



# Important: Keep for Future Reference

This manual shows how to ride your new bicycle safely. *Even if you have ridden a bicycle for years, it is important for EVERY person to read Chapter 1 before riding this bicycle!* Parents should speak about Chapter 1 to a child or person who might not understand this manual, especially regarding safety issues such as the use of coaster brakes.

This manual also shows you how to do basic maintenance. Some tasks should only be done by your dealer, and this manual identifies them.

## About the CD

This manual includes a CD (compact disc), which provides more comprehensive information. Please view the CD to see information that is specific to your bicycle. If you do not have a computer at home, view the CD on a computer at school, work, or the public library. If your CD does not operate, the same information is on our web site. The address for the web site is on the cover of this manual.

## Register Your Bike

Bicycle registration is the only record we have of who owns this bicycle. If it is necessary to give you new instructions, your registration will provide us with your contact information. Also, registration and proof of purchase are necessary to make a warranty claim.

It is easy to register on the Trek web site. The web site also provides a link to any new instructions. If you choose to not complete the registration, make sure you go to the web site frequently. Choose the web site for your country. If you cannot find one for your country, use the web site for the U.S.:


- On the CD, click the link "Register."
- Go to the web address on the cover of this manual and click the links.

## Keep this Manual with the Bike

This manual is considered a part of the bicycle that you have purchased. If you sell the bike, please give this manual to the new owner.

## Meaning of Safety Signs and Language

In this manual, the Safety Alert symbol, a triangle with an exclamation mark, shows a hazardous situation which, if not avoided, could cause injury. The most common cause of injury is falling off the bicycle. Even a fall at slow speed can cause severe injury or death, so avoid any situation with the special markings of a grey box, safety alert symbol, and these signal words:

 **'CAUTION' indicates the possibility of mild or moderate injury.**  
**'WARNING' indicates the possibility of serious injury or death.**

This manual complies with these standards:

- ANSI Z535.6
- AS/NZS 1927:1998
- BS 6102 : Part 1: 1992
- CEN 14764, 14765, 14766, 14781, 14872, 16054
- CPSC 16 CFR 1512
- ISO 4210:2014
- ISO 8098:14

## If You Have Questions

There are many models of bicycles with a variety of equipment, so this manual might contain some instructions that do not apply to your bicycle. Some illustrations might be different from your bicycle.

If you have questions after you read this manual, consult your dealer. If you have a question or problem that your dealer can not answer or repair, tell us:

Attn: Customer Service  
801 W. Madison Street  
Waterloo, Wisconsin 53594  
920.478.4678

## Table of Contents

### Chapter 1: Guide to Safe On- and Off-Road Operation

Before a First Ride	1
Life Span of a Bicycle and Its Parts.....	2
Before Each Ride: Checklist.....	3
Rules to Ride Safely.....	6
Riding Instructions.....	8
Safeguard Your Bicycle.....	10
Warning About Mechanical Work.....	11
Carbon Composite.....	12
Use Conditions .....	13

### Chapter 2: Maintenance

Maintenance Schedule.....	15
---------------------------	----

### Chapter 3: Inspection and Adjustment

A Word about Torque Specifications.....	16
Handlebar and Stem.....	17
Saddle (seat) and Seatpost.....	19
Derailleurs.....	21
Internal Gear Systems .....	23
Shift-levers.....	23
Brake-levers.....	24
Brakes .....	25
Wheels.....	28
Training Wheels .....	35
Cables .....	35
Headset .....	35
Crankarms and Bottom Bracket.....	35
Pedals.....	36
Chain.....	36
Reflectors.....	36
Suspension .....	36
Accessories.....	36
Frameset (Frame and Fork).....	37

### Chapter 4: Lubrication..... 40

### For more instructions..... 42

### Warranty..... 42

## Foreword: Bicycles, Accidents, and Safety

A bicycle can be fun when used for transportation, recreation, exercise, or competition. But a bicycle can also be dangerous, especially if you try to ride beyond the limits of your bicycle or the limits of your ability. The skill of a bicycle rider can vary greatly, just like the skill of an automobile driver or a skier. Do not ride in a manner that exceeds *your* ability.

Each bicycle also has limits because of many properties:

- Design and materials of the bicycle
- Maintenance of the bicycle
- Use of the bicycle: surface, speed, etc.
- Surface of the road or trail
- And more

### A Bicycle Cannot Protect You in an Accident

Bicycles are not designed to withstand every situation. In a crash or impact, it is not uncommon for the bicycle to have damage and for you to fall. If you fall, your bicycle can not prevent injury. Cars have bumpers, seat belts, air bags, and crumple zones. Bicycles do not, so even a small crash at slow speed can cause injury or death.

### Think Safety

Always “Think Safety” and avoid dangerous situations, which are usually obvious. However, not all dangerous situations are obvious. Many of those are shown in this manual; read at least Chapter 1 before you ride.

Some of the high-risk stunts and jumps seen in magazines or videos are very dangerous; even skilled athletes get severe injuries when they crash (and they do crash).



# Chapter 1: Guide to Safe On- and Off-Road Operation

This chapter explains important things you should know before a first ride, including safety information that is important to follow on every ride.

## Before a First Ride

This information should be read by anyone before their first ride of this bicycle.

### Bicycle Fit

Your dealer will help you find a bicycle that has the correct dimensions for your body. There should be at least 1" (25 mm) clearance between the top tube and you when you stand over your bicycle (Figure 1.1). For a mountain bicycle, we recommend 2-3" (50-75 mm) clearance.



**FIGURE 1.1**  
Minimum standover height  
A = 1" (25 mm) for most  
bicycles  
2-3" (50-75 mm) for  
mountain bicycles

You can adjust the saddle and handlebar to offer the best comfort and performance. Before you make these adjustments, read *Warning About Mechanical Work* (page 11), then refer to Chapter 3.

Your bicycle has a weight limit. See Use Conditions on page 13. In addition, some parts have their own weight limits. If you are not sure of the weight limit on your bicycle and its parts, consult your dealer.

## Know How Your Bicycle Operates

The properties of your bicycle, if not used correctly, can decrease your control of the bicycle. Before you ride fast or in conditions that are a problem, learn the operation and performance of all the mechanisms of your bicycle, especially brakes and steering components. Practice the use of your bicycle at slower speeds in a flat, empty parking area. Practice again after any change to your bicycle.

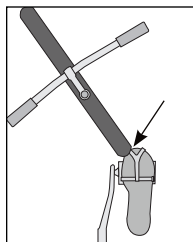
If your bicycle does not operate as necessary, or if different parts are necessary for the safe operation of your bicycle, consult your dealer.

### 'Toe Overlap'

Some modern, high-performance bicycles, especially smaller sizes, use a short-wheelbase design with the front wheel close to the pedals. When the handlebar is turned during very slow speeds your foot or toe-clips could overlap or touch the front wheel or fender (Figure 1.2). At average speeds, the handlebar does not turn sufficiently for contact to occur. When you ride slowly with the handlebar turned, do not pedal.

This overlap is affected by the size of your feet, the length of the crankarms, the size of the tires, and the pedals you choose. If you change any of these components, the amount of the overlap could change.

**WARNING:** If your foot or toe-clip touches the front wheel or fender, 'toe overlap' could decrease your control and cause you to fall. Do not pedal when you turn at slow speed.



**FIGURE 1.2**  
Toe overlap

### *Powerful Brakes*

The power of bicycle brakes changes with the Use Condition of the bicycle. Many models of modern brakes are very powerful; they are made to stop a bicycle in wet or muddy conditions. If it is necessary for your bicycle to have more—or less—power to stop, consult your dealer about brake adjustments or other brake options for your bicycle. Also read *Braking* on page 8.

### *Sharp Points, Moving Parts, Hot Spots, and Pinch Points*

Some parts of your bicycle can injure you if mishandled. Sharp points include the teeth of the chainrings and some pedals. Brakes and their parts get hot. Moving parts can cut skin and even break bones. Clamps and pivoting parts such as brake levers can pinch, as can the chain where it runs on to sprocket teeth.

### *Aero-bar*

When riding with your forearms or elbows on an aero-bar, your ability to quickly or easily steer and stop the bicycle can be reduced. When more steering or braking control is needed, change your position so that your hands are near the brake levers and you are not leaning on your elbows or forearms. Also, do not use the arm rests as handles; they are only intended to support your forearms when placed in the center of the pad. Leaning on the edges of the pads could break them.

### *Frame or Fork Problem*

Frame problems are not common, but as an example, some riders could get a “shimmy” or “harmonic oscillation” or “frame wobble” at some speeds. If you get a shimmy or any other problem, decrease your speed immediately and do not ride the bicycle. If your bicycle behaves in an unusual manner or you hear a noise, immediately stop the bicycle and identify the problem. After any impact, inspect the entire bicycle thoroughly.

Repair any problem before riding again, or take the bicycle to your dealer for service.

**⚠ WARNING: A frame or fork problem could decrease your control and cause you to fall. If your bicycle gets a shimmy or any other problem, decrease your speed immediately. Take your bicycle to your dealer for inspection and service.**

## Life Span of a Bicycle and Its Parts

Bicycles are not indestructible, and their parts will not last forever. If your use of a bicycle increases the forces on it through hard riding, difficult conditions, or increased mileage, you should replace your bicycle or its parts more frequently than riders who ride less or ride smoothly and carefully.

The safe life of a part is determined by its construction, materials, use, maintenance, rider weight, speed, terrain, and environment (humidity, salinity, temperature, etc.)—so it is not possible to give an accurate timetable for replacement. Any form of crack, scratches, or change of coloring in highly stressed areas indicate that the life of the component has been reached and it should be replaced. If you are not sure if you should replace a part, consult your dealer.

In some cases, a lighter frame or part has a longer life than a heavier one. But better maintenance, more frequent inspections, and more frequent replacement are necessary for a light-weight, high-performance bicycle and its parts.

**⚠ WARNING: The bicycle is subjected to wear and high stresses. Different materials and components may react to wear or stress fatigue in different ways. If the design life of a component has been exceeded, it may suddenly fail, possibly causing injuries to the rider.**



## Before Each Ride: Checklist

The checklist that follows shows critical areas for you to check. If your bicycle has a carbon fiber composite frame, fork, or parts, also read the special Carbon Composite information on page 12. If a part of your bicycle does not function correctly, use the instructions in this manual to repair your bicycle, or take your bicycle to your dealer for service. Do not ride a bicycle with a part that is damaged; replace the part.

*This is not a complete maintenance program.*

**⚠ WARNING: A bicycle that does not operate correctly can decrease your control and cause you to fall. Fully check all of your bicycle before each ride, and do not ride your bicycle until you correct any problem.**

### ✔ Check the Saddle (seat) and Seatpost

Make sure the saddle is correctly attached. Try to turn the saddle and seatpost in the frame, and try to move the front of the saddle up and down. The saddle should not move or be loose.

If you choose to adjust the position of the saddle, also follow the inspection procedures in Chapter 3.

### ✔ Check the Handlebar and Stem

Make sure the stem is in alignment with the front wheel and correctly attached to the fork and handlebar. To check the attachment, try to turn the handlebar from side to side while you hold the front wheel between your knees

(Figure 1.3). To check the connection of the handlebar, try to twist it in the stem. The handlebar should not move or be loose. Make sure that no cables are pulled or caught when you turn the wheel from side to side.

Make sure grips are secure and that ends of the handlebar are covered or that plugs are correctly inserted into the ends of the handlebar.

**⚠ WARNING: A handlebar end that is not plugged or covered can cut in a crash. Parents should regularly inspect a child's bike. Replace damaged or missing grips.**

### ✔ Check the Frame and Fork

Closely examine your frame and fork, especially near junctions of the tubing and clamping or attachment areas, for signs of fatigue stress:

- Dents
- Scratches
- Discoloration
- Cracks
- Deformation
- Unusual noises

If your frame or fork is made of carbon composite, also see page 12.

### ✔ Check the Wheels

Check the tire inflation. Inflate the tires to the air pressure recommended on the sidewall of the tire. If a lower recommendation applies to the rim, inflate to the lower value.

**⚠ WARNING: Excess air pressure can cause the tire to explode off the rim, causing permanent hearing loss or, if riding, a loss of control. Use a hand pump with a reliable pressure gauge and do not overinflate.**



**FIGURE 1.3**  
Function test for the handlebar and stem

Make sure the wheels are straight. Turn the wheel and check the rim when it goes through the brake-pads or the frame. The rim should not wobble up and down or from side to side.

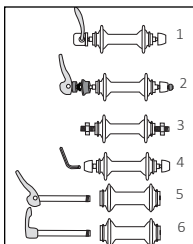
Make sure the wheels are attached correctly. Lift your bicycle and hit the top of the tire with a solid blow (Figure 1.4). The wheel should not come off, be loose, or move from side to side.

Your bicycle may use one or more systems to attach the wheels to the frame: threaded axle nuts, a lever-actuated quick-release mechanism, or a thru-axle (Figure 1.5). For instructions about adjustment and closure of the wheel attachment devices on your bicycle, see Chapter 3.

**⚠️ WARNING: A wheel attachment device that is not correctly adjusted and closed can allow the wheel to be loose or come off, suddenly stop the wheel, decrease your control, and cause you to fall. Follow the instructions in Chapter 3 to make sure the wheels are correctly attached before you ride your bicycle.**



**FIGURE 1.4**  
Test for loose condition



**FIGURE 1.5**  
Wheel attachment types:  
1. Traditional quick-release  
2. Clix  
3. Nutted axle  
4. Threaded skewer  
5. OCC thru-axle  
6. DT RWS

**✓ Check the Brakes**

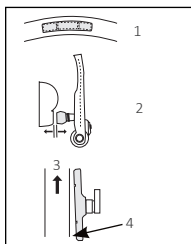
Use the inspection instructions for the type of brake(s) on your bicycle:

- Hand-rim brake
- Disc brake
- Internal hub brake
- Coaster brake

**⚠️ WARNING: A brake system that has damage or is not adjusted correctly could decrease your control and cause you to fall. Make a full inspection of the brakes before each ride. If your brakes do not operate correctly, do not ride your bicycle. Adjust the brakes or take your bicycle to your dealer for service.**

*Hand-Rim Brake:* a cable connects a hand lever to the brake. The lever causes the brake-pads to apply pressure to the rim.

Pull the lever to make sure the brake moves freely and stops your bicycle. If the lever can be pulled to the handlebar, the brake is too loose. The brake-pads should be in alignment with the rim surface (Figure 1.6). When the brake is not applied, the brake-pads should be 1 to 2 mm from the rim. If the brake-pads are too near the rim, the brake is too tight.



**FIGURE 1.6**  
Brake pad alignment  
1. Brake-pad in alignment with rim surface  
2. Pad and rim should be parallel, with 1-2 mm clearance  
3. Direction that the rim turns  
4. 0.5-1.0 mm toe-in



**Disc Brake:** a cable or hydraulic hose connects a hand lever to the brake. The lever causes the brake to apply pressure to a disc attached to the wheel hub.

**⚠ CAUTION: A disc brake and disc get very hot during use and could burn skin. Also, the disc edges can be sharp and could cut skin. Do not touch the disc or disc brake when hot or when the disc turns.**

Pull the lever to make sure the brake moves freely and stops your bicycle. If the lever can be pulled to the handlebar, the brake is too loose. When the brake is not applied, the brake-pads should be 0.25-0.75 mm away from the disc. If the pads are too near the disc, the brake is not in alignment or the brake is too tight. With a hydraulic brake system, there should be no leaks of brake fluid.

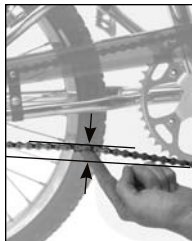
**Internal Hub Brake:** a cable connects a hand lever to a mechanism inside the hub.

**⚠ WARNING: An internal hub brake gets very hot during use and could burn skin. Do not touch the hub or cooling fins when hot.**

If more than 15 mm (5/8") of lever movement is necessary to stop your bicycle, the brake is too loose. If less than 7 mm of lever movement stops your bicycle, the brake is too tight.

**Coaster Brake:** when you move the pedals to the rear, the brake engages.

The brake should engage before the crankarms turn 60 degrees (1/6 turn). The chain operates the brake, so make sure the chain has the correct tension so that it can not come off. There should be between 1/4 to 1/2" (6-12 mm) total vertical movement of the chain (Figure 1.7).



**FIGURE 1.7**  
Test for chain tension

### ✓ Check the Suspension

Adjust your suspension for your use, and make sure that no suspension component can "bottom-out," or be fully compressed. Complete suspension adjustment instructions are available on our web site.

### ✓ Check the Lights and Reflectors

Make sure all reflectors are clean and in their correct position. Also make sure the reflectors are not covered or obstructed by anything on your bike.

Make sure the lights operate correctly and that batteries are charged. If the lights use a dynamo, make sure the dynamo is mounted correctly and cannot move.

Some countries, localities, or governments have specific requirements for lights, such as colors or types. Check before traveling with your bicycle.

**⚠ WARNING: A bicycle without correct lights and reflectors might be difficult for other people to see, and you might not be able to see. If you can not see, or other people can not see you, you could have an accident. In low visibility conditions, use a front light, a rear light, and reflectors.**

## Rules to Ride Safely

### Local Bicycle Laws

Most state and local areas have special laws for bicycle riders. Obey these laws. The requirements for items such as lights and reflectors change between areas. To learn what is required where you ride, consult your local bicycle club or the Department of Transportation (or the equivalent).

These are some of the more important rules:

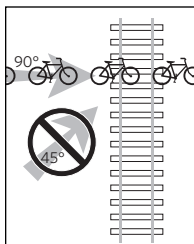
- Use correct hand signals.
- Ride one at a time (single file) when you ride with other bicycle riders.
- Ride on the correct side of the road; Do not ride in the opposite direction of traffic.
- Ride defensively; be prepared for all situations.

### Cars, Pedestrians, and Other Obstacles

A bicycle rider can be hard to see, and many people do not know the rights and special considerations of a bicycle rider.

If a car suddenly moves into your lane, a pedestrian steps in front of you, or someone opens the door of a parked car, you could be in an accident. Attach a horn or bell to your bicycle and use it to tell other people that you are near.

Look for potholes, drain grates, soft or low shoulders, other deviations, or debris which could cause an impact to your wheels, cause your wheels to slide, or cause you to lose control. When you go across railroad tracks or drain grates, ride carefully at a 90° angle (Figure 1.8). If you are not sure of the surface conditions, walk with your bicycle.

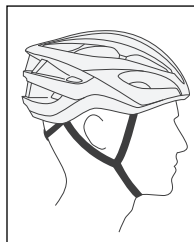


**FIGURE 1.8**  
Ride across tracks at a 90° angle

### Bicycle Helmet and Clothing

Wear a helmet that complies with CPSC or CE safety standards (Figure 1.9); it can decrease or prevent injury. Remove your helmet when you are not on your bicycle; if the helmet is caught, you could choke.

Wear bicycle clothing and shoes, eye protection, and gloves. Also wear light, bright, and reflective clothing to make you more easy to see, especially at night. Do not wear clothing that is loose; it could get caught in the chain, wheels, or other parts of the bike.



**FIGURE 1.9**  
Wear a bicycle helmet when you ride

### Riding in Weather

In wet weather, the stopping power of your brakes will decrease. Even with brakes that are correctly adjusted and serviced, more lever pressure and longer distances are necessary to stop in wet weather.

Wet weather causes decreased traction. The road surface can become slippery and ordinary objects can become treacherous, such as wet leaves, painted crosswalks, or manhole covers. When wet surfaces freeze, traction is decreased further.

Bad weather has other effects on cycling. Water on the tire can cause a dynamo (generator light) to slip and lose power. Strong winds can make a bicycle turn inadvertently, especially with tall or deep rims.

**⚠ WARNING: Wet or inclement weather can make a bicycle difficult to control. Decrease your speed and use extra caution, or use other types of transportation.**





## Be Seen (Especially at Night)

Your bicycle has a full set of reflectors. Inspect them before every ride.

However, reflectors do not make you easy to see unless light is pointed at them. Reflectors do not help your vision, but good bicycle lights can. If you ride at dusk, at night, or in low-visibility conditions, consult your dealer to find equipment or materials that help your vision and that meet local requirements.

**⚠️ WARNING: When you ride in low-visibility conditions such as fog, dusk, or night, you might be difficult to see, which could lead to an accident. Use a front light and rear light when you ride in conditions with low light or low visibility.**

## Think Safety

You can prevent many bicycle accidents if you use common sense and think about safety. Here are some examples:

- Check your bike before every ride.
- Do not ride 'no hands.'
- Do not ride with a loose object or pet (or its leash) attached to the handlebar or other part of your bicycle.
- Do not ride while intoxicated or while you use medications which can make you drowsy.
- Do not 'ride double.' Most bicycles are designed for only one rider.
- Do not ride above your skill level.
- Do not ride abusively. Ride in the Use Conditions specified for your bicycle type.
- Ride carefully when off-road. Ride only on the trails. Do not ride over rocks, branches, or depressions. When you approach a descent, decrease your speed, move your weight low and to the rear, and use the rear brake more than the front.
- Avoid riding in large groups. In a big group, you may be forced to ride close to other riders. This proximity can make it difficult for you to see; you may not see road

hazards, and you will have very little time to react to those that you do see. When another rider is close, a sudden change in direction or speed can cause you to lose control of your bicycle. Also, large groups of cyclists can cause problems for other users of the roadway.

- Do not ride too fast. Higher speed creates higher risk. Your wheels might slide or a small bump could cause an impact to your frame or fork. Higher speed results in higher forces if a crash occurs. Control your bicycle at all times.  
For children, the limit of speed is much lower. This is especially true of bicycles equipped with training wheels.

**⚠️ WARNING: Training wheels prevent the regular lean of a bicycle when the rider makes a turn. If the child turns too quickly, the bicycle can fall. With training wheels, do not permit children to ride fast or turn suddenly.**

**⚠️ WARNING: You add to your risk of injury when you use your bicycle in an incorrect manner:**

- Jump your bicycle
- Ride over sticks, debris, or other obstacles
- Do bicycle stunts
- Ride in severe off-road terrain
- Ride fast, in competition, or "downhill"
- Ride in an unusual manner

**These are examples of misuse that add to the stress on each part of your bicycle. High stress can cause the frame or a part to break and increases your risk of injury. To decrease your risk of injury, use your bicycle correctly.**

## Riding Instructions

This section explains the basics of riding technique.

### Braking

Always ride with a safe distance between you and other vehicles or objects; use your brakes. Adjust distances and brake forces for the conditions in which you ride.

#### Coaster brakes

Parents should explain this to a child. If your bicycle has a “coaster brake” activated by the pedals, you apply the brake by pedalling backwards. To apply the greatest force, the crankarms should be horizontal when you apply the brake. The pedal will rotate before the brake starts to work, so start to apply the brake with the rear pedal slightly higher than this position (Figure 1.10).

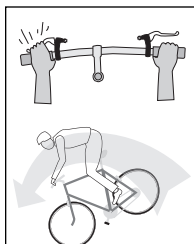


**FIGURE 1.10**  
Position for initiating the application of a coaster brake

#### Hand brakes

Bicycles are made so that the left brake-lever controls the front-wheel brake. To change this, see Chapter 3.

If your bicycle has two hand brakes, apply both brakes at the same time. Over-use or incorrect



**FIGURE 1.11**  
Do not over-use the front-wheel brake; the rear wheel can lift and cause you to lose control

use of a front-wheel brake could cause the rear wheel to lift from the ground which could decrease your control (Figure 1.11).

**⚠ WARNING: Brake force applied to the front-wheel suddenly or too fully could lift the rear wheel off the ground or cause the front wheel to slide out from below you. This could decrease your control and cause you to fall. Apply both brakes at the same time and move rearward on your bicycle.**

### Shifting

You should change to the gear combination that is most comfortable for the conditions, a gear that lets you to pedal at a constant rate. There are two shifting systems: derailleur (external) and internal.

#### To change gears with a derailleur

The left shift-lever controls the front derailleur and the right shift-lever controls the rear derailleur. Use only one shift-lever at a time. Change gears only when the pedals and chain move forward. Do not change gears when you ride over bumps; the chain could jam, miss a gear, or fall off. If the chain jams or falls off, it could cause you to lose control and fall.

When you change gears, decrease the force on the pedals. Lower chain tension helps the chain change gears quickly and smoothly. This can decrease chain and gear wear, and help prevent bent chains, derailleurs, or chainrings.

Do not ride with the chain in the “cross-over” position. If you shift the chain so that it crosses from the biggest sprocket to the biggest sprocket (also, the smallest sprocket to the smallest sprocket), the chain is placed at an extreme angle. This angle causes the chain and gears to run roughly, and will also cause the components to wear at a faster rate.



A movement of the shift-lever from one position to the other position (or movement of the shift-lever to the “shift” position) will promptly move the chain to a different gear.

With Shimano STI road shift-levers and three chainrings, “hold” the front shift lever for a moment before you release it. This is most important when you change gears from the smallest chainring to the middle chainring.

Some front shift-levers have a ‘tab.’ Slightly move the lever to a lower gear and the derailleur will move in slightly so the derailleur does not touch the chain.

### **To change gears with internal gears**

To change gears, coast (do not pedal). Tension on the chain prevents the correct operation of the gear change mechanism and could damage the mechanism.

## **Pedal Systems**

If your feet are secured to the pedals, the connection can allow you to pedal more efficiently, apply greater power to the pedals, and increase your control of the bicycle. Some bicycles are equipped with one of these systems:

- Toe-clips and straps attach your feet to the pedals with a strap and a locator (toe clip), which wraps up and in front of your toes.
- Clipless pedals use a spring-loaded mechanism to engage a cleat, a small plate attached to the bottom of a special cycling shoe.

If you choose to ride with one of these systems, only wear shoes that are compatible with that system. Practice entry and exit from the pedal before you ride. Keep the pedals and your shoes clean and free of debris that could interfere with the pedal system. Make sure any release mechanism operates correctly, and adjust it for your riding.

If you are not familiar with the pedals or the correct procedures, read the information that came with the pedal system, or consult your dealer.

**⚠ WARNING: A pedal system that operates incorrectly could cause your feet to become trapped or allow your feet to release from the pedal unexpectedly, causing you to lose control. Before riding, make sure you are familiar with the pedal system and that the pedal system operates correctly.**

## **Repair Items**

When you ride, include a pump, a spare inner tube, patch kit, and tools so you can repair your bicycle if it has a punctured tire or other mechanical problem. If you ride at night, include spare bulbs and batteries for your lights.

## **Children**

If you choose to allow your child to ride on a bicycle or in a carrier or vehicle attached to a bicycle, you must exert extra vigilance to ensure the child’s safety. If you are attaching a child seat or trailer to YOUR bicycle,, make sure your bicycle is suitable for the attachment of accessories.

Children are not trained to recognize hazards and may not respond correctly in an emergency situation. Never allow a child to ride without supervision. Never leave a child unattended in a child carrier or trailer. Always make sure the child wears protective gear, especially an approved helmet.

It is particularly important that you inspect your child’s bike frequently for damage. Pay extra attention to the grips or handlebar coverings. In the event of a crash, an exposed handlebar end presents a puncture hazard.

**⚠ WARNING: A handlebar end that is not plugged or covered can cut in a crash. Parents should regularly inspect a child’s bike and replace damaged or missing grips.**

# Safeguard Your Bicycle

## Theft

Purchase and use a lock that resists bolt cutters and saws. Do not park your bicycle unless it is locked. Also, get a licence for your bicycle from your local police department.

## Write down your serial number

Write the serial number of your bicycle in the front of this manual, and put the manual in a safe location. Then, complete our on-line registration; we will keep the serial number on file.

## Parking

When you complete a ride, put your bicycle in a location where it will not be an obstruction and it has protection from dangerous conditions. Do not park your bicycle near electric motors; ozone from motors can cause damage to rubber and paint. Rain or snow can cause the metal on your bicycle to corrode. Ultraviolet radiation from the sun can fade the paint and crack the rubber or plastic on your bicycle.

Make sure your bicycle can not fall. A fall could cut the handlebar grip or cause damage to the saddle. Incorrect use of a bicycle rack could bend your wheels. Do not set your bicycle on its derailleurs. The rear derailleur could bend or dirt could get on the drivetrain.

Before you put away your bicycle for an extended time, clean and service it and apply frame polish. Hang your bicycle off the ground with the tires at approximately half the recommended inflation pressure. Before you ride your bicycle again, be sure it operates correctly.

## Cleaning

If your frame or a component is dirty, clean it with a soft, moist cloth and bicycle cleaner or a solution of dish soap and water. Do not use industrial solvents or harsh chemicals because they can cause damage to the paint or moving parts.

Each three months, clean and polish the frame finish. Some finishes do not require polish. If you are not certain, consult your dealer.

## Incidental Damage

### *Use care with car racks and work stands*

Clamping devices, such as those found on a work stand or car carrier, can cause damage to the paint or tubes of bicycle frames. To hold the bicycle for repairs, clamp the seatpost. To hold the bicycle for transportation on a motor vehicle, clamp the bicycle by the wheels or fork tips.

When removing a bicycle from a device that clamps the fork tips, lift the bike straight out of the clamp. Never tip the bike, because the angled forces from the clamp can bend or damage a fork tip. If you accidentally apply a bending force to the fork tip, do not ride the bike until your dealer has inspected the fork for damage.

### *Package your bicycle carefully when you ship it*

When you package your bike for travel, always use a hard case or carton that will protect your bicycle. Attach pads to all the frame and fork tubes, and use a rigid block to protect the fork tips and maintain structural support of the fork blades. If the bicycle is not packaged correctly, it could be easily damaged in transit. If you are not sure, ask your dealer to package your bicycle for you.

### *Avoid situations that can damage the finish*

The finish, or paint, on your bicycle can be damaged by chemicals (including some sports drinks) or abrasive contact. Dirt can scratch or remove paint (and even frame material), especially where a strap is placed around a tube. Keep the bicycle clean. Use adhesive padding to prevent rubbing in critical spots.



## Warning About Mechanical Work

Special tools and skills are necessary for the assembly and the first adjustment of your bicycle. Only your dealer should do this.

### Incorrect Mechanical Work Can Make Your Bicycle Unsafe

The instructions in this manual are written for a person familiar with bicycle mechanics and who has proper tools. Something as simple as an under-tightened bolt can, over time, cause a part to break, leading to a loss of control and an accident.

We recommend you have your bicycle serviced by your dealer. Your safety depends on the correct maintenance of your bicycle, and your dealer has special training and knowledge.

### Check your Bicycle

After any repair, or after installing an accessory, check your bicycle as shown in the “Before Each Ride” checklist in Chapter 1.

### Modifications to Your Bicycle Can Make it Unsafe

Each and every part of your new bicycle has been carefully chosen and approved. The safety of accessory or replacement parts, and especially how those parts attach and interface with other parts of the bicycle, is not always apparent. For this reason, you should only replace parts with original equipment or parts that are approved. If you are not sure what parts are approved, ask your dealer. Examples of modifications include this partial list:

- Physically altering existing parts (sanding, filing, drilling, etc.)
- Any repairs made to carbon composite structures
- Removing safety equipment such as reflectors or secondary retention devices
- Using adapters for brake systems
- Adding a motor or engine
- Installing accessories
- Changing parts

### Only Install Compatible Parts and Accessories

Not all parts and accessories are compatible or safe, so only add a part or accessory that has the approval of Trek. As examples, clamping any accessory on a carbon composite part can weaken or damage the part, and using incorrect brake pads on a carbon rim can cause the rim to overheat and possibly delaminate. As another example, a child carrier puts weight high on the bicycle, which can make your bicycle less stable (some child carriers are compatible with some Trek bicycles). Always check with your dealer before adding an accessory or making any change to your bicycle.

Some parts are safe when used correctly, but can present a hazard if incorrect. For example, any item attached to the handlebar has the possibility of falling into the wheel front wheel, immediately stopping the front wheel and causing a crash. This presents a special hazard if the part has a cable or strap that attaches it to another item on the bike.



**WARNING: Any modification can make your frame, fork, or part unsafe. A component that is not approved or assembly that is not correct can put high stress on your bicycle or components. A frame, fork, or component with modifications could decrease your control and cause you to fall. Do not sand, drill, file, remove secondary retention devices, install incompatible forks, or make other modifications. Before you add an accessory to your bicycle or change a part of your bicycle, consult your dealer to confirm that it is compatible and safe.**

## Carbon Composite

Pound for pound, carbon composite (carbon fiber) is stronger than steel or aluminum. This has made it very popular with cyclists.

### Reaction to Overload

Despite its high strength, carbon composite can still be overloaded (damaged or broken) in an impact, crash, or through mishandling (see page 11).

In addition, carbon composite behaves differently when it is overloaded. An overloaded metal part will bend or deform before it breaks, showing evidence of the load. But when the load exceeds the strength of carbon composite, the carbon composite does not bend; it breaks (Figure 1.12).

A partially overloaded carbon composite part will not bend or deform, so a damaged carbon composite part (with reduced strength due to the damage) may look normal—even after a load that would bend the same part in metal. The carbon composite could appear normal but have internal or hidden damage. If you



**FIGURE 1.12**

Overloaded forks:

- Left: metal fork bent when overloaded
- Right: carbon composite fork withstood much higher load, but completely separated when overloaded



**WARNING: Carbon composite can conceal damage from an impact or crash. A carbon composite part that has previous damage can break suddenly, causing serious injury or death. If you suspect your bicycle has had an impact or crash, immediately stop the bicycle. Inspect the part before riding, or take the bicycle to your dealer for service.**

suspect internal or hidden damage, please stop riding your bicycle immediately and take it to your dealer for inspection.

### Tests for Problems

The following tests can be performed to try to diagnose carbon composite damage. However, these tests are not conclusive: If you are not sure a part is safe, replace it.

**Audible test:** Listen to your bike while you ride, especially for creaking, cracking, popping, or unusual sounds.

**Tactile test:** As you ride, look for any degradation in shifting or braking performance, or changes in handling or ride quality.

**Visual test:**

1. Clean the part fully with a moist cloth. Notice if the cloth snags, which could indicate loose carbon composites.
2. Look carefully for possible problems:
  - Scratches or gouges
  - Discoloration
  - Cracks
  - Loose fibers
  - Other surface imperfections

**Flex test:** Do not ride, but use the part in the usual manner while someone carefully checks the part for unusual movement or noise. As an example, to inspect a seatpost, sit on the saddle while someone looks for unusual flex.

**Tap test:** A movie on the owner's manual CD (also available on our web site) shows the tap test:

1. Clean the part fully with a moist cloth.
2. With a coin, tap near the possible damage.
3. Listen carefully for variations in sound. Tap on the part where it is in good condition. Compare the sound. Anything unusual, especially a hollow or dead sound, indicates a possible problem.

### Loyalty Replacement Program

Trek offers a generous Loyalty Replacement program for carbon composite parts that may have been damaged. If you inadvertently damage your carbon composite bicycle or part, or suspect it has damage, visit your authorized Trek dealer to learn more about this program.









## Use Conditions

There are many types of bicycles, and each bicycle type is designed for a specific use, or Use Condition. Your bicycle has a frame sticker indicating its Use Condition. This section explains those conditions and the weight limit: the sum of rider, gear, and bicycle. If you

are not sure of what type of bicycle you have, consult your dealer.

If your use of a bicycle applies more stress than the limit of your bicycle's design, this could reduce the life or cause breakage of the bicycle (or a part of the bicycle).

Condition	Terrain	Weight limit	Bike type or definition
<b>Child Bicycle</b> 	Riding for children. A child should not ride without the supervision of a parent. Children should not ride near slopes, curbs, stairs, drop-offs, or pools; or areas that automobiles use.	80 lb (36 kg)	Maximum saddle height of 635 mm Usually a bicycle with 12", 16", or 20" wheels; a child's tricycle; and includes a trailer bike No quick-release wheel attachment systems
<b>Condition 1</b> 	Riding on a paved surface where the tires are always on the ground.	275 lb (125 kg)	Road bicycle with drop-type handlebar Triathlon, time trial, or speed bicycle
		300 lb (136 kg)	Cruiser with large, 26" tires and swept-back handlebar Adult tricycle
		550 lb (250 kg)	Standard pedelec electric-assist bicycle (RIDE+)
			Tandem
<b>Condition 2</b> 	Riding in Condition 1, plus smooth gravel roads and groomed trails with low-angle grades.  Drop-offs of less than 6" (15 cm).	300 lb (136 kg)	Hybrid or DuoSport bicycle with 700c wheels, tires wider than 28c, and flat handlebar:
		Shift 4 model: 350 lb (158 kg)	Urban or City bicycle: hybrid with special equipment such as fenders or a light Some mountain bikes
		275 lb (125 kg)	Cyclocross bicycle: drop-type handlebar, knobby 700c tires, and cantilever or disc brakes:

<p><b>Condition 3</b></p> 	<p>Riding in Conditions 1 and 2, plus rough trails, small obstacles, and smooth technical areas.</p> <p>Jumps should be no more than 24" (61 cm).</p>	<p>300 lb (136 kg)</p>	<p>Any mountain bike that does not have rear suspension is designed for Condition 3. Any mountain bike with short-travel rear suspension is also designed for Condition 3.</p> <ul style="list-style-type: none"> <li>• "Standard," "race," "cross-country," or "singletrack trail" mountain bike with wide, knobby 26", 27.5", or 29" tires</li> <li>• Short-travel rear suspension (3"/75 mm or less)</li> <li>• Mountain-bike pedelec electric-assist bicycle (Superfly RIDE+)</li> </ul>
<p><b>Condition 4</b></p> 	<p>Riding in Conditions 1, 2, and 3; plus rough technical areas and obstacles of moderate height. Jumps should be no more than 48" (120 cm).</p>	<p>300 lb (136 kg)</p>	<p>"Heavy-duty," "technical trail," or "all-mountain" mountain bike with wide, knobby 26", 27.5", or 29" tires, and medium-travel rear suspension (4"/100 mm or more):</p>
<p><b>Condition 5</b></p> 	<p>Riding where you jump, ride at high speeds, ride aggressively on rougher surfaces, or complete jumps on flat surfaces.</p>	<p>300 lb (136 kg)</p>	<p>Freeride," "jumping," or "gravity" bicycle with heavy-duty frames, forks, and components with long-travel rear suspension (7"/178 mm or more)</p> <p>This type of use is very dangerous and puts large forces on a bicycle. Large forces can apply dangerous stress to a frame, fork, or the parts. If you ride in Condition 5 terrain, you should practice safety precautions such as more frequent bicycle inspections and more frequent replacement of equipment. You should also wear comprehensive safety equipment such as a full-face helmet, pads, and body armor.</p>

**⚠ WARNING:** If your use of a bicycle applies more stress than the Use Condition for which it is intended, the bicycle or its parts can have damage or break. A bicycle that has damage could decrease your control and cause you to fall. Do not ride in Use Conditions that apply more stress than the limits of the bicycle. If you are not sure of the limits of the bicycle, consult your dealer.





# Chapter 2: Maintenance

This maintenance schedule is based on normal use. If you ride your bicycle more than average; or in rain, snow, or off-road conditions; do maintenance on your bicycle more frequently than the schedule recommends. If a part malfunctions, check and service it immediately, or consult your dealer. If a part has wear or damage, replace it before you ride your bicycle again.

After initial use, new bicycles should be checked. As an example, cables stretch through use, and this can affect the operation of the shifting or brakes. Approximately two months after you purchase your new bicycle, have your dealer fully check your bicycle.

Even if you did not ride your bicycle much, have your dealer fully service your bicycle each year.

## Suggested Tools List

Not all these tools are necessary for all bicycles.

- Torque wrench with lb•in or Nm gradations
- 2, 4, 5, 6, 8 mm allen wrenches
- 9, 10, 15 mm open-end wrenches
- 15 mm box end wrench
- Socket wrench, 14, 15, and 19 mm socket
- T25 Torx wrench
- No. 1 phillips-head screwdriver
- Bicycle inner tube patch-kit, tire-pump with gauge, and tire levers
- Special high-pressure air-pump for a rear shock or a suspension fork

## Maintenance Schedule

### Check Each Ride

Complete the *Before Each Ride Checklist* in Chapter 1..... 3

### Check Each Week

Clean with a moist cloth..... 10

### Check Each Month

Accessory bolts .....	36
Brakes .....	24-27
Cables .....	35
Chain .....	36
Apply lubricant .....	40
Derailleurs .....	21-22
Apply lubricant .....	41
Frame and fork.....	37-39
Suspension fork bolts.....	36
Apply lubricant .....	41
Rear suspension bolts .....	36
Headset bearing adjustment .....	35
Internal gear system .....	23
Pedals.....	36
Reflectors.....	36
Rims for wear .....	28
Seatpost bolts .....	19-20
Shift-lever operation.....	23
Spokes.....	28
Stem bolts .....	17-18
Training wheels .....	35
Wheel bearing adjustment .....	28

### Check Each Three Months

Apply lubricant to brake-levers .....	41
Apply lubricant to brake arm fixing bolts. 41	
Bottom bracket .....	35
Clean and polish finish.....	10
Crankarms .....	35

### Each Year

Apply lubricant to handlebar stem.....	40
Apply lubricant to seatpost .....	40
Apply lubricant to wheel quick-releases .. 41	
Replace grease: bottom bracket bearings.....	40
Replace grease: headset bearings.....	41
Replace grease: pedal bearings .....	40
Replace grease: pedal threads .....	40
Replace grease: wheel bearings .....	41
Replace grease and oil: suspension forks .. 41	

## Chapter 3: Inspection and Adjustment

This chapter gives instructions for inspection and adjustment of the parts of a bicycle. The inspections in this chapter are in addition to those listed in Chapter 1. Before doing any work on your bike, read the section *Warning About Mechanical Work* on page 11.

**⚠ WARNING: A bicycle that malfunctions could decrease your control and cause you to fall. Fully check all of your bicycle before each ride. If there is a problem, do not ride your bicycle: repair your bicycle or take it to your dealer for service.**

### A Word about Torque Specifications

Torque is a measure of the tightness of a threaded fastener (screw or bolt). The torque is often written on or near the bolt (on the part). If the part does not have a specification on it, check this manual or the CD, or ask your dealer.

#### Use a torque wrench

Make sure you do not apply too much torque, which can cause damage or break the part. However, a screw or bolt that is too loose can also lead to damage and could cause a part to break. A torque wrench (Figure 3.1) provides a precise measurement of the amount of torque.



**FIGURE 3.1**  
Torque wrench

**⚠ WARNING: A fastener that is either too loose or too tight can cause damage or break a part. Use a torque wrench to correctly tighten a part, or take the bicycle to your dealer for service.**

#### Check the function of the part

After you use the torque wrench, perform the tests in Chapter 1 and in this chapter. If a part does not have the correct function when it is tightened to the recommended torque, take your bicycle to your dealer for service.



## Handlebar and Stem

The position of the handlebar is important for control and comfort. You hold the handlebar to steer the bicycle. The handlebar is connected to the fork by the stem. Each month check all the bolts of the stem.

**⚠ WARNING: Overtightening of stem bolts can cause damage to the steerer of the fork, possibly causing it to break. If the steerer breaks, you could fall.**

### Handlebar plugs

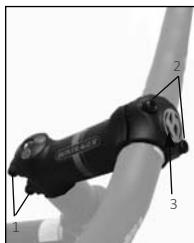
Make sure the ends of the handlebar are covered properly. The end covers may prevent the handlebar from cutting the rider in the event of a fall or crash.

### Stem types

There are two types of stems:

- Direct-connect (Figure 3.2)
- Quill-type (Figure 3.3)

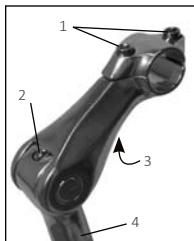
Some of the following information applies to just one stem type, and some of it applies to both stem types. Read through this entire section on stems to make sure you have found all the information for your stem.



**FIGURE 3.2**

Direct-connect stem

1. Steerer-clamp bolts
2. Handlebar-clamp bolts
3. Face plate



**FIGURE 3.3**

Adjustable-rise quill stem

1. Handlebar-clamp bolts
2. Expander bolt
3. Angle adjustment bolt (not on all stems)
4. Quill

### To adjust the angle of the handlebar (direct-connect or quill stem)

1. Loosen the handlebar-clamp bolt(s) on the stem (Figure 3.2 or Figure 3.3).
2. Move the handlebar. Make sure it is in the center of the stem.
3. Make sure the top and bottom gaps between the face plate and stem (Figure 3.2) are even on both sides.
4. Tighten the handlebar-clamp bolt(s) on to the specifications on the stem, or for your type of stem, tighten to:
  - Welded: 100-120 lb•in (11.3-13.6 Nm)
  - Forged: 150-180 lb•in (17-20.3 Nm)

### To adjust the height of the handlebar (direct-connect stem)

To adjust the height of the handlebar with a direct-connect stem, the headset bearing must be adjusted. Special tools and training are necessary for bearing adjustment, so only your dealer should do this.

If you choose to move the spacers in the headset assembly, follow the requirements on the next page. Do not add spacers, because the stem will no longer clamp the steerer correctly.

### To align a direct-connect stem

1. Loosen the steerer-clamp bolts two to three turns.
2. Align the stem with the front wheel.
3. Tighten the steerer-clamp bolts to the specifications on the stem, or to 100-120 lb•in (11.3-13.6 Nm).

### Minimum spacers with a direct-connect stem

On a bicycle with a direct-connect stem, there must be at least one 5 mm spacer under the stem (in addition to the bearing cover).

On a bicycle with a carbon composite steerer, there must also be at least one 5 mm spacer above the stem (Figure 3.4). If you do not know what type of steerer is on your bicycle, consult your dealer.

**⚠ WARNING: An incorrect headset and stem assembly or missing spacers can cause damage to the steerer of the fork, possibly causing the steerer to break. If the steerer breaks, you could fall.**



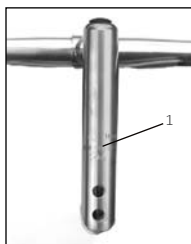
**FIGURE 3.4**  
Required spacers above and below a direct-connect stem

### To align or adjust a quill-type stem

To adjust the height of an adjustable-rise stem, first change the stem angle (see the next section), which gives access to the expander bolt. The expander bolt holds the stem wedge, which secures the stem in the fork.

1. Loosen the expander bolt two to three turns.
2. Tap the top of the expander bolt to loosen the wedge. Use a mallet that has a wood or plastic face.
3. Adjust the handlebar to the necessary height, but the minimum-insertion mark must be in the frame (Figure 3.5).
4. Tighten the expander bolt to the specifications on the stem or to 120 lb•in (13.6 Nm).

**⚠ WARNING: A quill stem that is too high can cause damage to your bicycle, decrease your control, and cause you to fall. Make sure the minimum-insertion mark (Figure 3.5) is in the frame.**



**FIGURE 3.5**  
Minimum-insertion mark on quill stem

1. The bicycle frame should hide this line.

A minimum of 2 3/4" (70 mm) of the stem quill should always be in the frame.

### To change the angle of an adjustable-rise stem (quill or direct-connect)

There are several types of adjustable stems. For illustrations, see the Owner's Manual CD.

1. Loosen the angle adjustment bolt until the stem angle can be changed.
2. Move the stem to the necessary angle.
3. Tighten the angle-adjustment bolt to the specifications on the stem or to 150-170 lb•in (17-20.3 Nm).



## Saddle (seat) and Seatpost

The saddle supports most of your weight on the bicycle. It also controls the extension of your legs and the fore-aft position of your body on the bicycle.

The saddle is connected to the frame by the seatpost and seatpost clamp bolt (Figure 3.6). The seatpost and saddle clamp bolts control the adjustment of the saddle. Each month check the saddle clamp bolt(s) and the seatpost clamp bolt.



**FIGURE 3.6**

Seatpost parts

1. Saddle-clamp bolts
2. Seatpost
3. Seatpost binder bolt

With correct adjustment, your bicycle saddle will be comfortable—even for long rides. Adjust the saddle angle to your preference. First, try to ride with the top of the saddle parallel to the ground. For bicycles with rear suspension, move the nose of the saddle down slightly; when your body weight compresses the rear shock, the saddle will be level.

**⚠ WARNING: A saddle that is adjusted incorrectly or does not correctly support your pelvic area can cause injury to your nerves or blood vessels. If your saddle causes pain or numbness, adjust the saddle position. If your saddle still causes pain or numbness, consult your dealer about a change in your position or a saddle that is more comfortable.**

## Saddle rail design and springs

Saddle rails vary in materials and diameter. If you choose to replace a saddle or seatpost, make sure they fit correctly together.

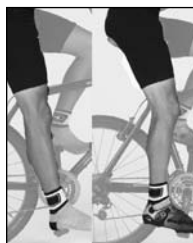
Some saddles have exposed coil springs. If you attach a child carrier to the rear of the bicycle, exposed springs could injure a child's fingers. Cover the springs or use a saddle that does not have springs.

**⚠ WARNING: An incorrectly positioned seatpost or incorrect clamp design can break the saddle rails or the saddle-clamp bolt, and cause you to fall. Only clamp the flat portion of the saddle rails in the saddle-clamp.**

### *To adjust the height of the saddle*

Do not close the seatpost binder with the seatpost out of the frame.

1. While someone holds the bicycle, sit on the saddle without shoes.
2. Loosen the seatpost binder bolt or move the quick-release lever to the OPEN position.
3. With the crank arms parallel to the seat tube, put your heel on the bottom pedal. Extend the seatpost until your extended leg is straight (Figure 3.7).
  - When you wear shoes there should be a small bend in your knee with the ball of your foot on the pedal.



**FIGURE 3.7**

Leg extension with correct saddle height

4. Make sure the minimum-insertion mark on the seatpost (Figure 3.8) can not be seen above the bicycle frame.
5. Move the quick-release lever to the CLOSE

position, or tighten the seatpost-clamp bolt to the specification on the seatpost clamp, or 40-60 lb•in (4.5-6.8 Nm) for a 5 mm bolt, or 60-80 lb•in (6.8-9 Nm) for a 6 mm bolt.

**⚠ WARNING: A seatpost that is too high can cause damage to your bicycle, decrease your control, and cause you to fall. Make sure the minimum-insertion mark (Figure 3.8) is in the frame.**



**FIGURE 3.8**  
Minimum-insertion mark on seatpost  
1. The bicycle frame should hide this line

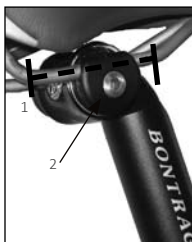
### To adjust the angle of the saddle or fore-aft position

The saddle can be moved forward or rearward along the seatpost to add comfort and to adjust the distance from the handlebar, but the flat portion of the rails (Figure 3.9) must remain completely within the saddle-clamp.

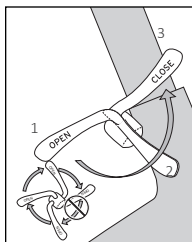
- Loosen the saddle-clamp bolt (Figure 3.9) until the saddle can be moved.
  - Some seatposts use two bolts. To make the adjustment, loosen one bolt and then tighten the other bolt.
- Put a straight edge, bubble level, or ruler across the top of the saddle to better see the angle of the saddle.
- Adjust the saddle and tighten the saddle-clamp bolt(s) to the specification on the seatpost. For an unmarked seatpost, select your type of seatpost:
  - One bolt that uses a 13 or 14 mm open-end wrench: 180-220 lb•in (20.3-24.9 Nm)
  - One bolt across the seatpost head that uses a 5 mm allen wrench (Figure 3.9): 120-130 lb•in (13.6-14.7 Nm)
  - One bolt that uses a 6 mm allen wrench: 150-250 lb•in (17-28.3 Nm)
  - Two bolts that use a 5 mm allen wrench: 80-125 lb•in (9.6-14.1 Nm)

### To adjust the quick-release clamp tightness

- Move the lever of the quick-release to the adjustment position (Figure 3.9), and tighten the adjustment-nut on the other side of the seatpost clamp until it is slightly tight.
- Lock the quick-release; with the lever in the palm of your hand, move the lever as shown in Figure 3.10 to the CLOSE position. When you move the lever to the adjustment position, you should feel some resistance.
  - Do not turn the lever like a wing-nut to tighten it (Figure 3.10); this will not make sufficient force to hold the wheel.
- If you can close the lever with little or no resistance, the clamp-force is not sufficient. Go back to Step 1 and tighten the adjustment-nut.
- Align the lever so that it does not touch any part of the bicycle or an accessory part.
- Test the security of the seatpost as explained in the *Before Every Ride Checklist*. If the seatpost clamp fails the test, repeat these instructions, or take your bicycle to your dealer for service.



**FIGURE 3.9**  
Seatpost and saddle rails  
1. Flat portion of the saddle rails  
2. Saddle-clamp bolt



**FIGURE 3.10**  
Correct lever movement and lever positions  
1- Released (OPEN)  
2- Adjustment position  
3- Locked (CLOSE)



## Deraillleurs

A derailleur shifts gears by pushing the chain from one cog or chainring to the next. These instructions are written for standard, cable-operated deraillleurs. For electronic systems, visit the manufacturer's website.

### Front Derailleur

With bicycles that have more than one chainring, the front derailleur moves the chain to change gears.

Each month, or after any adjustment, check the front derailleur. Change gears to all the gear combinations and check these items:

- The chain should not come off .
- The chain should line up smoothly with each chainring and not rub the chain.
- The derailleur cage should not rub the crankarm.

#### *To adjust the small-chainring position*

1. Move the chain to the smallest front chainring and the largest rear cog.
2. Loosen the cable-clamp bolt (Figure 3.11) until the cable is free.
3. Turn the low-gear limit-screw (identified with an "L") until the inner chain-guide of the derailleur is approximately 0.5 mm from the chain.
4. If there is a barrel-adjuster on the shift-lever or the down tube of the frame, turn the barrel-adjuster fully clockwise.
5. Pull on the cable end, and move the left shift-lever to the small-chainring position.
6. Put the cable in the groove found near the cable-clamp bolt. Pull the cable tight and tighten the clamp bolt to 44-60 lb•in (5.0-6.8 Nm).

#### *To adjust the large-chainring position*

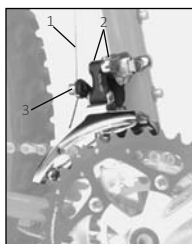
1. Move the rear derailleur to the smallest rear cog.
2. Turn the high-gear limit-screw (identified with an "H") counterclockwise until it can not stop the movement of the derailleur.
3. Turn the crankarms with your hand. Use the shift-lever to carefully move the chain

to the outside chainring.

4. Move the outer chain-guide so that it is approximately 0.5 mm from the chain.
5. Tighten the high-gear limit-screw until it resists. If you have turned the screw too far, the front derailleur will rub on the chain or move the chain to a smaller chainring.

#### *To adjust the middle-gear position (with three chainrings)*

1. Move the chain to the largest front chainring and the smallest rear cog.
2. Turn the cable barrel-adjuster (on the down tube, the cable housing, or on the lever) to change the cable tension and align the inner cage of the derailleur until it touches the chain.



**FIGURE 3.11**

Front derailleur

1. Cable
2. Limit-screws
3. Cable-clamp bolt

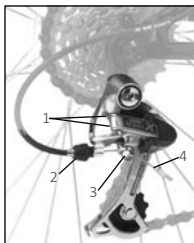
## Rear Derailleur

On bicycles with more than one cog on the rear wheel, the rear derailleur moves the chain to change gears.

Each month, or after any adjustment, check the rear derailleur. Change gears to all the gear combinations to make sure the chain smoothly lines up with each of the rear cogs. Make sure the chain does not come off when you change gears.

### To adjust the small-cog position

1. Move the chain to the smallest rear cog and the largest front chainring.
2. Loosen the cable-clamp bolt (Figure 3.12) until the cable is free.
3. Move behind the bicycle to see that the smallest rear cog, the chain, and both derailleur pulleys are in alignment.
4. If they are not in alignment, turn the high-gear limit-screw (usually identified with an "H") until they are in alignment.
5. While you pull on the cable, move the shift-lever to the small-cog position.
6. On the shift-lever or down tube, turn the barrel-adjuster fully clockwise. On the rear derailleur, turn the barrel-adjuster fully clockwise, then turn it one turn counterclockwise.
7. Put the cable into the clamp-bolt groove on the rear derailleur, pull the derailleur cable tight, and tighten the cable-clamp bolt to 44-60 lb•in (5.0-6.8 Nm).



**FIGURE 3.12**

Rear derailleur

1. Limit-screws
2. Barrel-adjuster
3. Cable-clamp bolt
4. Cable

### To adjust the large-cog position

1. Turn the low-gear limit-screw on the rear derailleur (usually identified with an "L") counterclockwise until the derailleur can move freely.
2. Carefully move the chain to the smallest front chainring and the largest rear cog. Do not move the rear derailleur too far. The chain can be caught between the large cog and the spokes.
3. Move the rear derailleur pulleys in alignment with the largest cog.
4. Turn the low-gear limit-screw clockwise until it does not turn easily. If you have turned the screw too far, the derailleur will move to the outside of the bicycle.

### To align the index system

1. Move the chain to the largest front chainring and the smallest rear cog.
2. Move the rear shift-lever for one click.
3. Make sure the chain moves smoothly to the second-smallest gear. If the chain makes too much noise or does not change gears, slightly turn the barrel-adjuster. Change the gear again and make sure the change is smooth. If the chain moves to the third smallest gear, turn clockwise the barrel-adjuster until the derailleur pulleys align with the second-smallest gear.

**Note:** If the derailleur can not be adjusted correctly, the derailleur hanger could be out of alignment. Take your bicycle to your dealer for service because only your dealer should adjust the hanger alignment.





## Internal Gear Systems

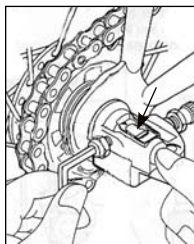
These systems change gears with a mechanism that is in the rear hub. Each month, check the internal gear system.

### To adjust a 3-speed system

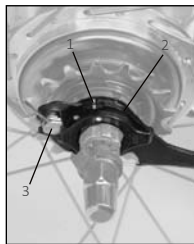
1. Turn the shift-lever to the second-gear position.
2. Check the alignment. The line on the push rod should align with the indicator on the bell crank window (Figure 3.13). To change the alignment, turn the barrel-adjuster.
3. Move the shift-lever to first gear. Then move the lever to second. Check the adjustment.

### To adjust a Nexus 4, 7, or 8-speed system

1. Turn the shift-lever to the fourth-gear position.
2. Check the indicator on the rear-hub pulley (Figure 3.14) with the cog joint bracket. If the red lines are not in alignment, turn the barrel-adjuster until they are in alignment.
3. Move the shift-lever to first gear. Then move the lever to fourth gear. Check the adjustment.



**FIGURE 3.13**  
Three-speed rear hub  
1. Bell crank window



**FIGURE 3.14**  
Nexus rear hub  
1. Pulley  
2. Cog joint bracket  
3. Cable-clamp bolt

## Shift-levers

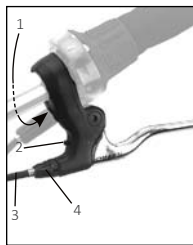
A shift-lever controls a derailleur or internal hub shifting mechanism.

Each month, check that the shift levers are firmly attached to the handlebar. Check the operation of a shift lever by inspecting the derailleur or internal shift mechanism.

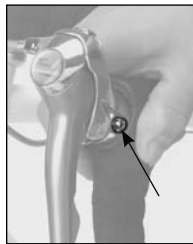
The position of a shift-lever can be adjusted on the handlebar. There are many types of shift-levers; if a shift-lever on your bicycle is not covered here, see the Owner's Manual CD or consult your dealer. Each month check that the shifters are secure on the handlebar.

### To adjust the position of a lever

1. Find the lever-clamp bolt (Figure 3.15 or Figure 3.16).
2. Loosen the clamp bolt two to three turns.
3. Move the lever.
4. Tighten the clamp bolt to 53-69 lb•in (6.0-7.8 Nm).



**FIGURE 3.15**  
Lever-clamp bolt, mountain lever  
1. Lever-clamp bolt  
2. Reach-adjustment screw  
3. Cable  
4. Barrel-adjuster



**FIGURE 3.16**  
Lever-clamp bolt, road lever  
1. Lever-clamp bolt

### Brake-levers

A brake-lever allows you to control a brake. The position of the lever on the handlebar should allow you to use the brake with a minimum amount of effort or movement.

There are several types of brake levers:

- Mountain brake-lever: for flat or mountain-type handlebar (Figure 3.15).
- Road brake-lever: for drop-type handlebar (Figure 3.16).

#### *To adjust the position of a lever*

1. Find the lever-clamp bolt (Figure 3.15 or Figure 3.16).
2. Loosen the clamp bolt two to three turns.
3. Move the lever.
4. Tighten the lever-clamp bolt:
  - Road or mountain brake-lever: 53-69 lb•in (6.0-7.8 Nm).
  - Middle-bar lever: 20-30 lb•in (2.3-3.3 Nm).

#### *To adjust the reach to the brake-lever*

With some brake-levers, you can adjust the reach, the distance from the handlebar to the lever.

1. Find the reach-adjustment screw (Figure 3.15) and turn. To decrease the reach, turn the screw clockwise. To increase the reach, turn the screw counterclockwise.
2. If it is necessary after you adjust the reach, adjust the brake-pad clearance.

#### *To change which lever controls the front brake*

1. Open the brakes.
2. Disconnect the brake cables:
  - For a drop-type handlebar, remove the handlebar tape. Then disconnect each brake cable and fully remove it from the lever.
  - For a mountain bicycle, remove the leaded end of the cable from the lever.
3. Install the cables into the opposite levers.
4. Close the brakes.
  - For a drop-type handlebar, replace the handlebar tape.
5. Check the brakes as shown in Chapter 1, and adjust the brakes as necessary.



## Brakes

The brake system allows you to slow or stop your bicycle. This operation is critical to your safety. The brake system is difficult to adjust without the correct tools and training. It is strongly recommended that only your dealer adjust a brake. If you need more help, consult your dealer.

Only use brake pads designed for your brakes and rims, and make sure the pads are oriented correctly.

The Madone and Speed Concept frames use custom, integrated brakes. Instructions for these brake systems are on the owner's manual CD.

### Types of brakes

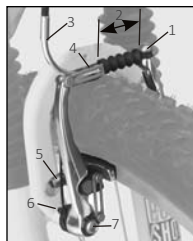
Different types of bicycles have different types of brakes. The brake types can be divided into three types:

- **Rim brake:** brake pads apply pressure to the rim. The pressure is controlled with a hand lever that is connected to the brake by a cable. Examples include direct-pull or V-type brakes (Figure 3.17), cantilever brakes (Figure 3.18), and road or caliper brakes (Figure 3.19).
- **Disc brake:** brake pads apply pressure to a disc mounted to the hub of the wheel (Figure 3.20). The pressure is controlled with a hand lever that is connected to the brake by a cable or a hydraulic hose.
- **Hub brake:** the brake mechanism is inside the hub (Figure 3.21). A hub brake can be controlled by a hand lever (drum brake), or by the pedals (coaster brake).

### Inspection

Before every ride, inspect the brakes as shown in Chapter 1. Each month check all the brake bolts, including any attaching a cable housing stop, and check the brake-pads for worn areas:

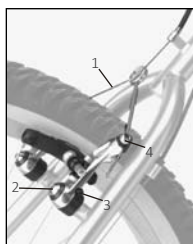
- **Rim brakes:** If the grooves in the brake-pad surface are less than 2 mm deep (or 1 mm deep for direct-pull brakes) replace the brake-pads.
- **Disc brakes:** Replace brake-pads that are thinner than 1.0 mm.



**FIGURE 3.17**

Direct-pull brake

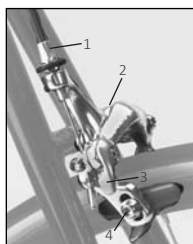
1. Cable-clamp bolt
2. No touch
3. Pipe
4. Link
5. Pad-clamp bolt
6. Center-adjust screw
7. Arm-clamp bolt



**FIGURE 3.18**

Cantilever brake

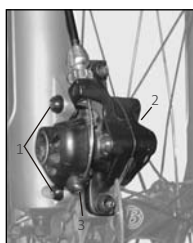
1. Linkwire
2. Arm-clamp bolt
3. Center-adjust screw
4. Pad-clamp bolt



**FIGURE 3.19**

Caliper brake

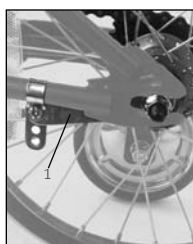
1. Barrel-adjuster
2. Center-adjust screw
3. Brake release lever
4. Pad-clamp bolt



**FIGURE 3.20**

Disc brake parts

1. Attachment bolts
2. Fixed-pad adjuster (on some models)
3. Cable-clamp bolt



**FIGURE 3.21**

Coaster brake

1. Brake arm

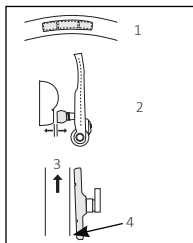
## Rim brakes

The rim brake system includes these parts:

- Brake
- Brake pads
- Rim
- Brake lever
- Brake cable and housing
- Brake modulator- some front direct-pull brakes are equipped with a brake modulator, or "Power modulator." This device includes a small spring in the pipe (Figure 3.17). As you squeeze the brake lever, you must compress the spring before you can apply full braking power to the rim. This changes the way the brake feels, and also makes the adjustment somewhat more sensitive.

### To adjust the alignment of the brake-pads on a rim brake

1. Loosen the brake-pad fixing bolt.
2. Align the brake-pads as shown in Figure 3.22. Tighten the brake-pad fixing bolts:
  - Caliper: 40-60 lb•in (4.5-6.8 Nm)
  - Direct-pull or cantilever: 70-80 lb•in (7.9-9 Nm)
3. After you adjust the brake, check it. Pull the lever. Make sure the cable does not slide through the cable clamp, the brake-pads engage the rim at ninety-degree angles, and the brake-pads do not touch the tire.



**FIGURE 3.22**

Brake pad alignment

1. Brake-pad in alignment with rim surface
2. Pad and rim should be parallel, with 1-2 mm clearance
3. Direction that the rim turns
4. 0.5-1.0 mm toe-in

### To adjust the clearance between the brake-pads and the rim

1. Turn the barrel-adjuster.
  - For most direct-pull (Figure 3.17) or cantilever (Figure 3.18) systems the barrel-adjuster is on the lever. For most road caliper systems (Figure 3.19) the barrel-adjuster is on the brake itself.
  - To increase the clearance between the

brake-pad and rim, turn the barrel-adjuster clockwise. To decrease the clearance, turn the barrel-adjuster counterclockwise.

2. If the brake-pads can not be adjusted correctly with the barrel-adjuster, further work is required:
  - Direct-pull and caliper: Loosen the cable-clamp bolt and attach the cable again.
  - Cantilever: Re-adjust the brake-pad alignment, or take the bicycle to your dealer.

### To put a direct-pull, cantilever, or road brake in the center

1. Turn the center-adjust screw (Figure 3.17 or Figure 3.18) in small increments.
2. If the brake has two center-adjust screws, adjust the overall spring tension while you put the brake in the center.

### To release the brake for wheel removal

- For most road calipers, lift the brake release lever (Figure 3.19) to the UP position. To close, turn the lever to the DOWN position.
- For Campagnolo levers, push the release button that is at the top of the lever. Slightly pull the lever and push the button until it aligns with the lever body. Release the lever.

### To close the brake

Follow the instructions in the opposite sequence.

- For direct-pull brakes, disconnect the pipe from the link (Figure 3.17). With one hand, push the pads fully against the rim. With the other hand, pull the pipe away from the link, and lift the pipe. Release the brake-pads.
- For cantilever brakes, release the linkwire (Figure 3.18). With one hand, push the brake-pads fully against the rim. With the other hand, pull the lead end of the linkwire from the fork on the brake-arm. Release the brake-pads. To close the brake, follow the instructions in the opposite sequence.



## Disc brakes

When the wheel is out of the frame, do not operate the brake lever.

### *To align a hydraulic disc brake*

1. Loosen the brake-attachment bolts (Figure 3.19).
2. Fully pull the lever, and tighten the bolts to 100-110 lb•in (11.3-12.4 Nm).

### *To align a cable-actuated disc brake*

There are three parts to this procedure:

- A. To adjust the clearance between the right brake-pad and the disc
  1. Turn the fixed-pad adjuster (Figure 3.20).
  2. If the pads can not be adjusted correctly in this manner, follow the instructions “To adjust the clearance between the left brake-pad and the disc,” and then adjust the right pad.
- B. To adjust the clearance between the left brake-pad and the disc
  1. Turn the cable barrel-adjuster: clockwise to increase clearance, counterclockwise to decrease clearance.
  2. If the pads can not be adjusted correctly, loosen the cable-clamp bolt and re-attach the cable. Tighten the cable-clamp bolt to 50-70 lb•in (5.7-7.9 Nm).
  3. After adjustment, turn the lock-nut clockwise to make sure the adjustment does not change.
- C. To align the brake with the disc
  1. Loosen the brake-attachment bolts.
  2. Slide a business card or other thin object between the right brake-pad and the disc.
  3. Pull the lever fully, and tighten the bolts to 100-110 lb•in (11.3-12.4 Nm).

### *To remove disc brake-pads*

1. Remove the wheel.
2. With your fingers or pliers, hold the installation tang of the brake-pad and pull out the pad.

## Hub Brakes

A hub brake such as a coaster brake, drum brake, or internal brake usually requires multiple frame attachment and multiple adjustments. Due to this complexity and the importance to your safety of having the brake adjusted correctly, we highly recommend that any adjustment of a hub brake, or removal of the wheel from the frame, only be done by your dealer.

### *To remove the rear wheel with internal or drum brakes*

1. Disconnect the brake cable. Push the cable-carrier arm forward, and the cable-clamp bolt rearward, so the bolt aligns with the larger diameter hole in the carrier.
2. Pull the cable-clamp bolt out to remove it from the carrier. Slide the brake-cable stop forward to remove it from the brake-arm.
3. Loosen the brake-strap bolt.
4. Shift the shift-lever in first gear.
5. Pull the cable-housing out of the gear-cable housing-stop.
6. Turn the gear-cable-clamp bolt until the washer flats align with the slit in the cog joint bracket.
7. Remove the cable.

## Wheels

The wheels hold you up when riding and allow you to roll along smoothly. Their attachment and integrity are important for your safety.

### Inspection

Before every ride, check the wheel attachment and tire inflation as shown in Chapter 1. Bicycles use different types of wheel attachment devices. Carefully follow the instructions for the device(s) on your bicycle.

Whenever you change a tire or tube, make sure a rim strip is in the correct location and it fully covers all spoke holes or nipples so that it protects the inner tube from puncture.

Each month inspect the rims. Make sure rims are clean so that the brakes function correctly. If the wear-indicators on the brake surface show the rim is worn, or if the brake surface is not flat, replace the rim.

**⚠ WARNING: Brake-pads remove rim material when you apply the brake. If the brakes remove too much material over time, the rim can become weak and break, decrease your control, and cause you to fall. Regularly check your rims. Replace a rim that is worn.**

Each month, check tires for a worn area or damage. Make sure there are no loose spokes or spokes with damage so that the wheel remains straight and strong. Make sure the wheel (hub) bearings are correctly adjusted.

#### To check the adjustment of the hub bearings

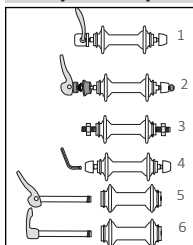
1. Lift the end of the bicycle off the ground with one hand and try to move the rim from the left to the right. Look, feel, and listen for a movement in the bearings.
2. Turn the wheel and listen for a grinding noise or other noises that are not usual.
3. Repeat these procedures for the other wheel.

If the hub feels loose or makes a grinding noise, servicing is necessary. The adjustment of the wheel bearings requires special tools and training. Only your dealer should adjust bearings.

#### Wheel attachment types (Figure 3.23):

- Traditional quick-release
- Clix™ quick-release
- Threaded axle and nut
- Threaded skewer and nut (allen-wrench type)
- OCC (Over-Center Cam) thru-axle (including ABP)
- DT RWS threaded thru-axle

**⚠ WARNING: A quick-release or other wheel attachment device that is not correctly adjusted and closed can cause the wheel to be loose or come off, suddenly stop the wheel, decrease your control, and cause you to fall. Make sure the wheels are correctly attached before you ride your bicycle.**



**FIGURE 3.23**

Wheel attachment types:

1. Traditional quick-release
2. Clix
3. Nuted axle
4. Threaded skewer
5. OCC thru-axle
6. DT RWS

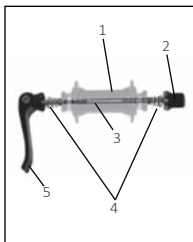


## Over-center cam (OCC) mechanism (quick-release)

A quick-release uses an over-center cam. The cam is inside the lever and the skewer passes inside the hollow axle of the hub (Figure 3.24). With this type of cam mechanism, when you move the lever in the correct motion (Figure 3.25), the cam effectively shortens the length of the skewer. This provides a high clamping force. However, the cam mechanism requires correct adjustment of the tension and correct motion of the lever.

This type of attachment is quick, secure, and requires no tools. This makes it an ideal method of wheel attachment for most cyclists.

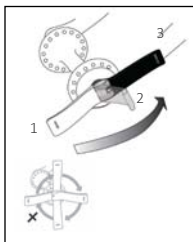
The traditional quick-release design has proliferated into many variations. Each of the



**FIGURE 3.24**

Quick-release parts

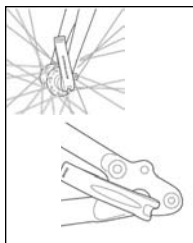
- 1- Hub
- 2- Adjustment nut
- 3- Skewer (inside hub)
- 4- Centering springs (narrow end toward hub)
- 5- Lever



**FIGURE 3.25**

Correct lever movement and lever positions

- 1- Released (OPEN)
- 2- Adjustment position
- 3- Locked (CLOSE)



**FIGURE 3.26**

Front and rear lever positions to avoid catching obstacles

types of lever-operated wheel attachment use an over-center cam. Read these instructions carefully to ensure you are using the over-center cam mechanism correctly. After reading, if you have any questions about the over-center cam on your bicycle, consult your dealer.

### *Position of the lever*

The lever must be in the correct position after it is moved to the CLOSE position. Align the lever so obstacles in the path of the bicycle can not catch the lever (Figure 3.26). Make sure the lever does not touch a bicycle part or an accessory part (such as rack or fenders), which could prevent the over-center cam from closing fully.

Do not simply rotate the lever to achieve the correct position; adjust the assembly according to the instructions. If you need help, take your bike to your dealer and ask them to show you how to do this.

Some bicycles are equipped with a quick-release lever and a disc brake. If the bicycle is ridden with the lever incorrectly adjusted or open, and the lever contacts the disc or wheel (Figure 3.27), the front wheel could stop suddenly, causing the rider to fall. Always make sure your wheels are correctly attached, and the attachment mechanisms closed and locked, before riding the bicycle.



**FIGURE 3.27**

One possible result of not closing the quick-release correctly: lever caught in brake

## Wheel Installation

The method for installing a wheel varies according to the attachment type. It also is slightly different for a front or rear wheel. These instructions discuss a front wheel. Choose the instructions for your wheel attachment type.

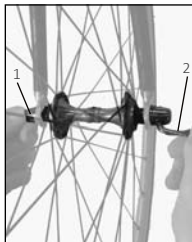
For each type, the wheel (or the disc) must pass by the brake, and a rear wheel must engage the chain. The CD that accompanies this manual explains this more fully.

### To install a wheel with a quick-release

1. Move the lever of the quick-release to the OPEN position (Figure 3.25) and set the wheel so it fully touches the inner surfaces of the fork ends.
2. With the lever in the adjustment position, tighten the adjustment-nut (Figure 3.28) until it is slightly tight.
3. Lock the quick-release; with the lever in the palm of your hand, move the lever as shown in Figure 3.25 to the CLOSE position. When you move the lever to the adjustment position, you should feel some resistance.
  - Do not turn the lever like a wing-nut to tighten it (Figure 3.25); this will not make sufficient force to hold the wheel.
4. If you can close the lever with little or no resistance, the clamp-force is not sufficient. Go back to Step 2 and tighten the adjustment-nut. For more information, read the *Actual Measurements*.
5. Align the levers so they do not touch a part of the bicycle or an accessory part (such as rack or fenders), and so obstacles in the path of the bicycle can not catch the levers (Figure 3.27).
6. Do these tests to make sure you have correctly adjusted and locked the quick-release. If the quick-release does not pass a test, adjust the quick-release again or take your bicycle to your dealer for service. Do the tests again before you ride.
  - Make sure the locked quick-release lever can not be turned (Figure 3.29).
  - Lift your bicycle and hit the top of the tire with a solid blow (Figure 3.30). The wheel should not come off, be loose, or move

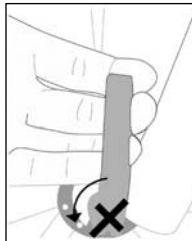
from side to side.

- Make sure the resistance is correct as you move the lever to the CLOSE position.
- When the quick-release is correctly locked, the clamp-force is sufficient to cause metal-into-metal engagement (embossing) of the dropout surfaces.



**FIGURE 3.28**

Tighten nut  
1. Adjustment-nut  
2. Lever



**FIGURE 3.29**

Make sure the lever does not turn



**FIGURE 3.30**

Test for loose condition

### To remove a wheel with a quick-release

1. Release the quick-release lever; move it to the OPEN position (Figure 3.25).
2. For the front wheel, loosen the adjustment-nut; turn it three turns.
3. Move the wheel out of the fork or the frame.

#### **Actual Measurements:**

If more than 45 pounds (200 Newton) force is necessary to lock the lever, slightly loosen the adjustment-nut. If less than 12 pounds (53.4 Newton) force is necessary to release the lever, slightly tighten the adjustment-nut.





### To install a wheel with a Clix

There is a difference between a traditional quick-release and a Clix quick-release (Figure 3.31).

With a traditional quick-release, you should adjust the clamp-force each time you install the wheel. But with the Clix system you should not have to adjust when you install the wheel. Clix is an integrated system that is adjusted to only one fork—to the width of the dropouts (the parts of the fork that hold the wheel).

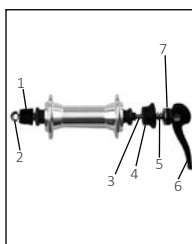
**⚠ WARNING: A Clix is adjusted for only one wheel and fork. A change in bicycle, wheel, or fork could cause the Clix to let the wheel be loose or come off, decrease your control, and cause you to fall. Do not move the Clix to a different bicycle, wheel, or fork without correct adjustment.**

1. With the lever of the Clix quick-release in the OPEN position (Figure 3.32), push together the cup and lever (Figure 3.33) and lower the fork on the wheel until the inner surfaces of the fork ends touch the wheel.
  - Some forks have special dropouts, so you do not have to push together the cup and lever; the fork will slide automatically on the wheel.
2. Lock the Clix; with the lever in the palm of your hand, move the lever as shown in Figure 3.25 to the CLOSE position.
  - Do not turn the lever like a wing-nut to tighten it (Figure 3.25); this will not hold the wheel with sufficient force.
3. Place the lever in the correct position.
4. Do these tests to make sure you have correctly adjusted and locked the Clix. If the quick-release does not pass a test, adjust the quick-release or take your bicycle to your dealer for service. Do the tests again before you ride.
  - Make sure the locked quick-release lever can not be turned (Figure 3.30).
  - Lift your bicycle and hit the top of the tire with a solid blow (Figure 3.29). The wheel should not come off, be loose, or move from side to side.
  - Make sure the resistance is correct as you move the lever to the CLOSE position.

- When the Clix is locked, the clamp-force is sufficient to cause metal-into-metal engagement (embossing) of the dropout surfaces.
- See *Actual Measurements* on page 30.

### To remove a wheel with a Clix

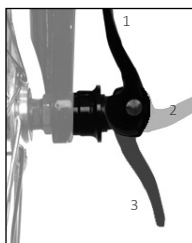
1. Release the Clix; move the quick-release lever to the OPEN position (Figure 3.25).
2. Push together the cup and lever (Figure 3.33), and push them in slightly to move the adjustment-nut out of the fork.
3. Move the wheel out of the fork.



**FIGURE 3.31**

Parts of a Clix

1. Adjustment-nut
2. Lock nut
3. Skewer
4. Cup
5. Spring (wide end toward hub)
6. Lever
7. Cam follower



**FIGURE 3.32**

Lever positions

- 1- Locked (CLOSE)
- 2- Adjustment position
- 3- Released (OPEN)

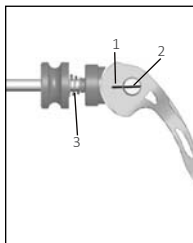


**FIGURE 3.33**

Push together the cup and lever

**To adjust the clamp-force of a Clix**

1. Loosen the lock nut (Figure 3.31).
2. Put the lever in the OPEN position.
3. Align the marks on the lever and on the skewer to the adjustment position (Figure 3.34).
4. Tighten the adjustment-nut until it is slightly tight.
5. Lock the lever and do the tests for correct clamp-force—see Step 4 of *To install a wheel with a Clix*.
6. If the clamp-force is correct, lock the lever.
  - If the clamp force is NOT correct, go back to Step 4.
7. To prevent a change of the adjustment, tighten the lock nut (Figure 3.31) until it touches the adjustment-nut. Do not over-tighten.
8. Check the secondary wheel retention of the Clix system. Move the lever to the OPEN position. Lift the front wheel off the ground and use force to hit the top of the tire. The wheel should not come out of the fork ends. If the Clix system does not pass this test, take your bicycle to your dealer for service.



**FIGURE 3.34**  
Adjustment position with marks in alignment

1. Lever mark
2. Skewer mark
3. Spring (small end of cone points away from hub)

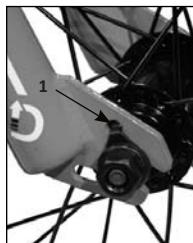
**To install a wheel with skewer and nut**

Some wheels are attached with a threaded skewer that is attached to a nut. Tighten the nut to 12 Nm.

**To install a wheel with a threaded axle and nut**

Some wheels are attached with nuts that are threaded on the axle. For the front wheel, a toothed washer (Figure 3.35) is necessary between the nut and fork end as secondary retention. For a rear wheel, refer to the Hub Brake information on page 27 before performing any work.

1. Tighten the axle nuts:
  - Front wheel- 180-240 lb•in (20.3-27.1 Nm)
  - Rear wheel- 240-300 lb•in (27.1-33.9 Nm)
2. Make sure you have correctly attached the wheel. If the wheel connection does not pass the test, do these procedures again. If you can not correctly attach the wheel, take your bicycle to your dealer for service.
  - Lift your bicycle and hit the top of the tire with a solid blow (Figure 3.30). The wheel should not come off, be loose, or move from side to side.



**FIGURE 3.35**  
Toothed washer on nuted hub



### **To install a wheel with a thru-axle**

There are several types of thru-axles (Figure 3.36) that use different methods for adjustment and closure. For instructions on how to open and close the wheel retention mechanism of your thru-axle, refer to the fork manufacturer's web site, see the CD, or consult your dealer.



**FIGURE 3.36**  
Thru axle

### **Carbon Composite Wheels**

If your bicycle has carbon composite clincher rims, do not overinflate the tires. Regardless of the inflation recommendation written on the tire, Bontrager carbon clincher rims have a maximum inflation rating of 120 psi (8.3 atm).

#### **Use only approved brake pads**

Bontrager carbon rims require special brake pads to prevent heat fade, work properly in wet conditions, and avoid premature wear in wet, abrasive conditions. In addition, incorrect pads can create excessive heat on the rim, which can cause damage to the carbon composite. Only use approved brake pads with Bontrager carbon composite rims. The list of approved pads changes, so check with your dealer for approved pads. Other pads, even though they may claim carbon compatibility, must not be used.

### **Tire Installation**

There are several types of tires:

- Standard, or clincher, tire: the air inside the tire is contained in an inner tube, and the tire is on a standard rim
- Tubeless or Tubeless Ready (TLR) tire: there is no inner tube, and the tire is on a special tubeless rim
- Tubular, or “sew-up,” type tire: the inner tube is stitched or glued inside the tire casing, and the casing is glued to the rim.

These instructions are written for standard clincher wheel systems. For instructions for another type of tire, refer to the CD or consult your dealer.

#### **Use the correct size**

When purchasing spare tires, tubes, rim strips, or other replacements, use the size written on the side of the tire or consult your dealer.

#### **To repair a tube leak**

Apply a patch to the puncture on the tube, or replace the tube.

#### **To remove the tire from the wheel**

Remove the tire from the rim with your hands or tire levers. Do not use sharp objects such as a screwdriver to remove the tire.

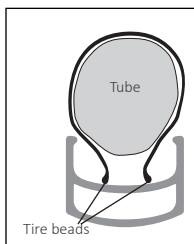
1. Deflate the inner tube completely.
2. Squeeze the tire beads into the bottom of the rim well (Figure 3.37). Do this all the way around the wheel.
3. With a tire lever, lift one tire bead up and out of the rim (Figure 3.38). Start opposite the valve.
4. Continue around the wheel to lift the bead out until one bead is completely free.
5. Reach up into the tire and remove the inner tube.
6. Remove the second tire bead from the rim.

**To install a tire on the wheel**

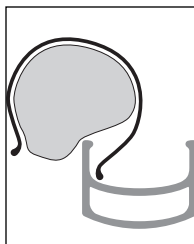
If you replace the tube or tire, make sure the new tube or tire is the same size as the old one, or consult your dealer for compatibility of different sizes. The size can be found on the side of the tire.

1. Follow the Inspection procedures in the Wheels section to check the rim, rim strip, and tire. Also check the inside of the tire.
2. Inflate the tube until it begins to take shape.
3. Place the tube in the tire.
4. Insert the valve stem through the hole in the rim.
5. With only your hands, install the first bead onto the rim (Figure 3.38). Start at the valve stem.
6. Push the tire and tube over so the tube is inside the rim (Figure 3.39).
7. With only your hands, push the second bead into the rim. Start at the valve stem. Do not pinch the tube between the rim and the tire (Figure 3.40).
8. Push the base of the valve stem up into the tire so that it is not caught between a tire bead and the rim.

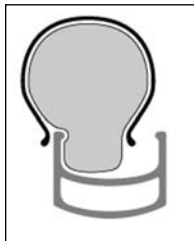
9. Inflate the tire to about half pressure and then check that the tire bead is properly seated in the rim (Figure 3.40).
10. Deflate the tire again. This will help avoid any pinching of the tube.
11. Inflate the tire to the pressure indicated on the side of the tire. Do not over-inflate.



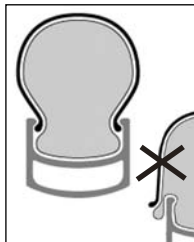
**FIGURE 3.37**  
Tire beads in bottom of rim well



**FIGURE 3.38**  
One tire bead and tube out of rim



**FIGURE 3.39**  
One tire bead out of the rim, with other bead and inner tube in rim



**FIGURE 3.40**  
Tire beads seated in rim hooks, with inner tube inside rim. Do not pinch tube between bead and rim.

**Table of inflation pressures**

PSI	ATM	kPa		PSI	ATM	kPa
<b>35</b>	2.38	238		<b>80</b>	5.44	544
<b>40</b>	2.72	272		<b>85</b>	5.78	578
<b>45</b>	3.06	306		<b>90</b>	6.12	612
<b>50</b>	3.40	340		<b>95</b>	6.46	646
<b>55</b>	3.74	374		<b>100</b>	6.80	680
<b>60</b>	4.08	408		<b>105</b>	7.15	715
<b>65</b>	4.42	442		<b>110</b>	7.48	748
<b>70</b>	4.76	476		<b>115</b>	7.83	783
<b>75</b>	5.10	510		<b>120</b>	8.17	817



## Training Wheels

Before adjusting the training wheels, make sure the tires are correctly inflated.

1. Put the bicycle on a flat, smooth surface.
2. Loosen the rear axle-nuts.
3. Hold the bicycle up straight, and adjust the distance between the training wheels and the ground to approximately 1/4" (6 mm). Make the distance the same on both sides of the bicycle.
4. Adjust the tension of the chain, and tighten the axle-nuts. Use the procedures in the *Wheels* section.

## Cables

On a bicycle with a shifter or hand brake, a cable connects the control lever to the item it controls. Each month check the cable for problems: kinks, rust, broken strands, or a frayed end. Also check the cable-housing for loose wire strands, bent ends, cuts, and worn areas. If there is a problem with a cable or housing, do not ride your bicycle. Follow the instructions to replace the cable, or take your bicycle to your dealer for service.

## Headset

The headset is the bearing system that allows the handlebar and fork to turn. Each month check the headset.

### *To check the headset adjustment*

1. Apply the front brake while you rock the bicycle forward and rearward.
2. Lift the front wheel off the ground. Slowly turn the fork and handlebar to the right and left.

If the fork moves in the frame or does not turn smoothly, do not ride your bicycle. The adjustment of the headset requires special tools and training. Take your bicycle to your dealer for service because only your dealer should adjust bearings.

## Crankarms and Bottom Bracket

The crankarms connect the pedals to the bottom bracket. They transmit power from the rider to the rear wheel, and with a coaster brake they actuate the brake.

The length of some crankarms can be adjusted by moving the pedals into a second position: see the *Pedals* section.

The bottom bracket is the bearing system that allows the crankarms to turn in the frame. Each month check the bottom bracket.

### *To check the bottom bracket adjustment*

1. Lift the chain from the chainrings.
2. Turn the crankarms so that they are parallel to the seat tube.
3. Put one hand on the crankarm and one hand on the seat tube. Try to move the crankarm toward and away from the seat tube.
4. Turn the crankarms.

If the crank feels or sounds loose, the movement stops suddenly, or you hear a grinding noise, do not ride your bicycle. The adjustment of the bottom bracket requires special tools and training. Take your bicycle to your dealer for service because only your dealer should adjust bearings.

### Pedals

The pedals hold your feet so that you can rotate the crankarms. Check the pedals each month.

#### *To check the pedal bearing adjustment*

1. While holding the crankarm with one hand, try to move the pedal up and down.
2. Turn the pedal.

If the pedals move on the crankarms or do not turn smoothly, do not ride your bicycle. The adjustment of the pedal bearings requires special tools and training. Take your bicycle to your dealer for service because only your dealer should adjust bearings.

#### *To tighten pedals*

The right pedal is threaded into the crankarm in the usual direction, but the left pedal is left-hand threaded. Tighten pedals into the crankarms to 350-380 lb•in (40.2-42.9 Nm).

#### *To adjust the release force on clipless pedals*

Refer to the manual that came with your pedals or the CD that came with this manual, or consult your dealer.

### Chain

The chain connects the chainring (and crankarms) to the rear wheel. On a bicycle that does not have a rear derailleur, correct chain tension is required to prevent the chain from falling off. Each month, check the chain.

#### *To adjust the chain tension*

If your bicycle has adjustable dropouts or a bottom bracket eccentric, refer to the CD for instructions or consult your dealer.

1. Slightly loosen the rear wheel axle nut on one side of the wheel, then on the other side of the wheel. If you fully loosen the axle nut on one side before you loosen the other axle nut, you can cause the bearings to come out of adjustment.
2. Slide the wheel rearward to tighten the chain. Put the wheel in the center of the frame.
3. Complete the wheel installation (see *Wheels*).

### Reflectors

Every three months, make sure all the fasteners holding the front, rear, pedal, and wheel reflectors are tight. Check that front and rear reflectors are oriented so their reflective surfaces are perpendicular to the ground, and that all reflective surfaces are clean and in good condition. The front reflector should point directly forward, and the rear should point directly back. Wheel reflectors should be tight and snug against supporting spokes to prevent rattling.

### Suspension

You can adjust the performance of your bicycle suspension to suit your weight, riding style, and personal preference. Each suspension system is different. For suspension setting recommendations, go to the Trek suspension setup on our web site: [www.trebikes.com/suspension](http://www.trebikes.com/suspension).

You should not be able to fully compress the suspension. If the suspension is fully compressed, its movement will stop suddenly and could decrease your control.

If you adjust your suspension, your bicycle will turn and stop differently. After you adjust the suspension, carefully test ride your bicycle in a low traffic area until you know its performance.

Each month, check the bolts on all suspension parts: attachment bolts and pivot bolts.

### Accessories

In addition to the parts already discussed in this chapter, your bicycle might have accessories such as fenders, lights, racks, chain guard, training wheels, or kickstand. Each month, check the accessories to make sure they are correctly attached. If the part is loose or not in alignment, adjust or tighten the part, or take your bicycle to your dealer for service.



### To install a light bulb

The bulb has markings that indicate the correct voltage. When purchasing spares or replacements, take the bulb with you to the store to make sure you purchase the correct bulb for your light.

1. Find the lens set-screw on the rear of the light.
2. Turn the screw counterclockwise. Remove it.
3. Turn the lens one quarter-turn clockwise. Pull the lens assembly off of the bulb-attachment.
4. Turn the bulb counterclockwise. Remove it.
  - Be careful not to crush the glass of the bulb. Do not dislodge the wire in the base of the bulb-attachment.
5. Turn a new bulb in until it is slightly tight.
6. Put the lens on the bulb-attachment. Turn the lens one quarter-turn counterclockwise.
7. Put the lens set-screw in the rear of the light. Tighten the screw.

Make sure the new bulb operates. If it does not, check the wires for correct position, and make sure that the new bulb does not have damage.

### To adjust training wheels

1. Put the bicycle on a flat, smooth surface, with the tires correctly inflated.
2. Loosen the rear axle-nuts.
3. Hold the bicycle up straight, and adjust the distance between the training wheels and the ground to approximately 1/4" (6 mm). Make the distance the same on both sides of the bicycle.
4. Adjust the tension of the chain, and tighten the axle-nuts. Use the procedures in the *Wheels* section.

## Frameset (Frame and Fork)

The frame is the backbone of the bicycle, the part to which other parts, including the fork, attach. The fork holds the front wheel and is controlled or steered by the handlebar. The maintenance of the frameset is critical to your safety. Before attempting any work on the frame, fork, components; or installing any accessory; read the section *Warning About Mechanical Work* on page 11.

The frame or fork may be constructed from a variety of materials, including steel alloy, aluminum alloy, or carbon composite. If your bicycle is constructed with carbon composite, read the section *Carbon Composite* on page 12.

In addition, the frame or fork may contain suspension components. If your bicycle has suspension, refer to the Suspension section of this chapter.

### General information

Bontrager forks are not compatible with any mechanism which clamps around the fork blade, with the exception of bicycle computer sensors. If you are unsure of what items can be attached to this fork, consult your dealer.

Carbon composite road frames must always be fitted with a chainstay guard to protect against damage in case of chainsuck or overshifting past the inner chainring.

Excessive heat, such as that used in powder coating, or any open flame, may damage the adhesive which joins the frame parts on some framesets. Do not exceed 180°F (82°C) exposure to your frame.

A frameset with a round or cylindrical seatpost uses one of three common sizes of seat lugs designed to accept seat posts with 27.12 to 27.20 mm, 29.12 to 29.2 mm, or 31.45 to 31.60 mm outer diameter. The seatpost should be measured for conformity to this tolerance prior to installation. Use

correct lubrication (see page 40) to prevent seizing of the seatpost to the seat lug or tube.

When cleaning frame parts, do not use solvents or harsh chemicals. Remove road film with a soft rag and a mild detergent and water solution. Use of industrial solvents for cleaning or paint removal may damage not only the paint but also the adhesive which joins the frame parts.

Tolerances for press fits and thread fits are critical. Pressing a part which is too large, or misaligned, may break the frame or part. Over-torquing a threaded fastener may ruin the threads or break the part. Be sure bottom bracket and rear derailleur threads are clean and well greased before insertion. Start threads by hand, not with a wrench.

Removing paint from a frame requires special techniques and so should only be done at the factory. Consult your dealer for more information.

On Speed Concept models, the fork and the frame fit very tightly to reduce aerodynamic drag. Avoid turning the aero-bar to an extreme angle because the fork and frame can contact, possibly causing damage to the finish.

For further information about the inspection, care, and maintenance of your frame and fork, read Chapter 1.

### Inspection

Before each ride carefully inspect your frameset (frame and fork) for signs of stress or fatigue. Scratches, cracks, dents, deformation, or discoloration are signs of stress. If any part shows signs of damage, stress, or fatigue, replace the part before riding the bicycle.

Each month, inspect the chainstay guard on your frame. Make sure the chainstay guard is installed correctly and securely attached. If it is dislodged or damaged, have your dealer install a replacement.

Each year, completely inspect the fork. Take the fork out of the bicycle and inspect the steerer and crown, which are partially hidden inside the frame. This inspection can be completed when the headset bearings are serviced. Because this requires disassembling the headset bearings, this procedure requires special tools and skills. If you do not have the training, take your bicycle to your dealer for inspection.

### *To completely inspect the fork*

1. Remove the fork from the bicycle.
2. Thoroughly clean the steerer and fork crown area.
3. Look for signs of fatigue or impact damage.

### Adjustment of a frame or fork

An aluminum or carbon composite frame or fork and their aluminum parts (like dropouts) are not as ductile as steel. Never attempt to make adjustments to a part by bending or twisting it. Readjustment of aluminum or composite material is not possible. If the frame has been damaged, take the bicycle to your dealer for evaluation, and possible repair or replacement.

### Repairing a carbon composite frame or fork

Accidents happen, both when riding a bike and when not riding (e.g. when transporting on the car, storing in the garage, or at other times). Replacing a damaged carbon part can be expensive. To help with that expense, Trek provides a reduced-cost replacement program we call the Trek Loyalty Program. See your dealer for details.

Trek does not recommend the repair or patch of a damaged carbon tube or part. To explain why, let's use a bike frame as an example. A modern Trek carbon bike frame doesn't work like a collection of tubes and lugs; it's designed to function as an integrated unit. This integration allows the structure to distribute and share forces across the entire structure. In other words, force applied to the





downtube will be spread out so that all tubes get a chance to absorb it and the force on the downtube is greatly reduced. This is the key to making a lightweight frame that is still stiff and strong enough for top-level competition.

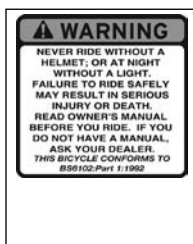
Adding a carbon ‘patch’ to a frame tube changes the tube’s stiffness and shock absorption characteristics. This change in stiffness can affect the tube’s ability to absorb or transfer impact energy. In an impact, an overly-stiff patched tube might abruptly transfer all the force to another part of the frame. When the force is abruptly transferred from the first part to the second part of the bike, the resulting overload can cause the second part to break.

Due to the nature of bike crashes and impacts, it is impossible to predict exactly how forces will be absorbed or transferred. So for your safety, *Trek recommends that Trek carbon composite frames or forks NOT be repaired, by anyone.*

Also note that a repair is a modification, and making a modification to the frame will void the warranty (see page 11, *Modifications to Your Bicycle Can Make it Unsafe* and the warranty at [trekbikes.com](http://trekbikes.com)).

### Frame sticker

Your frame has a sticker (Figure 3.41). Do not remove the sticker; it contains important safety information that you or anyone riding the bike should read.



**FIGURE 3.41**  
Frame sticker

### Special frame features

Some bikes feature one or more of a unique attachment point which allows you to use custom accessories. For example, some frames have a special cavity that can house the sensor for a bicycle computer (Figure 3.42). As another example, Speed Concept frames provide attachment points for a “Speed Box” on the top tube (this attachment creates a slight obstruction that is not allowed by the CPSC (Consumer Product Safety Commission) standards, so we do not attach one as standard equipment). Consult your dealer for details.



**FIGURE 3.42**  
Duotrap integrated computer mount on chainstay for speed and cadence sensors

## Chapter 4: Lubrication

This section shows the parts that you should lubricate, the frequency of service, and brief instructions. See your dealer for recommended grease or oil. If more instructions are necessary, see other sections of this manual or consult your dealer.

To service bearings, special tools and training are necessary, so only your dealer should do this. Some bearings are permanently sealed and do not require new grease each year.

### Stem

Each year apply lubricant to the stem.

To apply lubricant to a direct-connect stem, adjustment of the headset bearings is necessary. Only your dealer should do this.

#### *To apply lubricant to a quill stem:*

1. Remove the stem from the frame.
2. Clean the used grease from the stem.
3. Apply a thin layer of grease to the section of the stem-quill that will be put into the frame. Also apply grease to the stem wedge.
4. Install the stem.

### Seatpost

Each year apply lubricant. Use the procedure for your frame and seatpost materials:

#### *For a metal seatpost in a metal frame*

1. Loosen the seatpost binder bolt, or release the quick-release, and remove the seatpost from the frame.
2. Clean the used grease off the seatpost.
3. Apply a thin layer of grease to the section of the seatpost that will be in the frame.
4. Put the seatpost into the frame.
5. Adjust the saddle to the correct height and align it. Tighten the seatpost binder-bolt or lock the quick-release.

#### *For a carbon composite seatpost, or any seatpost in a carbon composite frame*

1. Loosen the seatpost binder-bolt, or release the quick-release, and remove the seatpost from the frame.
2. Clean the seatpost and the inner surface of the seat tube with a soft cloth and clean water.
3. Let the seatpost dry. Then put it into the frame.
4. Adjust the saddle to the correct height and align it. Tighten the seatpost binder bolt.

### Bottom Bracket

Each year, replace the grease in the bottom bracket bearings. To service bearings, special tools and training are necessary, so only your dealer should do this.

### Chain

Each month, apply lubricant to the chain. Always place a rag behind the chain to prevent lubricant on other parts of the bicycle. After you apply lubricant, wipe off the excess with a rag.

### Pedals

Each year, replace the grease in the pedal bearings. To service bearings, special tools and training are necessary, so only your dealer should do this.

Each year replace the grease on the pedal axles where they thread into the crank arms. There are right and left pedals, usually identified with a letter on the end of the pedal axle or on the wrench flats.

1. Remove the pedal-axles from the crankarms; turn the right pedal-axle counterclockwise, but turn the left pedal-axle clockwise.
2. Apply a thin layer of grease on the threads.
3. Install the pedals on the correct side; put the right pedal on the right crankarm and the left pedal on the left crankarm.
4. Tighten the pedal-axles.



## Deraillleurs

Each month, apply lubricant to all pivot points on the front and rear deraillleurs, together with the deraillieur pulleys on the rear deraillieur.

## Headset

Each year, replace the grease in the headset bearings. To service bearings, special tools and training are necessary, so only your dealer should do this.

## Brakes and Brake-levers

Each three months apply lubricant to the brake-lever pivots and brake arm fixing pivots.

## Wheels

Each year, replace the grease in the wheel bearings. To service bearings, special tools and training are necessary, so only your dealer should do this.

Each year, apply lubricant to wheel quick-releases. Apply two or three drops of synthetic lubricant or a light oil where the quick-release lever turns in the quick-release body.

## Suspension Forks

Each month, lubricate your suspension fork. Refer to the instructions on the CD, or consult your dealer.

Each year, replace the oil in your suspension fork. To replace the oil, special tools and training are necessary, so only your dealer should do this.

## Rear Suspension

Do not apply lubricants to the shock or the pivots of your full-suspension bicycle. If the shock or pivots make noise or do not operate smoothly, take the bicycle to your dealer for service.

## Cables

Apply lubricant to a cable when you install it.

To install a cable in a cantilever brake, special tools and training are necessary, so only your dealer should do this.

### *To install a cable*

1. Before you remove the used cable, note its path on the frame. Loosen the cable-clamp bolt, and remove the worn cable.
2. Apply grease to the new cable where it passes through housing or guides. Install the new cable on the same path as the used cable.
3. Make sure the leaded end of the cable is installed correctly in the lever. Make sure the housing is correctly installed in the housing stop of the lever.
  - If necessary when you install a cable in a brake, adjust the brake again.
4. Turn the barrel-adjuster clockwise so that the threads on the barrel-adjuster do not show.
  - For a deraillieur cable, put the shift-lever in the position with the least cable tension.
  - For a brake cable, hold the brake closed while you do the subsequent step.
5. Tighten the cable-clamp bolt to 52-69 lb•in (6-8 Nm).
6. Cut the cable so that no more than 2" (51 mm) extends through the clamp-bolt.
7. Put a metal cap or put a bit of solder on the end of the cable to prevent a frayed cable.
8. Use the instructions for adjustment.

## For more instructions

If you need more instructions about your bicycle or the servicing of bicycles, there are many resources in your community.

Consult your bicycle dealer. They have extensive experience with bicycles and rides in your community. They can answer your questions and help you in your search for areas in which to enjoy your new bicycle. Most dealers sell repair manuals and books about cycling.

Visit your public library. Most libraries have books about how to ride, how to race, bicycle safety, bicycle maintenance, and more.

Look on-line. The best on-line resource for your bicycle can be found on the CD that accompanies this manual. With internet access, you can go directly from the CD to our web site. The CD also links to some of the companies that make the parts of your bicycle.

## Warranty

Your bicycle is covered by a warranty. For the specifics of this warranty, visit our web site at [www.trekbikes.com](http://www.trekbikes.com).