Use and maintenance booklet of your Ridley bicycle

English



INTRODUCTION

THANK YOU AND CONGRATULATIONS!

The decision you've made to buy a Ridley bicycle is one we're sure you'll be glad you made. You'll enjoy the benefits of all the high technology, work and attention to detail we put into each of our bikes.
Your bike will serve you well and give you lots of enjoyment whether you're riding it for fitness, family recreation, or the personal satisfaction that comes from competing.

We're confident that you will enjoy your new Ridley bicycle because we have put in almost as much time refining the design of the bike as we have testing the bike. (It's more fun to test them because you get to ride them.) We're confident you'll enjoy your new Ridley bike that you have purchased from an Authorized Ridley Dealer who has taken the time to assemble it with expertise and attention to detail. Your Authorized Ridley Dealer has also taken the time to properly fit your new bicycle to you specifically, to assure it's of the proper size.

This three part team: You, your Authorized Ridley Dealer, and us here at Race Productions N.V., will assure you of your enjoyment and satisfaction of your new bike. Your Authorized Ridley Dealer is a resource you should call on and visit frequently.

Your Authorized Ridley Dealer can recommend appropriate accessories, follow form the required maintenance and answer any questions you may have with regards to your new Ridley bike.

Many of the questions you have regarding your new Ridley bicycle, and about cycling in general, will be answered in this Manual. Please take the time to read it, as it contains a lot of information that is essential for getting the highest performances out of your bike and for the safe operation and proper maintenance of your bicycle.

Once again, thank you for buying a Ridley, we are sincerely proud that you did.

Now, read the rest of this and then go RIDE.

BICYCLE OWNER'S HANDBOOK

1. ABOUT THIS MANUAL...

Why you should read this manual

This manual has been written to help you get the most performance, comfort, enjoyment and safetly when riding your new bike.

It's important for you to understand your new bike, its features and its operation, so that, from your first ride, you get maximum enjoyment and maximum safety. By reading this manual before you go out on your first ride, you'll know how to get the most from your new bicycle.

It is also important that your first ride on a new bicycle takes place in a controlled environment, away from cars, obstacles and other cyclists.

GENERAL WARNING: Bicycling can be a hazardous activity even under the best of circumstances. Proper maintenance of your bicycle is your responsibility as it helps reduce the risk of injury. This Manual contains many "Warnings" and "Cautions" concerning the consequences of failure to maintain or inspect your bicycle. Many of the Warnings and Cautions say "you may lose control and fall."
As because any fall can result in serious injury or even death, we do not repeat the warning of possible injury or death whenever the risk of falling is mentioned.

When all else fails... it's never too late to read the manual

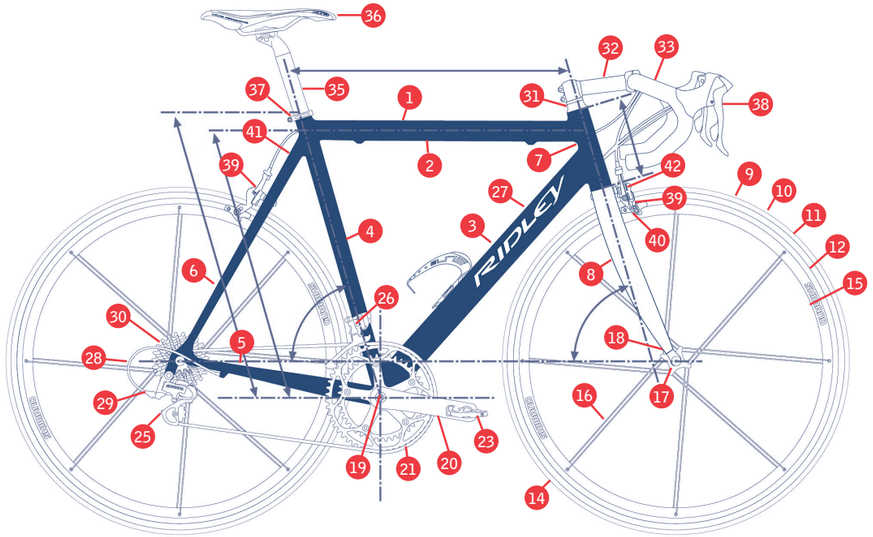
Even if you've been riding a bike all your life, you probably need an update on your bicycling habits, knowledge and assumptions.

Why? Because bicycles are going through some pretty dramatic changes in the technology which affect function, handling, comfort, performance and safety.

A SPECIAL NOTE FOR PARENTS: *It is a tragic fact that most bicycle accidents involve children. As a parent or guardian, you bear the responsibility for the activities and safety of your minor child. Among these responsibilities are to ensure that the bicycle which your child is riding is properly fitted to the child; that it is in good repair and safe operating condition; that you and your child have learned and understood the safe operation of the bicycle; and that you and your child have learned, understood and obeyed not only the applicable local motor vehicle, bicycle and traffic laws, but also the common sense rules of safe and responsible bicycling. As a parent, you should read this manual before letting your child ride the bicycle. We have tried to make this manual interesting and instructive for both you and your child.*

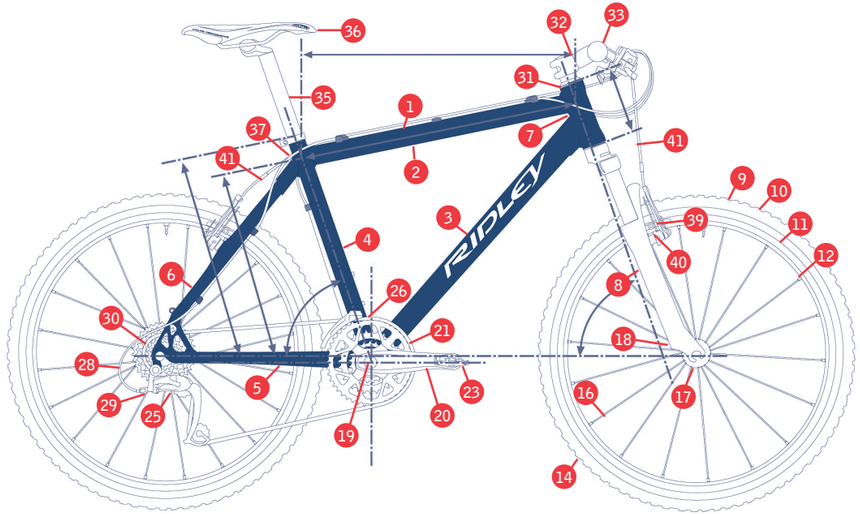
Make sure that your child always wears an approved bicycle helmet when riding.

2. WHAT IT'S CALLED



1. frame
2. top tube
3. down tube
4. seat tube
5. chain stay
6. seat stay
7. head tube
8. fork
9. wheel
10. tyre
11. tread
12. sidewall
13. valve stem
14. tube
15. rim
16. spokes
17. hub
18. quick release
19. bottom bracket
20. crank
21. chainrings
22. chain

Note: The image represented in this page and the other illustrations included in this handbook, could be slightly different according to each model.



23. pedal
24. toeclip / strap
25. rear derailleur
26. front derailleur
27. shifter
28. shifter cable
29. adjusting barrel
30. freewheel/ rear cluster/ cassette
31. headset
32. stem
33. handlebar
34. bar end extension
35. seatpost
36. saddle
37. seat binder
38. brake lever
39. brake
40. brake shoe
41. brake cable
42. adjusting barrel
43. reflectors

3. WHAT KIND OF A BIKE IS IT?

Adult bicycles can be broadly categorized into four types, according to the intended use for which the bike was designed: Road Bikes, Mountain Bikes, Cross Bikes and City or Cruiser Bikes. While there is a lot of use overlap in bike design, each type of bike is designed to provide optimum performance, comfort and safety under specific use conditions. Which type is your new bike?

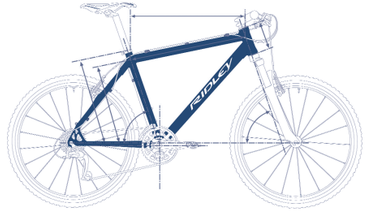
The Road Bike



Sometimes called a racing bike because it is derived from the bikes used by bicycle road racers and triathletes, is for fast travel, hard training and competition on paved surfaces. It is the lightest, most aerodynamic and "fastest" type of bike. Because it is generally ridden on relatively smooth paved roads, its frame is made as stiff and light as possible, and its frame geometry is designed to give it quick, very precise response to rider input. Its components, especially the wheels, tend to be lighter than those for other categories, again because they don't get banged around as much. Its dropped handlebars, sometimes equipped with aero bar extensions, are designed to give the rider good leverage for climbing and sprinting, and to position the rider in an aerodynamic "tuck" for speed.
Its high-pressure, narrow tires reduce rolling resistance to a minimum.

But: The ride tends to be too stiff for comfort on rougher surfaces. The frame and components may be too light to take the pounding of offroad excursions. The handlebars position the rider in a way that many find uncomfortable for more casual riding. The narrow tires are unsuitable for loose surfaces.

The Mountain Bike



Is designed to give the rider greater control and durability on a wide variety of harsh terrain. Everything about the Mountain Bike is more rugged. Its frame geometry provides additional ground clearance and allows you to shift your weight to change the balance of the bike as terrain conditions demand. Its wide, high-volume tyres absorb shock and provide better, more stable contact with footprint loose or slippery surfaces. Its wide-range gearing, usually with 18 or more speeds, provides the right choice for almost any condition. Many Mountain Bikes come equipped with suspension systems which help absorb the shocks and vibrations of rough trails.

But: A Mountain Bike is heavier than a road bike. Its wide tires have greater rolling resistance than road bike tires. While more comfortable for many people, the rider's more upright riding position is aerodynamically inefficient. A Mountain Bike is not the best choice for long, fast rides on paved surfaces.

NOTE: While the rugged appearance of Mountain bikes might suggest that they're indestructible, they are not. They are tough and sturdy; but as with any machine, abuse will soon take a toll on their ability to perform.

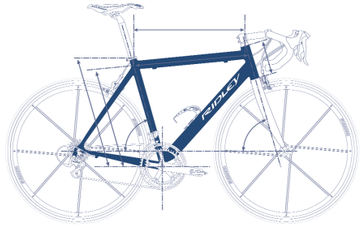
The Cross Bike



Also often called a Hybrid, Cross Terrain Bike or Fitness Bike it, is like a Swiss Army Knife: it's a versatile tool that does many things well. The Cross Bike is a good choice for the rider who isn't looking for the ultimate in performance either on or off the road, but who wants a bike that will handle paved roads, bike paths, graded fire trails and dirt roads. It's not as fast on pavement as a Road Bike; nor is it designed for hard off-road use on "single track" or rocky, rutted, rugged terrain like a Mountain Bike.

By changing tires, handlebars and shifting the braking controls, your dealer can alter a Cross Bike's performance range to favor either paved road performance or dirt road performance, to suit your intended use.

The City Bike



Also often called a Cruiser, it is designed for comfortable, low-maintenance, casual riding. It is often equipped with three, five, seven or more gears which are housed in the rear wheel hub. Its frame is designed for comfort rather than for high performance, and its fat tires are designed for solid, rather than loose, surfaces. The Cruiser is ideal for around town, for gently rolling or flat rural roads, for a ride around the park, or for a quick trip to the store.

4. FIT AND SAFETY

A. Fit

Make sure the bike fits. A bike that's too big or too small for the rider is harder to control and can be uncomfortable.

WARNING: If your bicycle does not fit properly, you may lose control and fall. If your new bike doesn't fit, ask your dealer to exchange it before you ride it.

Frame size:

Your dealer will have recommended the best frame size for you, based on the information provided. If you picked your own bike at the dealership, your dealer took the time to fit you to the correct frame size at the time. If someone else selected the bike for you, as a gift, for example, it's important for you to make sure that it fits before you ride it.

The first check for correct size is standover height. Standover height is the basic element of bike fit. It is the distance from the ground to the top of the top tube at that point where your crotch would be if you were straddling the bike by standing half way between the saddle and the handlebar stem. To check for safe standover height, straddle the bike while wearing the kind of shoes in which you'll be riding, and bounce vigorously on your heels. If your crotch touches the frame, the bike is too big for you.



fig. 5 Standover Height

Don't even ride the bike around the block. A bike which you ride only on paved surfaces and never, ever take off-road should give you a minimum standover height clearance of one to two inches. A bike that you'll ride on unpaved surfaces should give you a minimum of three inches of standover height clearance. And a bike that you'll use for real mountain hiking on difficult, rough terrain should give you four or more inches of clearance.

Saddle position:

Correct saddle adjustment is an important factor in getting the most performance and comfort from your bicycle. Your dealer will have positioned the saddle where experience tells him most people find it comfortable. If you find the saddle position is not comfortable, return to your Authorized Dealer for assistance; or, make the adjustments yourself.

Look at Figures 6A, B and C, and determine which one illustrates the type of saddle attachment on your bicycle.



fig. 6A

A saddle can be adjusted in three directions:

1. Up and down adjustment.

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



fig. 6B



fig. 6C

- sit on the saddle;
- place one heel on a pedal;
- rotate the crank until the pedal with your heel on it is in the down position and the crank arm is parallel to the seat tube.

If your leg is not completely straight and just touching the centre of the pedal, your saddle height needs to be adjusted. If your hips must rock for the heel to reach the pedal, the saddle is too high. If your leg is bent at the knee with your heel on the pedal, the saddle is too low.

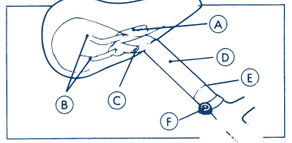
To adjust the saddle height, loosen the seat binder bolt (Fig. 7a & b; see also Section 6. B on Seat Post Quick Releases) and move the seat post up or down as required. Then, make sure that the saddle is parallel to the top tube of the bike, and retighten the seat binder bolt tight enough so that you cannot twist the saddle out of alignment. Check the adjustment as described above. Your seat post will be marked with a scribed or engraved line marked "minimum insertion" or "maximum extension."

Under no circumstances should you be able to see this marking after adjusting your seat post height. (Fig. 8).

WARNING: If your seat post projects from the frame beyond the Minimum Insertion or Maximum Extension mark (see Fig. 8) the seat post may break, which could cause you to lose control and fall.

2. Front and back adjustment.

Loosen the saddle clamping mechanism (see Fig. 6a, b or c) and slide the saddle backwards or forwards on its rails. Start with the saddle clamped in about the middle, then adjust forwards or backwards until you find the position which is most comfortable for you.



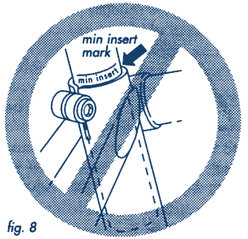


fig. 8

3. Saddle tilt adjustment.

Most people prefer a horizontal saddle; but some riders prefer to have the saddle nose tilted up just a little, and others prefer it to be tilted down just a little. You can adjust saddle tilt by loosening the saddle clamping mechanism, tilting the saddle to the desired position.

After making these adjustments, the saddle clamping mechanism should be retightened until secure. One method for testing whether you have tightened the saddle adjusting mechanism securely is to firmly grasp both ends of the saddle and attempt to rock the saddle front to back or to twist the saddle side to side. There should be no saddle movement in any direction. If, after making this adjustment, the saddle still moves in any direction, return to your Authorized Dealer for assistance.

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

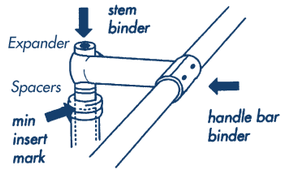
WARNING: After any saddle adjustment, be sure to tighten the saddle adjusting mechanism properly before riding. A loose saddle clamp or seat post binder can cause damage to the seat post, or can cause you to lose control and fall. A correctly tightened saddle adjusting mechanism will allow no saddle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

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

CAUTION: It has been alleged that extended riding with a saddle which is incorrectly adjusted or which does not support your pelvic area correctly can cause short or long-term injury to nerves and blood vessels. If your saddle causes you pain or numbness, adjust the saddle position and your riding position. If pain or numbness persist, talk to your dealer about fitting a different saddle to your bicycle.

Handlebar height and angle:

If your bike is equipped with a stem which clamps directly on to the outside of the steering tube, your dealer may be able to change bar height by moving height adjustment spacers from below the stem to above the stem, or vice versa. Otherwise, you'll have to get a stem of different length or rise. Consult your dealer.
Do not attempt to do this yourself, as it requires special knowledge.



However on many bikes, you can raise or lower your handlebars a bit by adjusting stem height yourself. Loosen the stem binder bolt by turning it counterclockwise three or four full turns. If the bolt rises but the stem doesn't, get a piece of wood or a soft mallet and give the bolt a good whack to release the wedge. Adjust the stem position as desired, align stem with tyre, and retighten the binder bolt tight enough so that you cannot twist the stem and handlebars out of alignment.
Under no circumstances should the stem be retightened with its "Minimum Insertion" or "Maximum extension" mark visible.

Now check to make sure that the handlebars rotate freely in both directions without the brake cables catching or binding on anything.

CAUTION: On some bicycles changing stem height can affect the tension of the front brake cable, locking the front brake or creating sufficient cable slack to make the front brake inoperable. If the front brake shoes move in towards the wheel rim or out away from the wheel rim when you change stem height, take your bicycle to your dealer for correct brake adjustment before riding it.

WARNING: The stem's Minimum Insertion Mark must not be visible above the top of the headset (see Fig. 9). If the stem is extended beyond the Minimum Insertion Mark the stem may damage the fork's steerer tube or break, which could cause you to lose control and fall.

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

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

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

Brake reach: Many bikes have brake levers which can be adjusted for reach. If you have small hands and find it difficult to squeeze the brake levers, your dealer can either adjust the reach or fit shorter reach brake levers.

WARNING: The shorter the brake lever reach, the more critical it is to have correctly adjusted brakes, so that full braking power can be applied within available brake lever travel. Brake lever travel insufficient to apply full braking power can result in loss of control, which may result in serious injury or death.

B. Safety Equipment



WARNING: Many nations require specific safety devices. It is your responsibility to familiarise yourself with the laws of the nation where you ride and to comply with all applicable laws, including properly equipping yourself and your bike as the law requires.

Helmet:

While not all States require bicyclists to wear approved protective headgear, common sense dictates that you should always wear helmet that is in compliance with ASTM, Snell, CPSC or CE standards . Most serious bicycle injuries involve head injuries which might have been avoided if the rider had worn a helmet. Your dealer has a variety of attractive helmets, and can recommend one to suit your needs. But the "right" helmet is not just a fashion statement. **It must fit correctly, be worn correctly and be properly secured to do its real job. Ask your dealer to help you with the fit and adjustment of your helmet, and refer to the owner's manual provided with the helmet.**



WARNING: Always wear a helmet when riding your bike. Always keep the chin strap securely buckled. Refer to your helmet owner's manual for additional information. Failure to wear an approved helmet may result in serious injury or death.

Reflectors:

Reflectors are important safety devices which are designed as an integral part of your bicycle.

For U.S. only, federal regulations require every bicycle to be equipped with front, rear, wheel and pedal reflectors. The size, performance and location of each reflector is specified by the U.S. Consumer Products Safety Commission. The reflectors are designed to pick up and reflect street lights and car lights in a way that helps you to be seen and recognised as a moving cyclist.



CAUTION: Check reflectors and their mounting brackets regularly to make sure that they are clean, straight, unbroken and securely mounted. Have your dealer replace damaged reflectors and straighten or tight en any that are bent or loose.

The mounting brackets of front and rear reflectors are often designed as brake straddle cable safety catches which prevent the straddle cable from catching on the tire tread if the cable jumps out of its yoke or breaks.



WARNING: Do not remove the front or rear reflector brackets from your bicycle. They are an integral safety device which protects you from the brake straddle cable catching on the tire in the event of brake cable failure. A brake straddle cable which catches on the tire can cause the wheel to stop suddenly, causing you to lose control and fall.



WARNING: Do not remove the reflectors from your bicycle. They are an integral part of the bicycle's safety system. Removing the reflectors may reduce your visibility to others using the road. Being struck by other vehicles often results in serious injury or death. Remember: reflectors are not a substitute for lights. Always equip your bicycle with lights.

Lights:

If you ride your bike after dusk, your bicycle must be equipped with lights so that you can see the road and avoid road hazards; and so that others can see you. Vehicle laws treat bicycles like any other vehicle. That means you must have a white front and a red rear light operating if you are riding after dusk. Your bike dealer can recommend a battery or generator powered lighting system appropriate to your needs.



WARNING: Reflectors are not a substitute for proper lights. It is your responsibility to equip your bicycle with all lights. Riding at dawn, at dusk, at night or at other times of poor visibility without a bicycle lighting system which meets local and state laws and without reflectors is dangerous and may result in serious injury or death.

Pedals:

(See also Section 6.E and 6.F.) Some higher performance model bicycles come equipped with pedals that have sharp and potentially dangerous surfaces. These surfaces are designed to add safety by increasing traction or grip between the rider's shoe and the bicycle pedal. If your bicycle has this type of high-performance pedal you must take extra care to avoid serious injury from the pedals' sharp surfaces. Based on your riding style or skill level, you may prefer a less aggressive pedal design. Your dealer can show you a number of options and make suitable recommendations.

Eye protection:

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

C. Mechanical Safety Check

Here is a simple, sixty-second mechanical safety check which you should get in the habit of carrying out every time you're about to get on a bike.

Nuts, bolts & straps:

Lift the front wheel off the ground by two or three inches, then let it bounce on the ground. Anything sound, feel or look loose? Do a quick visual and physical inspection of the whole bike. Any loose parts or accessories? If so, secure them. If you're not sure, consult your Authorized Dealer for assistance.

Tires & Wheels:

Tires correctly inflated? Check by putting one hand on the saddle, one on the intersection of the handlebars and stem, then bouncing your weight on the bike while looking at tire deflection. Compare what you see with how it looks when you know the tires are correctly inflated; and adjust if necessary. See Section 6.G.1 for details and recommended tire pressures.

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

Wheels true? Spin each wheel and check (or brake clearance and side-to-side wobble. If a wheel wobbles side to side or hits the brake pods, take the bike to a qualified bike shop to have the wheel trued.

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

Brakes:

Squeeze the brake levers. Are the brake quick releases closed?
The straddle cable securely engaged? Are the brake shoes contacting the wheel rim within an inch of brake lever movement? Can you apply full braking force at the levers without having them touch the handlebar? If not, your brakes need adjustment. Do not ride the bike until the brakes are properly adjusted. See Sections 6.C.1 and 6.C.2 for details.

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

Quick Releases:

Are the front wheel, rear wheel and seat post quick releases properly adjusted and in the locked position? See Section 6.A and 6.B for details.

WARNING: Riding with an improperly adjusted wheel quick release can cause the wheel to wobble or disengage from the bicycle, which can cause damage to the bicycle and serious injury or death.

Handlebar and saddle alignment:

Are the saddle and handlebar stem correctly parallel to the bike's top tube and tight enough so that you can't twist them out of alignment?

Handlebar ends:

Are the handlebar grips secure and in good condition? If not, replace them. Are the handlebar ends and extensions plugged? If not, plug them **before** you ride. On a mountain bike or Cross bike, are the bar end extensions tight enough so you can twist them. If not, tighten them.

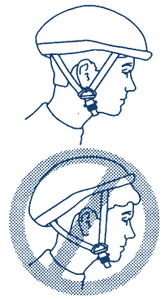
WARNING: Loose or damaged handlebar grips or extensions can cause you to lose control and fall. Unplugged handlebars or extensions can cut your body and can cause serious injury in an otherwise minor accident.

OK: now buckle on your helmet (see page 15) and enjoy your ride.

5. RIDING SAFELY AND RESPONSIBLY

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

A. The Basics



1. **Always** do the Mechanical Safely Check (Section 4.C) before you get on a bike.
2. **Always** wear helmet that is in compliance with ASTM, Snell, CPSC or CE standards. (See fig. 10)
3. Be careful to keep body parts, clothing and other objects away from the sharp teeth of chainrings; the moving chain; the turning pedals and cranks; and the spinning wheels.
4. **Always** wear shoes that will stay on your feet and will grip the pedals. **Never** ride barefoot or wearing sandals.
5. Be thoroughly familiar with the controls of your bicycle.
6. Wear bright, visible clothing that is not so loose that it can catch on moving parts of the bicycle or be snagged by objects at the side of the road or frail.
7. Don't jump with your bike. Jumping a bike, particularly a BMX or mountain bike, can be fun; but it puts incredible stress on everything from your spokes to your pedals. Perhaps most vulnerable to jumping related damage is your front fork. Riders who insist on jumping their bikes risk serious damage, to their bicycles as well as to themselves.
8. Think about your speed, and keep your speed at a level which is consistent with conditions and your own riding ability. Always keep in mind that there is a direct relationship between speed and control, and between speed and component stress. The greater the speed, the less control. The greater the speed, the greater the stress you may place on the components of your bicycle.

WARNING: Jumping, ramp riding, trick riding, riding on severe terrain or riding with heavy loads may damage the bicycle or may cause serious injury or death.

B. Rules of the Road

1. Learn the local bicycle laws and regulations. Many communities have special regulations about licensing of bicycles, riding on sidewalks, laws regulating bike path and trail use, and so on. Many nations have helmet laws, child carrier laws and special bicycle traffic laws. In the U.S. and in most foreign countries, a cyclist is required to obey the same traffic laws as the driver of a car or motorcycle. It's your responsibility to know and obey the laws.
2. You are sharing the road or the path with others - motorists, pedestrians and other cyclists. Respect their rights, and be tolerant if they infringe on yours.
3. Ride defensively. Assume that the people with whom you are sharing the

road are so absorbed with what they are doing and where they are going that they are oblivious to you.

4. Look ahead of where you're going, and be ready to avoid:
- Vehicles slowing or turning in front of you, entering the road, or your lane ahead of you, or coming up behind you.
- Parked car doors opening in front of you.
- Pedestrians stepping out in front of you.
- Children playing near the road.
- Pot holes, sewer grating, railway tracks, expansion joints, road or pavement construction, debris and other obstructions that could cause you to swerve into traffic, catch your wheel or otherwise cause you to lose control and have an accident.
- The many other hazards and distractions which can occur on a bicycle ride.

5. Ride in designated bike lanes, on designated bike paths or on the right side of the road, in the same direction as car traffic and as close to the edge of the road as possible.

6. Stop at stop signs and traffic lights; slow down and look both ways at street intersections. Remember that a bicycle always loses in a collision with a motor vehicle, so be prepared to yield even if you have the right of way.

7. Use hand signals for turning and stopping. Learn the local vehicle code for the correct signals.

8. Never ride with headphones. They mask traffic sounds and emergency vehicle sirens, distract you from concentrating on what's going on around you, and their wires can tangle in the moving parts of the bicycle, causing you to lose control.

9. Never carry a passenger, unless it is a small child wearing an approved helmet and secured in a correctly mounted child carrier.

10. Never carry anything which obstructs your vision or your complete, control of the bicycle, or which could become entangled in the moving parts of the bicycle.

11. Never hitch a ride by holding on to another vehicle.

12. Don't do stunts, wheelies or jumps. They can cause you injury and damage your bike.

13. Don't weave through traffic or make any moves that may surprise people with whom you are sharing the road.

14. Observe and yield the right of way.

15. Never ride your bicycle while under the influence of alcohol or drugs.

16. If possible, avoid riding in bad weather, when visibility is obscured, at dusk or in the dark, or when extremely tired. Each of these conditions increases the risk of accident.

C. Rules of the Trail

1. Be prepared. If something goes wrong while you're riding off-road, the closest help may be miles away. See Section 8 for the equipment you should take with you on an off-road ride.

2. Don't ride alone in remote areas. Even when riding with others, make sure that someone knows where you're going and when you expect to be back.

3. Surface hazards make off-road riding much more difficult and therefore more dangerous than riding on paved roads. Start slowly and build up your skills on easier terrain before tackling the more difficult ones.

4. Learn and obey the local laws regulating where and how you can ride off-road, and respect private property. Don't ride where you are not welcome or where you are not allowed.

5. You are sharing the trail with others - hikers, equestrians, other cyclists. Respect their rights, and be tolerant if they inconvenience you.

6. Yield right of way to pedestrians and animals. Ride in a way that does not frighten or endanger them, and stay far enough away so that their unexpected moves don't endanger you...

7. You may be riding in sensitive habitat, so stay on the designated trail. Don't contribute to erosion by riding in mud or with unnecessary sliding. Don't disturb wildlife or livestock; and don't disturb the ecosystem by cutting your own trail through vegetation or streams.

8. It is your responsibility to minimize your impact on the environment. Ride accordingly. Leave things as you found them; and always take out everything you brought in.

D. Downhill Mountain Biking

To ride downhill at speed or in competition is to voluntarily assume an increased risk of injury or death. When riding downhill, you can reach speeds seen on motorcycles, and therefore face similar hazards and risks. Wear appropriate safety gear, including an approved full face helmet, full finger gloves, and body armor. Have your bicycle and equipment carefully inspected by a qualified mechanic and be sure it is in perfect condition. Consult with expert riders and race officials on conditions and equipment advisable at the site where you plan to ride.
Ultimately, it is your responsibility to have proper equipment and to be familiar with course conditions.

WARNING: Downhill mountain biking can lead to serious accidents. Wear appropriate safety gear and be sure your bike is in perfect condition. Follow all instructions above. Even with state-of-the-art protective safety gear, you could be seriously injured or killed when doing downhill mountain biking. If your bike has suspension, the increased speed you may develop also increases your risk. When braking, the front of a suspended bike dips.
You could lose control and fall if your skill is not up to handling this system. Get to know how to handle your suspension system safely before trying any downhill or very fast mountain biking.

E. Wet Weather Riding

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

Under wet conditions, the stopping power of your brakes (as well as the brakes of other vehicles sharing the road) is dramatically reduced and your tires don't grip nearly as well. This makes it harder to control speed and easier to lose control. To make sure that you can slow down and stop safely in wet conditions, ride more slowly and apply your brakes earlier and more gradually than you would under normal, dry conditions. See also Section 6.C.

F. Night Riding

Riding a bicycle at night is a lot times more dangerous than riding during the day. Therefore, children should never ride at dusk or at night.
Adults should not ride at dusk or at night unless it is absolutely necessary.

WARNING: Riding at dusk, after dark or at times of poor visibility without a bicycle lighting system which meets local and state laws and without reflectors is dangerous and can result in serious injury or death.

Even if you have excellent night vision, many of the people with whom you're sharing the road don't. A cyclist is very difficult for motorists and pedestrians to see at dusk, at night, or at other times of poor visibility. If you must ride under these conditions, check and be sure you comply with all local laws about night riding; follow the Rules of the Road and of the Trail even more carefully, and you must take the following additional precautions:

Before riding at dusk or at night:

Take the following steps to make yourself more visible:

- Make sure that your bicycle is equipped with correctly positioned and securely mounted reflectors (see Section 4 B).
- Purchase and install an adequate battery or generator powered head and tail light.
- Wear light colored, reflective clothing and accessories, such as a reflective vest, reflective arm and leg bands, reflective stripes on your helmet, flashing lights ... any reflective device or light source that moves will help you get the attention of approaching motorists, pedestrians and other traffic.
- Make sure your clothing or anything you may be carrying on the bicycle does not obstruct a reflector or light.

While riding at dusk or at night:

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

6. HOW THINGS WORK

It's important to your performance, enjoyment and safety to understand how things work on your bicycle. Even if you're an experienced bicyclist, don't assume that the way things work on your new bike is the same as how they work on older bikes. Be sure to read - and to understand - this section of the Manual. If you have even the slightest doubt as to whether you understand something, talk to your dealer.

A. Wheel Quick Release

WARNING: Riding with an improperly adjusted wheel quick release can allow the wheel to wobble or disengage from the bicycle, causing damage to the bicycle, and serious injury or death to the rider. Therefore, it is essential that you:

1. Ask your dealer to help you make sure you know how to install and remove your wheel safely.
2. Understand and apply the correct technique for clamping your wheel in place with a quick release.
3. Each time, before you ride the bike, check that the wheel is securely clamped.

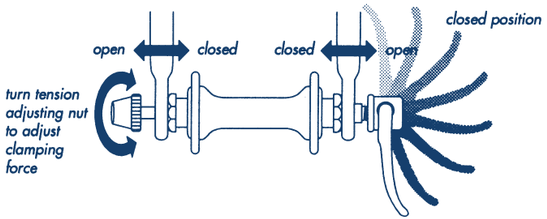
Invented in the 1930s to allow quick, easy wheel removal without the need for tools, the bicycle wheel quick release has become standard equipment on most recreational, sports and competition bicycles.

While it looks like a long bolt with a lever on one end and a nut on the other, the wheel quick release uses a cam action to clamp the bike's wheel in place (see fig. 11). Because of its adjustable nature, it is critical that you understand how it works and how to use it properly.

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

1. Adjusting the quick release mechanism

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



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

2. Front Wheel Secondary Retention Devices

Many bicycles have front forks which utilises a secondary wheel retention device to keep the wheel from disengaging if the quick release is incorrectly adjusted. Secondary retention devices are not a substitute. For correct quick release adjustment.

Secondary retention devices fall into two basic categories:

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

Ask your dealer to explain the particular secondary retention device on your bike.

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

3. Removing or Installing Quick Release Wheels

a. Removing a Quick Release Front Wheel

(1) Open up the brake shoes (see Section 6.C.1, Figs. 16a, b, c and d).
(2) Rotate the wheel's quick-release lever from the locked or CLOSED position to the OPEN position (Fig. 11, 12 & 13).
(3) If your front fork does not have a secondary retention device go to step 5.
(4) If your front fork has a clip-on type secondary retention device, disengage it and go to step (5). If your front fork has an integral secondary retention device, loosen the tension adjusting nut about six full turns;
(5) Raise the front wheel a few inches off the ground and tap the top of the wheel with the palm of your hand to knock the wheel out of the front fork.

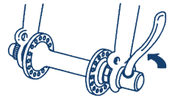


fig. 12 QR Closed Position

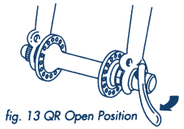


fig. 13 QR Open Position

b. Installing a Quick Release Front Wheel

(1) Rotate the quick-release lever so that it curves away from the wheel (Fig. 11 & 13). This is the OPEN position.
(2) With the steering fork facing forward, insert the wheel between the fork blades so that the axle sits firmly at the top of the slots which are at the tips of the fork blades - the fork dropouts. The quick-release lever should be on the left side of the bicycle (Fig. 12 & 13). If your bike has a clip-on type secondary retention device, engage it.
(3) Holding the quick-release lever in the OPEN position with your right hand, tighten the tension adjusting nut with your left hand until it is finger tight against the fork dropout (Fig. 11).
(4) While pushing the wheel firmly to the top of the slots in the fork dropouts, and at the same time centering the wheel rim in the fork, rotate the quick-release lever upwards and push it into the CLOSED position (Fig. 11 & 12). The lever should be parallel to the fork blade and curved towards the wheel.

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

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

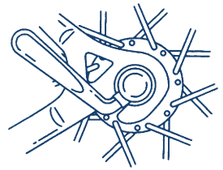
WARNING: Secondary retention devices are not a substitute for correct quick release adjustment. Failure to property adjust the quick release mechanism can cause the wheel to wobble or disengage, which could cause you to loose control and fall, resulting in serious injury or death.

c. Removing a Quick Release Rear Wheel

(1) Open up the brake shoes (see Section 6.C.1, Figs. 16a, b, c and d).
(2) Shift the rear derailleur to high gear (the smallest, outermost rear sprocket) and pull the derailleur body back with your right hand.
(3) Rotate the quick-release lever to the OPEN position (Fig. 11 & 13).
(4) Lift the rear wheel off the ground a few inches and, with the derailleur still pulled back, push the wheel forward and down until it comes out of the rear dropouts.

d. Installing a Quick Release Rear Wheel

(1) Shift the rear derailleur to its outermost position.
(2) Pull the derailleur body back with your right hand.
(3) Rotate the quick-release lever to the OPEN position (see Fig 11). The lever should be on the side of the wheel opposite the derailleur and freewheel sprockets.
(4) Put the chain on top of the smallest freewheel sprocket. Then, insert the wheel into the frame dropouts and pull it all the way in to the dropouts (Fig. 14).
(5) Tighten the adjusting nut until it is ringer is tight against the frame dropout; then rotate the lever toward the front of the bike until it is parallel to the frame's chainstay or seatstay tube and is curved toward the wheel (Fig. 14).



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

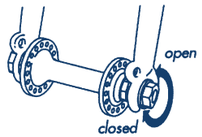
(6) If the lever cannot be pushed all the way to a position parallel to the chainstay or seatstay tube, return the lever to the OPEN position. Then turn the adjusting nut counterclockwise one-quarter turn and try tightening again.

(7) Push the rear derailleur back into position.
(8) Close the brake shoes; then spin the wheel to make sure that it is centered in the frame and clears the brake shoes.

4. Removing and Installing Bolt-On Wheels

a. Removing a Bolt-On Front Wheel

(1) Open up the brake shoes (see Section 6.C. 1, Figs. 16a, b, c and d).
(2) With a 15mm box wrench or a six inch adjustable wrench, loosen the two axle nuts.
(3) If your front fork has a clip-on type secondary retention device, disengage it and go to step (4) If your front fork has an integral secondary retention device, loosen the axle nuts about six full turns; then go to step (4).
(4) Raise the front wheel a few inches off the ground and tap the top of the wheel with the palm of your hand to knock the wheel out of the fork ends.

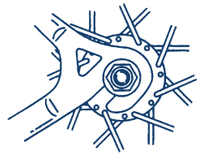


b. Installing a Bolt-On Front Wheel

(1) With the steering fork facing forward, insert the wheel between the fork blades so that the axle seats firmly at the top of the slots which are at the tips of the fork blades. The axle nut washers should be on the outside, between the fork blade and the axle nut. If your bike has a clip-on type secondary retention device, engage it.
(2) While pushing the wheel firmly to the top of the slots in the fork dropouts, and at the same time centering the wheel rim in the fork, use a six-inch adjustable wrench or a 15mm box wrench to tighten the axle nuts as tight as you can.
(3) Close the brake shoes; then spin the wheel to make sure that it is centered in the frame and clears the brake shoes.

c. Removing a Bolt-On Rear Wheel

(1) Open the rear brake shoes (see Section 6.C. 1, Figs. 16a, b, c and d).
(2) Shift the rear derailleur to high gear (the smallest rear sprocket) and pull the derailleur body back with your right hand
(3) With a 15mm box wrench or a six-inch adjustable wrench, loosen the two axle nuts.
(4) Lift the rear wheel off the ground a few inches and, with the derailleur still pulled back, push the wheel forward and down until it comes out of the rear dropouts.



d. Installing a Bolt-On Rear Wheel

(1) Shift the rear derailleur to its outermost position and pull the derailleur body back with your right hand.
(2) Put the chain on to the smallest sprocket. Then, insert the wheel into the frame dropouts and pull it all the way in to the dropouts. The axle nut washers should be on the outside, between the frame and the axle nut.
(3) Tighten the axle nut as tightly as you can, using a six-inch adjustable wrench or a 15mm box wrench.
(4) Push the rear derailleur back into position.
(5) Close the brake; then spin the wheel to make sure that it is centered in the frame and clears the brake shoes.

B. Seatpost Quick Release

Many mountain bikes are equipped with quick-release seat post binders. The seatpost quick-release binder works similar to the wheel quick-release (Section 6.A.1) While a quick release looks like a long bolt with a lever on one end and a nut on the other, the quick release uses a cam action to firmly clamp the seat post (see Figs. 7B and 11).

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

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

Adjusting the quick release mechanism

The action of the quick release cam squeezes the seat collar around the seat post to hold the seat post securely in place. The amount of clamping force is controlled by the tension adjusting nut. Turning the tension adjusting nut clockwise while keeping the cam lever from rotating increases clamping force; turning it counterclockwise while keeping the cam lever from rotating reduces clamping force. **Less than half a turn of the tension adjusting nut can make the difference between safe clamping force and unsafe clamping force.**

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

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

C. Brakes

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

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

1. How brakes work

It's important to your safety that you instinctively know which brake lever controls which brake on your bike. In the U.S., bikes are required to be set up with the right brake lever controlling the rear brake, and the left lever controlling the front brake.
The braking action of a bicycle is a function of the friction between the brake surfaces usually the brake shoes and the wheel rim. To make sure that you have maximum friction available, keep your wheel rims and brake shoes clean and free of lubricants, waxes or polishes.

Make sure that your hands can reach and squeeze the brake levers comfortably. If your hands are too small to operate the levers comfortably, consult your dealer before riding the bike. The lever reach may be adjustable; or you may need a different brake lever design.

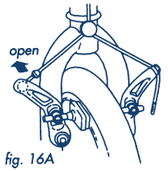


fig. 16A

Most brakes have some form of quick release mechanism to allow the brake shoes to clear the tire when a wheel is removed or reinstalled. When the brake quick release is in the open position, the brakes are inoperative. Ask your dealer to make sure that you understand the way the brake quick release works on your bike (see Fig. 16A, B,C &D) and check each time to make sure both brakes work correctly before you get on the bike.

Brakes are designed to control your speed, not just to stop the bike. Maximum braking force for each wheel occurs at the point just before the wheel "locks up" (stops rotating) and starts to skid. Once the tire skids, you actually lose most of your stopping force and all directional control.
You need to practice slowing and stopping smoothly without locking a wheel. The technique is called progressive brake modulation. Instead of jerking the brake lever to the position where you think you'll generate appropriate braking force, squeeze the lever, progressively increasing the braking force. If you feel the wheel begin to lock up, release pressure just a little to keep the wheel rotating just short of lockup. It's important to develop a feel for the amount of brake lever pressure required for each wheel of different speeds and on different surfaces, to better understand this, experiment a little by walking your bike and applying different amounts of pressure to each brake lever, until the wheel locks.

WARNING: Some bicycle brakes, such as linear-pull and disc brakes, are extremely powerful. You should take extra care in becoming familiar with these brakes and exercise particular care when using them. Applying these brakes too hard or too suddenly can lock up a wheel, which could cause you to lose control and fall.

When you apply one or both brakes, the bike begins to slow, but your body wants to continue at the speed at which if was going. This causes a transfer of weight to the front wheel (or, under heavy braking, around the front wheel hub, which could send you flying over the handlebars). A wheel with more weight on it will accept greater brake pressure before lockup; a wheel with less weight will lock up with less brake pressure. So, as you apply brakes and your weight shifts forward, you need to transfer your body toward the rear of the bike, to transfer weight back on to the rear wheel; and at the same time, you need to both decrease rear braking and increase front braking force. This is even more important on sleep descents, because descents shift weight forward.
The keys to effective speed control and safe stopping are controlling wheel lockup and weight transfer. Practice braking and weight transfer techniques where there is no traffic

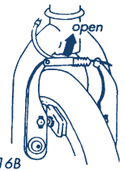


fig. 16B



fig. 16C

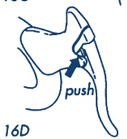
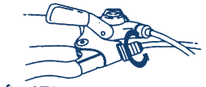


fig. 16D

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

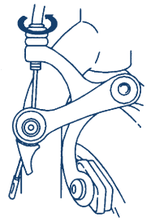
2. Adjusting your brakes

If either brake lever on your bike fails the Mechanical Safety Check (Section 4.C) you can restore brake lever travel by turning the brake cable adjusting barrel (Fig. 17A&B) counterclockwise, then lock the adjustment in by turning the barrel's lock nut clockwise as far as it will go. If the lever still fails the Mechanical Safely Check, have your dealer check the brakes.


fig. 17A
Brake Lever adjusting Barrel

D. Shifting

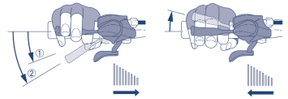
Your multi-speed bicycle will have a derailleur drivetrain (see 2. below), an internal gear hub drivetrain (see 3. below) or, in some special cases, a combination of the two.



1. Why all those gears?

You will get the greatest fitness benefit, produce the greatest sustained power and have the greatest endurance if you learn to spin the pedals at high revolutions per minute (called cadence) against low resistance. You will get the least fitness benefit and have the least endurance by pushing hard on the pedals against heavy resistance. The purpose of having multiple gears on a bicycle is to let you chose the gear that allows you to maintain your optimum cadence under the widest range of riding conditions. Depending on your fitness level and experience (the more fit, the higher the cadence), optimum cadence is between 60 and 90 pedal revolutions per minute.

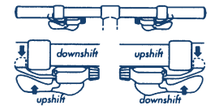
2. Shifting a derailleur drivetrain



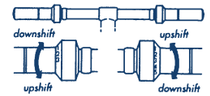
If your bicycle has a derailleur drivetrain, the gear-changing mechanism will consist of:

- a rear sprocket cluster called a free wheel or freewheel cassette
- a rear derailleur
- usually a front derailleur
- one or two shifters
- one or two control cables
- one, two or three front sprockets called chainrings
- a drive chain

The number of possible gear combinations ("speeds") is the product of multiplying the number of sprockets at the rear of the drivetrain by the number of sprockets at the front (6x2 =12,6x3= 18, 7x3 =21 and so on).







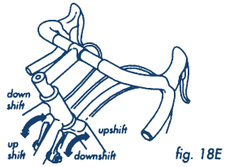


fig. 18E

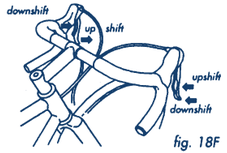


fig. 18F

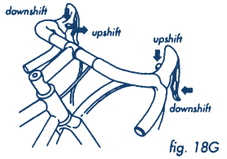


fig. 18G

a. Shifting Gears

There are many different types of shifter mechanisms, each preferred (or specific types of application because of its ergonomic, performance and price characteristics. The designers of your bike have selected the shifter design which they believe will give the best results on your bike. The different types of shifters and their operation are illustrated in Figures 18A through 18H. Identify the shifters on your bike before reading on.

The vocabulary of shifting can be pretty confusing. A downshift is a shift to a "slower" gear, one which is easier to pedal. An upshift is a shift to a "faster", harder to pedal gear. What's confusing is that what's happening at the front derailleur is the opposite of what's happening at the rear derailleur (for details, read the instructions on **Shifting the Rear Derailleur and Shifting the Front Derailleur** below).

For example, you can select a gear which will make peddling easier on a hill (make a downshift) in one of two ways: shift the chain down the gear "steps" to a lower gear at the front, or up the gear "steps" to a higher gear at the rear. So, at the rear gear cluster, what is called a downshift looks like an upshift. The way to keep things straight is to remember that shifting the chain in towards the centerline of the bike is for accelerating and climbing and is called a downshift. Moving the chain out or away from the centerline of the bike is for speed and is called an upshift.

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

CAUTION: Never move the shifter while pedaling backward, nor pedal backwards after having moved the shifter. This could jam the chain and cause serious damage to the bicycle.

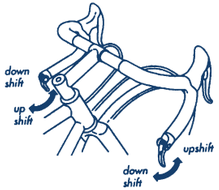


fig. 18H

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

1. Shifting the Rear Derailleur

The rear derailleur is controlled by the right shifter.

The function of the rear derailleur is to move the drive chain from one gear to another on the rear gear cluster, thereby changing gear drive ratios. The smaller sprockets on the gear cluster produce higher gear ratios. Pedaling in the higher gears requires greater pedaling effort, but takes you a greater distance with each revolution of the pedal cranks. The larger sprockets produce lower gear ratios. Using them requires less pedaling effort, but takes you a shorter distance with each pedal crank revolution. Moving the chain from a smaller sprocket of the gear cluster to a larger sprocket results in a downshift. Moving the chain from a larger sprocket to a smaller sprocket results in an upshift. In order for the derailleur to disengage the chain from one sprocket and move it on to another, the chain must be moving forward (i.e. the rider must be pedaling forward).

2. Shifting the Front Derailleur:

The front derailleur, which is controlled by the left shifter, shifts the chain between the larger and smaller chainrings. Shifting the chain onto a smaller chainrings makes pedaling easier (a downshift). Shifting to a larger chainring makes pedaling harder (an upshift).

Which gear should I be in?

The combination of largest rear, smallest front gears (Fig. 19) is for the steepest hills. The smallest rear, largest front combination (Fig. 19) is for the greatest speed. It is not necessary to shift gears in sequence. Instead, find the "starting gear" which is right for your level of ability - a gear which is hard enough for quick acceleration but easy enough to let you start from a stop without wobbling - and experiment with upshifting and downshifting to get a feel for the different gear combinations. At first, practice shifting where there are no obstacles, hazards or other traffic, until you've built up your confidence. Once you've learned the basics, experience will teach you which gear is appropriate for which condition, and practice will help you shift smoothly and at precisely the optimum moment.

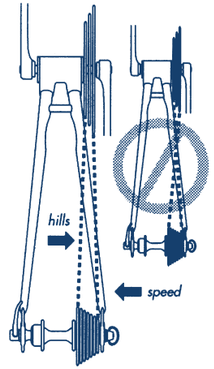


fig. 19 Chain

3. Shifting an internal gear hub drivetrain

If your bicycle has an internal gear hub drivetrain, the gear changing mechanism will consist of:

- a 3, 5, 7 or possibly 12 speed internal gear hub
- one, or sometimes two, shifters
- one or two control cables
- one front sprocket called a chainring
- a drive train

a) Shifting internal gear hub gears

Shifting with an internal gear hub drivetrain is simply a matter of moving the shifter to the indicated position for the desired gear.

After you have moved the shifter to the gear position of your choice, ease the pressure on the pedals for an instant to allow the hub to complete the shift.

b) What gear should I be in?

The numerically lowest gear (1) is (for the steepest hills. The numerically largest gear (3, 5, 7 or 12, depending on the number of speeds of your hub) is for the greatest speed.

Shifting from an easier, "slower" gear (like 1) to a harder, "faster" gear (like 2 or 3) is called an upshift. Shifting from a harder, "faster" gear to an easier, "slower* gear is called a downshift. It is not necessary to shift gears in sequence. Instead, find the "starting gear" for the conditions a gear which is hard enough for quick acceleration but easy enough to let you start from a stop without wobbling and experiment with upshifting and downshifting to get a feel for the different gears. At first, practice shifting where there are no obstacles, hazards or other traffic until you've built up your confidence. Once you've learned the basics, experience will teach you which gear is appropriate (or which condition, and practice will help you shift smoothly and at precisely the optimum moment.

E. Toeclips & Straps

Toeclips and straps are the traditional means which experienced cyclists use to keep their feet correctly positioned and engaged with the pedals. The toeclip positions the ball of the foot over the pedal spindle, which gives maximum pedaling power. The toe strap, when tightened, keeps the foot engaged throughout the rotation cycle of the pedal. While toeclips and straps give some benefit with any kind of shoe, they work most effectively with cycling shoes designed for use with toeclips. Your dealer can explain how toeclips and straps work.

WARNING: Getting into and out of pedals with toeclips and straps requires skill which can only be acquired with practice. Until it becomes a reflex action, the technique requires concentration which can distract the rider's attention, causing you to lose control and fall. Practice the use of toeclips and straps where there are no obstacles, hazards or traffic. Keep the straps loose, and don't tighten them until your technique and confidence in getting in and out of the pedals warrants it. Never ride in traffic with your toe straps tight.

F. Clipless ("step-in") pedals

Clipless pedals (sometimes called "step-in pedals") are the means most racers use to keep their feet securely in the correct position for maximum pedaling efficiency. They work like ski bindings... a plate on the sole of the shoe clicks into a spring-loaded fixture on the pedal. Clipless pedals require shoes specifically designed for the make and model pedal being used.

Many clipless pedals are designed to allow the rider to adjust the amount of force needed to engage or disengage the foot. Your dealer can show you how to make this adjustment.

WARNING: Clipless pedals are intended for use with shoes specifically made to fit them and are designed to firmly keep the foot engaged with the pedal. Practice is required to learn to engage and disengage the foot safely. Until engaging and disengaging the foot becomes a reflex action, the technique requires concentration which can distract the rider's attention, causing the rider to lose control and fall. Practice engaging and disengaging clipless pedals in a place where there are no obstacles, hazards or traffic; and be sure that you follow the setup and service instructions and warnings which came with your pedals.

G. Tyres and Tubes

1. Tyres

Bicycle tyres are available in many designs and specifications, ranging from general purpose designs to tyres designed to perform best under very specific weather or terrain conditions. Your bicycle has been equipped with tyres which the bike's manufacturer felt were the best balance of performance and value for the use for which the bike was intended. If, once you've gained experience with your new bike, you feel that a different tyre might better suit your riding needs, your dealer can help you select the most appropriate design. The size, pressure rating, and on some high-performance tyres the specific recommended use, are marked on the sidewall of the tyre (see Fig. 20). The part of this information which is most important to you is Tyre Pressure.



WARNING: Never inflate a tire beyond the maximum pressure marked on the tyre's sidewall Exceeding the recommended maximum pressure may blow the tire off the rim, which could cause damage to the bike and injury to the rider and bystanders.

The best way to inflate a bicycle tire to the correct pressure is with a bicycle pump. Your dealer can help you select an appropriate pump.

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

Tire pressure is given either as maximum pressure or as a pressure range. How a tyre performs under different terrain or weather conditions depends largely on tyre pressure.

Inflating the tire to near its maximum recommended pressure gives the lowest rolling resistance; but also produces the harshest ride. High pressures work best on smooth, dry pavement.

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

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

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

Ask your dealer to recommend the best tire pressure for the kind of riding you will most often do, and have the dealer inflate your tyres to that pressure. Then, check inflation as described in Section 4.C so you'll know how correctly inflated tires should look and feel. Some tires may need to be brought up to pressure every week or two.

Some special high-performance tires have **unidirectional treads**: their tread pattern is designed to work better in one direction than in the other. The sidewall marking of a unidirectional tire will have an arrow showing the correct rotation direction. If your bike has unidirectional tyres, be sure that they ore mounted to rotate in the correct direction.

2. Tire Valves

The tire valve allows air to enter the tyre's inner tube under pressure, but doesn't let it back out unless you want it to.

There are primarily two kinds of bicycle tube valves (actually, there are other designs, but they are seldom seen in the US any more): The **Schraeder** Valve and the **Presta** Valve. The bicycle pump you use must have the fitting appropriate to the valve stems on your bicycle.

The Schraeder

(Fig. 2 la) is like the valve on a car tyre. To inflate a Schraeder valve tube, remove the valve cap and push the air hose or pump fitting onto the end of the valve stem. To let air out of a Schraeder valve, depress the pin in the end of the valve stem with the end of a key or other appropriate object.

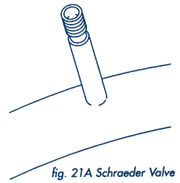


fig. 21A Schraeder Valve

The Presta valve

(Fig. 21b) has a narrower diameter and is only found on bicycle tyres. To inflate a Presta valve tube using a Presta headed bicycle pump, remove the valve cap; unscrew (counterclockwise) the valve stem lock nut; and push down on the valve stem to free it up. Then push the pump head on to the valve heal and inflate. To inflate a Presta valve with a gas station air hose, you'll need a Presto adapter (available at your bike shop) which screws onto the valve stem once you've freed up the valve. The adapter fits the end of the air hose fitting.
To let air out of a Presta valve, open up the valve stem lock nut and depress the valve stem.

H. Bicycle Suspension

Some Mountain Bikes come equipped with suspension systems which are designed to smooth out some of the shocks encountered in off-road riding. There are many different types of suspension systems - too many to deal with individually in this Manual. If your bicycle has a suspension system of any kind, ask your dealer to provide you with the appropriate adjustment and maintenance instructions.

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

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

CAUTION: Not all bicycles can be safely retrofitted with some types of suspension systems. Before retrofitting a bicycle with any suspension, check with the bicycle's manufacturer to make sure that what you want to do is compatible with the bicycle's design.

WARNING: If your bike has suspension, the increased speed you may develop also increases your risk. When braking, the front of a suspended bike dips. You could lose control and fall if your skill is not up to handling this system. Get to know how to handle your suspension system safely before trying any downhill or very fast mountain biking.

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

7. SERVICE AND MAINTENANCE

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

Equally important is that your individual maintenance requirements will be determined by everything from your riding style to geographic location. Consult your dealer for help in determining your maintenance requirements.

How much of your bike's service and maintenance you can do yourself depends on your level of skill and experience, and on whether you have the special tools required.

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

If you want to learn to do major service and repair work on your bike, you have three options:

1. Ask your dealer whether copies of the manufacturer's installation and service instructions for the components on your bike are available.
2. Ask your dealer to recommend a book on bicycle repair.
3. Ask your dealer about the availability of bicycle repair courses in your area.

Regardless of which option you select, we recommend that you ask your dealer to check the quality of your work the first time you work on something and **before** you ride the bike, just to make sure that you have done everything correctly. Since this will require the time of a mechanic, there may be a modest charge for this service.

A. Service & Maintenance Schedule

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

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

1. Break-in Period:

Your bike will last longer and work better if you break it in before riding it hard. Control cables and wheel spokes may stretch or seat when a new bike is first used and may require readjustment by your dealer. Your Mechanical Safety Check (Section 4.C) will help you identify some things that need readjustment. But even if everything seems fine to you, it's best to take your bike back to the dealer for a checkup. Dealers typically suggest you bring the bike in for a 30 day checkup. Another way to judge when it's time for the first checkup is to bring the bike in after three to five hours of hard off-road use, or about 10 to 15 hours of on-road or more casual off-road use. But if you think something is wrong with the bike, take it to your dealer before riding it again.

2. Before every ride:

Mechanical Safety Check (see Section 4.C)

3. After every long or hard ride; if the bike has been exposed to water or grit; or at least every 100 miles:

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

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

- Squeeze the front brake and rock the bike forward and back. Everything feel solid? If you feel a clunk with each forward or backward movement of the bike, you probably have a loose headset. Have your dealer check it.
- Lift the front wheel off the ground and swing it from side to side. Feel smooth? If you feel any binding or roughness in the steering, you may have a tight headset. Have your dealer check it.
- Grab one pedal and rock it toward and away from the centerline of the bike; then do the same with the other pedal. Anything feel loose? If so, have your dealer check it.
- Take a look at the brake shoes. Starting to look worn or not hitting the wheel rim squarely? Time to have the dealer adjust or replace them.
- Check the control cables and cable housings. Any rust? Kinks? Fraying? If so, have your dealer replace them.
- Squeeze each adjoining pair of spokes on either side of each wheel between your thumb and index finger. Do they all feel about the same? If any feel loose, have your dealer check the wheel for tension and trueness.
- Check the frame, particularly in the area around all tube joints, the handlebars, the stem and the seatpost for any deep scratches, cracks or discoloration. These are signs of stress-caused fatigue and indicate that a part is at the end of its useful life and needs to be replaced.
- Check to make sure that all parts and accessories are still secure, and tighten any which are not.

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

5. As required:

If either brake lever fails the Mechanical Safety Check (Section 4.C): restore brake lever travel by turning the brake cable adjusting barrel counterclockwise, then lock the adjustment in by turning the barrel's lock nut clockwise as far as it will go. If the lever still fails the Mechanical Safety Check, have your dealer check the brakes.

If the chain won't shift smoothly and quietly from gear to gear: the derailleur is out of adjustment. The cause may be as simple as cable stretch, in which case you can compensate by turning the shifter or derailleur cable adjusting barrel counterclockwise Vi turn. Try shifting again. If Vi turn to a full turn of the cable adjusting barrel does not cure the problem, see your dealer.

6. Every 25 (hard off-road) to 50 (on-road) hours of riding:

Take your bike to your dealer for a checkup.

Torque Force Specifications

Handlebar binder bolt 150 to 180 in.-lbs.	or	170 - 200 cm.-kgf.
Stem binder bolt: 175 to 260 in.-lbs.	or	200 - 300 cm.-kgf.
Stem to steerer binder: 100 to 120 in.-lbs.	or	115 -140 cm.-kgf.
Seat binder bolt 150 to 180 in.-lbs.	or	170 - 200 cm.-kgf.
Saddle damp bob: 175 to 350 in.-lbs.	or	200 - 400 cm.-kgf.
Wheel cede nuts: 130 to 210 in.-lbs.	or	150 - 250 cm.-kgf.

8. GETTING HOME WHEN SOMETHING BREAKS

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

- 4mm, 5mm and 6mm Alien wrenches, used to tighten various clamping bolts that may loosen
- Patch kit and a spare inner tube
- Tire levers
- Tire pump or cartridge inflator with correct head to fit your tire valves (see Section 6.G.2)
- Some kind of identification (so people know who you are in case of an accident)
- A couple of dollars in cash (for a candy bar, cool drink or emergency phone call)

1. If you get a flat tire:

Depress the tire valve to let all the air out of the tube (see Section 6.G.2).
Remove the wheel from the bicycle (see Section 6.A.3 or 4).
Remove one bead of the tire from the rim by grasping it at a point opposite the valve stem with both hands and, at the same time, lifting and peeling one side of the tire off the rim. If the bead is on too tight for you to unseat it with your hands, use tire levers to lift the bead carefully over the tire rim. Remove the valve lock nut (if the valve has one) and push the valve stem through the wheel rim. Remove the inner tube.

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

Either patch the tube (follow the instructions in your patch kit), or use a new one.

WARNING: Patching a tube is an emergency repair. Careless patching or applying several patches can seriously weaken the tube, resulting in possible tube failure, which could cause you to lose control and fall. Replace a patched tube as soon as possible.

Reinstall the tire and tube. Slip one tire bead over the rim. Insert the tube valve through its hole in the rim, but don't secure it with the locknut yet. Feed the tube carefully into the cavity of the tire. Inflate the tube just enough to give it some shape. Starting at the valve stem and working around both sides of the rim to the side opposite the valve stem, use your thumbs to push and seat the other bead of the tire inside the rim. Be careful not to pinch the tube between the tire bead and the wheel rim. If you have trouble getting the last few inches of bead over the edge of the rim with thumb pressure, use a tire lever and be careful not to pinch the tube.

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

Check to make sure the tire is evenly seated around both sides of the rim and that the tube is inside the tire beads. Push the valve stem into the tire to make sure that it's base is seated within the tire's beads. Inflate the tube slowly to the recommended pressure (see Section 6.G), all the while checking to make sure that the tire beads stay seated in the rim. Screw down the valve stem locknut finger-tight. Secure the valve locknut (Presto valve). Replace the valve cap. Replace the wheel in the bike (see Section 6.A.3 or 4).

WARNING: Riding your bicycle with a flat or under-inflated lire can seriously damage the tire, tube and bicycle, and can cause you to lose control and fall.

2. If you break a spoke:

A wheel with a loose or broken spoke is much weaker than a fully tensioned wheel. If you break a spoke while on a ride, do not ride your bicycle, as the spoke may strike or get caught in the fork blades or the drive train and cause you to fall.

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

3. If your bicycle sustains an impact or you crash:

WARNING: A crash can put extraordinary stress on bicycle components, causing them to fatigue prematurely. Component's suffering from stress fatigue can fail suddenly and catastrophically, causing loss of control, serious injury or death.

First, check yourself for injuries, and take care of them as best you can. Seek medical help if necessary.

Next, check your bike for damage, and fix what you can.
Then, when you get home, carefully perform the checks described in Section 7.A.4 and check for any other damaged parts. All bent, scored or discoloured parts are suspect and should be replaced.

CAUTION: After any crash or serious fall, return your bicycle to your Authorized Dealer for a thorough inspection.

9. UPGRADING YOUR BIKE AND YOUR EQUIPMENT

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

Even if you are an experienced rider, don't assume you can properly install and operate these components or accessories without first reading any instruction that are enclosed with the product.

Be sure to read, and understand, the instructions that accompany the products you purchase for your bicycle.

If you have the slightest doubt as to their suitability or about your ability to install them correctly, consult your Authorized Dealer.

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

a) Comfort and Convenience Accessories

Once the bike fit (frame size, saddle position and angle, stem length and rise) is correct, the saddle becomes the single most important comfort accessory.

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

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

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

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

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

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

b) Performance Upgrades

CAUTION: Changing the components on your bike may void the warranty. To avoid voiding your warranty, check with your dealer before changing the components on your bike.

The most popular way to improve the performance of a bicycle is to substitute **higher priced drivetrain or brake components**.

Before attempting to upgrade your drivetrain or brakes, make sure that the components you plan to install are fully compatible with the rest of the components on your bike. Your Authorized Dealer can help you determine component compatibility and resolve compatibility conflicts.

Another popular way to improve the performance of a bicycle is to substitute **lighter weight "racing" components**. Lighter wheels, tires, handlebars and so on can enhance the performance of your bike; but you must always keep in mind that light weight racing components are not intended to have the life expectancy of their heavier counter parts, and you must therefore exercise extra care in checking for signs of stress fatigue (see Section 7.4).

Because it is impossible to test all combinations of components, we cannot guarantee that a component you select will be appropriate or safe when used with your bicycle.

Suspension forks are also a popular component upgrade. Before installing a

suspension fork on a non-suspension bike or installing a fork with different travel or geometry characteristics than the original fork on the bicycle, you must make sure that the frame is designed to take the change in geometry and the changes in stress characteristics which the change in fork can cause. Ask your dealer to check with the bike's manufacturer, or check with the manufacturer's technical support staff yourself, before installing a different fork on your bicycle.

WARNING: Suspension folks, particularly the "double clamp" and "triple clamp" designs favoured by downhill racers, put stresses on the head tube and front part of the bicycle frame which may be beyond the frame designer's original intent. Such stresses can result in sudden, catastrophic frame failure, which can cause serious injury or death.

Disc brakes are becoming a more common mountain bike performance upgrade. Most front suspension forks are designed to accept a disc brake, and can take the added stresses at the brake mounting points.
Be sure that the fork you are using is designed to accept disc brake stresses. Most bicycle frames, however, were not designed for the stresses which a rear disc brake can put on the seatstay or chainstay.
Before attempting to install a rear disc brake, ask your dealer to check with the bike's manufacturer, or check with the manufacturer's technical support staff yourself, to make sure that the frame can absorb the localised stresses at the disc brake's mounting points.

WARNING: Rear disc brakes put stresses on the seatstay or chainstay which may be beyond the frame designer's original intent. Such stresses can result in sudden, catastrophic frame failure, which can cause serious injury or death.

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

10. ABOUT YOUR AUTHORIZED DEALER

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

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

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

RACE PRODUCTIONS N.V. LIMITED WARRANTY

Race Productions N.V., a Belgium Corporation located at 3980 Tessenderlo, Belgium, makes the following Limited Warranty concerning Ridley bicycles and framesets:

LIMITED TWO (2) - YEAR WARRANTY ON COMPLETE BICYCLE

Subject to the following limitations, terms and conditions, Race Productions N.V. warrants to the original owner of each new Ridley bicycle that this bicycle when new is free of defective materials and workmanship.
This warranty shall expire two (2) - year from the date of the original purchase from an authorized Ridley dealer and is conditioned upon the bicycle being operated under normal conditions and use, and properly maintained. This warranty is void if the bicycle was not purchased new from or not properly assembled by an authorized Ridley dealer.

LIMITED FIVE (5) - WARRANTY ON BICYCLE FRAMES AND FRAMESETS

Subject to the following limitations, terms and conditions. Race Productions N.V. warrants to the original owner for five (5) - year of each Ridley frameset from the date of purchase from an authorized Ridley dealer.
The five years limited warranty is conditioned upon the bicycle being operated under normal conditions and use, and properly maintained.
This limited warranty does not apply to paint/finish or components attached to the bicycle/frameset such as front forks, wheels, drive train, brakes, seatpost, handlebar and stem or any suspension related parts or components. Paint/finish of the frame is covered under the limited two (2) - year warranty. Components assembled to the bicycle/frameset such as wheels, drive train, brakes, seatpost, handlebar and stem or any suspension related parts or components are covered under the limited warranty of their manufacturers.
This warranty is void if the bicycle or frameset was not purchased new from or not properly assembled by an authorized Ridley dealer.

ADDITIONAL CONDITIONS

This Limited Warranty is made only to the original owner of this new Ridley bicycle or frameset purchased from an authorized Ridley dealer, and it shall remain in force only as long as the original owner retains ownership of the Ridley bicycle. This Limited Warranty is not transferable.

In order to exercise your rights under this limited warranty, the bicycle or frameset must be presented to an authorized Ridley dealer, together with a receipt, bill of sale or other appropriate written proof of purchase which identifies the bicycle or frameset by serial number. Should this bicycle, frameset or any part be determined by Race Productions N.V. to be covered by this warranty, it will be repaired or replaced, at Race Productions N.V. sole option, which will be conclusive and binding. The original owner shall pay all labour charges connected with the repair or replacement of all parts. Under no circumstances does this limited warranty include the cost of travel or shipment to and from an authorized Ridley dealer. Such costs, if any, shall be borne by the original owner.

This limited warranty does not apply to normal wear and tear, nor to claimed defects, malfunctions or failures that result from abuse, neglect, improper assembly, improper maintenance, alteration, collision, crash or misuse. This bicycle or Frameset has not been designed, engineered, distributed, manufactured, or retailed for uses in trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, commercial activities, or any similar activities; such uses may damage the bicycle, can cause serious injury to the rider, and in all cases will void this warranty.

USEFUL PRODUCT LIFE CYCLE

Every Ridley bicycle and frameset has a useful product life cycle.
The length of that useful product life cycle will vary with the construction and materials of the bicycle or frameset, the maintenance and care the bicycle or frameset receives over its useful product life cycle, and the type and amount of use the bicycle or frameset is subject to. Uses in competitive events, trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, commercial activities and other types of non-standard use can dramatically shorten the useful product life cycle of a Ridley bicycle or frameset. Any one or a combination of these conditions may result in an unpredictable failure of a Ridley bicycle or frameset that would not be covered by this warranty. All RIDLEY BICYCLES AND FRAMESETS SHOULD BE PERIODICALLY CHECKED BY AN AUTHORIZED RIDLEY DEALER, for indicators of stress and/or potential failure, including cracks, deformation, corrosion, paint peeling, dents, and any other indicators of potential problems, inappropriate use, or abuse. These are important safety checks and very important to help prevent accidents, bodily injury to the rider and shortened useful product life cycle of a Ridley bicycle or frameset.

THIS IS AN INTEGRATED AND FINAL STATEMENT OF RACE PRODUCTIONS N.V.'S LIMITED WARRANTY. RACE PRODUCTIONS N.V. DOES NOT AUTHORIZE OR ALLOW ANYONE, INCLUDING ITS AUTHORIZED DEALERS, TO EXTEND ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, FOR RACE PRODUCTIONS N.V.. NO OTHER REPRESENTATION, AND NO STATEMENT OF ANYONE BUT RACE PRODUCTIONS N.V., INCLUDING A DEMONSTRATION OF ANY KIND BY ANYONE SHALL CREATE ANY WARRANTY REGARDING THIS BICYCLE OR FRAMESET. ALL OF THE REMEDIES AVAILABLE TO THE ORIGINAL OWNER ARE STATED HEREIN. IT IS AGREED THAT RACE PRODUCTIONS N.V.'S LIABILITY UNDER THIS LIMITED WARRANTY SHALL BE NO GREATER THAN THE AMOUNT OF THE ORIGINAL PURCHASE PRICE AND IN NO EVENT SHALL RACE PRODUCTIONS N.V. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

DISCLAIMER

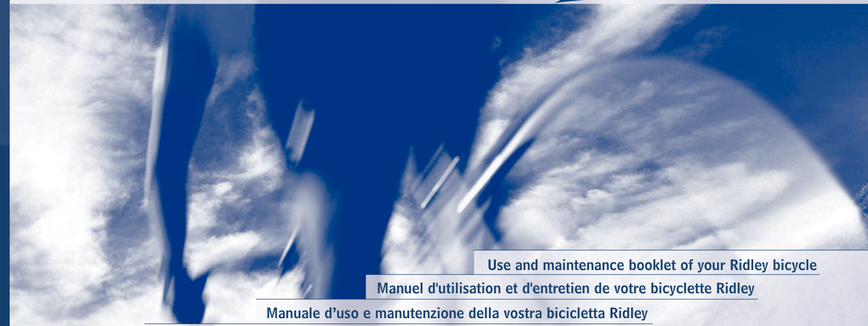
All other remedies, obligations, liabilities, rights, warranties, express or implied, arising from law or otherwise, including but not limited to, any claimed implied warranty of merchantabilily, any claimed implied warranty arising from course of performance, course of dealing or usage of trade, and any claimed implied warranty of fitness, are disclaimed by Race Productions N.V. and waived by the original owner.

Some states, jurisdictions, countries, provinces, do not allow some or all of the limitations set for herein, or the exclusion or limitation of incidental or consequential damages. If any provision is found unenforceable, only that provision shall be stricken and all others shall apply. This limited warranty does provide the original owner with certain legal rights and recourse and the original owner may possess other rights or recourse, depending on the state, jurisdiction, country or province.

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RIDLEY



Use and maintenance booklet of your Ridley bicycle

Manuel d'utilisation et d'entretien de votre bicyclette Ridley

Manuale d'uso e manutenzione della vostra bicicletta Ridley



WARRANTY REGISTRATION FORM / *FORMULAIRE D'ENREGISTREMENT GARANTIE*
MODULO DI REGISTRAZIONE GARANZIA

Important! We kindly request you to complete and send the following form immediately in order to avoid delays in our after sales service.

Attention! Vous êtes priés de remplir et d'envoyer ce formulaire immédiatement.
En cas de redaction incomplète ou d'envoi incorrect des retards dans le service d'après-vente pourront se produire.

Importante! Vi preghiamo di completare e spedire il presente modulo immediatamente.
In caso di mancata compilazione e invio possono verificarsi dei ritardi nel servizio assitenza.

Owner's name / *Nom propriétaire* / Nome proprietario _____

Address/ *Adresse* / Indirizzo _____

Town, City, Country, Postcode / *Ville, Pays, Code postal* / Città, Nazione, CAP _____

_____

Telephone number / *Téléphone* / Telefono _____

Model number / *Numéro modèle* / Numero modello _____

Size / *Taille* / Taglia _____ Colour / *Ccouleur* / Colore _____

Series number / *Numéro de série* / Numero di serie _____

Retailer's name / *Nom commissionnaire agréé* / Nome rivenditore _____

Address/ *Adresse* / Indirizzo _____

Town, City, Country, Postcode / *Ville, Pays, Code postal* / Città, Nazione, CAP _____

_____

Date of purchase / *Date d'achat* / Data di acquisto _____