a Schraeder valve, depress the pin in the end of the valve stem with the end of a key or other appropriate object.

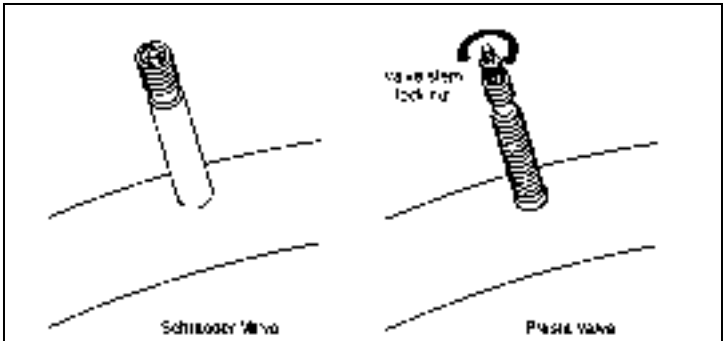


FIG. 25

BICYCLE SUSPENSION

There are many different types of suspension systems --- too many to deal with individually in this manual. Ask your dealer to provide you with the appropriate adjustment and maintenance instructions for the suspension on your E-Bike™.

WARNING:

Failure to check and properly adjust the suspension system may result in suspension malfunction, which may cause you to lose control and fall.

CAUTION:

Changing suspension adjustment can change the handling and braking characteristics of your E-Bike™. Never change suspension adjustment unless you are thoroughly familiar with the suspension system manufacturer's instructions and recommendations, and always check for changes in the handling and braking characteristics of the E-Bike™ after a suspension adjustment by taking a careful test ride in a hazard-free area.

CAUTION:

Not all models can be safely retrofitted with some types of suspension systems. Before retrofitting an E-Bike™ with any suspension, check with the E-Bike™ manufacturer to make sure that what you want to do is compatible with the E-Bike™ design.

WARNING:

If your E-Bike™ has suspension, the increased speed you may develop also increases your risk. When braking, the front of a suspended E-Bike™ dips. You could lose control and fall if your skill is not up to handling this system. Get to know how to handle your suspension system safely.

Suspension can increase the handling capabilities and comfort of your E-Bike™. This enhanced capability may allow you to ride faster; but you must not confuse the enhanced capabilities of the E-Bike™ with your own capabilities as a rider. Increasing your skill will take time and practice. Proceed carefully until you are sure you are competent to handle the full capabilities of your E-Bike™.

Suspension Adjustment

Two types of forks are used on the E-Bike™: the Zokes 65 mm forks and the Nitro DH forks. The preload can be adjusted on both types of forks. The adjustment procedure is described below. You will need a 4 mm Allen wrench to turn the adjusters on the Zokes 65 mm forks. The Nitro DH forks are equipped with hand adjusters.

Turning an adjuster clockwise stiffens the suspension. Turning it counterclockwise softens the suspension.

1. Remove the cap from the top of each fork leg.
2. Set the preload in each fork tube to the minimum setting by turning each adjuster counterclockwise until it stops.
3. If you need to, use a marker to place indexing marks on the adjuster and on the fork tube on each fork leg. Be sure the mark on the fork tube aligns with the mark on the adjuster.
4. Turn the adjuster in each leg 1/4-turn clockwise. Check the setting by pressing down on the handlebars. Note how the suspension feels.
5. Repeat this procedure – turning each adjuster in 1/4-turn increments and checking the suspension – until the desired preload is obtained.

6. Install the cap onto each fork leg.
7. Compress the forks several times to ensure they function properly.

6. SERVICE AND MAINTENANCE

NOTE:

Technological advances have made the E-Bike™ and E-Bike™ components more complex than ever before, and the pace of innovation is increasing. This on-going evolution makes it impossible for this manual to provide all the information required to properly repair and/or maintain your E-Bike™. In order to help minimize the chances of an accident and possible injury, it is critical that you have any repair or maintenance which is not specifically described in this manual performed by your dealer.

Equally important is that your individual maintenance requirements will be determined by everything from your riding style to geographic location. Consult your dealer for help in determining your maintenance requirements. How much of your E-Bike™ service and maintenance you can do yourself depends upon your level of skill and experience, and on whether you have the special tools required.

WARNING:

Many E-Bike™ service and repair tasks require special knowledge and tools. Do not begin any adjustments or service on your E-Bike™ if you have the slightest doubt about your ability to properly complete them. Improper adjustment or service may result in damage to the E-Bike™ or in an accident which can cause serious injury or death.

If you want to learn to do major service and repair work on your E-Bike™, you have four options:
1. Order an E-Bike™ service manual from your dealer.
2. Ask your dealer whether copies of the manufacturer's installation and service instructions for the components on your E-Bike™ are available.
3. Ask your dealer to recommend a book on E-Bike™ repair.
4. Ask your dealer about the availability of E-Bike™ repair courses in your area. Regardless of which option you select, we recommend that you ask your dealer to check the quality of your work the first time you work on something and before you ride the E-Bike™, just to make sure that you did everything correctly. Since that will require the time of a mechanic, there may be a modest charge for this service.

SERVICE & MAINTENANCE SCHEDULE

Some service and maintenance can and should be performed by the owner, and require no special tools or knowledge beyond what is presented in this manual.

The following are examples of the type of service you should perform yourself. All other service, maintenance and repair should be performed in a properly equipped facility by a qualified E-Bike™ mechanic using the correct tools and procedures specified by the manufacturer.

Break-in Period

Your E-Bike™ will last longer and work better if you break it in before riding it hard. Control cables and wheel spokes may stretch or seat when a new E-Bike™ is first used and may require readjustment by your dealer. Your mechanical safety check (Chapter Three) will help you identify some things that need readjustment. But even if everything seems fine to you, it's best to take your E-Bike™ back to the dealer for a checkup. Dealers typically suggest you bring the E-Bike™ in for a 30 day checkup. Another way to judge when it's time for the first checkup is to bring the E-Bike™ in after 10 to 15 hours of use. But if you think something is wrong with the E-Bike™, take it to your dealer before riding it again.

Before every ride:

- Perform the mechanical safety check described in Chapter Three.

After every long or hard ride; if the E-Bike™ has been exposed to water or grit; or at least every 100 miles:

- Clean the E-Bike™.
- Lightly oil the chain, freewheel cogs and rear derailleur pulley bushings. Wipe off excess oil. Lubrication is a function of climate. Talk to your dealer about the best lubricants and the recommended lubrication frequency for your area.

After every long or hard ride or after every 10 to 20 hours of riding:

- Squeeze the front brake and rock the E-Bike™ forward and back. Does everything feel solid? If you feel a clunk with each forward or backward movement of the E-Bike™, you probably have a loose headset. Have your dealer check it.
- Lift the front wheel off the ground and swing it from side to side. Feel smooth? If you feel any binding or roughness in the steering, you may have a tight headset. Have your dealer check it.
- Make sure all bolts, nuts and mounting hardware are tight.

- Grab one pedal and rock it toward and away from the centerline of the E-Bike™; then do the same with the other pedal. Does the bottom bracket feel loose? If so, have your dealer check it.
- Take a look at the brake pads. Starting to look worn or not hitting the wheel rim squarely? Time to have the dealer adjust or replace them.
- Carefully check the control cables and cable housings. Any rust? Kinks? Fraying? If so, have your dealer replace them.
- Squeeze each adjoining pair of spokes on either side of each wheel between your thumb and index finger. Do they all feel about the same? If any feel loose, have your dealer check the wheel runout and spoke tension.
- Check the frame, particularly in the area around all tube joints, the handlebars, the stem, and the seatpost for any deep scratches, cracks or discoloration. These are signs of stress-caused fatigue and indicate that a part is at the end of its useful life and needs to be replaced.
- Check to make sure that all parts and accessories are still secure. Tighten any which are not.

WARNING:

Like any mechanical device, an E-Bike™ and its components are subject to wear and stress. Different materials and mechanisms wear at different rates and have different life cycles. If a component's life cycle is exceeded, the component can suddenly and catastrophically fail, causing serious injury or death to the rider. Scratches, cracks, fraying and discoloration are signs of stress-caused fatigue and indicate that a part is at the end of its useful life and needs to be replaced.

As required:

- If either brake lever fails the mechanical saftey check, adjust the brake lever free play as described in Chapter Five. If the lever free play cannot be adjusted within specification, have the brakes checked by your dealer.
- If the chain will not shift smoothly and quietly from gear to gear, the derailleur is out of adjustment. The cause may be as simple as cable stretch, in which case you can compensate by turning the shifter or derailleur cable adjusting barrel counterclockwise 1/2 turn. Try shifting again. If 1/2 turn to a full turn of the cable adjusting barrel does not cure the problem, see your dealer.

Every 50 hours of riding:

- Take your E-Bike™ to your dealer for a complete checkup.

GETTING HOME WHEN SOMETHING BREAKS

Unless you're going for a short ride in the neighborhood, or you can walk home or call someone to pick you up if something breaks, you should never go for a E-Bike™ ride without the following emergency equipment:

- 4mm, 5mm and 6mm Allen wrenches, used to tighten various clamping bolts that may loosen
- Patch kit and a spare inner tube
- Tire levers
- Tire pump or cartridge inflator with correct head to fit your tire valves (see Chapter Five).
- Some kind of identification (so people know who you are in case of accident).
- A couple of dollars in cash (for a candy bar, cool drink or emergency phone call).

Flat Tire

If you get a flat tire, remove the wheel as described in Chapter Five. Depress the tire valve to let all the air out of the tube. Remove one bead of the tire from the rim by grasping the tire at a point opposite the valve stem with both hands and lifting and peeling one side of the tire off the rim. If the bead is on too tight for you to unseat it with your hands, use tire levers to lift the bead carefully over the tire rim. Push the valve stem through the wheel rim. Remove the inner tube.

Carefully check the outside and inside of the tire for the cause of the puncture and remove the cause if it is still there. If the tire is cut, line the inside of the tire in the area of the cut with something handy -- tape, a spare patch, a piece of inner tube, a dollar bill -- whatever will keep the cut from pinching the inner tube.

Either patch the tube (follow the instructions in your patch kit), or use a new one. Reinstall the tire and tube. Slip one tire bead over the rim. Insert the tube valve through its hole in the rim. Feed the tube carefully into the cavity of the tire. Inflate the tube just enough to give it some shape. Starting at the valve stem use your thumbs to seat the tire bead inside the rim. Work your way around both side of the wheel until the entire bead is seated in the rim. Be careful not to pinch the tube between the tire bead and the wheel rim. If you have trouble getting the last few inches of bead over the edge of the rim with thumb pressure, use a tire lever and be careful not to pinch the tube.

CAUTION:
If you use a screwdriver or any tool other than a tire lever, you are likely to puncture the tube.

Check to make sure the tire is evenly seated around both sides of the rim and that the tube is inside the tire beads.

Push the valve stem into the tire to make sure that its base is seated within the tire's beads. Inflate the tube slowly to the recommended pressure, all the while checking to make sure that the tire beads stay seated in the rim. Replace the valve cap, and install the wheel onto the E-Bike™.

WARNING:

Riding your E-Bike™ with a flat or under-inflated tire can seriously damage the tire, tube and E-Bike™, and can cause you to lose control and fall.

Broken Spoke

A wheel with a loose or broken spoke is much weaker than a fully tensioned wheel. If you break a spoke while on a ride, you will have to ride home much more slowly and carefully because the weakened wheel could break additional spokes and become useless.

WARNING:

A broken spoke seriously weakens the wheel and may cause it to wobble, striking the brakes or the frame. Riding with a broken spoke can cause you to lose control and fall.

Twist the broken spoke around the spoke next to it to keep it from flopping around and getting caught between the wheel and the frame. Spin the wheel to see if the rim clears the brake pads. If the wheel will not turn because it is rubbing against a brake pad, try turning the brake cable adjusting barrel(s) clockwise to slacken the cable and open up the brakes. If the wheel still won't turn, open the brake's quick release and secure any loose cable as best you can. Walk the E-Bike™, or if you must, ride it with extreme caution, because you now have only one working brake.

If You Crash

WARNING:

A crash can put extraordinary stress on E-Bike™ components, causing them to fatigue prematurely. Components suffering from stress fatigue can fail suddenly and catastrophically, causing loss of control, serious injury or death.

First, check yourself for injuries, and take care of them as best you can. Seek medical help if necessary. Next, check your E-Bike™ for damage, and fix what you can. When you get home, carefully perform the checks described in Chapter Three, and check for any other damaged parts. All bent, scored or discolored parts are suspect and should be replaced.

CAUTION:

If you have any doubt about the condition of the E-Bike™ or any of its parts, take it to your dealer for a thorough check.

UPGRADING YOUR BIKE AND YOUR EQUIPMENT

The variety of components and accessories available to enhance the comfort, performance and appearance of your E-Bike™ is almost endless. Your dealer can help you select those that will work best for the kind of riding you do.

Even if you are an experienced rider, read, and understand, the instructions that accompany the products you purchase for your E-Bike™. If you have the slightest doubt as to their suitability or about your ability to install them correctly, ask your dealer for help.

WARNING:
Failure to install and operate any component or accessory properly can result in serious damage to the E-Bike™, and serious injury or death to the rider.

Comfort and Convenience Accessories
Once the E-Bike™ fit (frame size, saddle position and angle, stem length and rise) is correct, the saddle becomes the single most important comfort accessory.

The comfort of a E-Bike™ saddle depends much more on how the saddle shape relates to the rider's body than on the thickness or material of the padding. Bicycle manufacturers select a saddle shape based on their best guess of what's likely to be comfortable for most buyers of that particular model. But that doesn't mean it's going to be the most comfortable shape for you. That's why your dealer stocks saddles which offer a variety of shapes, padding, covering materials and prices. If the saddle on your new E-Bike™ is uncomfortable, ask your dealer to suggest an alternative.

If you're planning to spend an hour or more at a time on your E-Bike™, get a pair of cycling gloves. Their padded palms help keep your hands from getting numb from the vibration of the handlebars (the numbness, called carpal tunnel syndrome, can become quite painful if not taken care of), and they'll provide some abrasion protection for your hands if you fall.

Cycling shorts and cycling jerseys are both performance and comfort accessories. There are two kinds of cycling shorts: the traditional skin-tight Lycra shorts and loose-fit cycling shorts. Both are designed to reduce friction and chafing. The washable pad in the crotch of the shorts both cushions and protects against chafing. Wear them without underwear to avoid the undergarment's bunching up and chafing. Also available are undergarments designed to reduce chafing when worn with regular street clothes. The jerseys have pockets in the back, so that the things you carry don't bang around when you ride. Many are made of special materials with properties that improve riding comfort and performance.

It's important to drink plenty of liquids before and during exercise. A water bottle is an essential companion on a longer ride.

Some basic tools are also useful. The minimum tool kit you will need to make adjustments, perform maintenance and handle emergency repairs should include:

- A set of Allen wrenches in 2mm, 4mm, 5mm and 6mm sizes
- A set of tire levers
- A 6-inch adjustable wrench
- A No. 1 Phillips screwdriver and a 1/4 inch flat blade screwdriver
- A tire pump
- A tire patching kit and a spare tire tube

Performance Upgrades

CAUTION:

Changing the components on your E-Bike™ may void the warranty. To avoid voiding your warranty, check with your dealer before changing the components on your E-Bike™.

The most popular way to improve the performance of a E-Bike™ is to substitute higher priced drivetrain or brake components. Before attempting to upgrade your drivetrain or brakes, make sure that the components you plan to install are fully compatible with the rest of the components on yourE-Bike™. Your dealer can help you determine component compatibility and resolve compatibility conflicts.

Another popular way to improve the performance of a E-Bike™ is to substitute lighter weight racing components. Lighter wheels, tires, handlebars and so on can enhance the performance of your E-Bike™; but you must always keep in mind that light weight racing components are not intended to have the life expectancy of their heavier counterparts, and you must therefore exercise extra care in checking for signs of stress fatigue.

Suspension forks are also a popular component upgrade. Before installing a suspension fork on a non-suspension E-Bike™ or installing a fork with different travel or geometry characteristics, you must make sure that the frame is designed to take the change in geometry and the changes in stress characteristics which the change in fork can cause. Such stresses can result in sudden, catastrophic frame failure, which can cause serious injury or death.

Disc brakes are becoming a more common performance upgrade. Most front suspension forks are designed to accept a disc brake, and can take the added stresses at the brake mounting points. Be sure that the fork you are using is designed to accept disc brakes. Otherwise, such stresses

can result in sudden, catastrophic frame failure, which can cause serious injury or death.

Your dealer has many other comfort and performance accessories that can increase your cycling enjoyment.

ABOUT YOUR DEALER

Your dealer is there to help you get the E-Bike™ and accessories which are most appropriate for the kind of riding that you intend to do and to help you maintain your equipment so that you can get the maximum enjoyment from it. Your E-Bike™ shop's staff has the knowledge, tools and experience to give you reliable advice and competent service. Your dealer carries the products of a variety of manufacturers so that you can have the choices which best meet your needs and your budget.

But your dealer's staff can't make decisions for you; nor can they assume responsibility for your lack of knowledge, experience, skill or common sense. They can explain to you how something works, or what part or accessory will meet your special needs, but they cannot know your questions or your needs unless you tell them.

If you have a problem with your E-Bike™ or your riding, talk to your dealer. Make sure that the dealer understands your problem or question, and make sure that you really understand the answers.

Please contact EV Global Motors at:
800-871-4545 toll-free
818-756-0563 fax
www.evglobal.com or www.ebike.com

7. SPECIFICATIONS

1. Performance Specifications:

Top Speed:	-17.5 mph @ 36 volts, in "P" Performance Mode -12.5 mph @ 36 volts, in "E" Economy Mode
Maximum Grade:	-12% with a 200 lb. rider plus load
Range:	-Over 20 miles with moderate pedal assist -Over 15 miles with no pedaling, under good conditions. -Over a 25% increase in range in the "E" Economy Mode.
Acceleration:	-0-10 mph in less than 3 seconds with a 200 pound rider.

2. Electrical Specifications:

Battery	-36 Volt, 8-amp hour, Rechargeable, Deep discharge, Sealed AGM Lead-acid
Battery Life:	-Over 250 recharge cycle-life (70% maximum capacity at termination of useful life)
Charger	-Input – 115V VAC, 60/50 Hz, 2 amps -Output – 36VDC, 1.6 amps -Trickle charge capability -Recharge time: 25% - approx. 1 hour 50% - approx. 2 hours 75% - approx. 3 hours 95% - approx. 4 hours 100% - approx. 4.5 hours
Motor	-36V Hub, Brushed -Rated Output, Continuous Power 500 watts
Controller	-Digital logic integrated electrical system management, waterproof.
Headlight (LE & SX models only)	-12V, 35 watt, 6000 candlepower, H-3 Halogen automotive bulb with 45 degree spread angle.
Taillight	-36 volt, LED array brake and running lights.
Horn	-24 volt, 105bd maximum output.

3. Mechanical Specifications:

Gear Ratio	Chainring	Freewheel	Ratio
	38T	14T	0.368
	38T	16T	0.421
	38T	18T	0.474
	38T	20T	0.526
	38T	22T	0.579
	38T	24T	0.632
	38T	28T	0.737

Crank Arms	-170mm (6.7 inches)
Chain	-1/2 x 3/32 x 110 L
Tires	-26 x 1.95 inch
Inflation pressure	-55-65 psi (best performance @ 60-65 psi)
Rims	-26 x 1.5 inch, double wall -Rear-36H, 14 gauge stainless spokes -Front-32H, 14 gauge stainless spokes
Bottom Bracket	-127 mm cartridge
Fork	
Zokes Forks	-65 mm travel (LE models)
Nitro DH Triple Forks	-75 mm travel (SX and PE models)

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