GARY FISHER BICYCLES

The First Name in Mountain Biking

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For the 2002 model year, we are introducing something new to the bicycle industry- a frame material designed specifically for the manufacture of bicycles. We call it ZR9000.

Like some of our competitors, we can wax eloquent about various laboratory tests of strength and stiffness. Often, a new material is used as a reason to substantially raise the price of a bike. But as we've said before, the ride of a bicycle is the sum of its design, manufacture, and material, in that order. In other words, its not the material, but what we do with it that makes a bike ride better.

A great frame material should allow the designer to make a better bike. If a frame isn't lighter, better riding, and at a better value to you, where is the benefit from this new wonder material?

So the proof is in the finished product. Our models using ZR9000 are up to 190 grams (almost 1/2 pound) lighter than last year. At the same time, they are stronger, and have a fatigue life up to 5 times that of the comparable 2001 models. And we can deliver these awesome new bikes at approximately the same cost to you.

For some, knowing you are buying a lighter, stronger, longer lasting bike at the same cost is enough. But we know some of you want to know more about this technology. To explain in more detail, we've asked the developer of ZR9000 to say a few words:

A MATERIAL DESIGNED FOR BICYCLE FRAMES. by Gary Klein

Advertising Claims

I'll bet you are thinking: "Just what we need, another new bike frame material! Isn't the field crowded and confusing enough as it is? Are all of the various frame materials really different? Do the differences really matter? How can every material be superior to every other one? Or are they just marketing hype?"

Which of the claims from which companies should you believe? Most of the advertised properties for different frame materials are the properties of a material in its highest temper state, made into little coupons and tested in laboratory machines; not the strength that the frame material is in after it has been made into frame tubes, and welded or brazed into a bicycle frame. The material may chemically be the same, but the advertised strength is not there.

In addition, and more to the point, the advertised strength is a bulk material property and does not reflect the engineering design of the bike, such as the diameters, wall thickness, and shapes of the tubing used. These have a huge influence on the overall strength of the finished frame, and at least as much influence on the way the bike rides. Please do not equate advertised material properties with frame durability, performance or low weight. If you want to compare the strength of one frame to another, you probably need to test them both. And if you want to compare the ride, instead of looking at charts you'll need to ride them!

Why Aluminum?

In the early 70's, when I lined up on my first starting line, the bikes around me weighed an average of about 22 pounds. My Fuji Finest was at least average in quality, yet the frame represented the heaviest part of the bicycle. Even so, I found that it was not stiff enough to keep the drive train in alignment during sprinting efforts.

At the time I was a student at MIT in Boston, Massachusetts. A professor, myself, and some other students started to look at what would make a better material for bicycle frames. The standard high-end bicycle frame was made of double-butted chrome molybdenum steel alloy tubing. Steel is easy to work with, but it is very dense, making even the thin tubes of my high-end steel racing bike into a heavy struc-

Our goal was to make the frame lighter, stronger and stiffer. To meet those goals, our first criteria was a material less dense than steel.

As lower density alternatives, we looked at Aluminum, Magnesium, Titanium, and Carbon fiber. While each of these looked like they might provide some benefits, we were also looking for an easy way to make a few bikes. We were hoping to find a material that we could obtain easily, and assemble into a strong and light frame.

Carbon fiber needs special molds for each size and geometry of frame to be produced. This would take time and cost a lot of money for prototypes.

Titanium was very expensive and the welding was difficult. The entire area being heated needed to be shielded from air. Even ignoring the cost, it was difficult to obtain in the tubing sizes we needed for bikes. Most available tubing was CP (Commercially Pure) titanium which did not provide much of a strength ben-

Magnesium has the lowest density of the metals we looked at. Initially Magnesium looked good, with relatively high tensile strength per weight, but it does not have the ductility of aluminum, and does not weld as easily. Also the tubing sizes we needed were not readily available. Another problem was this was in the Boston area, where the streets are salted in the wintertime. We had seen what the salt does to a steel frame, and we knew that magnesium has an even lower resistance to corrosion. So it would need a real good protective coating.

After our research, we decided on aluminum as the material of choice. As we wanted the highest performance frame possible, we started looking at the highest strength aluminum alloys. Unfortunately, they were difficult to weld, to form, had corrosion problems, etc..

Materials that were strong, but not weldable, would create the need for special bonding lugs at each joint. These would have to be designed and machined individually for each frame design, a somewhat daunting task. So we looked for a material where we could create a high strength weld with normal welding meth-

Finally we settled on 6061 aluminum. It came the closest to meeting all of our frame material goals. 6061 was the workhorse of the structural aluminum alloys, and it had most everything we desired. It is easily welded, machines easily, is formable at room temperature, and resists corrosion pretty well (it is used extensively for marine applications). As a real

plus, 6061 was used extensively in aircraft, so thin wall tubing was readily available in various diameters.

Aluminum

Pure aluminum is very soft. The molecules align and interconnect such that in pure aluminum, molecular slippage easily occurs in all three directions (slip planes). As a result, it is not strong enough to make a good bicycle frame.

By adding various alloying agents to the aluminum, different characteristics can be obtained. These alloys of aluminum have a number which describe the alloying elements. 6061 aluminum has small amounts of magnesium, silicon, copper, and chromium added to the pure aluminum. This alloy obtains its strength from microscopic precipitates (magnesium silicide crystals) that mechanically stop the slip planes in the aluminum crystals from sliding when force is applied. As an analogy, they work like putting sand in a sliding bearing.

Aluminum alloys can also be strengthened by mechanical working. Cold-drawing the tubing is an example of mechanical working. This causes microscopic defects and strains in the aluminum crystal, which make it more difficult for the slip planes to move.

Welding aluminum

When welding 6061, and aluminum alloys in general, several undesirable things happen.

With changes in temperature, aluminum changes dimension more than steel. When a weld puddle cools down, it shrinks and pulls on the adjacent material. With aluminum alloys this means a weld distorts the material more and leaves the material under high residual stress after the weld is complete. This residual stress adversely affects yield strength and fatigue life.

If the tube had any strengthening due to mechanical working, this cold-work induced strength would be lost near the weld where the material was heated to high temperatures. Welding removes the strengthening effects of the T6 heat treatment.

The optimum distribution and size of magnesium silicide crystals are created by the T6 process, which involves a high temperature solution-quench followed by lower temperature artificial age. Exposing the material to the high temperatures of welding dissolves some of these fine crystals and make others grow large, weakening the material near the weld.

Heat treatment of aluminum

6061 loses so much strength after welding that we decided there was no alternative but to heat treat the entire frame after welding in order to obtain a high strength, long life, lightweight frame. By heat treating the entire frame to a T6 condition, the material is brought back to full strength throughout the frame structure. At 1000 degrees in the oven, part of the solution quench process, the aluminum is close to its melting temperature. All of the precipitates present at room temperature dissolve into the aluminum. This makes it so soft that all of the residual weld stresses are relieved.

Of course we are not the only manufacturers to solution quench and artificially age the complete frame. Several other manufacturers of premium frames also typically do this on frames made of 6061 or other 6000 alloys.

Often the frames made from 7000 alloys are not heat treated after welding at all. In other cases they are only artificial aged after welding, which strengthens the material which was hot enough for long enough to dissolve the alloying elements, but does nothing for the rest of the frame material.

In these cases the alloy just got hot enough to partially dissolve the alloying elements, or just grow the strengthening crystals to a large size which weakens the material substantially. This is called over-aging. It is similar to what happens if you leave the material in the ageing oven for too long a time. Some of the crystals grow larger in size, while others shrink or disappear. The net result is that the weld is strengthened, but the tubing adjacent to the weld is weakened. So even though 7000 alloys claim a higher strength than 6061, it is probably less after welding.

Grain growth

In my opinion, the limiting factor for designing aluminum frames is the fatigue life. If we design a frame in 6061 T6 for the same fatigue strength as Chrome-Moly, the 6061 frame will have a much higher yield strength than the steel.

I wanted to make our frames even lighter, so in the early 80's I started looking for an aluminum alloy with a higher fatigue strength. There were a few alloys in the 6000 series that had slightly better test numbers.

The problem with the higher strength alloys is that the presence of the hardening elements causes the microscopic aluminum crystals (the grains) to grow when the alloy is at high temperatures or when it is under stress. Larger grains result in poor strength properties.

In making a Klein frame, we have multiple steps where we anneal the material with a high temperature oven cycle, in order to make it soft so we can perform some type of butting, swaging, forming or bending operation on it, after which we have to either solution quench and artificially age it to bring the strength back prior to the next operation, or we anneal it again to remove the work hardening effects of the last operation so we can perform further work to it

I took a trip to the Alcoa Research center and talked to several of their material experts. They told me that I could not use the higher strength 6000 series alloys I was interested in because we would see uncontrolled grain growth in our process. 6061 uses a small amount of Chromium to help slow down this grain growth. That is what has made it work well for our early frames. So I did not find a good replacement for 6061 on the first try.

Developing a recipe for a better aluminum alloy
I am not a metallurgist, so I have worked with
several metallurgists during development, who have
helped a great deal. However, I knew our processes
and I knew what was needed to make a better bike. So
I knew what I was looking for and researched other
alloys and their use.

Around 1990, I started looking at some Lithium Aluminum alloys. These are different than typical aluminum alloys in that they have significantly lower density, and increased modulus (that means higher stiffness). They are not perfect, and have some unique problems to overcome. The aircraft industry spent millions on their development, but these alloys have not seen a lot of use to date.

One of the interesting features of the particular lithium aluminum alloy I was working with was that it utilized Zirconium as the ingredient for grain control. From our testing, zirconium seemed like it was particularly effective. So when I decided to attempt to create an alloy specifically for making a bike frame, I decided to get rid of the Chromium used in 6061, and use Zirconium instead.

Since we use multiple heat treat cycles when we manufacture a frame, we needed a high response to the heat treatment. So I added more of the precipitation hardening ingredients Silicon and Magnesium.

I also increased the amount of Copper, as it has a strong strengthening effect, and the copper-based aluminum alloys show excellent fatigue properties. So I thought more Copper might help increase the fatigue strength of the alloy.

Another requirement we have is the ability to form the material substantially at room temperature when it is in the soft condition. The auto industry uses a couple of 6000 series alloys specifically designed for forming into complex auto body surfaces. These are 6009 and 6010, sheet forming alloys. The notable difference between these and other 6000 alloys is a significant Manganese addition. So I added a little Manganese to the alloy to improve the forming ability.

May I have a bit of alloy, please?

The barrier to testing a new "mix" is that you need a good foundry to make a batch for you. A single furnace load of material is 40,000 pounds, or 20 tons of aluminum. If the alloy does not work out well that could be a lot of scrap. So I made my best guess at what the percentages should be, and had the first batch poured.

Great results

ZR9000 has worked out extremely well. It machines cleaner and with less tearing than 6061 tubing can be mitered with higher accuracy, and press fits (like headset bearings) are more precise. In the annealed condition, it forms very well which helps us make our sophisticated chainstays. It welds very nicely, with high strength and good cosmetic appeal. It has an excellent response to heat treatment, which adds to our frame alignment. So compared to 6061, it allows us to make the frame without any additional trouble.

In a completed structure, ZR9000 tests out very well. In tensile tests of identical complete frames, the yield strength is about 1/3rd higher than 6061. On our fatigue testing machines, the ZR9000 frames endure 5 times the number of stress cycles (at the same loading) as the 6061 frames before failure.

These results are as good as I could have hoped for. We have been able to use the higher properties of the new material to remove weight in places where it is beneficial and increase the fatigue life and dent resistance of the frame tubing.

This is the first material that I am aware of that has been designed expressly for the process by which we make a high performance bicycle frame and thus to optimize the frame's performance.

The Name ZR9000 was chosen because the small amount of Zirconium addition for controlling the grain size is the key that allowed us to increase the amounts of the other strengthening additives. The 9000 is because new or experimental alloys which have not been assigned industry numbers are designated in the 9000 series. So this is our Zirconium grain refined, experimental alloy developed specifically for making state of the art bicycle frames.

Even though I have been working on aluminum bike frames for 28 years, the pace and amount of innovation has kept it really fun. I'm sure you will enjoy using our new products based on this material innovation.

6061 and 7005 Aluminum Alloys

Is aluminum a new material?

It should be common knowledge that most modern aircraft use aluminum exclusively for their primary structures (internal frames and bulkheads) and 95% or better of their exterior surfaces, including load bearing skins. The aircraft industry has been using these alloys for several decades. The aircraft companies have picked aluminum because it offers the best combination of material properties and processing capability in order to create high performance, light weight, robust aircraft. So aluminum alloys have certainly proved their long term durability and high performance in the aircraft industry. The occasional failure that has occurred has typically been due to a design or manufacturing defect or improper maintenance.

What about fatigue?

Occasionally we hear fatigue failure erroneously described as similar to the result of bending a coat hanger back and forth. This example is not relevant to the durability or reliability of a bicycle frame. When you permanently deform the coat hanger you are yielding it. This has no relation to fatigue strength. Some of the highest fatigue strength materials (like carbon composite) will not take a significant permanent set, breaking instead at a high force level. So these extremely high fatigue strength fibers would rate near zero by the coat hanger test.

What are the benefits of aluminum in bike frame construction?

Aluminum is a great material to work with. It's light weight, or more accurately, low density. One cubic inch weighs one tenth of a pound. And the lighter weight positively affects the ride quality.

Aluminum provides a great ride, if you use it to its optimum. The low density and high formability of aluminum allows a designer to tailor the stiffness of each part of the frame through tubing and joint design. Tube shaping and butting can make more difference in the ride of the bike than the material itself.

Aluminum is very strong. It is possible to achieve significantly higher strength properties in the aluminum structure per weight than in steel. Part of this comes from the basic material properties. You can use more material, and more easily form the material, so you can put just the amount and shape needed into the bike.

But the largest contributor to high strength is engineering and design. The low density and high formability of aluminum allows tubing with increased wall thickness, complex shapes and larger sections where we want to achieve high strength properties in the overall structure.

Are all aluminum alloys basically the same?

Some of the highest strength aluminum alloys, particularly in the 7000 series, have low elongation, or toughness, or resistance to crack propagation. This is important for overall strength and fatigue resistance. With alloys exhibiting higher toughness less material is needed to resist fatigue, and this can result in a lighter bike. Like with any bike frame material, good design and manufacturing is much more important than a small difference in a single mechanical property.

What do the numbers mean?

When we discuss aluminum alloys, we refer to a fourdigit number. This is the alloy name, based on the alloying materials in the aluminum. A metallurgy reference would explain precisely what elements are added to the aluminum in a specific percentage.

The second part of describing aluminum alloys is the heat treatment or other strength enhancements which have been applied to the alloy. With some alloys, special heat treatments or work hardening are essential to achieve their maximum strength. Other aluminum alloys attain their maximum strength by simply cooling at room temperature, also known as 'normalizing'.

Since heat treatment adds extra steps to manufacturing, it adds cost. An oven large enough to handle bike frames also adds cost. 6061 aluminum requires heat treatment. 7005 is usually normalized.

SERIES NOMENCLATURE EXPLAINED-

Silver Series

Proprietary Fisher aluminum tubing, using 7005 aluminum. These frames use special tubing diameters, wall thicknesses, and shapes, but are not butted. In some cases, Silver series frames are imported, then painted and assembled in Wisconsin.

Gold Series

Like the Silver series frames, Gold series is Fisher designed aluminum tubing. However, Gold series frames are built with 6061 T6 aluminum. T6 indicates the hardness of the aluminum, developed through a full heat treatment and ageing process. Gold series frames are all built and painted in Wisconsin. Due to the mechanical properties of 6061 T6 aluminum, Gold frames can be made lighter than Silver frames with the same strength.

Platinum Series

Platinum frames are also Fisher designed tubes of a combination of ZR9000 and 6061 T6. In addition, Platinum frames have butted tubing, which reduces their weight and further enhances their ride. The exact placement of these materials is determined by where each material will do the most good in achieving a light, strong, affordable, and long-lived bike. They are built and painted in Wisconsin.

LeMond Titanium

Titanium bikes have been around for almost 30 years. During this tenure they have earned a reputation for excellent ride and durability. While the reputation of titanium is generally well deserved, there is more to a great bike frame than simply the material its made from. The high cost of titanium is wasted without purposeful design and precision manufacturing.

Research and Development

Although Greg LeMond raced titanium frames way back in '92, we wanted to take a fresh look at the current titanium technology. As a starting point we consulted Gary Helfrich, the bike industry's recognized titanium guru. For those who don't know Gary, he was a founder of Merlin Cycles. Gary's experience with different tubing dimensions, titanium alloys, and manufacturing techniques were very illuminating. Our engineering staff followed this with our own extensive R&D. Armed with a clean design slate and fresh research, it was time to sit down at the computers and design a titanium road bike worthy of the LeMond label.

Which titanium?

There are many titanium alloys available for bicycle manufacture. These different alloys exhibit a wide range of mechanical properties (strength, hardness, etc.) which effect the final weight, stiffness, shock absorbency and overall ride of a bike. The physical properties of the metal also determine the available manufacturing techniques. The right material choices were essential to our ability to make a high quality, excellent riding titanium bike for a reasonable cost.

CP (Commercially Pure) titanium is available in a variety of grades listed numerically as CP1, CP2, CP3, and CP4. These different CP alloys are separated by the amount of trace elements in the alloy. These metals share some of the physical properties of the more popular titanium alloys. They are strong, tough (resistant to crack propagation), and resistant to oxidation. However, they are fairly hard so they are somewhat difficult to machine or cold work. In addition, CP alloys do not have the tensile strength enjoyed by some of the other titanium alloys.

3/2.5 titanium is an alloy with 3% aluminum and 2.5% vanadium. This alloy exhibits much greater tensile strength than CP grades. With higher tensile strength, the amount (and weight) of material can be reduced while retaining the same structural strength. Although its expensive to do so, 3/2.5 can be drawn or butted mechanically. This allowed us to achieve the tubing designs and manufacturing techniques our engineers wanted to pursue.

Another titanium alloy we considered was 6/4 titanium. 6/4 Ti is less likely to form a molecular bond (known as cold welding) when coupled with different metals because its very stable on a molecular level. This property makes 6/4 ideal for fasteners like water bottle screws. However, 6/4 exhibits extreme hardness making it less than ideal for building a bike frame. Machining, butting, or other metal working with 6/4 is very difficult and becomes prohibitively expensive. The only practical way to butt 6/4 titanium tubing is to roll it into a sheet and then weld it into a tube. Our engineers didn't see 6/4 as the right material to meet our goals.

Butting titanium

A bike frame has much higher stress loads near its joints than in the middle of the tube. Some of the joints see much higher loads than others, as exemplified by the extra high stress at the head tube/ down tube junction. To supply adequate strength, these high stress areas need a lot of material. However, in areas like the middle of the top tube there is much less stress. Where the stress is lower the tubing can be much thinner and thus lighter. To maximize strength and at the same time minimize weight, the frame tubing must have varying thickness, or butts (Fig. 6). Butted bicycle tubing is an advantage with any frame material, including titanium.

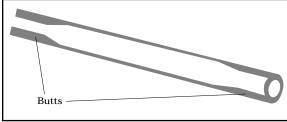


Fig. 6

Butted aluminum or steel tubes are made on a drawing bench. In this manufacturing process, extreme force is applied to a tube to force it through a die while a mandrel inside the tube controls the wall thickness. Precise control of wall thickness is provided, while the mechanical working of the material adds tensile strength. The strength increase occurs because the mechanical working alters the crystalline structure of the metal. Its a win/win situation with lighter, stronger tubing as the result. Similar techniques are used to create constant wall, tapered tubes. Examples include better grades of chain stays, seat stays, and fork blades.

Titanium alloys exhibit very high toughness and hardness, physical properties that make titanium difficult to butt or manipulate. Like aluminum or steel, cold working titanium orients its crystalline structure for a stronger tube that's more fatigue resistant. Also like aluminum or steel, this manipulation is expensive. Due to the exceptional hardness of titanium, the difference in cost is huge.

To reduce the cost of butting titanium, some manufacturers butt the tubes using a process called chemical milling. In chemical milling, the titanium is etched or removed with acids. Interior chemical milling of a tube must be carefully monitored for wall thickness, requiring small batches which adds to the expense. Exterior chemical milling is easier to monitor but decreases the outer diameter as well as the wall thickness. This reduces the stiffness and strength of the tube. Since the metal is not worked, chemical milling does not provide the benefit of altering the crystalline structure of the titanium.

Another lower-cost method for butting titanium is to use sheet titanium that has been chemically milled, and then roll the sheet and weld it into tubes. This method leaves a seam in the tube. With aluminum or steel, seams can be 'normalized' by further drawing and cold working the tube. Normalization is the process which restructures the molecules of the metal to reestablish

their original mechanical properties after being weakened by heat. Due to the hardness of titanium, cold working a welded seam isn't practical. To compensate for this weakness, a seamed tube has to have extra material making it heavier than a seamless tube.

A third cost-saving method for butting titanium is outer butting, where the tube is machined on the outside. As with exterior chemical milling, this method makes a tube with constant inner diameter but varied outer diameter, reduced in the middle. The reduced outer diameter means lower stiffness and strength.

LeMond titanium tubing-

Recent advances allow 3/2.5 titanium to be butted in the traditional way of steel tubing, on a drawing bench. Its expensive, but provides optimal tubing shapes and outer diameters, exacting precision, and works the crystalline structure of the tube to increase the tensile strength. The new LeMond titanium models take full advantage of this new technology throughout the frame. Although you can't see it, the main triangle is double butted.

The same processes used to butt a constant outer

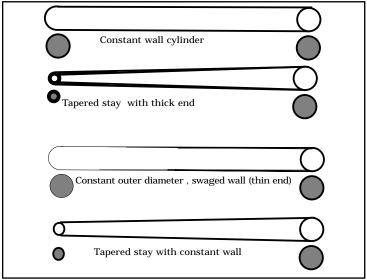


Fig. 7

diameter tube in the main triangle is used to create the constant wall, tapered stays (Fig 7).

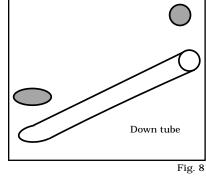
Most titanium bikes use constant diameter, constant thickness stays. This is the cheapest way of doing it. Compromises must be made between the stiffness needed at the bottom bracket and seat tube (defined by the outer diameter at those joints) and comfort (defined by the outer diameter at the dropouts).

A simple swage of a constant-wall cylinder results in tapered stays, but with thicker material at the dropouts. This would probably ride better, but the additional material makes the bike heavier.

It takes several steps to make the LeMond stays. First, a constant-wall cylinder is swaged so that the dropout end is much more thin-walled. Then the tube is tapered from the outside. All this metal manipulation is expensive, but the result is a constant-wall tapered stay. This makes for a lighter bike that rides better, and the stays blend in beautifully with the seat tube and custom

dropouts. But there's more than looks to these expensive stays. The shapes and wall thicknesses allow the stays to stiffen the bottom bracket without a weight penalty. Like on high end aluminum or steel bikes, the tapered stays put comfort into the rear end of a Ti bike, something that's been missing on Ti bikes trying to cut costs with ugly, constant outer diameter stays.

While we were maximizing the LeMond stays, we also dramatically shaped the tubes in the main triangle to accentuate their ride qualities (Fig. 8). The down tube is bi-axial, meaning it is ovalized in two planes. (Fig. 8) The upper end is taller than wide. The lower end is wider than tall.



The stiffness of a tube in a given direction is determined by the length of the axis in the plane in which the force is applied (Fig. 9). By using an oval shape, the

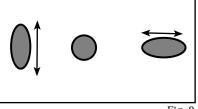


Fig. 9

tube gains stiffness in the plane where its wider, and the smaller axis across the oval has a decrease in stiffness. This allows us to tune the ride. In addition, stiffness in a structure like a bike frame can also add to its strength, since stiffness is resistance to deflection, and you must deflect the frame before you can bend it. By ovalizing the down tube at the head tube junction, we've added frontal impact strength to these frames.

In addition to the performance increase of our design, shaping the tubes has other benefits. Tubes shaped in this way provide a greater weld area, directly increasing the frame strength.

As a final detail, we matched the tubing diameters to create a consistent look throughout the LeMond line. This thoughtful design makes it easy for you to see the associated quality, both moving up in price as well as down. Even better, the titanium models fit the parts of the other LeMond models (except the custom LeMond headset). This makes it easier for dealers to stock the parts that work on LeMond models. After all, any race mechanic spending his nights prepping a fleet of team bikes will tell you a racing bike needs to be easy to service.

All these tubing details are expensive, but our research showed that when done right, the value of the extra work was appropriate considering the added performance. In other words, you really can feel our work in the ride of these bikes. We've taken LeMond performance to a new level.

FRAME DESIGN

Geometry

Once we determined the best tubes for our frames, it was time to create a design which used those materials to their advantage. Of course, we already knew what the geometry should be. Greg's geometry has a proven pedigree. The geometry of the new Ti frame is identical to the popular LeMond Zurich in angles and tube lengths.

FOR THE MECHANIC

Grease threads

Titanium alloys such as 3/2.5 have a tendency to create a permanent or semi-permanent bond known as cold welding when exposed to certain other metals. Its very important to adequately prepare fasteners used on titanium threads. A heavy grease will work, and Anti-Seize is even better.

"Drop-in" headset

Instead of pressing a cup into the head tube to hold the headset bearings, they sit inside the specially machined head tube. Supported directly by the head tube, the weight of the cups is eliminated. Without cups, the headset becomes almost a zero stack height, so the head tube can be taller. The taller head tube allows greater separation between the down tube and top tube for additional strength, and makes room for the added weld surface used by the bi-axial down tube.

Reynolds Ouzo Pro fork

Reynolds Composites

Although they may be better known for over a centuryof steel fabrication, Reynolds now makes bicycle products from other cutting-edge technologies. As an example, Reynolds manufactures the Ouzo Pro fork found on the LeMond Tete de Course.

This carbon fiber composite fork is a prime example of the new technologies being developed by Reynolds. In addition to carbon fiber fork blades, the Ouzo Pro also incoporates a carbon crown and steerer.

Complimentary performance

The usage of carbon in place of parts traditionally built from steel or aluminum creates a very light weight structure. Careful design creates a fork with excellent road feel. Together, these features lend themselves very well to the titanium frame of the LeMond Tete de Course, making this an excellent riding bicycle.

Carbon forks require special care

With the replacement of the metal parts of the Ouzo Pro fork with carbon composite material, special care must be taken in normal installation and maintenance procedures. Failure to observe these special needs could cause a part to fail, resulting in loss of control of the bicycle.

Do not use a traditional star-fangled nut

Never use a starfangled nut with the carbon steerer of the Ouzo Pro. Attempting to insert a star-fangled nut into the carbon steerer will cut fibers, weakening the steerer.

Instead, use the Compression Adjustment Plug supplied with the fork. used properly, this device allows proper preload of the headset bearings without damage to the steerer.

Follow the instructions which came with the fork to install and adjust the Compression Adjustment Plug.

Use the correct number of spacers

When adjusting the stem height on the carbon steerer of the Ouzo Pro fork, use at least 2 spacers (10mm) and not more than 1 1/2" (40mm) spacers.

Use no grease

Do not use grease between the stem and steerer.

Only use stems with a circumferential clamp design

When clamping an Ahead-type stem to the steerer of the Ouzo Pro fork, only use "circumferential" type stems. This type of stem applies even pressure all the way around the steerer. Stems which use sliding wedges to clamp the steerer, or similar designs with moving parts, do not meet this requirement.

In addition, the stem clamp design should be such that the gap of the clamp should be radial, and the bolts should be perpendiculr to the gap. In other words, the gap of the clamp should point exactly towards the center of the steerer, and the bolts should be perpendicular to the gap. Furthermore, the clamping bolts should be as close to the steerer as possible.

Consult your dealer

Your Ouzo Pro fork has been properly installed at the factory, and adjusted by your dealer. If you are not sure of the correct maintenance or adjustment of your fork, or would like to change stems but are unsure of which type of stem is acceptable, consult your dealer.

LeMond Reynolds 853

Steel is real

Steel is the traditional material of choice for bikes. This dates back to the early years of bicycling. The advantages of steel are many. Traditional steels are inexpensive to make, and inexpensive for the frame builder to work with it. Steel can be welded or brazed, both easy techniques (for a skilled craftsman) that allow a creative joining of material. In other words, steel allows a freedom of design, at an affordable cost. Last, steel has excellent strength, stiffness, and fatigue resistance, all important factors when making a lightweight efficient structure like a bicycle frame. These factors should explain why steel has been the traditional choice for frame building for the last century.

It's got the feel

Over the last century, a huge number of steel bikes have been built. The early ones were ordinarys, or highwheelers. Some were fancy adult tricycles. Some were heavy paperboy specials. And some were exotic, super light racers.

The point here is that a lot of experimentation has been done with steel bike frames. Through science, or trial-and-error, steel bikes have been made of all sorts of shapes, sizes, tube diameters, and wall thicknesses. Because of the design and construction freedom of steel, lots of people have had the opportunity to experiment. Over the years, the parameters of steel bikes have become well defined. We know how light they can be made, and how to make them ride well.

Through the years, enough steel bikes have failed for us to understand what steel can and cannot be made to do. And enough designs have been ride-tested to know what rides well and what doesn't. Basically, the experience gained over the least 100 years makes the best steel bike a refined, quality machine that's as light as it can be and offers the best possible ride.

Not all steel is the same

Steel has a high modulus. In other words, it's pretty stiff. And that's true of all steel. There's hardly any difference in the stiffness of a high-end steel like Reynold's 853, and the 'tensile' steel found on a child's bike.

Likewise, 'tensile' steel and Reynolds 853 have the same density, or weight per unit volume. In other words, a cubic inch of Reynolds 853 is not any lighter than a cubic inch of tensile steel.

There is, however, a large difference in the tensile strength of the various steel alloys. This difference requires that to be equally durable, more low strength material is required to build a structure than would be needed of a high-strength material. This need for more material somewhat explains how a frame built from Reynolds 853 can be so much lighter than a tensile steel frame.

Mechanical properties vs. Finished goods

As we said earlier, steel can be joined in a number of ways. It can be bonded, riveted, welded, brazed, and more. Of these, the most popular in bike construction today is welding. Welding involves heating the materials until molten, and letting them cool into a single, solid piece. Sometimes additional material is added in the form of a welding rod.

As steel is brought to these high temperatures and cooled, the molecules in the steel undergo changes.

Depending on the temperatures, and the length of time at a given temperature, the molecules will reform into microscopic crystals of varying structures. There is a wide variety of crystalline structures possible, with an equally varied assortment of mechanical properties of the welded state. To simplify, we can say that welding changes the steel, and it's common for the steel to lose strength as a result of welding.

In bike frame design, a good engineer will compensate for the expected strength loss of welding. They will design the tubing to be a little thicker at the heat affected zone (HAZ) so that the end result provides the required strength.

Steel technology leader

The Reynolds company of Great Britain (not the American company that makes aluminum foil) has been a leader in steel bicycle tubing since they developed the butting process in 1898.

Since 1930, racing cyclists all over the world have ridden frames built from Reynolds 531. This proprietary manganese-molybdenum steel alloy offered a blend of strength and ease of manufacture that was ideal for lugged and brazed construction.

In 1975, Reynolds introduced a very high strength steel alloy tubeset, Reynolds 753. Thanks to the extra strength, this tubing was made very thin-walled, and this had the effect of reducing frame weight considerably. 753 was more heat sensitive than 531, requiring special low-temperature brazing techniques which required a builder to become certified by Reynolds before being allowed to purchase tubesets.

Reynolds' newest revolution of the bike tubing industry is a steel alloy dubbed 853.

New construction techniques

With the advent of mountain bikes, brazed frame construction fell out of fashion. Brazing usually requires lugs to reinforce the joints. These special sockets are formed to accept specific tubing diameters, and hold them at a specific angle. The new mountain bikes of the early 80's changed bike design, using different tube diameters and joint angles than previously used by road bikes. To allow the freedom of design they needed to explore these new bikes, manufacturers switched to TIG welding.

Welding weight

Although brazing steel requires that the tubes be brought to a glowing, cherry red heat, it does not approach the steel's melting point. By avoiding extreme heat, the steel maintains its strength. With TIG welding, the steel is melted and strength is lost. To compensate, thicker tubing is used at the weld site which weighs more, and doesn't ride as well. The steel available simply couldn't be butted radically enough to avoid this.

New steel technology

Reynolds now addresses the performance concerns of a welded frame by a different path. They have developed a new alloy that actually gets stronger after welding. Since the welded area is stronger, it can be thinner. Traditional butting can be used, so the new frames built with this material are actually lighter than a lugged frame. After all, there are no lugs. And the wonderful ride of tried-and-true steel is back.

Genesis geometry

Gary rides. A lot.

Gary Fisher does a lot of bike riding. He has for years. He holds the RePack record, and won the National Championship for Masters in 1997. Basically what we're saying is this; Gary has skills.

Inspiration doesn't always come easy

So one day this skilled rider is out for an epic ride on his fave bike. He's cruising down a hill, not terribly tricky or anything, when he gets one of those free flying lessons and as he's laying on the ground he's wondering "What happened?".

So he picks himself up off the ground only to find that he's broken his wrist. Not a big deal, but nothing he really wanted. During the next few weeks of recovery Gary has time to think about his little accident and the bike. And that's how Genesis was born.

Whu' happened?

Gary analyzed the accident. He had simply been too far forward and pitched over the front wheel. The pivot point of his flip was the front axle. If the axle were further forward, he might have stayed upright. Gary has worked on geometry for years. He even had a fully adjustable bike. It had adjustable dropouts so you could change the wheelbase, chain stays, or fork rake. It had an adjustable head tube to change the head angle. Basically, you could try any geometry you wanted as long as the top tube stayed the same length. Using that bike, Gary developed what we now call "classic NORBA geometry" with a 71 degree head angle and 73 degree seat angle.

From all that experimentation Gary knew that changing the fork offset or head angle to move the front axle would make the bike handle poorly. The only way to get the front axle forward was to lengthen the top tube. But he didn't want to move the bars forward and change his position. He'd have to use a little short stem.

Gary defies convention

Common knowledge said that a short stem would handle weird. In a typical unconventional Gary Fisher way, he ignored common knowledge and built a prototype with a really long top tube. The genius here is that he didn't change his position on the bike, only the orientation of the bike's parts. Since he had moved the headset forward considerably, he had to use a 75mm stem to replace the 135mm stem he normally used. This setup added 60mm of top tube, moving the front axle 60mm forward, almost $2^{1/2}$ inches. And it worked!

This first prototype was a revelation. But Gary knows the bike to be an organism, where everything affects everything else. He had developed enough frame designs to know that he had just scratched the surface and that every dimension on the bike, from chain stays to seat angle, could benefit from the increased front center. But instead of telling you that long story of test riding and prototypes, let's just skip to the finished Genesis frame and what defines it today.

Genesis features and what they do for you

The primary benefit of the long front/center (distance from the bottom bracket to the front axle) is stability. This certainly helps in conditions like those

that caused Gary to crash. But the long front/center makes the bike more stable all the time.

Short stems and their effect on steering

The shorter stem used with Genesis geometry puts your hands closer to the steering axis. Steering can be done with your arms instead of a sweeping sideways movement of your shoulders. Your hands can move faster than your shoulders, so technical steering is precise at high speed.

Centered between the wheels

On a bike with a long front-center the front wheel is pushed further ahead of you. Anytime you find yourself moving back on your bike, it's in response to your body wanting to flip over the front axle. This happens on steep downhills, and also any time the bike is moving at high speed in rough terrain. With the front axle moved forward, there is added resistance to over-thebars flight. You're more relaxed at speed, and since you're more in the saddle than behind it, you're in a better pedaling position to keep the power on.

How does it climb?

Common sense tells us that a longer front center places less weight on the front wheel. Intuition tells us that with less weight on the front wheel, the bike might not climb well. But geometry charts only tell part of the story, and Genesis bikes actually climb very well.

Here's two reasons why: with a shorter stem, your shoulders stay more over the centerline of the bike, even when turning. When your center of gravity stays over the frame centerline, the bike stays in better balance. With Genesis geometry, it's even easier to hold your line on steep, slow speed climbs. Secondly, when climbing hard in first gear any bike will respond to the pressure of pedaling. Imagine if the headset were placed in the middle of the bike, right below the saddle. The bike would hinge in the middle, between contact patches of the tires. With every pedal stroke the rear wheel would turn away from the pedaling force. As a result, the front wheel would turn toward the pedal side, and the bike would swim like a salmon heading upstream. But the further ahead you move the pivot (headset), and the closer to your hands, the straighter the bike will climb. With the shorter stem, you stay over the bike, and the bike tracks straighter, making it climb very well indeed.

Short chain stays

Genesis bikes use ultra-short chainstays. This positions the rear wheel more directly under your butt. With more weight on the rear wheel, you get better traction uphill, and the tire bites better when you apply the rear brake.

Short chainstays also moves the pivot point for doing wheelies. With a Genesis bike, you can easily lift the front wheel when it's time to bunny hop a water bar or climb over a small log.

Steep seat tube

Genesis bikes, like most Fisher models, have a steep seat tube angle. The duty, and the effect, of the seat angle is to place the saddle where you need it for support when seated pedaling. The seat angle also interacts with the top tube length to describe the position of the head tube relative to the bottom bracket. For every

degree of seat angle, the top tube is compensated about 10mm. In other words, for every degree the seat tube is steepened, the top tube becomes about 10mm shorter. When comparing geometry charts, a bike with a steep seat tube may look like it has a shorter top tube than it actually does.

The function of the steep seat tube is to place the rear wheel more underneath you. This is useful when you transfer from a seated to a standing position. As you move from a seated to a standing position (or the opposite), you don't have to move as much to maintain traction. It becomes easier for you to 'attack' a climb.

Who's it for?

The features of Genesis geometry were originally dreamed up by Gary Fisher, for his own riding. As we point out in "Gary Fisher: A History", Gary has done a lot of racing. But the same benefits that get a racer around a course faster will also add pleasure to a leisurely ride on the weekend.

Genesis bikes are more stable, especially in more technical terrain or on steep downhills. Genesis bikes allow quick, precise steering. Genesis bikes climb really well, especially for those who like to stand out of the saddle.

With these features, Genesis bikes offer a superior ride to anyone looking for performance off the pavement.

LeMond Geometry

LeMond Geometry- A different perspective

LeMond geometry is different than many of the bikes on the market today. There are many explanations for this, some useful, some not so well thought out. We'd like to suggest a different perspective here.

What's different about the geometry?

First, let's talk about what the differences are. There are several key points which vary from some bikes on the market today. The differences may be small, but when combined the effect is definitely noticeable. Understanding how they work will help you explain the 'feel' to a potential customer and how it will benefit their riding.

• Reduced head angle.

By slightly reducing the frame's head angle, trail is increased. The steering is more stable and slightly slower.

Greg has said that when Pros are descending the Alps at 80kph, they need bikes that hold a line well, not steering that is quick and reactive. When descending fast, Pros use every inch of road width. They aggressively lay the bike into a corner knowing they can't change their line. With such a narrow margin of error, it's more important that a bike hold the line than be quick turning. Greg's geometry adds stability, especially when combined with other facets of the design.

• The bottom bracket is slightly lower.

A lower bottom bracket lowers your body on the bike, and your center of gravity. When you are closer to the ground, the bike is more stable. It's true that this reduces pedal clearance, but at the extreme cornering angles and high speeds of a Pro road race the riders have their inside pedal up in the corners anyway. To Greg, feeling secure while eating or removing a rain jacket is more useful than extreme pedal clearance.

Longer chainstays

Increased wheelbase adds comfort and stability to a bike. For a road racer, this allows them to relax on the bike. If they expend less energy throughout the entire race, they will have more energy when the crunch comes. Shorter chainstays may add stiffness to a bike during a hard effort, but when sprinting for a stage win Greg found that feeling fresh was more useful than a stiff bike.

Increased top tube length

If you only look at top tube numbers, Greg's geometry may look really long. However, under a more accurate analysis the front/center is actually comparable to other good road bikes. The difference is that the seat tube is laid back. When the seat angle is laid back, it's normal for the top tube to increase in length.

Reduced seat angle

Some say this is to accommodate a long femur (thighbone), but good bike fit relies on more than bone length; it also considers the physics of riding.

Another theory is that pushing the saddle rearward allows you to "pedal early", or apply pedal pressure earlier in the pedal rotation as it goes from the top (12 o'clock) position.

While either of those theories may apply in some cases, an analysis of biomechanics indicates the pri-

mary benefit of the slack seat angle is more powerful climbing through hand opposition.

Examine the dynamics of a rider in the saddle on a tough Tour climb, say something 10km long and in excess of a 10% grade. When seated on the bike most climbers ride with their hands on the top of the handlebars. This allows comfort and good breathing. They don't need to be in the drops, because climbing speeds are low enough that aerodynamics do not have much effect.

As the grade increases the pedal force increases, assuming race pace at a constant cadence. As pedal force increases, so do the opposite forces lifting you off the saddle. The force stabilizing a seated rider is partially the friction created on the saddle by gravity, partially the position of the hands relative to the saddle. As pedal force increases, it takes more force to stabilize your body. Since gravity does not increase, it requires additional opposition from your hands to keep your body still in the saddle. Rather than move your hands (and handlebars) to oppose your feet, the saddle is moved back so that the bars are further away. This position improves the opposition of your hands to the force of your legs.

In order to allow the saddle to be moved back further, the seat angle must be more laid back. As an extra benefit, moving the seat back tends to flatten your back, so after you've crossed the col you can decrease your aerodynamic drag on the downhill.

Does it take a special body type to ride a LeMond bike?

From the previous discussion it should be apparent that unless you require a very forward saddle position, you should be able to ride a LeMond. Those who want to ride in a more forward attitude also have the option of using a zero-setback seatpost.

What about the 'LeMond position'?

It's true that Greg used a very long position from the saddle to the handlebars. If you move your center of gravity relative to the wheels, it changes the way the bike handles. Greg's long, laid out position allowed him to achieve good pedaling opposition yet maintain optimum weight distribution on the bike for handling those fast downhill corners. The resulting aerodynamic benefits were an added bonus.

LeMond Geometry Summary- Rider Benefits

The benefits of LeMond geometry are really three-fold. First, LeMond bikes are built to be comfortable so you expend less energy as you pedal. Second, they allow a more rearward position that adds climbing power. Last, they handle really well; when put into a corner they are solid and predictable at high speeds, and a synergy between you and your bike (some call it a feeling of 'one-ness' with the bike) means LeMond bikes don't require extra vigilance as you ride.

Women on Bikes

Most bikes are built for men

For years women have been riding bikes designed partly, if not totally, for men. If you were one of the lucky ones, your dealer substituted a few parts which made a men's bike work pretty well for you, especially if you are a taller woman.

Adaptation and adjustability

Fitting bikes is a combination of adjusting a bike and adapting the rider.

Larger bike are more adjustable, since their stem lengths are usually of average length and rise. Changing to a shorter stem reduced the reach to the bars, and changing stem angle on a mid-length or longer stem could significantly effect handlebar height. On a small bike, the stem is likely to be quite short to begin with. If an even shorter stem is desired, the right extension may not exist. Changing the rise angle of a very short stem has little effect on handlebar height so vertical adjustment is not readily available, either.

When analyzing movement of a person, the range of motion is critical to efficiency and power. If you move a fit component on a bicycle a given amount, it will effect the range of motion of a person with shorter limbs more than a person with longer limbs. Simply put, when fitting a bike a shorter person has less adaptability than a taller person. Smaller bikes generally have less adjustability than big bikes, so it's more important that a small bike fit just right.

Smaller women rider smaller bikes. With less available adjustment on their bikes, and less adaptability of their bodies, small women have suffered fit problems that lead to performance gaps. Serious riding on the road is much more fun when your bike is comfortable and handles well. Off road, anything less can make cycling really unpleasant.

More than a dropped top tube

The new Gary Fisher Genesisters and LeMond women's bikes are spec'd with women's specific components, like saddles, bars, and crank lengths. The Genesisters mountain bikes have women's specific suspension forks with softer springs.

More importantly, these frames feature a geometry designed for women. So while most 'women's' bikes make due by just tweaking a men's bike with a few add-ons or maybe a dropped top tube, we completely redesigned these bikes to meet the needs of performance oriented smaller women.

Women sit on a bike differently

There are several major differences in how men and women sit on a bike. The most obvious and most discussed of these is the difference in pelvic structure. A woman's hips are wider, and the bony protuberances we all sit on, called ischial tuberosities, are also wider apart. This accounts for the popularity of women's saddles that are wider in the back than a man's.

A man's pelvic structure allows him to roll his pelvis forward on the saddle and lean forward aggressively. For most women, this hurts. The result is a woman sits on a bike seat with her pelvis in a more upright position. For the smaller woman on a man's machine, this means her lower back is curved and the handlebars are hard to reach.

Adjusting geometry to fit women

Fisher and LeMond engineers addressed these issues in several ways in the Genesisters and LeMond women's geometry. To support their wider pelvis, women appear to sit further back on the saddle. With a steeper seat tube, the seat can be positioned placing the legs over the cranks for optimal power, while her butt is on the most comfortable part of the saddle. To adjust the reach for a more upright angle to the back, a shorter top tube is used. The handlebars are placed higher by using a taller head tube, so her back and arms can be at a relaxed angle for steering control and shock absorption.

These adjustments put a woman in a more comfortable and powerful position. That makes hills easier and long rides less tiring. A common complaint among women riders is back pain, and the correct position goes a long way to alleviate this problem.

Some of the corrections Fisher made to these frames can be made to a men's frame with similar results, especially with a taller woman's bike where there is more adjustment. But any frame will handle its best with the weight distribution applied in a certain way, and a men's frame is designed to have a man's heavy shoulders pressed firmly onto the handlebars in a bent over position. When you put a woman, who already has lighter shoulders, in a more upright position, there is much less weight on the front wheel. The result is less steering stability and the bike becomes harder to control.

Steering and weight distribution

Steering stability on a bike is a combination of trail and centering force. Trail is the distance from the steering axis at the ground to the tire contact patch. But for trail to make a bike stable, there needs to be weight on the bars to apply a centering effect. The greater the weight on the bars the more stable a given bike will be. This is why a touring bike with front panniers is more stable than it would be with only rear panniers.

A smaller man on a small bike still applies plenty of centering force for good steering and handling. To achieve a similar amount of steering stability for a small woman in a more upright position, more trail is needed. Not only does stability lend confidence to the rider, it also means that less strength is required to hold the bike in a line. This again addresses an important difference between men and women, that of upper body strength. By decreasing the head angle of the women's bike, she will get similar handling with a similar 'feel' to that designed into a man's bike for a man.

Good fit defined

When you are pedaling a bicycle, you touch the bike in three places; pedals, saddle, and handlebars. For the bike to fit you properly, these three points must interface with your body in a comfortable and functional way. In other wards, if the saddle, pedals (and shoes), and handlebars (plus grips and controls) do not fit your feet, hands and seat, the bike won't work its best for you.

The three points of contact must be oriented correctly for you to benefit. Properly oriented, your muscles will work at their optimum. No muscles, ligaments, or tendons will be strained. Aerodynamic drag will be at a minimum.

In addition to the relatively simple task of accommodating your body for comfort, the bike should ride better. Your center of mass should be positioned over the bike to accentuate your pedaling power while also balancing you over the wheels for the best bike handling.

Put more simply, good fit results in your feeling completely relaxed on the bike over long periods of time. If your bike fits well, you should not feel like you need to squirm around, nor should you have excess tension in your shoulders, arms, or anywhere else. Basically, you should be comfortable, first and foremost.

How performance effects fit

The higher the performance level of your riding, the greater the forces applied to the bike, and thus to you. Forceful riders press harder on the pedals. They corner harder, and when riding off road their extra speed generates higher forces when they hit bumps. The forces applied to you on the bike are the result of a Newtonian law that states all actions have equal and opposite reactions. When you are riding, higher forces demand better fitting if comfort is to be maintained.

However, in some cases greater forces may be found when your are riding less forcefully. If you are not pressing firmly on the pedals, you're not lifted by the pedals. As a result, the casual rider often applies their entire body weight to the saddle.

Regardless of the level of your riding, our definition of good fit holds true. Every rider should use the least muscle energy possible to support themselves on the bike, to stabilize themselves on the saddle, and to apply power to the pedals. To be relaxed requires that you be as comfortable as possible.

Fit info in the Tech Manual

On the specifications page for each bike model, we have listed the Fit items for that model, including the lengths, angles, or widths of the handlebar, stem, crank, and seatpost.

RIDER HEIGHT

In addition to the measurements of the hard parts, we list Rider Height. This dimension is the median height of the average rider who might fit this bike in an average way, with its handlebars at their highest position. That's a lot of qualifiers, but the information can still be valuable in helping you quickly fit a given model. Some models do not include Rider Height,

either because that model offers too much fit adjustment to be defined, or simply because it's a one-sizefits-all. So here's all those qualifiers explained.

Median Height-

Different bikes offer different ranges of fit. Generally, the more bent over you are, the more noticeable a poor fit. Most bikes fit a range of heights. Different bikes will have a different range. We have not attempted to define how wide the fit spread is on a given model; the variables are too many. Instead, we have listed the median, or middle. In other words, if we say a bike fits someone 70" tall it may fit someone from 69 to 71", or with a wider range possibly from 67 to 73". As you consider this data, you're probably best off choosing the size closest to your height.

Average Riding Style-

When we design or spec a bike, we have a certain style of riding in mind. As an example, when we spec a Supercaliber, we're expecting that the bike will be either ridden by a racer, or someone who likes to ride like a racer. That doesn't mean you can't ride a Supercaliber on the bike path, but someone buying a Supercaliber exclusively for bike path riding isn't riding in an average way for that model, and will likely want to tune the fit to their purposes.

Average Fit-

We've studied a lot of riders over the years, and we can draw some conclusions about the way a bike fits the average person. But some folks aren't average. Those with specific preferences, injury, or other abnormalities may require or prefer a non-average fit. As examples, consider two people of the same height but different weight. At 6' tall, a 130 pound person will sit on a bike differently than someone also 6' tall who weighs 260. Incidentally, neither of these folks would fit our definition of average.

There are many factors which effect bike fit. Certainly bone lengths is one, but perhaps surprisingly, it's not always the most important. Other influential factors include flexibility (and thus to some extent your age), somatotype (your general body shape), overall conditioning (muscular strength and body mass distribution), gender, and riding style. If you are female, or in any way older, out of shape, over weight, or not accustomed to cycling, you will probably want to select the larger of two bike sizes that would fit you, simply to get the higher handlebar position that comes with a bigger frame. It's easy to put a shorter stem on to reduce the reach to the bars. It's not always easy to find a stem which can adequately raise the handlebars on a frame that is too small.

Highest handlebar position-

We made these fit estimations with the stem at its highest point. With Ahead stems, that means all the spacers were under the stem. With quill stems, the handlebars reach their maximum height with the stem pulled up to the minimum insertion line. With adjustable stems, it's calculated with the stem at a 35 degree angle. Lowering the bars, or changing the parts, changes the fit of the bike as well as its Rider Height.

Sugar = B*Link

When we introduced the Fisher Sugar in 2000, it set the suspension market on its ear. No bike before it offered the unique combination of Genesis handling and B*Link technology. The Sugar is a lightweight full suspension package that handles like a hardtail. It's a successful blend of several Fisher features; Genesis Geometry, Aluminum frame technology, and American manufacturing quality.

The Sugar has already proven itself to be a top level performer. Mary Grigson, on a Sugar, was one of the first riders to win a World Cup race on a full suspension bike. Clearly, the new Sugar is fast. With Genesis geometry, it's also an excellent handling machine. And it doesn't waste your energy. Everything a perfect full suspension bike should be, so even on an afternoon spin, the Sugar makes your riding more fun.

Genesis Geometry

The Sugar incorporates Fisher's Genesis Geometry. Gary's original concept was a bike that would be more stable in situations where the rider's center of gravity rolled them forward over the handlebars. While solving this problem, Gary also created a bike that better handles the higher speeds of Pro racers. A sneak peek with a tape measure into the pits at a NORBA National will reveal that many racers, on bikes with different brand names, are borrowing from Gary's geometry.

B*Link suspension design

The Sugar uses a special linkage to activate the rear shock, called the B*Link. The B*Link adds lateral rigidity to the frame, so the Sugar steers and handles like a hardtail. Likewise, the relatively short travel (by Fisher standards of the past) of 3" (75mm) gives a hardtail feel to the bike. However, the pivot location and resultant progressive suspension and compression ratio allows the Sugar to be plush on small stuff, yet not bottom on the big hits. The end result is an almost invisible suspension feel; it takes the edge off, but you don't really notice the suspension movement. Combined with low weight, these features make the Sugar the ultimate all-round and racing suspension bike.

Some designs offer more

While other suspension systems may offer some similar benefits to those of the Sugar, they have some things the B*Link design doesn't have. They have tiny little pivots crammed into the tight space by the rear dropouts. Those little pivots add weight to the bike, and at their attachment points the frame has to be designed with extra reinforcements that also add weight. As an added problem, if the pivots aren't perfectly aligned, they wear prematurely, so the extra alignment work adds cost to the bike.

Those dinky little pivots also have low torsional rigidity, allowing unwanted flex. As the suspension is activated on a bike with imperfect alignment and pivot flex, their little pivots will loosen up, which causes additional frame flex and squeaking.

Smart design

By carefully designing the pivot locations, swingarm, and links, Fisher engineers were able to create a suspension system that avoids those troublesome little pivots back by the dropouts. The key is finding the exact lengths and arcs to do this without undue stress on any frame members. Still, there is some flex of the frame as the suspension is activated. With each suspension stroke, there is a slight change in angle of the

chainstays and seatstays.

Without careful design, this tiny flexing could cause fatigue of the frame resulting in breakage. Fisher engineers used some of our vast array of materials and manufacturing technology to avoid welding in the flexed area. Instead of welding, we use bonding technology to join the stays and rear drops. By using a space age epoxy adhesive, we achieve incredibly strong frame joints that don't have the inherent stress (and stress risers) of welding. This clever design avoids fatigue stress.

B*Link benefits

Our smart B*Link design completely avoids the annoying little rear dropout pivots with a light, rigid design. All you give up with B*Link is the tiny pivots and the headaches. B*Link stills gives you what you need in a full suspension design. The tires follow the terrain for maximum traction, pedal interrupting bumps virtually disappear, and big hits are swallowed up without bottoming the springs.

Designed for an air shock

For a cross-country design like the Sugar, we wanted the lightest shock possible. By itself, just the spring of a coil/over shock can weigh more than an entire air shock.

Air shocks have progressive spring rates. For each increment an air shock is compressed, the rate of change of the spring rate goes up (gets stiffer).

However, air shocks can be too progressive. In this scenario, in order to have a bit of sag in the system, the progressive nature of an air shock can prevent you from getting all the travel the bike has to offer.

The shock actuation of the Sugar is a slightly falling rate. For each increment of swingarm travel, the actuation rate decreases (compresses less). This allows the Sugar to be set up with some sag, yet get full travel over big bumps. Basically, the Sugar design makes an air shock feel more linear.

The Sugar has a unique blend of a progressive shock combined with a low leverage ratio. This, coupled with a very specific pivot location, takes rear suspension performance to a level that is instantly distinguished over other designs. The results are greater efficiency in both terrain response and the transfer of your energy to the rear wheel, while being almost undetectable.

More durable pivots

One last concern of our engineers was pivot durability and maintenance. Although you may not appreciate it on a test ride, pivot durability plays an important role after you've owned the bike for a while. As suspension pivots wear, they become loose. This looseness translates into frame flex, or "wag", which can allow the two wheels to track independently. You don't want this. In addition, worn pivots tend to squeak. Nothing is more annoying than listening to your bike squeak with every pedal stroke. So Fisher engineers borrowed technology from the thousands of proven Fisher Joshua bikes on the trail; Teflon impregnated composite bearings.

In the Sugar design, the bearings ride on very wide axles. The distance between the bearings, on a given axle, is what helps lateral stiffness in a bike frame.

If an axle is only a few millimeters long (like those crammed in by the dropouts), then it offers little resistance to lateral and torsional flexing. That's why the Sugar doesn't use this type of pivot at the dropouts.

Would you rather work on your bike than ride it? Even the ultimate suspension design makes for a lousy bike if it requires constant service. That's why the Sugar uses a totally sealed, non-metallic pivot bearing. Think about this; which wears faster, a suspension fork (with non-metallic bushings) or a headset (with ball bearings)? If you answered "headset", you're correct.

When you hit a bump with the rear wheel, the force is transmitted through the pivot (before it gets to the shock). With ball bearings in a pivot, the contact area of the bearings is extremely small, and metal to metal. It's inevitable that this contact point is going to wear fast. With the Sugar, the contact point is huge, and the bearings actually have a small amount of shock absorption capacity. This combination of features means you can ride a Sugar for thousands and thousands of miles without any maintenance, and without any noise or rear end wag.

Industrial strength

The original development of the Sugar pivot technology was for use in industrial quarrying, where huge machines work under monstrous loads in a dirty environment. Gosh, almost sounds like mountain biking!

Bearing force threshold

If you take all the parts off a suspension bike and remove the rear shock, you'll find several things. First, it becomes much easier to see what the suspension does when the rider hits a bump.

Second, you will see that there are differences in the amount of force it takes to initiate suspension movement. Brands with ball bearings in their pivots point out that the Sugar, especially when brand new, takes some force to move. Generally, it take somewhere around 10 pounds of force at the rear axle to move a brand-new Sugar swingarm.

Is this force threshold interfering with the bike's performance?. As you ride your Sugar, the composite bearing deposits material onto the nickel-less anodized pivot axle. After break-in, the bearing surface becomes in effect Teflon against Teflon. Since the composite is much slipperier than the aluminum, the force required to activate the pivot becomes much less after break-in.

The other thing to consider is this- once you exceed the activation threshold, the 'stiction' of the bearing no longer effects the travel. You can feel this on the workstand. When you sit on the bike, you have applied way more force than ten pounds to the rear axle. The spring stores the energy from you compressing it, so when you get off, about the same force works to return the shock to its un-sagged length. So this 'test' of the bearing stiction has little to do with how the bike actually works.

Basically, we feel the huge bearing surface of our design, coupled with its low weight and totally sealed nature, make our pivot far superior to a ball bearing pivot.

NEW FOR 2002

New frame tubes = lighter weight and lateral rigidity The 2002 Sugar uses our new frame material, ZR9000. The key to this new material is that while the frame is now 15% stronger, it is at the same time 15% lighter, and way more fatigue resistant.

The 2002 Sugar gets a new downtube with a much greater diameter. This makes the frame laterally and torsionally stiffer. Combined with other new frame features, the 2002 Sugar is over 7% stiffer!

We also took advantage of our carbon fiber technology, with both carbon chainstays and carbon seatstays. We ended up with a frame that's 1/4 pound (over 100 grams) lighter!

Redesigned B*Link = lateral rigidity

The new B*Link is stiffer laterally than earlier versions. However, to achieve this improvement, it was necessary to redesign its attachment points. This means the new B*Link cannot be retro-fitted to previous Sugars. Likewise, it cannot be interchanged with the Sybil link on the Sugar+.

New swingarm without 'seatstay bridge' = tire clearance
By using very large diameter 'seatstays', we were able
to remove the brake bridge. Normally the bridge is
needed to stiffen the area around the brake bosses.
With the super-large diameter tubes we designed, we
were able to remove the bridge completely while maintaining adequate brake rigidity. The result is tons of
tire clearance, now fitting even up to a 2.35 tire.

SUGAR SUSPENSION SETUP

Cane Creek shocks have two springs, a 'positive' and a 'negative'. The positive spring works to make the shock longer, while the negative spring works to make the shock shorter. The negative spring works only during the first part of the shock stroke, in effect helping small bumps to compress the shock. This makes the Sugar feel plush. After a small amount of shock compression, the negative spring ceases to have an effect, and just the positive spring resists large bumps.

With a Cane Creek rear shock, pump up the pressure to around 25-35 PSI less than your body weight in LBS (see chart below). With models that provide damping adjustment, try 2-3 turns in from fully fast. This is a good place to start. You should experiment in small increments to find what works best for your position, terrain, body weight, and riding speed.

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Body	/Preload	Body /Preload
Weight		Weight
LBS	PSI	KG ATM
100	75	45 5.43
110	85	50 6.04
120	95	55 6.64
130	105	60 7.24
140	110	65 7.85
150	120	70 8.45
160	130	75 9.05
170	140	80 9.66
180	150	85 10.26
190	155	90 10.86
200	165	95 11.47
210	175	100 12.07
220	185	105 12.67
230	195	110 13.28
240	205	

Sugar+ = Sybil link

The Sugar+ borrows heavily from the hugely successful Sugar design, but expands on that success to create a more versatile bike. By providing a way to adjust the suspension travel, the Sugar+ can exactly mimic the design of the Sugar, or go into long travel, adventure mode. And this magic act takes just about a minute. The only real downside is that the Sugar is lighter, but in reality one should expect that from a more expensive bike, anyway.

Adjustable Travel

The Sugar+ allows you to choose from two configurations, or anywhere in-between. In the short travel mode, the Sugar+ has the exact same geometry and travel as the Sugar (2.8" / 70mm). By moving the rear shock into its long-travel position, you increase the rear wheel travel to 4.1 inches (100mm). Then dial the fork to its 100mm travel position (some forks may offer even more travel). The only change in handling comes from a resultant 14mm increase in bottom bracket height. The sweet ride of Genesis geometry is still there. Even cooler, you don't have to change the pressure in the rear shock when you move it!

Genesis Geometry

The Sugar+ incorporates Fisher's Genesis Geometry. Gary's original concept was a bike that would be more stable in situations where the rider's center of gravity rolled them forward over the handlebars. While solving this problem, Gary also created a bike that better handles the higher speeds of Pro racers. A sneak peek with a tape measure into the pits at a NORBA National will reveal that many racers, on bikes with different brand names, are borrowing from Gary's geometry.

Sybil link suspension design

The Sugar+ uses a special linkage to activate the rear shock, called the Sybil link. The name "Sybil" was a taken from a famous case which profiled multiple personalities. The name Sybil can also be found in mythology, a seer who could predict the future. Either way, it's a good description of the capabilities of the Sugar+.



Like the Sugar's B*Link, the Sybil link adds lateral rigidity to the frame. The box construction with parallel through-axles at either end means that the link resists torsion applied by the terrain pressing against the rear wheel. What all this means is that the Sugar+ keeps the rear wheel in line over rough terrain, so your Sugar+ handles like a hardtail, but with the extra cush you want

in a long-travel suspension bike.

The pivot location and resultant progressive suspension and compression ratio allows the Sugar+ to be plush on small stuff, yet not bottom on the big hits. The end result is an almost invisible suspension feel; it takes the edge off, but you don't really notice the suspension movement.

Some designs offer more

While other suspension systems may offer some similar benefits to those of the Sugar+, they have some things the Sugar+ design doesn't have. They have tiny little pivots crammed into the tight space by the rear dropouts. Those little pivots add weight to the bike, and at their attachment points the frame has to be designed with extra reinforcements that also add weight. As an added problem, if the pivots aren't perfectly aligned, they wear prematurely, so the extra alignment work adds cost to the bike.

Those dinky little pivots also have low torsional rigidity, allowing unwanted flex. As the suspension is activated on a bike with imperfect alignment and pivot flex, their little pivots will loosen up, which causes additional frame flex and squeaking.

Smart design

By carefully designing the pivot locations, swingarm, and links, Fisher engineers were able to create a suspension system that avoids those troublesome little pivots back by the dropouts. The key is finding the exact lengths and arcs to do this without undue stress on any frame members. Still, there is some flex of the frame as the suspension is activated. With each suspension stroke, there is a slight change in angle of the chainstays and seatstays.

Without careful design, this tiny flexing could cause fatigue of the frame resulting in breakage. Fisher engineers used some of our vast array of materials and manufacturing technology to avoid welding in the flexed area. Instead of welding, we use bonding technology to join the stays and rear drops. By using a space age epoxy adhesive, we achieve incredibly strong frame joints that don't have the inherent stress (and stress risers) of welding. This clever design avoids fatigue stress.

More durable pivots

One last concern of our engineers was pivot durability and maintenance. Although you may not appreciate it on a test ride, pivot durability plays an important role after you've owned the bike for a while. As suspension pivots wear, they become loose. This looseness translates into frame flex, or "wag", which can allow the two wheels to track independently. You don't want this. In addition, worn pivots tend to squeak. Nothing is more annoying than listening to your bike squeak with every pedal stroke. So Fisher engineers borrowed technology from the thousands of proven Fisher Joshua bikes on the trail; Teflon impregnated composite bearings.

In the Sugar+ design, the bearings ride on very wide axles. The distance between the bearings, on a given axle, is what helps lateral stiffness in a bike frame. If an axle is only a few millimeters long (like those crammed in by the dropouts), then it offers little resistance to lateral and torsional flexing. That's why the Sugar doesn't use this type of pivot at the

dropouts.

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it actually has many, many improvements.

New frame tubes = more lateral rigidity at the same weight

The 2002 Sugar uses our new frame material, ZR9000. The key to this new material is that while the frame is now 15% stronger, it is at the same time 15% lighter, and way more fatigue resistant.

The 2002 Sugar gets a new downtube with a much greater diameter. This makes the frame laterally and torsionally stiffer. Combined with other new frame features, the 2002 Sugar+ is over 7% stiffer!

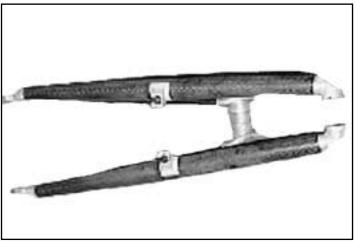
Careful design allows us to put all these features into a Sugar+, but at the same frame weight as last year's Sugar.

Sybil link = adjustability and lateral rigidity

The new Sybil link is stiffer laterally than earlier versions. However, to achieve this improvement, it was necessary to redesign its attachment points. This means the new Sybil link cannot be retro-fitted to Sugars, neither 2002 or earlier.

New swingarm without 'seatstay bridge' = tire clearance

By using very large diameter 'seatstays', we were able to remove the brake bridge. Normally the bridge is



needed to stiffen the area around the brake bosses. With the super-large diameter tubes we designed, we were able to remove the bridge completely while maintaining adequate brake rigidity. The result is tons of tire clearance, now fitting even up to a 2.35 tire (carbon fiber version from Sugar shown).

Genesisters model

The Sugar 3+ is now offered in Genesisters geometry, Gary's Genesis concept executed to fit women.

Other details

The Sugar+ frame accepts V-type or International mount disc brakes.

NEW FOR 2002

Although the Sugar+ may look like last year's Sugar,

SUGAR+ SUSPENSION SETUP

One of the cool features of the Sugar+ concept is that once you've adjusted the rear shock for its 'standard' travel mode, you don't have to change the preload. When you move to the long travel position on the Sybil link, the change in actuation ratio means the long travel adjustment will be appropriately softer.

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With a Cane Creek rear shock, pump up the pressure to around 25-35 PSI less than your body weight in LBS (see chart below). With models that provide damping adjustment, try 2-3 turns in from fully fast. This is a good place to start. You should experiment in small increments to find what works best for your position, terrain, body weight, and riding speed.

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Tubeless Compatible Technology

Snakebite

One of the more common mechanical problems encountered on a mountain bike ride is the pinch flat. With your tire pressure set on the soft side to enhance traction, you run over a sharp object, like a rock. The soft tire is compressed between the rock and the rim, another hard spot. Caught in the middle of this squeeze play is the tire and the lowly inner tube, made of soft rubber. The tire can resist the compression because it is fairly thick, and has reinforcing threads running through it. The poor inner tube has nothing. Under pressure, the inner tube rubber separates and gets treated to the mountain bikers' nemesis: snakebite, denoted by a pair of matched holes in the inner tube.

A cure for snakebite

Until recently, the only cure for snakebite was to increase the air pressure in the tire. Unfortunately, this solution causes its own problem; reduced traction. To solve this problem, a consortium of rim and tire builders came up with a novel approach; why not eliminate the tube? Following this path they came up with a design using a dedicated tire to seal to a dedicated rim and hold air without a tube, dubbed UST.

The downside of UST

The UST 'solution' has a host of its own problems. First, it's very expensive. The key to UST is a rim without spoke holes through it's inner wall. This design requires a special method of rim manufacturing and spoke installation. Second, this special wheel doesn't use conventional spokes, so to get UST benefits you have to buy an entire wheel. Third, a UST rim will not work with a standard tire. And lastly, there is a very limited selection of tires and tread patterns that will fit this special rim.

A second opinion

We considered the pros and cons of UST tubeless technology and saw that there was room for improvement. By finding a different method of containing the air, we were able to use conventional wheel building practices. Not only does this make it less expensive to buy into the system, it also means the wheels are fully serviceable at your local dealer which is a real plus for you. Second, our rim design is compatible with standard mountain bike tires, given that you use an inner tube. With both UST and our Tubeless Compatible system, going tubeless requires a special tire that has a sealing layer on the inside of its casing to prevent the air from simply rushing out. Conventional tires don't have this air-sealing layer. But again, you can use a conventional tire on our tubeless compatible rims, you just have to use a tube. In addition, with our system you can use the UST tubeless tires.

How did we do it?

The key to our Tubeless Compatible system is a special rim and its mated rim strip. This rim strip is made of a thermoplastic rubber material, so it's impervious to air. Installed correctly in the special mated rim, it seals tightly to the tire to prevent air escaping through the spoke holes. The rim's hook allows greater contact with the tubeless tire's smooth, enlarged bead so these two surfaces also seal up tight. The inside of the tubeless tire has a special coating to prevent air from escaping through the tire casing. When these features are all in order, no tube is needed. Just install a special presta valve stem into the rim, and inflate.

Does the system absolutely eliminate air leakage?

Have you ever noticed that you occasionally have to pump up your tires (well, really it's your tubes), even if they don't have a puncture? In a similar fashion, a properly mounted tubeless tire can 'bleed' air. We expect that this will amount to about 4PSI per day.

For display purposes, 2002 complete bikes with tubeless tires will include an installed inner tube. Since inner tubes have a slower bleed rate, the store won't have lots of bikes sitting on the sales floor with soft tires.

What if I run over a nail with tubeless tires?

A tubeless tire functions like a tire with a tube in it. It's just that the tire holds the air, not the tube. So if you run over a large, sharp object that can penetrate the tire casing, it will probably flatten the tire just like with an inner tube.

Also like an inner tube, you can probably patch the hole (from the inside of the tire). The difficulty lies in determining where a tire is punctured. An inner tube is basically fully enclosed. A tubeless tire is not. If the source of the air leak is not immediately obvious, you may have a problem getting the tire inflated enough to locate the puncture. However, if you puncture while on the trail it's an easy matter to simply remove the special tubeless valve stem and install a tube.

That's not that bad. Anything else that could be considered a down side?

To inflate a tubeless tire, it must be in contact with the rim, tight enough to make full contact with the rim strip when at the bottom of the rim well. So the tires have to fit on the rim a little tighter. This makes them somewhat harder to install. The good side of this is that it does not take a compressor to initially seat the tire beads. A good hand pump will do. Or an air cartridge.

With a tire that fits this snug, you might not be able to install it barehanded. If you choose to use tire levers for installation or removal, it's important that you do not damage the rim or abrade the tire bead. If either surface is damaged, the roughened surface will likely allow a greater rate of air bleed from the mounted tire.

Tubeless Troubleshooting

If you are having trouble inflating a tire on a tubeless compatible rim, here are a few things to check.

Is the tire a tubeless tire? It should be clearly marked on the sidewall. Standard tires will not hold air without an inner tube.

Are the tire, rim, and rim strip clean and in good shape? Any puncture in the tire casing? Any dirt or abrasion at the critical sealing points can cause air to escape. Is the tubeless valve correctly installed? It should sit down in the channel of the rim, pressed firmly against the rim strip.

Are the beads seated in the rim? If a tubeless tire is only inflated to 30 or 40psi, the beads may not have properly 'locked in' to the rim strip. Try inflating the tire to around 50psi, and listen for the 'snap' as the beads lock. Then reduce pressure to your preference.

Bontrager Wheelsystems

Bontrager Wheelsystems wheels set a new standard in wheel performance. Bontrager Wheelsystems wheels are light, fast, and rock solid, with a unique set of application-specific features. Since different types of riding place different demands on wheels, Bontrager Wheelsystems applies the features to each wheelset which will optimize its performance for that use. In other words, each wheelset draws on the best specific set of the following possible features: paired spoking, OSB (Offset Spoke Bed), front-or-rear specific rims, top quality spokes (aero in some applications), and special hub designs.

Engineered wheels

Bontrager Wheelsystems wheels are highly engineered; every aspect of wheel performance has been considered, and redesigned when necessary. An extensive battery of tests has proven these to be truly outstanding products in aerodynamics, low moment of inertia, and durability. Since we proudly list the weights, it's easy to see the Bontrager advantage in this parameter. But with Keith Bontrager, durability is always a characteristic of paramount importance. These wheels are no exception. The battery of tests which every Bontrager wheel design must pass is truly astonishing.

As an example, one torture test involves placing 300 pounds on the axle of a wheel, and rolling over fixed wooden 2x4s at 30 MPH. Don't try this at home! This test regularly destroys many of our competitors wheels before they meet our minimum standards. At the same time, we insist that all Bontrager Wheelsystems wheels exceed them.

The key to durable wheels

The most important aspect of wheel building is achieving even spoke tension, within a range of acceptable tension. Certainly some of the responsibility here lies on the careful hand-finishing applied to all Bontrager Wheelsystems wheels. But even the best trained hands can't achieve consistent, even spoke tension if the wheel hasn't been designed properly.

Design review

When engineering wheels, every aspect of the wheel and its components must be considered as a group. Rim design effects lateral and radial stiffness, spoke bed strength, and in extreme cases impact resistance. Spokes must be selected with the right strength and elongation. Hub design must provide support for the spoke head, and flange width effects lateral stability. All the features must match up exactly to optimize the design's strength-to-weight ratio.

The missing factor

On any bike, the rear wheel sees more stress than the front wheel. The rear wheel supports a greater percentage of the rider's weight. The rear wheel must accommodate the freewheel or cassette, yet center the rim over the ends of the axle. And while the front wheel can rotate during side loading or deflection, the rear wheel is trapped between the rigid chainstays. In riding, this can greatly increase side-loading of the wheel.

Over the years, many approaches to increased rear wheel strength have been taken. Rather than attempt to review all those here, we'll simply present the goal of the Bontrager rear wheel; create the best possible balance of spoke tension from the drive side to the non-drive side of the rear wheel. Forget bracing angles, or distributing the pulling load over more spokes. As we said earlier, the greatest source of wheel failure is uneven spoke tensions. Since the inherent design of a multi-speed rear wheel creates a large difference in tension between left and right sides of the wheel, the best way to create a durable structure is to minimize this difference. Further, if a spoke is at lower tension than its neighbors, it can't effectively apply force to the rim.

Bontrager Wheelsystems rear wheels employ OSB (Offset Spoke Bed) rims and special hub designs with a more inboard left flange spacing. These features allow an increase in the left-side spoke tension. The higher left side tension allows the left spokes to apply torque transfer to the rim. They also provide increased strength through reduced lateral wheel flex. In other words, Bontrager Wheelsystems wheels are more efficient.

Bontrager wheels create a more evenly-tensioned structure, and thereby reduce the overall stress on the individual components. The result is that Bontrager Wheelsystems wheels offer unmatched strength and durability.

Bontrager Wheelsystems stay true longer

As your bike rolls down the road, your wheels are loaded with your body weight as they turn. As they do, the point at which the road resists the force of your body weight is moving on the wheel. This moving force creates a change in spoke tension such that every spoke on the wheel is seeing a loose-tight-loose-tight-loose-tight cycle. This cycle creates fatigue in the spokes, which will eventually cause them to fail. In some cases, fatigue can even cause a rim to fail. The greater the difference in spoke tension within the wheel, the larger the variations in tension through this cycle, and the greater the fatigue on the wheel.

More immediately, long before parts fail due to fatigue, the wheel may come out of true. As the tension is removed from a spoke, the nipple can more easily turn on its threads. This results in you spending more time working on your bike, or having it serviced. With Bontrager Wheelsystem wheels, the design creates more even tensioning. Maintenance is therefore at a minimum.

The keys to a perfect road wheel

As we said earlier, Bontrager Wheelsystems employ a set of specific features to achieve their high level of performance. All wheels benefit from low weight, durability, and low maintenance.

With road wheels, aerodynamics become very important due to the higher average speeds seen on pavement. One of the major influences on wheel aerodynamics is spokes. Many Bontrager road wheels use aero, or bladed, spokes to reduce wind drag. They also use reduced spoke counts, relying on Paired Spoke Technology to maintain

high wheel strength with fewer spokes.

On a bike, the front wheel sees the most wind resistance because it is the leading edge of the bike. The rear wheel is "drafting the seat tube", and is in much more turbulent air. For this reason, Bontrager road front wheels use a deeper, more aerodynamic rim than the rear wheel.

Mountain bike wheels have different needs

While road bikes benefit from improved aerodynamics, mountain bikes place a greater need on wheel durability and rigidity. They also sometimes require special configurations, like the ability to accept a disc brake rotor. Again, Bontrager Wheelsystems mountain bike wheels select those features which will best create the ultimate structure.

With disc-specific wheels, there is no need for a flat rim sidewall. This allows optimization of the rim shape to reduce weight. Placing a rotor on the front wheel creates an asymmetric spoke configuration that benefits from OSB (Offset Spoke Bed), thereby reducing the required dishing and providing more balanced spoke tension from left to right side of the wheel. Disc wheels also used crossed spokes, to efficiently transfer disc brake forces to the rim.

With rim brakes, Bontrager Wheelsystems incorporate tall sidewalls so that brake adjustment is easier, and pad wear has less effect on proper adjustment; taller sidewalls provide increased surface for the brake pad to mate to.

Like with Bontrager road wheels, Bontrager mountain wheels focus on balancing spoke tensions on the drive and non-drive side of the wheel. To do this, they employ OSB (Offset Spoke Bed) rims and special hub designs with modified flange spacing. These features greatly reduce the tension differentials from side to side, creating a stronger, more durable structure. The higher left side tensions allow more torque transfer to the left side drive spokes. They also provide increased strength through reduced lateral wheel flex. In other words, Bontrager Wheelsystems mountain wheels are stronger.

Truing Bontrager Wheelsystems wheels

Most Bontrager wheels employ standard, externally adjustable spoke nipples. The only exceptions are the Bontrager X-Lite Carbon Road wheels, and the Bontrager X-Lite Aero road wheels where a small aerodynamic benefit can make the difference between winning and losing a race.

Bontrager Road wheels use PST (Paired Spoke Technology) which require a slightly different technique to true. In many respects, truing Bontrager Wheelsystems wheels with PST is just like truing a conventionally spoked wheel. Each spoke has both a vertical and lateral component to its pulling force. As you tighten a spoke, it pulls radially in towards the hub, and laterally out towards the hub flange.

The difference is that on a Bontrager wheel with PST, the lateral force is directly opposed by its 'partner', the spoke adjacent to it. As the partner reacts to your tightening of a spoke, there is no further lateral force applied to the rim. Contrast that to a conventionally spoked wheel where each spoke has two 'partners'. As you tighten one spoke, it effects the tension, and thus the spatial position, of the two partners. This in turn effects the next outward

pair, and so on.

When truing Bontrager Wheelsystems road wheels, PST gives you more control over both vertical and lateral rim deviations. If the rim is slightly out of true but very round, you can loosen one partner and tighten the other. The rim moves laterally, but not up or down. And since no other spokes are directly affected, you're done.

Vertical deviations

With wheels built in our factory, the tolerance allowed for vertical deviation is 0.5mm. A 23c tire with 120 PSI will exhibit more out-of-roundness than this.

Our wheel builders use a vellum, a highly sensitive truing stand that uses dial indicators driven by wheels pressing on the rim. When 0.5mm passes by the indicators on the vellum, the needles move about an inch. What looks like a mountain on the vellum will be totally missed by the rider, even at high tire pressures on smooth pavement. With an egg-shaped wheel where 0.5mm height change occurs over 1/2 of the wheel rotation, the out-of-roundness may be invisible with a normal truing stand. If that same 0.5mm deviation occurs in a short rim section, it's very visible to the naked eye.

With Bontrager Wheelsystems, the same 0.5mm vertical tolerance is allowed, but instead of an egg shaped wheel it can show up over a very short section of the rim. In either case, the rider will not feel it, nor will it effect the ride of the bike. Consider the much greater magnitudes in the out-of-roundness of a wheel. The tire will be out of round by 1-2mm on a 23c tire, more as the casing gets bigger. A rider sitting on the bike with that same 23c tire at 110PSI will compress the tire by another 2-3mm. And unless your roads are a lot better than here in Wisconsin, the road surfaces often have 5, 10, and even 20mm variation.

A note about the "little marks" on the rims

On 2002 Bontrager rims there is a small spherical indentation in the braking surface of the rim. This isn't a blemish, it's a wear indicator. If the braking surface has worn so that the indicator is no longer visible, have your dealer replace the rim.

Technical Specifications

For detailed technical specifications, wheel building instructions, spoke lengths, tensions, and hub maintenance information, please refer to the Bontrager Wheel Building Manual, Bontrager Service Manual, or cybersurf to www.bontrager.com.

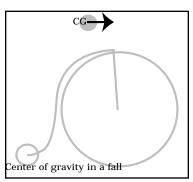
The 29" wheel story

The wheels of the bicycle have changed size throughout its development

Why are bicycle wheels the size they are? The first machine considered a true bicycle was called a Draisienne, after the Frenchman credited with inventing it. This embryonic bicycle allowed the rider to sit between two wheels, glide and steer. The propulsion was provided by pushing along the ground with one's feet. As such, the wheels were not overly large, and the rider sat near the ground. It set speed records, and was a highly efficient form of locomotion at the time.

For the purposes of this discussion, the next step in bicycle development was increasing its speed by attaching pedal cranks. The easiest method for attaching pedals was to put them directly on the front wheel axle, like modern tricycles. This put the pedals in front of the rider, for both comfort and ease of use. While pedaling increased the speed of the bike, it quickly became apparent that a larger drive wheel would make for further increases. As the front wheel grew, the rear wheel became smaller to reduce weight and maintain the handling characteristics of a shorter wheelbase. To maintain control over the bike, the rider had to sit near the steering axis, necessarily above the wheel. This new design was known as the penny-farthing, or Ordinary.

As the size of the drive wheel grew, bicycle speeds increased. Wheels got bigger and bigger. The riders on these bigger wheels got higher and higher off the ground. Crashes became common. Remember, paved roads were rare. Special handlebar designs were developed to make it easier to dismount as the rider flew over the front wheel.



Even with the many crashes, wheel size increased. The limit on wheel size was the rider's leg length. If the wheel was too big, the rider simply could not reach the pedals. Still, rider's wanted more speed. Several solutions were put forth, and the one that succeeded was a chain-driven rear wheel. With the introduction of chain drive, bicycles acquired gears and gear

ratios. By using cogs attached to the cranks and rear wheel, with different numbers of teeth, a single turn of the cranks could mean multiple turns of the rear wheel. This allowed a bicycle with smaller wheels to travel greater distances with a single revolution of the cranks. It also put the rider as close to the ground as pedal clearance would allow, and with two wheels of the same size. With the lowered center of gravity or these bikes, their riders weren't nearly as prone to pitching over the front wheel, and thus the new bikes became known as "Safety" bikes.

The wheels used on early Safety bikes were made of iron, steel or wood, which were then covered with a variety of materials. None of these cover materials was particularly shock absorptive, nor much help in achieving traction. However, they allowed a bike design to utilize whatever wheel size its creator desired. Wheel size varied a great deal, with much experimentation. Some bikes had similar wheel diameters, others had different front and rear wheel diameters. There wasn't

even agreement on which end of the bike got the bigger wheel.

One of the next significant development in bicycle technology was pneumatic tires. This truly was a revolution, allowing bikes to float over small bumps, maintain traction, and all with a great deal more comfort. Soon after their introduction, pneumatic tires became a requirement for any performance bicycle. Tires, then, are what finally settled the debate of wheel size. Wheels were thereafter made in the available tire sizes.

A brief review of the literature did not reveal any specific reason why specific sizes were selected. Instead, its probably a function of tires being made to fit an existing wheel. And that wheel size was determined to fit within the existing bicycle design parameters as they occurred at the time.

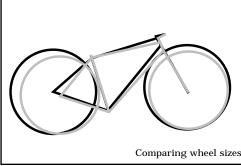
Later, a similar choice was made at the birth of the modern mountain bike. When pioneers like Gary Fisher were building their clunkers for the famous descent of Mt. Tam, the available tire size in a balloon tire was 26". Out of convenience, this became their standard. And as mountain bike tires evolved, they were made to fit these same rims. So the evolution of the mountain bike tire size was like that of wheel sizes; a selection made by what was available at the moment.

The limits to wheel size

The modern bicycle configuration places the rider's hands almost directly above the axle of the front wheel. Between these two points there resides the headset, or steering bearings, and the frame's head tube which holds those bearings. Attached above this is the stem. Below the steering bearings, the fork crown requires space, as does tire clearance for suspension fork travel. As wheel size increases, the room for the components decreases. If the wheel is too big, the immedi-

ate result is a handlebar that cannot be lowered to the desired position.

An overly large front wheel can also create problems with the front-center



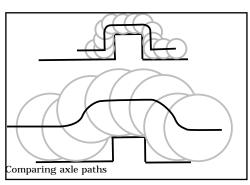
dimension, the distance from the bottom bracket to the front axle. Front-center effects steering quickness, handling, and stability. The tire contact patch is directly under the front axle, regardless of the wheel size. A longer front-center adds stability, but slows the steering response of the bike somewhat. A short front center does the opposite, and if paired with a large wheel may allow toe-clip overlap, where the rider's foot contacts the front wheel during a sharp, slow speed turn.

The diameter of the rear wheel dictates the chainstay length, important because chainstay length is a factor in bottom bracket rigidity. Also, the location of the rear tire contact patch, relative to the rider's center of gravity, effects traction on steep terrain.

As a result of 'crowding', larger wheels only work on larger bikes. On a smaller bike, the head tube would have to be shortened so much that the frame would lose torsional rigidity. Even worse, the rider's hands would be lifted such that they could not achieve the proper position. The good news is that smaller people already had a low center of gravity to begin with; its just those bicycling skyscrapers who were too far above their front axles.

Large wheels provide suspension for the rider through a smoother axle path

Imagine a skateboard wheel running over a series of 1" bumps. Since the skateboard wheel has a radius of only an inch, each time the wheel contacts a bump it has to move vertically 1 inch in just 1 inch of horizontal motion. This is an abrupt change with drastic effects on the rider's motion. With a 20" BMX wheel, that same 1 inch of vertical motion happens over about 4 inches of forward motion. This turns what was a



radical bump into a mild annoyance. Now ride over our bump on a 26" wheel, and you have almost 6" of horizontal distance to spread out the impact, and the bump is hardly noticeable. Not only does the bump disturb

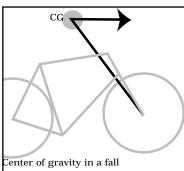
your riding less, but it also has less effect on your speed.

This effect is somewhat similar to that of a suspension fork, except that it happens on all bumps, regardless of suspension fork tuning. Tire pressure changes the effect somewhat, but with the same results regardless of tire size.

Since riding off road is normally on less than smooth surfaces, the effect of a larger wheel is constantly enhancing the ride. If both wheels are larger, the effect works on both ends of the bike.

On the Fisher 29ers you'll notice this effect in two ways; The bike will ride smoother and more comfortably. And the bike will be slightly faster, especially on broken or rough ground.

Larger wheels provide resistance to pitching over the bars (stability)

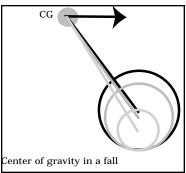


This last statement depends somewhat on the bike design. As an example, the high wheeler had a well-deserved reputation for being easy to pitch forward. The reason for this lies in the location of the rider's center of gravity relative to the pivot point when they pitch forward. Pitching over the bars is not limited to downhills,

but can occur any time the forces holding the rider behind the axle are less than the forces pushing them forward. So a sudden deceleration on the flats can make a rider pitch, much like flipping over the bars on a steep descent. Unless the front brake is locked up, the pivot point for the flip is the front axle.

In the case of the highwheeler, the rider sat well forward and quite high. Their center of mass was only just barely behind the front axle. With this position, it took little force to push them forward over the axle.

However, for this discussion we're talking about two modern mountain bikes that have only a slight change; a different wheel diameter. The bottom bracket is the same height from the ground on a 29er as on a bike with 26" wheels, so the rider's center of mass hasn't changed location.



The only real difference is the larger front wheel has a higher pivot. It takes more force to push the rider forward over this higher pivot. The larger front wheel makes it easier to descend, plus makes the bike more stable as it runs over small obstacles that cause a deceleration of the bike.

On the Fisher 29ers you'll notice this effect mostly on steeper downhills. You won't have to slide back in the saddle as much to feel stable. This also means you can stay in the 'power position' for effective pedaling, so it even helps on the uphills!

Longer forks (from bigger wheels) make a bike more stable

Trail is the distance from the tire contact patch to the center of the steering axis where it meets the ground. If the head angle and fork offset remain constant, a larger wheel diameter increases trail.

Trail is what allows a bike to run in what we perceive as a 'straight' line. Its actually not straight at all, but instead a constant series of wiggles. These wiggles occur as the bike tries to maintain a state of equilibrium. Here's how it works. As a bike is tipped to the side, the front tire contact is moved to the side. You can try this; simply lean your bike to the side and watch what happens. The front wheel turns in the direction of the lean. With forward propulsion, the bike turns toward the lean and lifts the bike back into an upright state of equilibrium (not really balanced, but trying to balance).

The reason the bike steers into a lean is trail. As a bike is leaned, the contact patch is no longer in line with the steering axis, but to the side. This puts a torque about the steering axis, which turns the handlebars. The more trail there is, the further the contact patch is from the steering axis, and the stronger the steering effect as the bike is leaned. Consequently, the more trail there is, the more forceful the centering of the bike when its leaned, so the more stable it is.

On the Fisher 29ers you'll notice this effect mostly as a 'steady' feel as you head down the trail. The handlebars seem quiet, and as a result your hands and

forearms can relax. Want to make the bike turn quickly? Just lean it over, engage some of the front tire's massive side knobs, and rail it through the turn!

Larger diameter means lower rolling resistance
Studies quoted in <u>Bicycling Science</u> state that for
every 35% increase in wheel diameter, there is a 20%
decrease in rolling resistance on a soft surface. A similar
increase in tire width only decreases rolling resistance
by 10%.

What's the final on this?

Like with any bicycle design, there are compromises. Larger wheels are not as stiff as smaller wheels. To maintain similar strength to their smaller counterparts, they are also somewhat heavier. Weight and rigidity are two ways to effect the overall efficiency of a bicycle. But they aren't the only two ways. Suspension, in the form of heavy, flexible suspension forks, has proven itself to be a compromise worth making. For many bigger riders, the smoother ride and increased stability of 29ers will also enhance their riding.

Throughout our development of this new wheel standard, we have made every effort to base our decisions on the best science. Gary himself did a long-running test where he compared his heart rate and times over the same course riding a 29er and his favorite 26" wheeled bike. He did this repeatedly, in a variety of conditions. Gary's best estimate is that the 29er was 3% faster for him. Whether you're comparing finish times, or you ride a little further on your Saturday ride, or you're less whipped after your next back country epic, we think 3% is a substantial difference

Creating an identical fit between a 29er and a stock 2002 26" Fisher Genesis bike

Although there are some differences between the fit between a stock 29er and a 2002 Paragon, they are mostly due to our desire to provide the most possible adjustment. In other words, we use the same number of stem spacers on all these bikes.

The following chart shows how to match the sizes. It shows the frame model and size, the stem and spacer configuration (stock on the 26", modified for the 29er) and the exact relationship to the bottom bracket in millimeters in both vertical and horizontal measurements.

Your results may vary, especially since suspension fork adjustment effects bike fit. These are calculated using 80mm travel forks with 10mm sag. Also note that the stems used on these two models do not match in rise, which effects the final fit.

The three asterisks (*) denote the non-specified adjustments.

Model	Size	Stem S	pacers	Vertical	Horizontal
Paragon	S	75/5	25	653	522
Supercaliber	· S	60/7*	0*	650	524
Paragon	M	90/5	25	674	549
Supercaliber	· M	90/7	10*	674	553
Paragon	L	105/10	25	708	564
Supercaliber	. L	105/7	25	706	568
Paragon	XL	105/10	25	722	564
Supercaliber	· XL	105/7	25	715	569

Note: 5 mm is about 1/8", and is not likely to be felt by even the most sensitive rider.

Gary Fisher: A History

A BRIEF HISTORY OF OFF-ROAD RID-ING (IN THE MODERN ERA)

1963

Gary Fisher was an active cyclist at a youthful age. At age 12, Gary started competing on both the road and track. The following year, he discovered cyclocross racing. He also finished 2nd in the Intermediate age group at the Northern California Road Championships.

1968

Several years later Gary was suspended from bike racing because his hair was too long. As an alternate outlet for his energy, he built a light show, and played major rock venues around San Francisco.

1972

The "long hair" rule was overturned, and Gary commenced road racing.

1973

Gary's finishes were good enough for him to become a Category 1 USCF road racer.

1974

It was for this busy time that Gary Fisher would become known as "The Father of Mountain Biking". He earned the title through a series of events.

Gary, his friends and their fat-tired bikes were attempting to ride in the hills near his house in Marin County, California. Due to the heavy-duty nature of their bikes (about 42 pounds of duty), they spent 20% of their time in the hills riding, and 80% pushing. Gary wanted to reverse the ratio. He put some wide range gearing and Tandem drum brakes, along with motorcycle levers, longer cranks, and a seatpost quick release, on an old 1930's newsboy bike fondly known as "The Clunker". Its wide gear range and heavy duty braking make it the first true off-road bike; ridable up mountains as well as down. A new sport was born.

1975

Gary was busy helping his roommate, Charlie Kelly, stage the Repack off-road downhill race series. To get even more involved in cycling, Gary began writing a monthly road test article for Bicycling Magazine.

1976

Gary's early road racing results were followed by bigger successes. Gary won the Tour of Klamath Lake, a 125 mile Olympic development race. He also placed 12th in the national road championships.

1977

Gary kept road racing. Gary finished fifth in the National Cyclocross championships and finished the Red Zinger stage race in Colorado.

Offroad, Gary set the Repack record of 4:22:14, a record that still stands.

1979

Gary started his own bike business. He did a "bad job" at trademarking the name "MountainBikes". His brand name rapidly became the generic term for the sport. That first year he made just 165 bikes, but at the time those few bikes comprised 85% of the market

share.

1980

Gary's business pushed out 1000 bikes. That's a pretty steep growth curve.

Gary coins the term "Bullmoose handlebar" which he did trademark. Gary is the first to use a Shimano freehub and "Bear Trap" pedals on a mountain bike.

Also in 1980 he won every cross-country mountain bike race held in California, including the Reseda to the Sea off-road race.

Gary and Charlie Kelly edit the bicycle section of the "Last Whole Earth Catalog".

1981

Gary wins the second Reseda to the Sea off-road race. Gary wins the first Rockhopper Off-Road Race and sets the stage for Fisher riders to claim the next six. Gary wins the Paradise Divide Criterium in Crested Butte, Colorado.

Fisher sponsors a women's team in the Coors Classic stage race.

1983

The National Off Road Biking Association better known as NORBA was born in the living room of Charlie Kelly at Jack Ingram's insistence. Gary was one of the founding members.

1984

Gary develops and names the Unicrown fork. Fisher has the first production bike with a brake under the chainstay. Gary introduces short chainstays and steeper seat angles to mountain bikes. Gary designs and builds the first mountain bike using Tange Prestige tubing. The Fisher Excalibur is the first production mountain bike with a Dura Ace freehub, toe clips and straps.

The first US National Championship for mountain bikes was held. Fisher fields a team for the Nationals, including Dale Stetina, Eric Heiden, Joe Murray, Tom Ritchey and John Loomis. Loomis is the top Fisher finisher in third place.

Fisher racer Dale Stetina wins the Paradise Divide Stage Race. Team Fisher riders win 70% of all off-road races held.

Gary goes to France to introduce the mountain bike, racing downhill in the La Plagne Alps.

1985

Fisher Team riders work with Shimano to develop indexed shifting. Gary develops "Standover height" and "Effective top tube length" measurements to better describe off-road frame fit.

1986

Fisher starts a grass roots racing team - the largest off-road racing team in the world. Gary sells the name "Marin Mountain Bikes" to Bob Buckley.

1987

Fisher bikes win a World Championship under team member Sara Ballantyne. The Fisher Procaliber is voted one of the "Top Ten All-Time Best Mountain Bikes" by Mountain Bike Action Magazine. Gary is named by Outside Magazine as one of "50 Who Left Their Mark" in the last ten years.

1988

The innovative Fisher CR-7 is introduced combining Gary's renowned frame design and Richard Cunningham's expertise at joining aluminum and chrome-moly. Bicycle Guide Magazine names the titanium Fisher Prometheus the "Best of 88". Gary is inducted at the inaugural Mountain Bike Hall of Fame in Crested Butte.

1989

Gary introduces the Evolution headset, tubing and seatpost, the first oversize component system for off-road bikes. Bicycle Guide magazine names the Fisher Gemini Tandem "Best of 89". Fisher produces its first hybrid bicycle.

Fisher rider Sara Ballantyne wins her third world championship.

1990

Gary's collaboration with Mert Lawwill on the RS-1 full suspension bike wins Bicycling Magazine's "Hot Bike" award. The Fisher Mt. Tam is the first production mountain bike with a front suspension fork (RockShox) and suspension ready geometry.

1991

Gary introduces 15.5" chainstays on the Montare.

Fisher starts it's international mountain bike team, including world champions Albert Iten and Walter Braendli of Switzerland and Paola Pezzo and Paolo Rusola of Italy.

1992

Gary develops the Alembic carbon fiber suspension bike with Toray of Japan.

1993

Trek Bicycle Corporation acquires the Gary Fisher Bicycle Company. The new Gary Fisher brand is launched in September with its most competitive range ever, including 10 models manufactured in the United States. Fisher rider Paola Pezzo of Italy wins the UCI World Mountain Bike Championship in France.

1994

Gary is named the "Founding Father of Mountain Bikes" by Smithsonian magazine. Gary receives a lifetime achievement award at the Korbel Night of Champions, cycling's Academy Awards.

1996

Fisher rider Paola Pezzo wins the gold medal for mountain bikes at the Atlanta Olympic Games. Gary designs the Joshua dual suspension bike, the Joshua later becomes the most copied design of the 90's. Gary develops "Genesis Geometry" the first significant geometry change in mountain biking since 1987. The Fisher brand is the fastest growing bicycle brand in the U.S.A.

1997

Fisher starts a BMX team and introduces 10 BMX models including a Joshua-inspired aluminum Pro Issue team frame. Paola Pezzo dominates the Women's XC field on her Genesis geometry bicycle by winning seven of nine Grundig World Cup races, including the overall championship and the World Championship

title. Gary himself has an incredible year in the racing scene, winning the Masters Cross Country category at the U.S. National Championships and earning a spot on the U.S. Masters team.

1998

Fisher shows the bike world that dramatic improvements to mountain bike frames are still possible by unveiling Genesis geometry and makes it available to consumers around the globe. Gary wins the Trans Alp 8 day off road stage race in Europe.

1999

Fisher rider Michael Rasmussen wins the men's Cross Country event at the World Championships.

2000

Fisher introduces the Sugar, the full-suspension platform that's light enough to be raced professionally. "Popular Mechanics" names Gary one of the century's top sports innovators. American rider Walker Fergerson, riding a Fisher, wins the Junior world championships. Fisher has the worlds top women's mountain bike team on the cross country circuit, crowned by Paola Pezzo's second Olympic gold win at the Sydney games.

2001

Fisher introduces Genesisters geometry on both hardtails and full suspension bikes to the applause of performance-oriented female mountain bikers worldwide.

Fisher riders have another excellent year on the mountain bike circuit with both female and male podium visits.

2002

Who knows what Gary will come up with next? As usual, he's spending a lot of time riding, racing, and just hanging out with riders around the world. Chances are, whatever it is, it will be very, very cool.

Gary met his wife Belle over 20 years ago, when she came to his house with her boyfriend to buy a part for a bike. They have two kids, Rachel (17) and Nick (15). When he's not on his bike or traveling the world to promote the sport, Gary's into collecting art; paintings, sculpture, modern and folk art.

The Greg LeMond Story

Greg LeMond is a visionary. In 1978 as a young high school student, Greg listed on a piece of paper his 4 goals in cycling, with dates:

Greg's List

- 1. 1979- Win Junior World Championship Road Race
 - 2. 1980- Win Olympic Road Race
- 3. By age 22- Win Professional World Championship Road Race
 - 4. By age 25- Win Tour de France

Greg changes American cycling

At the time, a prediction like this seemed brash. In 1978, the idea that an American could win an international race was almost laughable.

Today, an exceptional set of goals like Greg's has become completely believable. This complete change in our perception illustrates just how much Greg changed cycling in the U.S., if not the world.

As a high school student, a kid really, Greg could already see what it would take to reach his goals. He envisioned the experience that would teach him the moves and he could see the training which would give him the strength.

As a developing athlete, Greg identified the equipment which would give him an edge. He had an uncanny knack for equipment selection, always the first to spot a particular item which might give him an advantage. Some advantages were big, some were small. But in any race, seconds count. Consider that in 1989, Greg won the Tour de France by the closest margin in Tour history, just 9 seconds. Over the approximately 2000 miles of the Tour, how many small advantages does it take to make up 9 seconds?

Most of the items that Greg pioneered are considered standard equipment these days. Almost every bike racer depends on them to be competitive, without second thought to following Greg's lead. To name but a few, Greg was among the first to use clipless pedals, a heart monitor, special cycling eye wear, a cycle computer, thin-shell helmet, or race a titanium frame in the European peloton. Of course, our favorite competitive edge is a bike built with LeMond geometry, which we detail later. For now, back to Greg's career.

Checking off the list

Greg began checking off his goals in 1979 by winning the Junior World Championship Road Race in Buenos Aires, Argentina. For extra measure, he also won a silver in the Pursuit and a bronze in the Team Time Trial.

Winning three World Championship medals is a story in itself, but the road race stands out. As the finish neared, the pack was together. It looked like a big field sprint. With 10km to go, Greg attacked. Only one rider went with him, but this young Belgian opportunist refused to work. Greg put his head down and gave it his all. 4 Russians went to the chase, riding in TTT formation. With 2km to go these four riders had completely strung out the field, yet Greg was single-handedly holding them off. Surely the Belgian, fresh from sitting on Greg's wheel, had the Gold already?

As the finish neared, the Belgian jumped off Greg's

wheel. Somehow, even after pulling the Belgian for almost 10km, Greg found the power to sprint. Greg was starting to come back around the Belgian! In a panic, the Belgian threw a vicious hook. Although he was forced into a pile of old tires used as a race barricade, Greg still stayed up. The hook was so obvious that the Belgian was relegated. LeMond had won!

Greg's first year as a Senior

The next year, 1980, was Greg's first as a senior competitor. He had a phenomenal spring season competing in Europe, including winning the Circuit de la Sarthe. The French press was in an uproar. It was the first time an American had won a major French stage race. With almost no team support, Greg had managed a significant win against the major European national teams, and even some Pros. Everything pointed to achieving goal #2, a Gold in the 1980 Olympic Road Race

Unfortunately, the U.S. chose to boycott the Moscow Olympics. Missing the Olympics was a let down for Greg. Although Greg had dreamed of Olympic glory, he had not been able to envision politics entering the sporting arena.

Greg was at a cross roads; wait four years for another Olympics, or turn Pro? Unlike today, Professional racers in 1980 were not allowed to compete in the Olympics. Greg's spring season had attracted an offer from Cyril Guimard, the Directeur Sportif of the Renault professional squad. An eager and determined Greg LeMond accepted.

Greg gave up his amateur status and quickly learned Pro racing under the tutelage of his new team mate, Bernard Hinault. Just three short years later, Greg won the 1983 World Championship Road Race in Zurich, Switzerland. On a tough, rainy circuit LeMond broke away with 20km to go. Again, only one rider went with him. However, this time Greg was able to get his breakaway companion to do some work. Greg used tactics in perfect fashion, using the rider to maintain his lead. Then when the time came Greg dropped him like a stone, riding in alone to beat the best road racers in the world. Goal #3 had been met, and Greg was just 22.

The Tour de France

The final goal, the Tour de France, was within his reach at just 24 years of age. But it was not to be. Here's the story. Greg was supporting Hinault as the team leader. Even working as a 'domestique', Greg had managed to place himself second in G.C. (General Classification). During the finish of one stage late in the race, Hinault had suffered a horrible crash. Suffering badly with a swollen face on the next day, in the mountains Hinault was dropped in an attack that Greg covered defensively. Sitting on the wheel of the attacker, Greg had opened a gap over Hinault sufficient to make Greg 'leader on the road'. Greg was feeling great and wanted to attack. He had the yellow jersey in his grasp. But the team's manager would not let Greg attack.

The next year Greg won the '85 Tour, meeting the goal set back in high school. This victory was an emotional event, with more trouble from Hinault, his own team mate, than the rest of the field.

A small setback for Greg

During the winter of 1986, Greg was shot in a hunting accident that nearly took his young life. Despite carrying 40 shotgun pellets in his chest, after a lengthy recovery he went on to race again .

The comeback

Surely one of the greatest moments in the sport was the final time trial of the 1989 Tour de France. Facing what was considered an insurmountable lead by French racer Fignon, Greg rode the fastest time trial in Tour history. In doing so, he beat Fignon and won the Tour by just 8 seconds. His victory was the closest time margin of any Tour on record.

In following seasons, Greg's performance eroded. Later it was determined that Greg had a rare cell disorder that could possibly be attributed to the lead in his body. If Greg hadn't had the hunting accident, who knows how many Tours he could have won?

Greg LeMond bicycles- The next page in Greg's history Obviously, Greg was quite a bike racer. He had incredible talent, and an even more tremendous will to win. He also had a third advantage over his competitors. Greg knew how to use technology to his advantage.

As an example, when Greg beat Fignon in the final time trial of the '89 tour, Greg used his knowledge of equipment to his full advantage. While Fignon flew his ponytail in a show of French style, Greg strapped on a funny looking aero helmet and bolted on an odd-shaped aero handlebar. Most of the sport laughed at these so-called 'gimmicks'. Their laughter turned to awe as LeMond did the impossible, removing Fignon's 'insurmountable' 40 second lead.

Greg's Position

Along with learning about training from the best coaches and sports doctors in the world, Greg also studied the relationships of a rider's bicycle position. It should be obvious from his results that something was working for him.

To compliment what he learned about maximizing a cyclist's potential, he designed his own LeMond frame geometries (see page 11). At that time in the U.S., racing bicycle design focused on stiff, short wheel base models with ultra-quick steering.

Greg learned a lot about bikes when he was racing in Europe. He found that comfort and stability allow a bike rider to be fast. To execute a high speed turn in the Alps, a bike needs to have solid and predictable steering. Its not how quick a bike turns, but the rider's ability to control a line at speed. To provide the rider with leverage to powerfully push a big gear in the Alps, the seat must be rearward, requiring the seat tube to be laid back. Its not how stiff the bike is that gets a rider up a hill efficiently, but placing the rider so that they can economically exert the most pedaling force. And finally, to prevent fatigue on long stages a bike must be comfortable. Its not how soft the saddle is, but allowing the bike to absorb road shock while distributing the rider's weight correctly.

LeMond's experience helps every cyclist

You may be a recreational rider, or a national caliber competitor on the Saturn race team. You may race for a living, or ride for simple pleasure. Either way, your riding success has Greg's inspiration behind it.

Sugar

New for 2002

The Sugar frame gets a sharper, race-oriented focus and resulting major revamp. The elements of this change are a stiffer, more responsive frame and lower weight.

Now incorparating ZR9000 aluminum with carbon fiber stays, the frame lost another 1/2 pound (~220 grams)! Considering that last year's Sugar was arguably the lightest full suspension frame on the market, that's quite an accomplishment (although we've had challengers to the previous claim, none of those have passed our baseline testing).

Three things allowed the Sugar's weight-loss accomplishment. First, ZR9000 is stronger, so we need less of it to result in the same frame strength. Second, we redesigned the swingarm. Third, we use more carbon fiber, adn its lighter than aluminum.

At the same time we were reducing the weight, we managed to increase the frame stiffness. This has three sources (this three reason thing is sort of a theme, eh?). We increased the diameter of the downtube to 2 inches (54mm). We greatly beefed up the 'seatstays'. And the new B*Link is also torsionally much more rigid.

While there are other, more subtle details we could discuss, we'll just point out that we added rear tire clearance. The new 2002 Sugar will even accept some 2.35" tires.

Geometry

The Sugar uses Fisher's race-proven Genesis Geometry. This design provides nimble handling, high speed stability, and allows you to stay centered over the bike so in rough terrain instead of sliding off the back of the saddle, you can apply pedal power.

Ride

The Sugar's frame offers outstanding pedaling efficiency. This exceptional frame rigidity also gives the Sugar its 'riding on rails' cornering ability.

The Sugar design feels like a hardtail much of the time, but without the jarring of rigid stays. It climbs well out of the saddle, it smoothens small bumps for comfort, and has incredible traction. The traction advantages are full-time, both climbing and braking hard. The combination of great feel and low weightmakes the Sugar ideal for racing in technical terrain, or just having fun on a short ride after work. Its a great all-round riding bike. And since the weight penalty is less than a full water bottle, it makes riding a hard tail seem almost pointless for a lot of people.

Frame details

The Sugar uses Platinum series ZR9000 aluminum frame technology. A very oversize, butted and shaped down tube creates a rigid structure between the bottom bracket and head tube, for frame stiffness and strength. Speaking of frame strength, we even added a big butterfly gusset under the head tube.

The head tube is butted, with a thin mid-section for low weight, but heavy duty walls to support the headset cups.

Full top tube cable routing keeps the cables out of the muck for friction free shifting and braking.

The B*Link design of the Sugar adds rear end tor-

	г .	_		_	
	Frame sizes	S	M	L	XL
	Head angle	71.0	71.5	71.5	71.5
	Seat angle	73.5	73.5	73.5	73.5
S					
MILLIMETERS	Standover	691	703	714	724
H	Seat tube	396	446	484	535
ME	Head tube	90	105	125	145
	Eff top tube	582	608	628	647
	Chainstays	415	415	415	415
2	BB height	303	303	303	303
	Offset	41.9	41.9	41.9	41.9
	Trail	71	68	68	68
	Wheelbase	1055	1077	1098	1117
	Standover	27.2	27.7	28.1	28.5
ES	Seat tube	15.6	17.6	19.1	21.1
INCHES	Head tube	3.5	4.1	4.9	5.7
ž	Eff top tube	22.9	23.9	24.7	25.5
Т	Chainstays	16.3	16.3	16.3	16.3
	BB height	11.9	11.9	11.9	11.9
	Offset	1.6	1.6	1.6	1.6
	Trail	2.8	2.7	2.7	2.7
	Wheelbase	41.5	42.4	43.2	44.0

sional and lateral rigidity. By keeping the connection between the frame and swingarm stiff, handling is better. So is pivot durability. Loose pivots allow a frame to flex, as well as squeak and wear.

The fittings, like dropouts and shock mounts, on the Sugar are almost all forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

The Sugar uses a special dropout to accommodate a disc brake adapter. This adapter provides mounting for an International style rear disc brake.

All Sugar bikes have 2 water bottle mounts.

Special parts
Disc brake adapter ...
B*Link
Pivot hardware
Derailleur hanger

MAINT UBES Platinum series butted ZR9000 STAYS Carbon composite	FRAMESET]				Sugar 1
FORK Manitou Mars Super Timed mm Adverous lingth, super Strong Wheelsst Again lingth, super strong Wheelsst Arace Lite wheels - super light for acceleration Tubeless compatible, fits both tubeless and regular trees Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong CEARING ZA 36 46 ZA	MAIN TUBES			ZR9000						Sugar 1
FORK	STAYS				4.1 lb (1.96 bg)					_
REAR SHOCK Cane Creek Cloud Nine Solve 1.5	FORK				4.1 to (1.00 kg)					Sweetness. Nickname for an especially dear frien
REAR SHOCK Cane Creek Cloud Nine Somble 1.5 Lingth 1.2 and 78° flys 6 and 1.5 86min 1.5 Minish 1.2 and 78° flys 5 Switch 1.5 Minish 1.5										
Sombound	REAR SHOCK				450.5					
Wide 12 and 78 13 and 78 15 and 78 15 and 58 and 15 8 an	KEAK SHOCK				1.5					
HEADSET Cane Creek 5-6 Aheadset Size State										
The reasons this Fisher rocks: Size			rh							
Size Stake bright, man 25.434.08.09.0 Stake bright, man 27.1 CONTROLS HANDLEBAR Bontrager Race Lite Clamp diameter, man 25.4 STEM Bontrager Race Lite Stem Clamp bright man 39.5 SHIFT LEVERS Shimano XTR RepidFire SL BRAKE LEVERS Integrated brake/shift GRIPS Serias dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cabb reasing Alaxadment 34.9 mml 138°, high clamp only RR DERAILLEUR Shimano XTR Cabb reasing BB Shimano XTR (25.4)/24 BB Shimano XTR (25.4)/24 BB Shimano XTR, cartridge BB Shimano XTR, cartridge BB Shimano XTR, cartridge CASSETTE Shimano Deore XT 11-34, 95pd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° ERD, mm 79 FRONT TIRE IRC Serias KC, tubeless Tow size REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° ERD, mm 2542 REAR WHEEL Btrg Searce KC, tubeless Tow size and the substance of the	HEADSET		eek S-6 Ahead:	set			П	The	reaso	ns this Fisher rocks:
CONTROLS HANDLEBAR Bontrager Race Lite Clamp diamete, mm STEM Bontrager Race Lite Secret clamp beigh, mm SHIFT LEVERS Shimano XTR Rapid Fire SL BRAKE LEVERS Integrated brake/shift GRIPS Serias dual density DRIVETTRAIN FT DERAILLEUR Shimano XTR Cable rousing Anadamont 34.9 mml 138°, high clamp only CRANKSET Shimano XTR K6524/24 BB Shimano XTR K6724/24 BB Shimano XTR K6724/24 BB Shimano XTR, cartridge Solid & ade, mm CHAIN Shimano Deore XT 11-34, Splaned, Shimano CHAIN Shimano Deore XT 11-34, Splaned, Shimano CASSETTE Shimano Deore XT 11-34, Spd WHEEL SET FRONT THEE IRC Serac XC, tubeless Tire size REAR WHEEL Btrq Race Lite ATB, tubeless compatible, 20° E.R.D., mm Rom rip REAR TIRE IRC Serac XC, tubeless Tire size Spokes DT Revolution 14/17G, alloy nipples Sm. mm 2672263, 36, 31 NINER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diamete, mm 31.6 SADDLE SSM Era, Tilfeather SHAKES Avid Stingle Digit TI, linear pull FRAKES Avid Single Digit TI, linear pull FRAKES Avid Single Digit TI, linear pull Frameset B*Link suspension- hardtail feel, 2.8" travel Genesis geometry- stable, fast Platinum series ZR9000 aluminum- light, super strong Wheelset Race Lite wheels -super light for acceleration Tubeless Compatible- fits both tubeless and regular tires Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong GEARING 24 36 46 1 57 86 filo 1 57 86 filo 2 3 36 8 3 80 15 42 63 80 17 37 56 71 20 31 47 60 23 27 41 52 24 36 46 26 24 36 46 27 16 20 20 20 40 40 28 21 46 46 28 21 36 61 29 20 20 40 40 29 20 20 40 40 20 20 20 40 40 20 20 20 40 40 20 20 20 40 20 20										
HANDLEBAR Bontrager Race Lite Clamp dynameter, mm 25.4 STEM Bontrager Race Lite Succer clamp keight, mm 39.5 SHIFT LEVERS Shimano XTR RapidFire SL BRAKE LEVERS Integrated brake/shift GRIPS Seria dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cable mating Attachment Cable mating Attachment Shimano XTR A6/34/24 Bob inde circle mm Splimed 11268 BB Shimano XTR A6/34/24 Bb Shimano XTR, cartridge Shelf as ski, mm 73 x 112.5, Splimed, Shimano CHAIN Shimano ATR, cartridge CAssette Shimano Deore XT 11-34, 9spd WHEEL SET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D. mm Film strip Tree size FRONT TIRE IRC Serac XC, tubeless Tire size FRONT TIRE IRC Serac XC, tubeless Tire size FRONT TIRE IRC Serac XC, tubeless Tire size Front sim Rosen Market (or display) INNER TUBES Prests valve (for display) OTHER SADDLE SM Fra, I/l/eather SADDLE SM Fra, I/l/eather SADDLE SM Fra, I/l/eather Bontrager Race Lite ATB, Linear pull 25.4 Cance Seed Clite Wheels - super light for acceleration Tubeless compatible- fits both tubeless compatible and rither three super light for acceleration Tubeless compatible- fits both tubeless compatible art fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong CEARING 24 36 46 11 57 86 110 25 A 2.1 EEARING 24 36 46 11 57 86 110 25 A 2.1 26 S 2.1 26 S 2.1 27 41 52 28 43 64 BIKE WEIGHT 28 61 BIKE WEIGHT 28 61 BIKE WEIGHT 28 61 BIKE WEIGHT 28 61 BIKE WEIGHT	CONTROLC	Stack	e height, mm		2/.1		1			SCI
STEM Bontrager Race Lite Server demp height, mm 39.5 SHIFT LEVERS Shirt and STR RapidFire SL BRAKE LEVERS Integrated brake/Shift GRIPS Serfas dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cabbr mating Attachmen 34.9 mm/ 13/8", high clamp only RR DERAILLEUR Shimano XTR SGS CRANKSET Shimano XTR SGS CRANKSET Shimano XTR SGS CRANKSET Shimano XTR G6/34/24 But hold crute, mm 34.9 mm/ 13/8", high clamp only CRANKSET Shimano XTR G6/34/24 But hold crute, mm 34.9 mm/ 13/8", high clamp only CRANKSET Shimano XTR GATTIGE BB Shimano XTR, cartridge Shell sack, mm 73 x 112.5, Splined, Shimano CHAIN Shimano HG-92 Chain repe Chain repe Chain in pe Chain in pe Chain in pe Chain in pe CRANKSET Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D. mm Rim strip Trie itse Sera XC, tubeless Tire itse E.R.D. mm Rim strip Tire itse Sera XC, tubeless Tire itse E.R.D. mm Rom, mm Ro		Bontrag	er Race Lite				1			k suspension- hardtail feel. 2.8" travel
SHEM Bontrager Nace Lite Scerc clamp begin, mm SHIFT LEVERS Shimano XTR RapidFire SL BRAKE LEVERS Shimano XTR RapidFire SL BRAKE LEVERS Serfas dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cable muting Anachmous 34.9 mm/ 138", high clamp only RR DERAILLEUR Shimano XTR CACC Manachmous 34.9 mm/ 138", high clamp only RR DERAILLEUR Shimano XTR 46/34/24 Bob Shimano XTR 46/34/24 Bob Shimano XTR 46/34/24 Bob Shimano XTR, cartridge BB Shimano XTR, cartridge CHAIN Shimano BG-92 Chain long to (links) CASSETTE Shimano Deror XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° ERD, mm REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° REAR TIRE IRC Serac XC, tubeless The size SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm Rea	HANDELDAN				25.4					-
SHIFT LEVERS Shimano XTR RapidFire SL BRAKE LEVERS Integrated brake/shift GRIPS Serfas dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cable maing Top pult Anadomen 34.9 mm/ 1 3/8", high clamp only RR DERAILLEUR Shimano XTR A6/34/24 Bub lade circle, mm Splined/11268 Bub lade circle, mm Splined/11268 Shimano XTR, cartridge Shimano XTR, cartridge Shimano XTR, cartridge Shimano TR, cartridge Shimano BG-92 Chain type Chain type Chain type Chain type Chain type Shimano Beore XT 11-34, 9spd 188 Shimano Beore XT 11-34, 9spd	STEM	•								
BRAKE LEVERS Integrated brake/shift GRIPS Serfas dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Shimano XTR SGS CRANKSET Shimano XTR 46/34/24 Bibly blook circle, mm	CHIFT I FVFDS		1 0	s S I	39.5					um series zk.9000 aiummum- ngm, super
GRIPS Serfas dual density DRIVETRAIN FT DERAILLEUR Shimano XTR Cable rousing Attachment 34.9 mml 1 3/8", high clamp only RR DERAILLEUR Shimano XTR GS CRANKSET Shimano XTR GS CRANKSET Shimano XTR GS CRANKSET Shimano XTR A6/34/24 BB Shimano XTR, cartridge Shel boke civit, mm Splined/112/68 BB Shimano KTR, cartridge Chain npe Chain npe 9-speed Chain npe Chain length (links) 108 CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D. mm Strip FRONT TIRE IRC Serac XC, tubeless Tre tists Race Lite wheels -super light for acceleration Tubeless compatible- fits both tubeless and regular tires Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Benntrager bar/stem, post- super strong GEARING FRONT TIRE IRC Serac XC, tubeless Tre tists Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong GEARING Tre tists Race Lite wheels - super light for acceleration Tubeless Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light a			•				,		0	
Tubeless compatible- fits both tubeless and regular tires Cache routing RR DERAILLEUR Shimano XTR Cache routing Attachment 34.9 mm/ 1 3/8", high clamp only RR DERAILLEUR Shimano XTR GSS CRANKSET Shimano XTR 46/34/24 BB Shimano XTR, cartridge Shelf was circle, mm Shimano MT9-92 Chain type Chain length (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm Soll minip FRONT TIRE IRC Serac XC, tubeless Tire size E.R.D., mm Tubeless compatible- fits both tubeless and regular tires Components Professional level- XTR Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock. light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Bontrager bar/stem, post- super strong GEARING ERAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm Soll believed. E.R.D., mm Soll belie		•					۱ ۱			ita wheels -super light for acceleration
Cable routing										
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RR DERAILLEUR Shimano XTR \$GS CRANKSET Shimano XTR \$G/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 BB Shimano ATR \$A6/34/24 Bolk bole circle, mm Splined/112/68 Bolk bole sign of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- light wait of care Creek Cloud 9 rear shock- lig				9 mm/ 1 3/8						
Bolt bole circle, mm SplimedI112/68 BB Shimano XTR, cartridge Shell x exis, mm 73 x 112.5. Splined. Shimano CHAIN Shimano HG-92 Chain long the (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm 1 tubeless Tire size 26 x 2.1 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm 542 Rim strip Tubeless REAR TIRE IRC Serac XC, tubeless Tire size 26 x 2.1 SPOKES DT Revolution 14/17G, alloy nipples Front, mm 250, Radial Rear, mm 267/263, 3x INNER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diameter, mm 31.6 SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull Manitou Mars Super suspension fork- lightweight ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong CEARING CEARING CEARING 15 42 63 46 11 57 86 110 13 48 73 93 15 42 63 80 OTHER SEATPOST Bontrager Race Outer diameter, mm 31.6 SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull	RR DERAILLEU			., nona 1 J10	, mgn cump only					
BB Shimano XTR, cartridge Shell x axle, mm 73 x 112.5, Splined, Shimano CHAIN Shimano HG-92 Chain type Chain type Chain length (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm Signature REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm FRONT TIRE IRC Serac XC, tubeless Tire size REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm Signature REAR TIRE IRC Serac XC, tubeless Tire size SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm 10NER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diameter, mm SADDLE SSM Era, Til/leather BRAKES Avid Single Digit Ti, linear pull ari fork with a torsionally rigid design Cane Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control Bontrager bar/stem, post- super strong Case Creek Cloud 9 rear shock- light, tunable, and with a button for motion control. Case Creek Cloud 9 rear shock- light,	CRANKSET			4						
CHAIN Shimano HG-92 Chain ppe Chain length (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm Sim strip FRONT TIRE IRC Serac XC, tubeless Tre size REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm Sign Sign Sign Sign Sign Sign Sign Sign	l _{BB}			9	Splined/112/68					
CHAIN Shimano HG-92 Chain type Chain type Chain length (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm Rim strip FRONT TIRE IRC Serac XC, tubeless Tire size E.R.D., mm E.R.D., mm E.R.D., mm E.R.D., mm Solution 14/17G, alloy nipples Front, mm Rear, mm Pront, mm Rear, mm Solution 14/17G, alloy nipples Front, mm Rear, mm R	DD		-		Splined, Shimano			ar		
Chain length (links) CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 249 E.R.D., mm S39 Rim strip Tibeless FRONT TIRE IRC Serac XC, tubeless Irie size E.R.D., mm S42 Rim strip Tibeless E.R.D., mm S42 Rim strip Tibeless FREAR TIRE IRC Serac XC, tubeless Tire size SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm S42 SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm S46 STONE	CHAIN				1			0.11		
CASSETTE Shimano Deore XT 11-34, 9spd WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm 539 REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm 542 REAR TIRE IRC Serac XC, tubeless Tire size 26 x 2.1 SPOKES DT Revolution 14/17G, alloy nipples 250, Radial 267/263, 3x 24 36 46 SPOKES DT Revolution 14/17G, alloy nipples 13 48 73 93 INNER TUBES Presta valve (for display) 15 42 63 80 OTHER 17 37 56 71 SEATPOST Bontrager Race 0uter diameter, mm 31.6 SADDLE SSM Era, Ti/leather 26 24 36 46 BRAKES Avid Single Digit Ti, linear pull 26 24 36 46					•					
WHEELSET FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 24° E.R.D., mm S39 Rim strip Tubeless FRONT TIRE IRC Serac XC, tubeless Tire size REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm S42 Rim strip Tubeless REAR TIRE IRC Serac XC, tubeless Tire size SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm S40, Radial Rear, mm S250, Radial Rear, mm S267/263, 3x INNER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diameter, mm SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull DIMER S39 BIKE WEIGHT S19 BIKE WEIGHT S19 BIKE WEIGHT S19 BIKE WEIGHT S19 CAN S10	CASSETTE			4. 9spd	100				Bontra	ager bar/stem, post- super strong
FRONT WHEEL Btrg Race Lite ATB, tubeless compatible, 249 E.R.D., mm				.,						
Rim strip Tubeless Tive size 26 x 2.1		Btrg Rad	ce Lite ATB, tul	oeless con	npatible, 24°					
FRONT TIRE IRC Serac XC, tubeless Tire size										
REAR WHEEL Btrg Race Lite ATB, tubeless compatible, 28° E.R.D., mm 542 Rim strip Tubeless	FRONT TIRE .				Iubeless					
E.R.D., mm					26 x 2.1					
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REAR TIRE IRC Serac XC, tubeless Tire size 26 x 2.1 SPOKES DT Revolution 14/17G, alloy nipples Front, mm 250, Radial Rear, mm 267/263, 3x INNER TUBES Presta valve (for display) 13										_
SPOKES DT Revolution 14/17G, alloy nipples Front, mm Rear, mm 250, Radial 267/263, 3x INNER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diameter, mm 31.6 SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull DT Revolution 14/17G, alloy nipples 250, Radial 267/263, 3x 15 42 63 80 17 37 56 71 20 31 47 60 23 27 41 52 26 24 36 46 BIKE WEIGHT 23 6 lb	REAR TIRE					GEA	RIN	G		
Front, mm Rear, mm 250, Radial 267/263, 3x INNER TUBES Presta valve (for display) OTHER SEATPOST Bontrager Race Outer diameter, mm SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull OTHER SEATPOST Bontrager Race Outer diameter, mm SI.6 250, Radial 267/263, 3x 15 42 63 80 17 37 56 71 20 31 47 60 23 27 41 52 26 24 36 46 BIKE WEIGHT 23 6 lb	CDOVEC									
Rear, mm 267/263, 3x 13 48 73 93 15 42 63 80 17 37 56 71 18 18 19 19 19 19 19 1	SPUKES			alloy nippi		11				
OTHER SEATPOST Bontrager Race Outer diameter, mm SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull 17										
SEATPOST Bontrager Race Outer diameter, mm 31.6 SADDLE SSM Era, Ti/leather 23 27 41 52 BRAKES Avid Single Digit Ti, linear pull 26 24 36 46 BIKE WEIGHT 23.6 lb	INNER TUBES	Presta v	alve (for displa	y)						
Outer diameter, mm 31.6 23 27 41 52 SADDLE		.	D.			1				
SADDLE SSM Era, Ti/leather BRAKES Avid Single Digit Ti, linear pull BIKE WEIGHT 23 6 lb	SEATPOST				316					
BRAKESAvid Single Digit 11, linear pull	SADDLE				51.0	123				DIVE WEIGHT
				ear pull		26 30				BIKE WEIGHT 23.6 lb.
PEDALSnot supplied- Axile diameter 9/16" 30 21 31 40 23.6 lb. 10.71 kg.	PEDALS	•	•		0/1/5"					
Axle diameter 9/16" 34 19 28 35	SEAT BINDER				9/16"	J ³⁴	שלו	28	<u>၁၁</u>	
Inner diameter, mm 36.4 COLORS		Inner	r diameter, mm			COLO	ORS	5		
ADDITIONALS 2 water bottle mounts (1 on seatpost), Blue Metallic/Tinted Blue Clear • Yellow/Red decal • Deep Candy Red fork			bottle mounts	(1 on seat	post),	Blue	Met	allic/	Tinted I	Blue Clear • Yellow/Red decal • Deep Candy Red fork
replaceable derailleur hanger	replaceable de	railleur hanger								
	EIT									
FIT Frame Size S M L XL		Size	ç	М	1	ΥI				
Rider height Inches 66 69 72 74										
Cm 167 176 184 189										
Handlebar Width, mm 600 600 600										
Stem Length, mm 75 90 105 105 Angle 7 7 7 7	Stem	•								
Angle 7 7 7 7 7 Crank Length, mm 170 175 175 175	Crank	•								
Seatpost Length, mm 300 390 390		•								
Steerer Length, mm 172.6 187.6 207.6 227.6	· · · · · · · · · · · · · · · · · · ·	•					,			

FRAMESET					C	ugar 2
MAIN TUBES Platinum serie)			3	ugar 2
STAYS Carbon compo		6111 (1001)			Sweetness. Nickname for an es	specially dear friend
Frame weight FORK Manitou Mars		4.1 lb (1.86 kg)				
Travel, mm	Litte	80				
Axle-crown le	ength, mm	450.5				
REAR SHOCK Cane Creek Al	D-12					
Stroke		1.5 6.5				
Length Width		6.5 "1/2 and 7/8				
Eyes		6 and 15.08mm				
HEADSET SAS Aheadset	, alloy					
Size		25.4/34.0/30.0				
Stack height,	mm	27.0				
CONTROLS	whar Daga 25mm					
HANDLEBAR Bontrager Cro		25.4		The measure	ns this Fisher rocks:	
STEM Bontrager Rac						
Steerer clamp		44.5		Rider: Rad	cer	
SHIFT LEVERS Shimano Deor	,	-		Frameset		
BRAKE LEVERS Integrated bra	-			B*Lin	k suspension- hardtail feel, 2	2.8" travel
GRIPS Serfas dual de	ensity		1	Genes	is geometry- stable, fast	
DRIVETRAIN	- VT				um series ZR9000 aluminum	n- light, suner
FT DERAILLEUR Shimano Deor		Tak 2 11		strong	series areas aranimum	- 1.5.1., super
Cable routing Attachment	,	Top pull 8", high clamp only				
RR DERAILLEUR Shimano XTR		· · · · · · · · · · · · · · · · · · ·		Wheelset	ita vila ala 1: 1 · C	analametter.
CRANKSET Bontrager Rac					Lite wheels -super light for a	
Bolt hole circu		64/104			ess compatible- fits both tube	eless and regu-
BB Bontrager Rac		112 C !: 1 TOTO		lar tires		
Shell x axle, 1 CHAIN Shimano HG-7		113, Splined, ISIS		Componen	ats	
Chain type	_	9 speed			sional level- XTR	
Chain length	(links)	108		1	ou Mars Super suspension fo	ork- lightweight
CASSETTE Shimano HG70	0 11-32, 9spd				with a torsionally rigid design	
WHEELSET				1	Creek Cloud 9 rear shock- li	~
FRONT WHEEL Bontrager Race	e ATB, tubeless co			and with	creek Cloud 9 rear shock- in a button for motion contro	giit, tullable,
E.R.D., mm		539		1		
Rim strip FRONT TIRE IRC Serac XC,	folding	Tubeless		Bontra	ager bar/stem, post- super st	rong
Tire size		26 x 2.1				
REAR WHEEL Bontrager Race	e ATB, tubeless co					
E.R.D., mm		539				
Rim strip REAR TIREIRC Serac XC,	folding	Tubeless	GEAR	PINC	1	
Tire size	Joining	26 x 2.1		22 32 44		
SPOKES DT 14/15G but	ted stainless, allo	y nipples		52 76 105		
Front, mm		251, Radial	1			
Rear, mm		265/267, 3x		48 70 96		
INNER TUBES Presta valve				41 60 82		
OTHER Bootson Bootson				36 52 72		
SEATPOST Bontrager Rac		31.6		32 47 64		
SADDLE WTB Laser V		51.0		27 40 55		
BRAKES Avid Single Di	•		1	24 35 48	BI	KE WEIGHT
PEDALS Time ATAC, cl	•			21 30 41		5.4 lb.
Axle diameter		9/16"	32 ·	18 26 36	11	l.53 kg.
SEAT BINDER Alloy w/integr		26 h	COLC	DC		
ADDITIONALS 2 water bottle		tpost),			ear • Black/Silver decal • Silver fo	rk
replaceable derailleur hanger	,		Gold/	rinted Silver Cl	ear - Diack/Silver decar - Silver 10	ın
			<u></u>			
FIT						
	6 M	L	XL			
Rider height Inches 6	8 71	74	76			
	2 180	188	193			
Handlebar Width, mm 63		630	630			
1	5 90	105	105			
Angle 7 Crank Length, mm 17		7 175	7 175			
Seatpost Length, mm 30		390	390			
	2.5 197.5	217.5	237.5			
		-				

New for 2002

The Sugar+ frame is an evolution of the 2001 Sugar, with an emphasis on the adventure rider. It also incorporates many of the feaures of the new 2002 Sugar frame technology.

Like the 2002 sugar, the Sugar+ incorporates ZR9000 aluminum for reduced weight and increased strength. ZR9000 is stronger, so we need less of it to result in the same frame strength. The Sugar+ has a redesigned the swingarm. To make it a great adventure bike, the new 2002 Sugar+ will even accept some 2.35" tires.

At the same time we were reducing the weight, we managed to increase the frame stiffness. We increased the diameter of the downtube to 2 inches (54mm). We greatly beefed up the 'seatstays'. And the new Sybil link is also torsionally much more rigid.

The key to the versatility of the Sugar+ is the Sybil link. This unique design allows you to change the performance of this bike from a tight and taught racing feel to the ground-hugging cush of a long travel adventure bike. By simply moving the bolt on the Sybil link and adjusting the fork travel, you completely change the feel of the bike. And an important note if you're looking at some other brand of adjustable suspension- when you change the Sugar+ there is no need to re-inflate the rear shock. and another point- when you readjust the sugar+, the sweet Genesis steering geometry remains the same (unless you decide to go really long with the fork adjustment- some of the forks we spec'd adjust out to 125mm of travel!).

Geometry

The Sugar uses Fisher's race-proven Genesis Geometry. This design provides nimble handling, high speed stability, and allows you to stay centered over the bike so in rough terrain instead of sliding off the back of the saddle, you can apply pedal power.

Ride

The Sugar's frame offers outstanding pedaling efficiency. This exceptional frame rigidity also gives the Sugar its 'riding on rails' cornering ability.

The Sugar (and Sugar+ design when in its short travel, 80mm mode) feels like a hardtail. It climbs well out of the saddle, it smoothens small bumps for comfort, and has incredible traction.

When it its long travel, 4.1" (105mm) mode, the Sugar+ feels cushy and ultra-smooth. However, unlike bouncy bikes of the past the Sugar+ traction advantages are full-time, both climbing and braking hard. The combination of great feel and low weightmakes the Sugar+ ideal in technical terrain, or just having fun on a short ride after work. Its our most versatile, all-round riding bike.

Frame details

The Sugar+ uses Platinum series ZR9000 aluminum frame technology. A very oversize, butted and shaped down tube creates a rigid structure between the bottom bracket and head tube, for frame stiffness and strength. Speaking of frame strength, we even added a big butterfly gusset under the head tube.

The head tube is butted, with a thin mid-section for low weight, but heavy duty walls to support the headset cups.

Sugar+

	Frame sizes	S	M	L	XL
	Head angle	71.0	71.5	71.5	71.5
	Seat angle	73.5	73.5	73.5	73.5
Š					
ER	Standover	691	703	714	724
H	Seat tube	396	446	484	535
ILLIMETERS	Head tube	90	105	125	145
Ţ	Eff top tube	582	608	628	647
ij	Chainstays	415	415	415	415
2	BB height	303	303	303	303
	Offset	41.9	41.9	41.9	41.9
	Trail	71	68	68	68
	Wheelbase	1055	1077	1098	1117
	Standover	27.2	27.7	28.1	28.5
ΕS	Seat tube	15.6	17.6	19.1	21.1
H	Head tube	3.5	4.1	4.9	5.7
INCHES	Eff top tube	22.9	23.9	24.7	25.5
_	Chainstays	16.3	16.3	16.3	16.3
	BB height	11.9	11.9	11.9	11.9
	Offset	1.6	1.6	1.6	1.6
	Trail	2.8	2.7	2.7	2.7
	Wheelbase	41.5	42.4	43.2	44.0

Full top tube cable routing keeps the cables out of the muck for friction free shifting and braking.

The B*Link design of the Sugar adds rear end torsional and lateral rigidity. By keeping the connection between the frame and swingarm stiff, handling is better. So is pivot durability. Loose pivots allow a frame to flex, as well as squeak and wear.

The fittings, like dropouts and shock mounts, on the Sugar are almost all forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

The Sugar uses a special dropout to accommodate a disc brake adapter. This adapter provides mounting for an International style rear disc brake.

All Sugar bikes have 2 water bottle mounts.

Special parts
Disc brake adapter ...
B*Link
Pivot hardware
Derailleur hanger

Sugar+ GS

	·		
	Frame sizes	S	M
	Head angle	71.0	71.5
	Seat angle	73.5	73.5
Š			
MILLIMETERS	Standover	713	724
	Seat tube	405	432
Ξ	Head tube	90	105
ij	Eff top tube	566	594
	Chainstays	420	420
\geq	BB height	312	312
	Offset	38.0	38.0
	Trail	74	71
	Wheelbase	1045	1069
	Standover	28.1	28.5
\mathbf{S}	Seat tube	15.9	17.0
Ξ	Head tube	3.5	4.1
INCHES	Eff top tube	22.3	23.4
	Chainstays	16.5	16.5
	BB height	12.3	12.3
	Offset	1.5	1.5
	Trail	2.9	2.8
	Wheelbase	41.2	42.1

FRAMESET			1			
	. Platinum series butted ZR9000				5	ugar 2+
	. Platinum series aluminum					y
	. RockShox Psylo SL, U-Turn adjust	table travel			Sweetness. Nickname for a	n especially dear friend
	Travel, mm	80-125				
	Axle-crown length, mm	451				
REAR SHOCK	. Cane Creek AD-12					
	Stroke	2				
	Length	7.875				
	Width	22.2mm				
LIEADCET	Eyes	6mm				
HEADSEI	. SAS Aheadset, alloy	25 (12 (0120 0				
	Size Stack height, mm	25.4/34.0/30.0 27.0				
	Stack neight, mm	2/.0				
CONTROLS						
	. Bontrager Crowbar Race, 25mm	rico				
HANDLEDAK	Clamp diameter, mm	25.4				
STEM	-	2).4		Why this I	Fisher rocks:	
31LW	Steerer clamp height, mm	44.5			venture rider	
SHIFT LEVERS	. Shimano Deore XT RapidFire SL	77.)	1		renture rider	
	. Integrated brake/shift		1	Frameset		
GRIPS			1		ink suspension- adjusta	
	. Serius addi delisity				3 to 4.1 inches (80 to 10	
DRIVETRAIN	a			Conce	is geometry- stable, fast	
FT DERAILLEUR			1		· ·	
	Cable routing	Top pull			um series ZR9000 alum	inum- light, super
DD DEDAILLEUD	Attachment 34.9 mm/ 1 3/8",	, nigh clamp only		strong		
RR DERAILLEUR				Wheelest		
CRANKSEI	. Bontrager Race 44/32/22	~~~		Wheelset		
DD	Bolt hole circle, mm	64/104		Race v	wheels- light and strong	
RR	. Bontrager Race, ISIS splined	12 0.1: 1 1010		IRC B	ackcountry tires- big, 2.	25 casing is extra
CHAIN		13, Splined, ISIS		grippy	j G	8
CHAIN	Chain type	9 speed				
	Chain type Chain length (links)) speed 108		Componer		
CASSETTE	. Shimano HG70 11-32, 9spd	100		Durab	le, yet light weight leve	I- XTR, XT
	. 311111dillo 11010 11 32, 33pu			RockS	Shox Psylo fork- adjustal	ole U-Turn travel and
WHEELSET	D 1 D 17D 1 1	040			stanchions for excellent	
FRONT WHEEL	. Bontrager Race ATB, tubeless com					- C
	E.R.D., mm	539		Cane	Creek AD-12 shock- air/a	air system is light,
FRONT TIRE	Rim strip	Tubeless		easily tu	ınable	
FRONT TIRE	Tire size	26 x 2.25		Bontra	ager bar/stem, post- sup	er strong
DEVD MHEEL	. Bontrager Race ATB, tubeless com					8
KLAK WIILLL	E.R.D., mm	539				
	Rim strip	Tubeless				
REAR TIRE	1	110000033			•	
REAR TIRE	Tire size	26 x 2.25	GEAR	RING		
SPOKES	. DT 14/15G butted stainless, alloy			22 32 44		
	Front, mm	251, Radial	11	52 76 105		
	Rear, mm	265/267, 3x		48 70 96		
INNER TUBES	. Presta valve		'-			
OTHER				41 60 82		
SEATPOST	Bontrager Race			36 52 72		
3LA11 031	Outer diameter, mm	31.6	18	32 47 64		
SADDLE.	. WTB Laser V Race, CrMo rails	51.0		27 40 55		
	. Avid Single Digit 5, linear pull					DIVE WELCOM
PEDALS				24 35 48		BIKE WEIGHT
. LDUE2	Axle diameter	9/16"		21 30 41		27.2 lb.
SEAT RINDER	. Alloy w/integral bolt	<i>)</i> /10	32	18 26 36		12.35 kg.
DINDER	Inner diameter, mm	36.4	~ ~			
ADDITIONALS	. 2 water bottle mounts (1 on seatp		COLC			
replaceable derailleur	-	1	Flippi	ng Green • Blac	k/White decal • Black fork	
.,	y :					
DIT						
FIT	6 11		V			
Frame Size	S M	L 72	XL			
Rider height Inches		73 105	75 100			
Cm	169 177	185	190			
Handlebar Width,		630	630			
Stem Length		105	105			
Angle	7 7	7	7			
Crank Length		175	175			
Seatpost Length		390	390			
Steerer Length	h, mm 182.5 197.5	217.5	237.5			

FRAMESET	7				1		Curar 21 Bica
		um series butte	d ZR9000				Sugar 2+ Disc
		um series alum					
FORK		Shox Psylo SL, l	J-Turn adjus				Sweetness. Nickname for an especially dear friend
		ravel, mm xle-crown length, mm		80-125 451			
REAR SHOCK	(Cane			-2-			
	S	troke		2			
		ength vr: 1.1.		7.875			
		Vidth ⁻ yes		22.2mm 6mm			
HEADSET	SAS A						
		ize		25.4/34.0/30.0			
	S	tack height, mm		27.0		1171 (1 · E	21 1
CONTROLS	•						Fisher rocks:
		ager Crowbar R	ace 25mm	rise		Rider: Adv	enture rider
"""		Elamp diameter, mm	acc, 25	25.4		Frameset	
STEM	Bontr	ager Race					ink suspension- adjustable rear wheel travel
		teerer clamp height, m		44.5		1rom 2.8	to 4.1 inches (80 to 105mm).
		ano Deore XT Ra Julic, attached t	•			Genesi	s geometry- stable, fast
	Serfa	•	Oblake			Platinu	ım series ZR9000 aluminum- light, super
DRIVETRAI						strong	-
	IIN IUR Shima	ano Deore XT				Wheelset	
		Cable routing		Top pull			vheels- light and strong
			34.9 mm/ 1 3/8'	", high clamp only			ackcountry tires- big, 2.25 casing is extra
	EUR Shima		2/22			grippy	Lencountry theo big, w.wo cusing is extra
CRANKSEI.		ager Race 44/3 Solt hole circle, mm	12/22	64/104			
BB		ager Race, ISIS	splined	01/101		Componen	
	S	hell x axle, mm		13, Splined, ISIS		1	le, yet light weight level- XTR, XT
CHAIN	Shima						hox Psylo fork- adjustable U-Turn travel and
		Chain type Chain length (links)		9 speed 108		1	stanchions for excellent steering control
CASSETTE .		ano HG70 11-32,	9spd	100			Creek AD-12 shock- air/air system is light,
WHEELSET	٦		, ,			easily tu	
		ager Race Disc,	28°			Hayes	hydraulic disc brakes- extra control
	E	E.R.D., mm		538			
EDONT TIDE	IRC B	im strip		Velox 22mm			
FRONT TIRE		ire size		26 x 2.25			
REAR WHEEL		ager Race Disc,	28°				
		.R.D., mm		538			
DEAD TIDE	IRC B	im strip		Velox 22mm	CEAL	RING	1
REAR TIRE .		ire size		26 x 2.25		22 32 44	
SPOKES		/15G butted sta	inless, alloy		11	52 76 105	
		ront, mm		266-264, 3x	1	48 70 96	
INNED THE	R S Presto	ear, mm		264/265, 3x			
_	J Fleste	u vaive			14	41 60 82	
OTHER	Bontr	ager Pace			16	36 52 72	
JEAIFUSI .		Juter diameter, mm		31.6	18	32 47 64	
SADDLE		Laser V Race, C	rMo rails		41	27 40 55	
BRAKES	Hayes	Mag, full hydra			24	24 35 48	BIKE WEIGHT
DEDALC	Time	Rotor diameter, 6.3	in. Bolt circle	diameter, 44mm	28	21 30 41	28.2 lb. 12.80 kg.
PEDALS		xle diameter		9/16"	32	18 26 36	12.00 kg.
SEAT BINDER	R Alloy	_		2110	COLO	ORS	
		nner diameter, mm		36.4			k/White decal • Black fork
		er bottle mount -	s (1 on seat)	post),			
replaceable d	lerailleur hange	Г 			<u></u>		
FIT							
Frame	Size	S	М	L	XL		
Rider height	Inches	66	70	73 105	75 100		
Handlebar	Cm Width, mm	169 630	177 630	185 630	190 630		
Stem	Length, mm	75	90	105	105		
	Angle	7	7	7	7		
Crank	Length, mm	170	175	175	175		
Seatpost	Length, mm	300	390	390	390		
Steerer	Length, mm	182.5	197.5	217.5	237.5	i	

FRAMESET			1		
MAIN TUBES	Platinum series butted ZR9	000			Sugar 3+
	Platinum series aluminum				
	Manitou Black Elite, adjusta	ble travel			Sweetness. Nickname for an especially dear friend
	Travel, mm	80-100			
	Axle-crown length, mm	451			
REAR SHOCK	Cane Creek AD-5				
	Stroke	2			
	Length	7.875			
	Width	22.2mm			
	Eyes	6mm			
HEADSET	SAS Aheadset, alloy				
	Size	25.4/34.0/30.0			
	Stack height, mm	27.0			
CONTROLS					
	Pontragor Crowbar Sport 3	Emm rico			
HANDLEBAR	Bontrager Crowbar Sport, 2		_		
CTEM	Clamp diameter, mm	25.4	V	Vhy this l	Fisher rocks:
STEM		41.0		ider: Adv	venture rider
CLUET LEVEDS	Steerer clamp height, mm	41.0			critare rider
	Shimano Deore LX RapidFire	e+		rameset	
	Integrated brake/shift				ink suspension- adjustable rear wheel travel
GRIPS	Serfas dual density] [from 2.8	3 to 4.1 inches (80 to 105mm).
DRIVETRAIN				Canas	is geometry- stable, fast
	Shimano Deore LX]		
	Cable routing	Top pull		Platin	um series ZR9000 aluminum- light, super
	8	10p puil 1 3/8", high clamp only		strong	2
RR DERAILLEUR	Shimano Deore XT SGS	· · · · · · · · · · · · · · · · · · ·	1 1	O	
	Bontrager Comp 44/32/22		V	Vheelset	
0.0.0.00	Bolt hole circle, mm	64/104	1 1	Bontr	ager Select wheels- light and strong
BB	Shimano BB-UN52	01/104			ackcountry tires- big, 2.25 casing is extra
	Shell x axle, mm	73 x 113, Square	1 1		ackcountry thes- big, 2.25 casing is extra
CHAIN		75 x 115, 5quare	1 1	grippy	
CHAIN	Chain type	9 speed	(Componer	its
	Chain type Chain length (links)	9 speeu 106	I I		le, yet light weight- XT, LX
CASSETTE	SRAM 7.0 11-32, 9spd	100	1 1		
	3KAM 7.0 H 32, 73pu				ou Black fork- adjustable travel and massive
WHEELSET				stanchio	ns for excellent steering control
FRONT WHEEL	Bontrager Select ATB, 24°				Creek AD-5 shock- air/air system is light,
	E.R.D., mm	542		easily tu	
_	Rim strip	Velox 19mm	1 1	·	
FRONT TIRE	•		1 1	Bontr	ager bar/stem, post- super strong
	Tire size	26 x 2.25			
REAR WHEEL	Bontrager Select ATB, 28°				
	E.R.D., mm	542			
	Rim strip	Velox 22mm			
REAR TIRE	IRC Backcountry		CEADIN		
				C	
	Tire size	26 x 2.25			
SPOKES	Tire size DT 14G stainless		22	32 44	
SPOKES	Tire size DT 14G stainless Front, mm	254, Radial	22 11 52		
	Tire size DT 14G stainless Front, mm Rear, mm		22 11 52	32 44	
SPOKES	Tire size DT 14G stainless Front, mm Rear, mm	254, Radial	22 11 52 12 48	32 44 76 105 70 96	
	Tire size DT 14G stainless Front, mm Rear, mm	254, Radial	22 11 52 12 48 14 41	32 44 76 105 70 96 60 82	
INNER TUBES OTHER	Tire size DT 14G stainless Front, mm Rear, mm Presta valve	254, Radial	22 11 52 12 48 14 41 16 36	32 44 76 105 70 96 60 82 52 72	
INNER TUBES	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport	254, Radial 267/269, 3x	22 11 52 12 48 14 41 16 36	32 44 76 105 70 96 60 82	
INNER TUBES OTHER SEATPOST	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm	254, Radial 267/269, 3x 31.6	22 11 52 12 48 14 41 16 36 18 32	32 44 76 105 70 96 60 82 52 72 47 64	
INNER TUBES OTHER SEATPOST	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra	254, Radial 267/269, 3x 31.6	22 11 52 12 48 14 41 16 36 18 32 21 27	32 44 76 105 70 96 60 82 52 72 47 64 40 55	
INNER TUBES OTHER SEATPOST SADDLE BRAKES	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu	254, Radial 267/269, 3x 31.6 ills ull	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48	BIKE WEIGHT
INNER TUBES OTHER SEATPOST SADDLE BRAKES	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear po Shimano SPD M515, clipless	254, Radial 267/269, 3x 31.6 ills ull	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24	32 44 76 105 70 96 60 82 52 72 47 64 40 55	BIKE WEIGHT 27.6 lb.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter	254, Radial 267/269, 3x 31.6 ills ull	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48	
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear po Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt	254, Radial 267/269, 3x 31.6 ills ull 6	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pt Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on	254, Radial 267/269, 3x 31.6 ills ull is 9/16"	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pt Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on ar hanger	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pt Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on ar hanger	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pt Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on ur hanger	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm Handlebar Width	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pt Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on ur hanger S M es 66 70 168 177 n, mm 620 620	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta XL 75 191 620	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm Handlebar Width Stem Lengt	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear po Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on our hanger S M es 66 70 168 177 n, mm 620 620 th, mm 75 90	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta XL 75 191 620 105	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm Handlebar Width Stem Lengt Angle	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear po Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on our hanger S M es 66 70 168 177 n, mm 620 620 th, mm 75 90 5 5	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta XL 75 191 620 105 10	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm Handlebar Width Stem Lengt Angle Crank Lengt	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear pu Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on ur hanger S M 168 177 1, mm 620 620 15, mm 75 90 15 5 5 15, mm 170 175	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta XL 75 191 620 105 10 175	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.
INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS replaceable derailleu FIT Frame Size Rider height Inche Cm Handlebar Width Stem Lengt Angle Crank Lengt Seatpost Lengt	Tire size DT 14G stainless Front, mm Rear, mm Presta valve Bontrager Sport Outer diameter, mm WTB Laser V Race, CrMo ra Avid Single Digit 3, linear po Shimano SPD M515, clipless Axle diameter Alloy w/integral bolt Inner diameter, mm 2 water bottle mounts (1 on our hanger S M es 66 70 168 177 n, mm 620 620 th, mm 75 90 5 5	254, Radial 267/269, 3x 31.6 ills ull 5 9/16" 36.4 seatpost),	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18 COLORS Blue Meta XL 75 191 620 105 10	32 44 76 105 70 96 60 82 52 72 47 64 40 55 35 48 30 41 26 36	27.6 lb. 12.53 kg.

FRAMESET							Sua	ar 3+ Disc
	Platinum)			Suy	ar 3+ Disc
	Platinum			travol				
FORK	Travel		ajustable	80-100			Sweetness. Nick	name for an especially dear friend
	Axle-a	rown length, mm		451				
REAR SHOCK	Cane Cre			_				
	Stroke Lengti			2 7.875				
	Width			22.2mm				
	Eyes			6mm				
HEADSET	SAS Ahe	adset, alloy		//- / -/				
	Size Stack	height, mm		25.4/34.0/30.0 27.0				
	Suck	neigni, mm		27.0				
CONTROLS								
	Bontrage	r Crowbar Sp	ort, 25m	m rise		Why this	s Fisher rocks:	
	Clam	o diameter, mm				ľ	dventure rider	
STEM	Bontrage	•		41.0				
SHIFT I FVFDS	Steere: S Shimano	r clamp height, mn Deore IX Pa		41.0		Framese		1
	S Hydraulio							adjustable rear wheel travel
	Serfas dı	-				1	2.8 to 4.1 inches (80	·
DRIVETRAIN		•					esis geometry- stab	
	, JR Shimano	Deore LX			1	1		0 aluminum- light, super
	Cable	routing		Top pull		strong	g	
DD DED4:: - =:	Attack			8", high clamp only		Wheelse	t	
	JR Shimano Bontrage						trager Select wheel	s- light and strong
CRANKSEI	-	ole circle, mm	2/22	64/104		1	<u> </u>	big, 2.25 casing is extra
ВВ	Shimano	-		01/101		grippy		big, 2.25 casing is extra
		x axle, mm		73 x 113, Square				
CHAIN	Shimano					Compon		1. 3777 337
	Chair Chair	type length (links)		9 speed 108		1	able, yet light weigl	
CASSETTE	SRAM 7.0			100				justable travel and massive
WHEELSET						stanch	nions for excellent s	steering control
	Bontrage	r Race Disc,	28°					t- air/air system is light,
)., mm		538		easily	tunable	
EDON'T TIDE	Rim s	•		Velox 22mm		Hay	es disc brakes- pow	erful stoppers for better
FRONT TIRE	IRC Back	•		26 x 2.25		contro	ol	
REAR WHEEL	Bontrage		28°	20 % 2.23				
)., mm		538				
	Rim s	1		Velox 22mm			_	
REAR TIRE	IRC Back	-		26 2 25	GEAF	· · · · · · · · · · · · · · · · · · ·		
SPOKES	DT 14/15		nless, allo	<i>26 x 2.25</i> v nipples		22 32 44		
	Front,			266/264, 3x	11	52 76 105		
	Rear,			264/265, 3x		48 70 96		
	Presta va	alve			14	41 60 82		
OTHER					16	36 52 72		
SEATPOST	Bontrage				18	32 47 64		
SADDLE	Outer WTB Las	diameter, mm er V Race Cr	Mo raile	31.6	21	27 40 55		
	WID Las	-		disc	24	24 35 48		BIKE WEIGHT
	•	•	•	ele diameter, 44mm	28	21 30 41		28.6 lb.
PEDALS	Shimano	•	ipless		32	18 26 36		12.98 kg.
CEAT DIVIDES		liameter		9/16"				
SEAL BINDER	Alloy w/i	ntegral bolt diameter, mm		2 <i>6 h</i>	COLO		:t=/c:	- Condu Chasas fort
ADDITIONAL S	2 water b		(1 on sea	36.4 tpost).	Blue	metallic • Wh	ite/Silver Metallic decal	Candy Chrome fork
replaceable de				-111				
FIT	· ·							
	Size	S	М	L	XL			
	Inches	66	70	73	75			
_	Cm	168	177	186	191			
Handlebar	Width, mm	620	620	620	620			
	Length, mm	75	90	105	105			
	Angle	5	5	10	10			
	Length, mm Length, mm	170 300	175 350	175 350	175 350			
	Length, mm Length, mm	300 179.0	350 194.0	214.0	234.0			
0.000.01	g,			2. 7.0				

EDAMECET				1			
FRAMESET	Distinguis and a feet	- 1 70000				Suga	r 3+ GS
MAIN TUBES						- 494	
STAYS			1				
FORK						Sweetness. Nickname for	r an especially dear frienc
	Travel, mm		80-100 451				
REAR SHOCK	Axle-crown length, mn	ı	431				
REAR SHOCK	Stroke		2				
	Length		7.875				
	Width		22.2mm				
	Eyes	2	6mm				
HEADSET			0,,,,,,				
112,13621 11111111	Size	25.4/34	í.0/30.0				
	Stack height, mm		27.0				
CONTROLS							
HANDLEBAR	Bontrager Crowbar 9	inart 25mm rice					
HANDLEBAR	Clamp diameter, mm	pport, 25mm rise	25.4				
STEM	-		2).4				
31LW	Steerer clamp height, n	222	41.0				
SHIFT LEVERS			41.0		Why this F	isher rocks:	
BRAKE LEVERS					1 "		
GRIPS		nan s reach			Kider: Adv	enture rider	
	. Serias dual density				Frameset		
DRIVETRAIN					Svbil l	ink suspension- adjustal	ole rear wheel travel
FT DERAILLEUR					from 2.8	to 4.1 inches (80 to 105	6mm).
1	Cable routing		Top pull			`	ŕ
		34.9 mm/ 1 3/8", high cla	mp only			isters geometry- stable,	rast, made for a
RR DERAILLEUR					woman		
CRANKSET	. Bontrager Comp 44/	/32/22			Platin	um series ZR9000 alumi	num- light, super
1	Bolt hole circle, mm		64/104		strong		G
BB							
	Shell x axle, mm	73 x 113,	Square		Wheelset		
CHAIN	. Shimano HG-72				Bontra	nger Select wheels- light	and strong
	Chain type		9 speed		IDC D	ockeountmy times him 2	25 casing is overa
1	Chain length (links)		108			ackcountry tires- big, 2.2	to casing is extra
CASSETTE	. SRAM 7.0 11-32, 9spc	İ			grippy		
WHEELSET					Componen	ts	
FRONT WHEEL	. Bontrager Select AT	B, 24°				le, yet light weight- XT,	I.X
1	E.R.D., mm	•	542				
	Rim strip	Velox	c 19mm			ou Black fork- adjustable	
FRONT TIRE	. IRC Backcountry				stanchio	ns for excellent steering	control
	Tire size	20	6 x 2.25		Cane C	Creek AD-5 shock- air/air	system is light.
REAR WHEEL	. Bontrager Select AT	B, 28°			easily tu		J===== 10 11G110,
	E.R.D., mm		542		1		
1	Rim strip	Velox	c 22mm		Bontra	nger bar/stem, post- supe	er strong
REAR TIRE	•			CEA	RING		
1	Tire size	20	6 x 2.25	GEA			
SPOKES				l	22 32 44		
	Front, mm		, Radial		52 76 105		
	Rear, mm	267/	269, 3x	12	48 70 96		
INNER TUBES	. Presta valve			14	41 60 82		
OTHER				l			
SEATPOST	. Bontrager Sport			16	36 52 72		
	Outer diameter, mm		31.6	18	32 47 64		
SADDLE		vomen's, CrMo rails		21	27 40 55		
BRAKES		· ·		24	24 35 48		DIVE WEIGHT
PEDALS		•					BIKE WEIGHT
	Axle diameter	p.000	9/16"	28	21 30 41		27.6 lb.
SEAT BINDER			J/10	32	18 26 36		12.53 kg.
	Inner diameter, mm		36.4	_			
ADDITIONALS		ts (plus seatnost	23.1		ORS		
mount), replaceable d		\p.25 564tp05t		Blue	e Metallic/White P	earl• White/Light Blue decal	 White fork
inount, replaceable o	crameur nanger			1			
				Щ			
FIT							
Frame Size	S	М					
Rider height Inches	65	68					
Cm	166	172					
Handlebar Width,	mm 600	600					
Stem Length		75					
Angle	5	5					
Crank Length	n, mm 170	175					
Seatpost Length		350					
	n, mm 179.0	194.0					

FRAMESET							Sugar /1
		latinum series butte		0			Sugar 4+
		latinum series alumi Ianitou Black Comp,		lo travol			
FORK	IV	Travel, mm	aujustab	80-100			Sweetness. Nickname for an especially dear friend
		Axle-crown length, mm		451			
REAR SHOCK	C	ane Creek AD-5 Stroke		2			
		Stroke Length		2 7.875			
		Width		22.2mm			
LIEADCET		Eyes		6mm			
HEADSET		Size		25.4/34.0/30.0			
		Stack height, mm		23.2			
						Why this I	Fisher rocks:
CONTROLS		C C	AF			ľ	venture rider
HANDLEBAR		ontrager Crowbar S Clamp diameter, mm	port, 2511	25.4			venture rider
STEM	в	ontrager Sport				Frameset	link suspension- adjustable rear wheel trave
		Steerer clamp height, m		41.0			8 to 4.1 inches (80 to 105mm).
		himano Deore Rapid Iloy, direct pull	Fire+				sis geometry- stable, fast
		erfas dual density				1	num series ZR9000 aluminum- light, super
DRIVETRAL						strong	ium series zwaooo aiummum- ngm, super
		himano Deore LX					
		Cable routing		Top pull		Wheelset	agen Cunerateek wheels light and street
RR DEBAILLE	IIR S	Attachment himano Deore LX SO		3/8", high clamp only			rager Superstock wheels- light and strong
		ontrager Sport 44/3				IRC M	Mythos XC tires- all-round treads
		Bolt hole circle, mm	,	64/104		Componer	nts
BB	S	himano BB-LP28				Durab	ole, yet light weight- Shimano LX
CHAIN	S	Shell x axle, mm himano HG-53		73 x 113, Square		Manit	ou Black fork- adjustable travel and massive
CHAIN		Chain type		9 speed		stanchio	ons for excellent steering control
		Chain length (links)		108		Cane (Creek AD-5 shock- air/air system is light,
		RAM 7.0 11-32, 9spd				easily tu	unable
WHEELSET			240			Bontra	ager bar/stem, post- super strong
FRONT WHEE	.L B	ontrager Superstocl E.R.D., mm	(, 240	542			
		Rim strip		Velox 19mm			
FRONT TIRE	IF	•		25.24			
REAR WHEEL	В	Tire size ontrager Superstocl	280	26 x 2.1			
KEAK WHEEL		E.R.D., mm	ι, 20	542			
		Rim strip		Velox 22mm			_
REAR TIRE	II	RC Mythos XC Tire size		26 x 2.1	GEAF		
SPOKES	D	T 14G stainless		20 x 2.1		22 32 44	
		Front, mm		254, Radial	۱	52 76 105	
INNER TUBES		Rear, mm		267/269, 3x		48 70 96	
OTHER	,P	resta valve				41 60 82	
	R	ontrager Sport				36 52 72 32 47 64	
		Outer diameter, mm		31.6		32 47 64 27 40 55	
SADDLE						24 35 48	DIVE WEIGHT
PEDALS		lloy direct pull				21 30 41	BIKE WEIGHT 28.9 lb.
PEDALS		Axle diameter		9/16"		18 26 36	13.12 kg.
SEAT BINDER	? A	lloy w/integral QR			32	10 20 30	1523
ADDITIONAL		Inner diameter, mm	mamla	36.4	COLC		/ou
hanger	SI	water bottle mount,	геріасеа	bie derailieur	Black	Metallic • White	e/Silver decal • Candy Chrome fork
ger							
FIT							
Frame	Size	S	М	L	XL		
Rider height	Inches	66	70	73	75		
11 # 4	Cm	168	178	186	191		
Handlebar Stem	Width, m		620 90	620 105	620 105		
Stem	Length, r Angle	nm 75 15	90 15	105 15	105 15		
Crank	Length, r		175	175	175		
Seatpost	Length, n		350	350	350		
Steerer	Length, r	nm 175.2	190.2	210.2	230.2		

RePack frameset

Professional Downhill Racing

For years now, Fisher has sponsored top downhillers. Riding bikes that were largely custom one-offs, our Pros have consistently been among the top riders, and have stood on the very top of the podium. Through constant development and innovation, our Race Department has been on the cutting edge to support the needs of our riders.

Until now, only our Pros could ride these bikes. We simply did not make downhill bikes for any one else.

Downhill Thrills

The sport of downhilling today has changed. It is no longer the exclusive domain of high-paid pros, but has become the sport of choice of local riders. These folks crave the thrills and technical challenge of zooming their favorite trail at high speed (responsibly, please!). For those pushing the edge, a standard mountain bike just doesn't offer the performance needed.

The new Fisher Repack

For 2002, we have finally unleashed our awesome downhill frame for public consumption. Here's what the Repack has to offer-

- 8 inches of rear wheel travel, and designed for a 6-8" travel triple-clamp fork
- Extremely beefy construction- tubes, links, pivots, all are designed for the forces generated by our Pros
- Swappable, bolt-on rear dropouts. The bolt-on pattern allows you to change the length of the chainstays (and the bottom bracket elevation), or switch from standard quick-release wheels to a through-axle. This makes the ride tunable, and the frame is compatible with all popular downhill wheel types
- Patented chain tensioner- by allowing you to move the tensioner you get precise and powerful chain containment with any chainring size you choose to use (downhill bikes like to throw their chains off at inappropriate times). Even cooler, the location of the tensioner prevents inchworming of the suspension when pedaling.

The frame comes in two sizes, 14.5 and 16".

Colors: Black • Red/White decals (not supplied with a fork) ?

Rear shock

Eye to eye Eye width Eye I.D. Stroke

Diesel DH

	Frame sizes	14.5	16
	Head angle	70.0	70.0
	Seat angle	71.0	71.0
SS	Standover	700	716
岜	Seat tube	368	406
MILLIMETERS	Head tube	112	112
\leq	Eff top tube	570	592
⊒	Chainstays	420	420
2	BB height	323	323
	Offset	33.0	33.0
	Trail	80	80
	Wheelbase	1032	1054
	Standover	27.6	28.2
S	Seat tube	14.5	16.0
뽀	Head tube	4.4	4.4
NCHES	Eff top tube	22.4	23.3
_	Chainstays	16.5	16.5
	BB height	12.7	12.7
	Offset	1.6	1.6
	Trail	3.1	3.1
	Wheelbase	40.6	41.5

All new for 2002

This is a new frame platform for the 2002 model year, but it borrows heavily from proven Gary Fisher technology. Most importantly, this is Genesis geomtry for a compfrotable rider position and the stablity and handling of a long front-center.

The 29er frames also use the new ZR9000 aluminum alloy for low frame weights and very high strength.

Last, the 29ers use the new, oversized wheel standard. Its a Genesis Supersize!

Geometry

The 29er uses Genesis geometry, adapted for the larger wheels.

Ride

The 29er is a great mountain bike for all types of riding, but really excells in soft conditions liek sand or mud where its oveersized wheels reduce rolling resistance. Lower resistance means either faster speeds, less work, or both. And the float of those big hoops enhances control in the same conditions.

Likewise, the larger wheels make for a smooth ride, which some people compare to suspension...only this is a hardtail, with all the benefits of lwer frame weight and no suspension movement.

Frame details

The 29er uses Platinum series ZR9000 aluminumframe technology.

Full 'top tube' (actually, the side of the main frame) cable routing keeps the cables out of the muck for friction free shifting and braking.

Special parts

Derailleur hanger

	Frame sizes	S	M	L	XL
	Head angle	70.5	71.0	71.5	71.5
	Seat angle	74.0	74.0	73.5	73.0
Š					
E.P.	Standover	695	729	757	799
	Seat tube	394	442	479	529
MILLIMETERS	Head tube	80	80	90	105
Ţ	Eff top tube	590	608	628	647
Ħ	Chainstays	440	440	440	440
2	BB height	292	292	292	297
	Offset	42.0	42.0	42.0	42.0
	Trail	87	83	80	80
	Wheelbase	1081	1094	1103	1119
	Standover	27.3	28.7	29.8	31.5
\mathbf{S}	Seat tube	15.5	17.4	18.9	20.8
INCHES	Head tube	3.1	3.1	3.5	4.1
ž	Eff top tube	23.2	23.9	24.7	25.5
H	Chainstays	17.3	17.3	17.3	17.3
	BB height	11.5	11.5	11.5	11.7
	Offset	1.7	1.7	1.7	1.7
	Trail	3.4	3.3	3.1	3.1
	Wheelbase	42.6	43.1	43.4	44.1

FRAMESET	1					1				Supercaliber 30
MAIN TUBES										Supercaliber 29
STAYS FORK		Marzoco		ninum	80					Above any ranking. Beyond the professional
HEADSET		Cane Cr	-crown length, mn eek S-6 Ahe		479					
		Size Stack	r height, mm		25.4/34.0/30.0 27.1					
CONTROLS										
HANDLEBAR		Bontrag	er Race I ite							
STEM		Clan	np diameter, mm		25.4	ſ		71 .1.		Tr. I.
		Steer	er clamp height, n		39.5			•		Fisher rocks: acer, or all-round hardtail rider
SHIFT LEVER BRAKE LEVE				•			- 1	rames		
GRIPS		-		. •			-			sis geometry- stable, fast
DRIVETRAI								Pla	tinı	num series ZR9000 aluminum- light, super
FT DERAILLE	UR	Cabl	Deore XT Te routing Chment		Top pul 34.9 mm/ 1 3/8	!	,	stron Theelse	g	· .
RR DERAILLE CRANKSET .		Shimano Bontrag	XTR SGS		64/104	f		Bor eratio	ntra on	rager Race Lite- super light wheels for accel-
вв		Bontrag	er Race, ISIS	•						smooth, fast, and with excellent handling
CHAIN		Shiman		/3 X I	13, Splined, ISIS			ompor Rac		nts level- XTR, XT
			in type in length (links)		9 speed 100					occhi Marathon 29" fork- plush riding, and
CASSETTE .				-34, 9spd				beefy	for	or control
WHEELSET		_ ,			_			Bor	ntra	rager bar/stem, post- super strong
FRONT WHEE	L		D., mm	ATB 29", 24	600 Velox 22mn					
FRONT TIRE			os XC, 127tpi	, folding	29 x 2.1	,				
REAR WHEEL		Bontrag E.R.	er Race Lite D., mm	ATB 29", 28	60 3					
REAR TIRE .		Rim IRC Not	os XC, 127tpi	, folding	Velox 22mn 29 x 2.1	GEA	RIN	G J		1
SPOKES		DT Revo		G, alloy nippl			22	32 44		
	_	Rear,	mm		283, Kaaia 299/301, 3s			84 116 71 98		
INNER TUBES	s	Presta v	alve			15		62 85		
OTHER		Dont	or Dage			17		55 75		
SEATPOST .		-	er Race rr diameter, mm		31.6	20		46 64		
SADDLE						23	28	40 55		
BRAKES PEDALS				•		26		36 49		BIKE WEIGHT
SEAT BINDER		Axle	diameter	,	9/16	, 30 34		31 43 27 38		23.0 lb. 10.44 kg.
		Inne	r diameter, mm		36.4	COLO				
ADDITIONALS	S	2 water	bottle moun	ts, rack mou	nts				• Y	Yellow/Red decal • Apple Candy Red fork
FIT										
Frame	Size		S	М	L	XL				
Rider height	Inches		68	71	74	75				
Handlebar	Cm Width,	mm	174 600	180 600	188 600	190 600	,			
Stem	Length		75	90	105	105				
]	Angle		7	7	7	7				
Crank	Length	-	170 300	175 390	175 390	175 390				
Seatpost Steerer	Length Length	-	300 165.6	390 165.6	390 175.6	390 190.6				

Steerer

Length, mm

165.6

165.6

175.6

### ### ##############################	FRAMESET	1							N#4 -	F 20
Pitter			Platinur	n series butte	ed ZR9000)			Mt.	1am. 29
Table Tabl									_,	
March Marc	FORK		Marzoco	chi MXR Air					(short for Tamalnais) Th	e Birthplace of Mountain
### ADSET** SAS Aheadset, alloy See									-	-
CONTROLS	LIEADCET					479				-
CONTROLS	HEADSEI	• • • • • • •		eadset, alloy		25 4/34 0/30 0				
CONTROLS HANDLEAR Bontrager Race				k height, mm						
STEM						_,				
STEM										
STEM										
STEM										
STEM										
STEM Solution So	CONTROLS									
Step	HANDLEBAR		Bontrag	er Race						
Shiff LEVERS Shimano Deore XT RapidiFire SL BRAKE LEVERS Integrated brake/shift GRIPS Sefats dual density				•		25.4				
SHIFT LEVERS Shimano Deore XT Shimano NTR SGS Cake musting Attachmoral	STEM	• • • • • • •	-			// =		1171 .1 · T	7. 1	
RRAKE LEVERS Integrated brake/shift GIPS Serfas doul density	CHIET I EVED	c								
Praise					•	-		Rider: Rac	er, or all-round hardta	il rider
DRIVETRAIN FT DERAILLEUR			-		•			Frameset		
Platinum series ZR9000 aluminum-light, super strong								1	is geometry- stable, fast	
Strong S			Shiman	Deore XT					· ·	num-light suner
### R DERAILLEUR	LIBERAILLE	J				Top pull		1	and Series Zivooo aidilli	iidiii iigiit, supti
Bontrager Race 4/32/22 Bontrager Race 4/32/22 Bontrager Race super light wheels for acceleration Bontrager Race, ISIS splined Self-sasks, mm										
BB Bontrager Race, ISIS splined. Skell x acks, mm	RR DERAILLE	UR	Shiman	XTR SGS				1		
BB	CRANKSET		-		2/22			I .	iger Race- super light w	heels for accelera-
Self sack, mm	l _{BB}				colined	64/104				
Components	BD	• • • • • • • •	-		•	113 Stilings ICIC		29"- sn	nooth, fast, and with exc	cellent handling
Casis Casi	CHAIN				/J X	115, Spiinea, 1515		Componen	ts	
Marzocchi MXR Air 29" fork- plush riding, and beefy for control						9 speed		1 -		
### Deefy for control Bontrager Race ATB 29", 24° ### According to the part of						108		1		.1
FRONT WHEEL Bontrager Race ATB 29", 240 E.R.D., mm Kimmurip Volux 22mm REAR WHEEL Bontrager Race ATB 29", 280 E.R.D., mm Color Col	CASSETTE		Shiman	o HG70 11-32,	9spd					olush riding, and
FRONT TIRE IRC Notos XC, 127tpi, folding Tris size 29 x 2.7	WHEELSET	'						1 *		
FRONT TIRE IRC Notos XC, 127tpi, folding Tire size REAR WHEEL Bontrager Race ATB 29", 28° E.R.D., mm REAR TIRE IRC Notos XC, 127tpi, folding Tire size Front, mm REAR TIRE IRC Notos XC, 127tpi, folding Tire size Front, mm Rear mm Prost, mm Prost avalve OTHER SEATPOST Bontrager Race Onter diameter, mm SEATPOST Avid Single Digit 5, linear pull PEDALS Time ATAC, clipless Axle diameter ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size Size Size Size Size Size Size Siz	FRONT WHEE	L	-		29", 24°			Bontra	iger bar/stem, post- supe	er strong
REAR WHEEL										
REAR WHEEL Bontrager Race ATB 29", 28° E.R.D., mm 603 R.R.D., mm Velox 22mm REAR TIRE IRC Notos XC, 127tpi, folding Time size 29 x 2.1 SPOKES T14/15G butted stainless, allon injoines Front. mm 2862, Radial Roar, mm 296/229, 38 Roar, mm	FRONT TIRE			•	folding	Velox 22mm				
REAR WHEEL Bontrager Race ATB 29", 28°	I TROWN TIKE				Toluling	29 x 2.1				
REAR TIRE IRC Notos XC, 127tpi, folding The size 29 x 2.1	REAR WHEEL				29", 28°					
REAR TIRE			E.R.	D., mm						
SPOKES	DEAD TIDE				6 - 1 - 12	Velox 22mm			1	
SPOKES	REAR TIRE	• • • • • • •			tolaing	20 × 2 1				
10 10 10 10 10 10 10 10	SPOKES				inless, allo		ı			
Rear, mm 296/299, 3x 12 53 77 106										
OTHER							12	53 77 106		
SEATPOST Bontrager Race	INNER TUBES	· · · · · ·	Presta v	/alve			14	46 66 91		
SEATPOST Bontrager Race	OTHER						16	40 58 80		
SADDLE WTB Laser V Race, CrMo rails BRAKES Avid Single Digit 5, linear pull PEDALS Time ATAC, clipless Axle diameter SEAT BINDER Alloy W/integral bolt Inner diameter, mm ADDITIONALS 2 water bottle mounts, rack mounts ADDITIONALS Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 600 600 5tem Length, mm 75 90 105 105 Angle 7 7 7 7 7 7 7 7 7	SEATPOST						l .			
SADDLE	CARRIE				mb4 n ''	31.6	l			
PEDALS Time ATAC, clipless Axle diameter SEAT BINDER Alloy w/integral bolt Inner diameter, mm ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390 28 23 33 46 32 20 29 40 11.40 kg. COLORS Blue Metallic/Flipping Green • Silver/White decal • Metallic Grey fork 11.40 kg. 25.1 lb. 11.40 kg. 25.1 lb. 11.40 kg. Stole S Blue Metallic/Flipping Green • Silver/White decal • Metallic Grey fork 11.40 kg.				· · · · · · · ·			ı			DIVE WEIGHT
SEAT BINDER Alloy w/integral bolt Inner diameter, mm 36.4 ADDITIONALS 2 water bottle mounts, rack mounts 36.4 ETT Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 7 7 7 7 7					near pull		l .			
SEAT BINDER Alloy w/integral bolt Inner diameter, mm 36.4 ADDITIONALS 2 water bottle mounts, rack mounts 36.4 COLORS Blue Metallic/Flipping Green • Silver/White decal • Metallic Grey fork FIT	FLUALS					9/16"				
ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390	SEAT BINDER	2				2,13	عد	20 29 40		m-to kg.
### ADDITIONALS 2 water bottle mounts, rack mounts ###################################			Inne	r diameter, mm			COLC	ORS		
Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390	ADDITIONALS	3	2 water	bottle mount	s, rack mo				Green • Silver/White decal •	Metallic Grey fork
Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390										
Frame Size S M L XL Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390										
Rider height Inches 69 71 74 75 Cm 174 181 188 191 Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390	FIT									
Cm 174 181 188 191 Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390										
Handlebar Width, mm 600 600 600 Stem Length, mm 75 90 105 105 Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390	Rider height									
Stem Length, mm 75 90 105 105 Angle 7 7 7 Crank Length, mm 170 175 175 Seatpost Length, mm 300 390 390										
Angle 7 7 7 7 Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390		-								
Crank Length, mm 170 175 175 175 Seatpost Length, mm 300 390 390 390	Steili		111111							
Seatpost Length, mm 300 390 390	Crank	-	mm							
		-								

Genesis Hardtails

New for 2002

The Genesis hardtails were introduced in the 1998 model year. The 2002 frame geometry is unchanged, but a new frame material on the Platinum series, called ZR9000, makes the new frames lighter and at the same time, stronger.

Geometry

The regular Genesis hardtails hardtail uses Gary Fisher's race-proven Genesis Geometry.

The Genesisters bikes use these same concepts, but adapted to fit and perform for a woman. The handlebar position, through frame and specs, reduce the stress on a woman's back when riding. The position balances her weight over the bottom bracket so she gets the most pedal power possible, and over the wheels for optimum handling. This is complimented by smart specs for an overall ergonomic fit for a woman.

Ride

The Genesis hardtail frame is one of the lightest racing hardtails ever produced. Of the bikes that can compete with this frame in weight, only the Fisher frame has Genesis geometry.

With their oversize aluminum tubes, high lateral frame rigidity and super-short chainstays, Genesis hardtails provide amazing rear wheel traction.

The Genesis geometry makes these bikes super handling, especially at racing speeds.

Frame details

The Genesis hardtails use our Platinum and Gold series frame technology. The head tube, is double butted to reduce weight and support the headset cups.

Full top tube cable routing with 'bullet' stops keeps the cables out of the muck for friction free shifting and braking. The bullet stops have a smooth junction with the frame, and rounded corners, so prevent things (like your clothes) from snagging.

The dropouts, brake yoke, and other details on the Genesis hardtails are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

The Genesis hardtail frame uses a special dropout to accommodate a disc brake adapter. This adapter provides mounting for an International style rear disc brake.

Genesis hardtail frames have 3 water bottle mounts.

Special Parts
Derailleur hanger
Disc brake adapter ...

Genesis hardtails

	Frame sizes	XS	S	M	L	XL
	Head angle	70.5	71.0	71.5	71.5	71.5
	Seat angle	74.5	74.0	74.0	73.5	73.0
Š						
MILLIMETERS	Standover	692	725	756	783	818
H	Seat tube	332	396	446	484	535
Ξ	Head tube	90	90	105	125	145
ij	Eff top tube	552	582	608	628	647
	Chainstays	413	413	413	413	413
\geq	BB height	287	292	292	292	297
	Offset	41.9	41.9	41.9	41.9	41.9
	Trail	74	71	68	68	68
	Wheelbase	1031	1053	1075	1091	1107
	Standover	27.2	28.5	29.8	30.8	32.2
ES	Seat tube	13.1	15.6	17.6	19.1	21.1
H	Head tube	3.5	3.5	4.1	4.9	5.7
INCHES	Eff top tube	21.7	22.9	23.9	24.7	25.5
Н	Chainstays	16.3	16.3	16.3	16.3	16.3
	BB height	11.3	11.5	11.5	11.5	11.7
	Offset	1.6	1.6	1.6	1.6	1.6
	Trail	2.9	2.8	2.7	2.7	2.7
	Wheelbase	40.6	41.4	42.3	42.9	43.6

Genesisters hardtails

	Frame sizes	XS	S	M
	Head angle	70.5	70.5	71.0
	Seat angle	74.5	74.0	74.0
Š				
MILLIMETERS	Standover	654	696	733
Ę	Seat tube	332	396	446
X	Head tube	90	90	105
	Eff top tube	552	567	595
	Chainstays	413	413	413
\geq	BB height	287	292	292
	Offset	41.9	41.9	41.9
	Trail	74	74	71
	Wheelbase	1031	1042	1066
	Standover	25.7	27.4	28.9
E]	Seat tube	13.1	15.6	17.6
Ę	Head tube	3.5	3.5	4.1
INCHES	Eff top tube	21.7	22.3	23.4
\Box	Chainstays	16.3	16.3	16.3
	BB height	11.3	11.5	11.5
	Offset	1.6	1.6	1.6
	Trail	2.9	2.9	2.8
	Wheelbase	40.6	41.0	42.0

FRAMESET		1	D
MAIN TUBES Platinum series butted 2	R9000		Paragon
STAYS Platinum series aluminu			•
Frame weight FORK Manitou Mars Elite	3.1 lb (1.41 kg)	7)	The lofty ideal. Perfection.
Travel. mm	80	0	, and the second
Axle-crown length, mm	451		
HEADSET SAS Aheadset, alloy			
Size	25.4/34.0/30.0		
Stack height, mm	27.0	0	
CONTROLS HANDLEBAR Bontrager Crowbar Race	, 25mm rise		
Clamp diameter, mm	25.4		
STEM Bontrager Comp	/1.0		isher rocks:
Steerer clamp height, mm SHIFT LEVERS Shimano Deore LX Rapic	41.0	Rider: Adv	enture rider or Racer
BRAKE LEVERS Integrated brake/shift		Frameset	
GRIPS Serfas dual density		Genesi	s geometry- stable, fast
DRIVETRAIN		Platinu	ım series ZR9000 aluminum- light, super
FT DERAILLEUR Shimano Deore LX		strong	
Cable routing	Top pull		
Attachment	34.9 mm/ 1 3/8'		ger Superstock wheels- light, strong
RR DERAILLEUR Shimano XTR SGS CRANKSET Bontrager Race 44/32/2	22	1 1	
Bolt hole circle, mm	. 2 64/104	4 IRC Se	erac XC tires- fast, yet grippy
BB Bontrager Race, ISIS spl	ined	Componen	ts
Shell x axle, mm	73 x 113, Splined, ISIS	S Expert	t level- LX/XTR, Bontrager Race crankset
CHAIN Shimano HG-72	0	Manito	ou fork- superb TPC damping and steering
Chain type Chain length (links)	9 speed 106	" control	
CASSETTE Shimano HG70 11-32, 9sj			ger Crowbar- riser for comfort, wide for
WHEELSET		control	
FRONT WHEEL Bontrager Race ATB, tube	eless compatible, 24°		
E.R.D., mm	539		
Rim strip FRONT TIRE IRC Serac XC, folding	Tubeless	ss .	
Tire size	26 x 2.1	1	
REAR WHEEL Bontrager Race ATB, tube	eless compatible, 28°		
E.R.D., mm	539		
REAR TIRE IRC Serac XC, folding	Tubeless		
Tire size	26 x 2.1	GEARING	
SPOKES DT 14/15G butted stainle	ss, alloy nipples	22 32 44	
Front, mm	251, Radial		
Rear, mm INNER TUBES Presta valve	265/267, 3x	I	
OTHER		14 41 60 82	
SEATPOST Bontrager Race		16 36 52 72	
Outer diameter, mm	31.6	18 32 47 64	
SADDLE WTB Laser V Race, CrMc		21 27 40 55	
BRAKES Avid Single Digit 5, linea	•	24 24 35 48	BIKE WEIGHT
PEDALS Shimano SPD M515, clipl Axle diameter		28 21 30 41	23.1 lb.
Axle diameter SEAT BINDER Alloy w/integral bolt	9/16'	32 18 26 36	10.49 kg.
Inner diameter, mm	36.4		
ADDITIONALS 3 water bottle mounts, r	eplaceable derailleur		Blue/White decal • Deep Candy Red fork
hanger			•
FIT			
		XL	
Frame Size S	M L		
Rider height Inches 68	72 75	76 10.4	
Rider height Inches 68 Cm 174	72 75 182 190	194	
Rider height Inches 68 Cm 174 Handlebar Width, mm 630	72 75 182 190 530 630	194 630	
Rider height Inches 68 Cm 174 Handlebar Width, mm 630	72 75 182 190	194	
Rider height Inches 68 Cm 174 Handlebar Width, mm 630 Stem Length, mm 75 Angle 5	72 75 182 190 530 630 90 105	194 630 105	
Rider height Inches 68 Cm 174 Handlebar Width, mm 630 6 Stem Length, mm 75 Angle 5 Crank Length, mm 170 Seatpost Length, mm 300	72 75 182 190 530 630 90 105 5 10	194 630 105 10	

FRAMESET		
MAIN TUBES Platinum series butted ZR900	00	
STAYS Platinum series aluminum		
Frame weight	3.5 lb (1.59 kg)	
FORK Manitou Black Elite, adjustable		
Travel, mm	80-100	
Axle-crown length, mm	451	
HEADSET STR Aheadset	25 (/2 (2/2 2 2	
Size	25.4/34.0/30.0 23.0	
Stack height, mm	23.0	
CONTROLS		
HANDLEBAR Bontrager Crowbar Sport, 25n		
Clamp diameter, mm	25.4	
STEM Bontrager Comp	<i>,</i> , ,	W
Steerer clamp height, mm	41.0	
SHIFT LEVERS Shimano Deore LX RapidFire+		R
BRAKE LEVERS Alloy, direct pull		Fr
GRIPS Serfas dual density		
DRIVETRAIN		
FT DERAILLEUR Shimano Deore		
Cable routing	Top pull	
Attachment RR DERAILLEUR Shimano Deore XT SGS	34.9 mm/ 1 3/8"	W
CRANKSET Bontrager Comp 44/32/22		
Bolt hole circle. mm	64/104	
BBShimano BB-LP28	04/104	
Shell x axle, mm	73 x 113, Square	Co
CHAIN Shimano HG-53	, 5 × 115, oquare	
Chain type	9 speed	
Chain length (links)	106	
CASSETTE SRAM 7.0 11-32, 9spd		
WHEELSET		
FRONT WHEEL Bontrager Superstock, 24°		
E.R.D., mm	542	
Rim strip	Velox 19mm	<u></u>
FRONT TIRE IRC Mythos XC		
Tire size	26 x 2.1	
REAR WHEEL Bontrager Superstock, 28°		
E.R.D., mm	542	
Rim strip	Velox 22mm	ĺ
REAR TIRE IRC Mythos XC		GE 1 B 11 16
•	_	CHADING
Tire size SPOKES DT 14G stainless	26 x 2.1	GEARING 22 3

Town on the California coast just south of Monterey. Robert Louis Stevenson said this was the most beautiful place on Earth where land meets sea.

Why this Fisher rocks:

Rider: Adventure rider or Racer

Frameset

Genesis geometry- stable, fast

Platinum series ZR9000 aluminum- light, super strong

Wheelset

Bontrager Superstock wheels- light, strong IRC Mythos XC tires- great all-round treads

Components

Expert level- LX/XT, Bontrager Comp crankset Manitou Black fork- adjustable travel

Bontrager Crowbar- riser for comfort, wide for

control

OL:	CIIV	u	
	22	32	44
11	52	76	105
12	48	70	96
14	41	60	82
16	36	52	72
18	32	47	64
21	27	40	55
24	24	35	48
28	21	30	41
32	18	26	36
COL	200	,	
	11 12 14 16 18 21 24 28 32	22 11 52 12 48 14 41 16 36 18 32 21 27 24 24 28 21 32 18	12 48 70 14 41 60 16 36 52 18 32 47 21 27 40 24 24 35 28 21 30

BIKE WEIGHT 26.7 lb. 12.12 kg.

COLORS

Black Chrome/Black Metallic • White/Black decal • Candy Chrome fork

FIT					
Frame	Size	S	М	L	XL
Rider height	Inches	68	71	75	76
	Cm	173	181	190	193
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	75	90	105	105
	Angle	5	5	10	10
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	175.2	190.2	210.2	230.2

Front, mm

Outer diameter, mm

Axle diameter

ADDITIONALS 3 water bottle mounts, replaceable derail-

Inner diameter, mm

INNER TUBES Presta valve

SADDLE WTB SST.X

SEATPOST Bontrager Sport

BRAKES Shimano M420, V type

SEAT BINDER Alloy w/integral QR

PEDALS Shimano SPD M515, clipless

OTHER

leur hanger

EDAMESET	1				1				D.	_	
FRAMESET	Platinur	m carias hut	tod 70000	0					Big S	Sur	Disc
	Platinui			J					2.9		
31A13		ne weight	IIIIuiii	3.5 lb (1.59 kg)							
FORK	Manitou		adj. travel								
		vel, mm	•	80					Town on the California coast ju	st south of l	Monterey.
		-crown length, m	m	451					Robert Louis Stevenson said th	is was the n	nost beautifu
HEADSET	STR Ah	eadset							place on Earth where land mee	ts sea.	
	Size			25.4/34.0/30.0							
	Stac	k height, mm		23.2							
CONTROLS											
HANDLEBAR	Bontraç	jer Crowbar	Sport, 25m	m rise							
		mp diameter, mm		25.4							
STEM	Bontraç										
		rer clamp height,		41.0		1.1.7	hu	thic I	Fisher rocks:		
	RS Shiman		•				-				
	RS Hydraul		to brake			R	ide	r: Adv	enture rider or Racer		
GRIPS	Serfas o	dual density				Fr	ran	neset			
DRIVETRAI	N							Genes	is geometry- stable, fast		
FT DERAILLE	UR Shiman	o Deore							-	l: ~la	+
	Cab	le routing		Top pull					um series ZR9000 alumir	ıum- ııgn	t, super
		chment		34.9 mm/ 1 3/8"			St.	rong			
	EUR Shiman					l w	he	elset			
CRANKSET .	Bontrag		/32/22					Bontra	ager Superstock wheels-	light, stro	ong
		hole circle, mm		64/104					•	_	_
ВВ	Shiman			50 440 0				IRC M	ythos XC tires- great all-	rouna tre	eads
CHAIN		l x axle, mm		73 x 113, Square		$\perp_{\rm C}$	om	ponen	nts		
CHAIN	Shiman			0 . 1					t level- LX/XT, Bontrager	Comp cr	ankset
		in type in length (links)		9 speed 106				-		-	armset
CASSETTE	SRAM 7		hd	100				Manito	ou Black fork- adjustable	travel	
		.0 11 02, 730	, u					Bontra	ager Crowbar- riser for co	omfort, w	ide for
WHEELSET			. (. D)	•				ntrol			
FRONT WHEE	L Bontrag		CK DISC, 28					Намос	disc brakes- great contro	s.l	
		D., mm strip		542 Velox 22mm				Tayes	uisc brakes- great contro	<i>)</i> 1	
FRONT TIRE	IRC Myt			VCIOX ZZIIIII							
	•	size		26 x 2.1							
REAR WHEEL	Bontrag		ck Disc, 28								
		D., mm	·	542							
	Rim	strip		Velox 22mm					_		
REAR TIRE .	IRC Myt	thos XC			GEA:	RINO	r J		1		
		size		26 x 2.1		22		44			
SPOKES	DT 14G				11	52					
		nt, mm		267/267, 3x							
INNED TUDE		r, mm		267/267, 3x	12	48					
	S Presta	vaive			14	41	60	82			
OTHER					16	36	52	72			
SEATPOST .	Bontraç				18	32	47	64			
		er diameter, mm		31.6	21	27					
	WTB SS										
BRAKES	Hayes H	•	•		24	24				BIKE W	EIGHT
	.			rcle diameter, 44mm	28	21	30	41		27.1 lb.	
PEDALS	Shiman		clipless	0/16"	32	18	26	36		12.30 kg	•
CEAT DINDER		diameter		9/16"							
SEAT BINDER	R Alloy w	r diameter, mm		36.4	COL						
ADDITIONALS	S 3 water		nts renlace		Blac	k Chro	ome	/Black	Metallic • White/Black decal •	Candy Chro	ome fork
hanger	J J water	bottle illoui	its, replace	able derailledi							
					<u> </u>						
FIT											
Frame	Size	S	М	L	XL						
Rider height	Inches	68	71	75	76						
	Cm	173	181	190	193						
Handlebar	Width, mm	620	620	620	620						
Stem	Length, mm	75	90	105	105						
	Angle	5	5	10	10						
Crank	Length, mm	170	175	175	175						
Seatpost	Length, mm	300	350	350	350						
Courpost		475.0	100.3	210.2	230.2	•					
Steerer	Length, mm	175.2	190.2	210.2							

FRAMESET				
MAIN TUBES	Platinu	m series butt	ed ZR9000	
STAYS	Platinu	m series alum	ninum	
	Fra	me weight		3.5 lb (1.59 kg)
FORK	Manitοι	ı Black Elite Di	iva, adj. trav	el
(80-100mm)				
	Tra	vel, mm		80
	Axl	e-crown length, mn	2	451
HEADSET	STR Ah	eadset		
	Size	?		25.4/34.0/30.0
	Stav	ck height, mm		23.0
CONTROLS				
HANDLEBAR	Bontra	ger Crowbar S	Sport, 25mr	
	Cla	mp diameter, mm		25.4
STEM	Bontra	•		
		rer clamp height, n		41.0
	S Shimar			
	RS Alloy, d		man's reach	ı
GRIPS	Serfas	dual density		
DRIVETRAI	N			
	UR Shimar	n Deore		
. I DENAILLE		ble routing		Top pul
		ne routing ichment		34.9 mm/ 1 3/8'
RR DFRAILLE	UR Shimar		GS	1 אווווו ל.ז.ע
	Bontra			
CRAINNSEI .		ger Comp 44) t hole circle, mm	32/22	64/104
DD	Shimar			04/104
рр				72 112 6
CHAIN	She Shiman Shiman	ll x axle, mm		73 x 113, Square
CHAIN				0 .
		tin type		9 speed
CASSETTE		iin length (links) 7 O 11-32 Ocno	4	106
	SRAM [·]	7.0 11-32, 9SPC		
WHEELSET				
FRONT WHEE	L Bontra		:k, 24°	
		2.D., mm		542
		ı strip		Velox 19mm
FRONT TIRE	IRC My			
		e size		26 x 2.1
REAR WHEEL	Bontra	,	:k, 28°	
		2.D., mm		542
		ı strip		Velox 22mm
REAR TIRE .	IRC My	thos XC		
	Tin	e size		26 x 2.1
SPOKES	DT 14G	stainless		
	Fro	nt, mm		254, Radial
	Rea	r, mm		267/269, 3x
INNER TUBES	S Presta	valve		
OTHER				
	Bontra	ger Sport		
SEAIPUSI .		ger Sport ter diameter, mm		21/
SADDLE	<i></i> WTB S			31.6
	Shiman			
PEDALS	Shiman		ciipiess	21.5
CEAT DIVIDED		e diameter		9/16'
SEAL BINDER	? Alloy w	-		26
ADDITIONAL		er diameter, mm	la (2 == VC)	36.4
derailleur han	S 3 wateı iger	Dottie moun	ts (∠ on XS)	, replaceable
FIT				
Frame	Size	XS	S	М
Rider height	Inches	65	67	70
	Cm	166	171	177
Handlebar	Width, mm	600	600	600
Stem	Length, mm	60	75	75
Stem	Length, mm Angle	60 5	75 5	75 5

Big Sur GS

Town on the California coast just south of Monterey. Robert Louis Stevenson said this was the most beautiful place on Earth where land meets sea.

Why this Fisher rocks:

Rider: Adventure rider or Racer

Frameset

Genesisters geometry- stable, fast for a woman Platinum series ZR9000 aluminum- light, super strong

Wheelset

Bontrager Superstock wheels- light, strong IRC Mythos XC tires- great all-round treads

Components

Expert level- LX/XT, Bontrager Comp crankset Manitou Black fork- adjustable travel

Bontrager Crowbar- riser for comfort, wide for control

	22	32	44					
11	52	76	105					
12	48	70	96					
14	41	60	82					
16	36	52	72					
18	32	47	64					
21	27	40	55					
24	24	35	48					
28	21	30	41					
32	18	26	36					
COLORS								

BIKE WEIGHT 26.2 lb. 11.89 kg.

OLORS

GEARING

Pearl White/Blue Metallic • White/Blue decal • White fork

Crank

Seatpost

Steerer

Length, mm

Length, mm

Length, mm

170

300

175.0

170

300

175.0

175

350

FRAMESET	7			1		
		ies 6061 T6 alumi	inum			Hoo Koo E Koo
		ies 6061 T6 alumi				
	Fram	ie weight	3.5 lb (1.59 kg)			Mewok Indian name for the tribe of Indians
FORK	Marzocc					living near the bottom of Mount Tam.
		el, mm	80			nving near the bottom of Mount Tuni.
LIEADCET		-crown length, mm	451			
HEADSEI	STR Ahe	eausei	25.4/34.0/30.0			
		k height, mm	23.0			
CONTROLS						
HANDLEBAR		er Crowbar Sport,				
STEM	Bontrag	•	25.4			
CLUET LEVED		er clamp height, mm	41.0			
		Deore RapidFire	+			
	RS Alloy, di	,			1171	
		iudi uelisity				Fisher rocks:
DRIVETRAI		Daars			Rider: Ath	nletic every-day or Adventure rider
FIDERAILLE	UR Shimano	D Deore le routing	Tak to H		Frameset	
		e routing chment	Top pull "34.9 mm/ 1 3/8		Genes	sis geometry- stable, fast
RR DERAILLE	EUR Shimano		5 - 2 1 5/0		1	series aluminum- super strong
CRANKSET .	Bontrag	er Sport 44/32/2	2		Gold s	series aluminum- super strong
		hole circle, mm	64/104		Wheelset	
BB	Shimano				Bontr	ager rims- light, strong, smooth braking
		x axle, mm	73 x 113, Square		IRC M	fythos XC tires- great all-round treads
CHAIN	Shimano		01			·
		in type in length (links)	9 speed 106		Componer	
CASSETTE .	SRAM 7.	- C	100		Enthu	ısiast level- LX, Deore
WHEELSET		· ,			Manit	ou fork- steering control
		R hub, 32°, Bontr	ager Corvair rim		Bontr	ager Crowbar- riser for comfort, wide for
		D., mm	542		control	ager erowbar riber for connect, wide for
	Rim .	1	Velox 19mm		Chima	ano clipless pedals- double-sided, user friendly
FRONT TIRE	IRC Myt					ino cripiess pedais- double-sided, user mendiy
	Tire .		26 x 2.1			
KEAR WHEEL		Dilub, 32°, Bolitiaç D., mm	ger Corvair OSB rim 542			
	Rim .		Velox 22mm			
REAR TIRE .	IRC Myt	•		GEA	RING	1
	Tire .	size	26 x 2.1		22 32 44	
SPOKES	14G stai			11	52 76 105	
		t, mm	266, 3x		48 70 96	
INNER TURES	Rear, S Presta v		263/265, 3x			
	resta v			14	41 60 82	
OTHER	Bontrag	er Sport		16	36 52 72	
JEAIPUSI .	-	er Sport er diameter, mm	31.6	18	32 47 64	
SADDLE	WTB SS		51.0	21	27 40 55	<u> </u>
	Alloy dir			24	24 35 48	BIKE WEIGHT
		SPD M515, cliple	ss	28	21 30 41	27.1 lb.
	Axle	diameter	9/16"	32	18 26 36	12.30 kg.
SEAT BINDER	R Alloy w/	-				
ADDITIONAL		r diameter, mm	36.4	COL		
derailleur han		bottle mounts (2	on XS), replaceable	Blac	k Metallic/Blue N	Metallic • Black/White Metallic decal • Black fork
PIT						
FIT	Cina	VC			VI	
Frame	Size		6 M	L 75	XL 76	
Rider height	Inches Cm	65 6 165 17	9 72 74 183	75 190	76 194	
Handlebar	Vidth, mm		20 620	620		
Stem	Length, mm		5 90	105		
	Angle	15 1		15	15	
Crank	Length, mm	170 17		175	175	
Seatpost	Length, mm	300 30		350		
Steerer	Length, mm	175.2 175		210.2		

FORK HEADSET CONTROLS	Manitou Trave Axle STR Ahe Size Stack	ries 7005 alui e weight Six Elite d, mm crown length, mm radset height, mm	minum	3.9 lb (1.77 kg) 80 451 25.4/34.0/30.0 23.0		A r	etreat near	Tassajar Big Sur. Indian name for a place where meats are cod	
STEM	Bontrage	p diameter, mm er Sport er clamp height, mm o Deore RapidF		25.4 41.0					
	Serfas d					W	hy this I	Fisher rocks:	
DRIVETRAIN		,					•		
	R Shimano	Deore				- 1		nletic every-day or Adventure rider	
1	Cable	routing		Top pull		Fi	rameset	sis geometry, stable fact	
DD DEDAILLEL	Attac JR Shimano	hment	Plate style 1	v/34.9mm clamp				sis geometry- stable, fast	
	Bontrage		2/22				Silver	series aluminum- super strong	
	-	bole circle, mm	-,	64/104		W	heelset		
BB	Shimano						Bontra	ager rims- light, strong, smooth braking	
CHAIN		x axle, mm	;	73 x 113, Square			IRC M	Tythos XC tires- good all-round treads	
CHAIN	Shimano	n HG-53 n type		9 speed				·	
		n length (links)		106			omponen	nts Isiast level- Shimano Deore	
CASSETTE	SRAM 7.								
WHEELSET							Manite	ou fork- great steering control	
FRONT WHEEL	Alloy, QF	R hub, 32°, Bo	ntrager Co	rvair rim			Bontra	ager Crowbar- riser for comfort, wide for	
		O., mm		542			control		
FDONT TIDE	Rim s IRC Mytl	•		Velox 19mm				tion to comfort points- user friendly pedal	ls,
FRONT TIRE .	Tire s			26 x 2.1			wide bar	rs for control, and comfy saddle	
REAR WHEEL	Shimano		ntrager Cor						
		D., mm		542					
DEAD TIDE	Rim s IRC Mytl			Velox 22mm				_	
KLAK TIKE	Tire s			26 x 2.1	GEA	RINC	,		
SPOKES	DT 14G s	tainless			I		32 44		
		, mm		266, 3x	I		76 105		
INNER TURES	Rear,			263/265, 3x	12		70 96		
OTHER	Somueu				14	41 6	50 82		
	Bontrage	er Sport			16		52 72		
	Oute	r diameter, mm		29.2	18		47 64		
	WTB SS				21		40 55		
	Alloy dir	•			24		35 48	BIKE WEIGHT]
PEDALS	Alloy pla Axle	ittorm diameter		9/16"	28		30 41	28.0 lb.	
SEAT BINDER	Alloy w/i			2,10	32	18 2	26 36	12.71 kg.	
	Inner	diameter, mm		35.0	COLO	ORS			
ADDITIONALS mounts	2 water	bottle mounts	(1 on XS),	rack	Blac	k Met	=	Metallic • White/Silver Metallic decal • Black fork Iver decal • Black fork	
FIT									
	Size	XS	S	М	L		XL		
1	Inches	65 165	69 174	72	75 100		76 10.4		
	Cm Width, mm	165 620	174 620	183 620	190 620		194 620		
	Length, mm	60	75	90	105		105		
	Angle	15	15	15	15		15		
	Length, mm	170	170	175	175		175		
	Length, mm	300	300	350	350		350		
Steerer	Length, mm	175.2	175.2	190.2	210.2		230.2		

FRAMESET	7			1		Taggaiara Digg
		eries 7005 aluminu				Tassajara Disc
STAYS		eries 7005 aluminu ne weight	I m 3.9 lb (1.77 kg)		A retreat near	Big Sur. Indian name for a place where meats are cooked
FORK	Manitou		8			
		el, mm	80			
		-crown length, mm	451			
HEADSEI	STR Ahe	eadset	25 //2 / 0/20 0			
	Size Stank	height, mm	25.4/34.0/30.0 23.0			
	Suck	e neegm, mm	23.0			
CONTROLS	•					
		er Crowbar Sport,	25mm rise			
		ıp diameter, mm	25.4			
STEM	Bontrag		41.0			
SHIFT LEVER		Deore RapidFire+			Why this l	Fisher rocks:
		ic, attached to brak				nletic every-day or Adventure rider
	Serfas d	•			1	need every day of havendule fluer
DRIVETRAI		·			Frameset	
	UR Shimano	Deore			Genes	is geometry- stable, fast
LIDENAILLE		e routing	Top pull		Silver	series aluminum- super strong
		chment	34.9 mm/ 1 3/8"			
RR DERAILLE	EUR Shimano				Wheelset	
CRANKSET .	Bontrag	er Sport 44/32/22	!		Bontra	ager rims- light, strong, smooth braking
	Bolt	hole circle, mm	64/104		IRC M	lythos XC tires- good all-round treads
BB	Shimano	BB-LP28				
		x axle, mm	73 x 110, Square		Componer	
CHAIN	Shimand				Enthu	ısiast level- Shimano Deore
		n type	3/32"		Manit	ou fork- great steering control
CACCETTE		in length (links)	104			
	SRAM 7.	.U 11-32, 9spa				ager Crowbar- riser for comfort, wide for
WHEELSET					control	
FRONT WHEE		sc QR hub, 32°, Btr			Attent	tion to comfort points- user friendly pedals,
		D., mm	554.5		wide bar	rs for control, and comfy saddle
EDON'T TIDE	Rim IRC Myt	1	Rubber		Haves	disc brakes- superior speed control
I FRONT TIRE	Tire		26 x 1.95			
REAR WHEEL		c QR hub, 32°, Btrg				
KEAK WILEE		D., mm	554.5			
	Rim		Velox 22mm			
REAR TIRE .	IRC Myt	hos XC		GFA.	RING	1
	Tire		26 x 1.95	GL/1	22 32 44	
SPOKES	15G stai	nless		 		
		t, mm	, 2x		52 76 105	
	Rear,		, <i>3x</i>	12	48 70 96	
	S Presta v	raive		14	41 60 82	
OTHER				16	36 52 72	
SEATPOST .	Bontrag	er Sport		18	32 47 64	
		r diameter, mm	29.2			
	WTB SS			21	27 40 55	
BRAKES	•	FX Comp, full hydr		24	24 35 48	BIKE WEIGHT
		r diameter	6.3 in.		21 30 41	30.0 lb.
DERALG		circle diameter	44mm	32	18 26 36	13.62 kg.
PEDALS	Alloy pla		0/2 5"			
SEAT BINDER	R Alloy w/	-	9/16"	COL(Blac		iver decal • Black fork
ADDITIONALS		r diameter, mm bottle mounts (1 o	<i>34.9</i> n XS), rack mounts			
FIT						
Frame	Size	xs s	М	L	XL	
Rider height	Inches	66 69		76	77	
l	Cm	167 17!		192	196	
Handlebar	Width, mm	580 58		600	620	
Stem	Length, mm	60 75		105	105	
	Angle	15 15		15	15	
Crank	Length, mm	170 170		175	175	
Seatpost	Length, mm	300 30		350	350	
Steerer	Length, mm	191 19		226	246	
	. ,,					

				1		
FRAMESET				ı		Tassajara GS
		ver series aluminum				rassajara Ga
STAYS	Silv	ver series aluminum				
		Frame weight	3.5 lb (1.59 kg)		A retreat near B	ig Sur. Indian name for a place where meats are cooked
FORK	Mar	nitou Six Elite Diva				
		Travel, mm	80			
LIEADCET	CTI	Axle-crown length, mm	451			
HEADSET	511		25 (/2 / 2/22 2			
		Size	25.4/34.0/30.0			
		Stack height, mm	23.0			
CONTROLS	_				Why this	Fisher rocks:
HANDLEBAR .	Bor	ntrager Crowbar Sp				
	_	Clamp diameter, mm	25.4		I	hletic every-day or Adventure rider
STEM	Bor				Frameset	
		Steerer clamp height, mm			Genes	sisters geometry- stable, fast for a woman
		mano Deore RapidF	ire+	1		
BRAKE LEVERS		• • •			Silver	r series aluminum- super strong
GRIPS	Ser	tas dual density		1	Wheelset	
DRIVETRAIN				1		rager rims- light, strong, smooth braking
FT DERAILLEUF		mano Deore		1		
		Cable routing	Top pull	1	IRC N	Mythos XC tires- good all-round treads
		Attachment	34.9 mm/ 1 3/8"	1	Compone	nts
RR DERAILLEU	R Shi	mano Deore SGS				usiast level- Shimano Deore
CRANKSET	Bor	ntrager Sport 44/32	2/22	1		
		Bolt hole circle, mm	64/104		Manit	tou fork- great steering control
BB	Shi	mano BB-LP28			Rontr	rager Crowbar- riser for comfort, wide for
		Shell x axle, mm	73 x 113, Square		control	ager Crowbar- riser for conflict, wide for
CHAIN	Shi	mano HG-53			1	
		Chain type	9 speed		Wome	en's design- user friendly pedals, shorter
		Chain length (links)	106		cranks,	wide bars for control, and comfy saddle
CASSETTE	SR/	AM 7.0 11-32, 9spd				·
WHEELSET						
FRONT WHEEL	Allo	ov. QR hub. 32°. Bo	ntrager Corvair rim	1		
		E.R.D., mm	542			
		Rim strip	Velox 19mm	1		
FRONT TIRE	IRC	Mythos XC				
		Tire size	26 x 2.1			
REAR WHEEL .	Shi	mano hub, 32°, Bon	trager Corvair OSB rim			
		E.R.D., mm	542			
		Rim strip	Velox 22mm	1		
REAR TIRE	IRC	Mythos XC		OF.	DIVIG	1
		Tire size	26 x 2.1	GEA	RING	
SPOKES	DT			1	22 32 44	
		Front, mm	266, 3x		52 76 105	
		Rear, mm	263/265, 3xx	12	48 70 96	
INNER TUBES	Pre	sta valve				
OTHER				14	41 60 82	
SEATPOST	Bor	ntrager Sport		16	36 52 72	
		Outer diameter, mm	29.2	18	32 47 64	
SADDLE	WT	B SST.X, Women's		21	27 40 55	
		•		24	24 35 48	DIVIN MINI OF THE
BRAKES		•				BIKE WEIGHT
BRAKES PEDALS	ΔΙΙ	Axle diameter	9/16"	28	21 30 41	27.7 lb.
BRAKES PEDALS	Allo	Axie aiameter	2/10	32	18 26 36	12.58 kg.
PEDALS						
PEDALS		y w/integral bolt	35 <i>0</i>	_		
PEDALS SEAT BINDER .	Allo	oy w/integral bolt Inner diameter, mm	35.0 (1 on XS), replaceable	COL		
PEDALS SEAT BINDER .	Allo	oy w/integral bolt Inner diameter, mm	35.0 (1 on XS), replaceable	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS	Allo	oy w/integral bolt Inner diameter, mm		COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange	Allo	oy w/integral bolt Inner diameter, mm vater bottle mounts	(1 on XS), replaceable	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange FIT Frame	Allo	oy w/integral bolt Inner diameter, mm vater bottle mounts XS	(1 on XS), replaceable	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange FIT Frame S Rider height I	Allo	oy w/integral bolt Inner diameter, mm vater bottle mounts XS 64	(1 on XS), replaceable S M 66 68	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange FIT Frame S Rider height I	Allo	y w/integral bolt Inner diameter, mm vater bottle mounts XS 64 163	(1 on XS), replaceable S M 66 68 168 174	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange FIT Frame S Rider height II	2 wer Size Inches Cm Width, mm	y w/integral bolt Inner diameter, mm vater bottle mounts XS 64 163 600	S M 66 68 168 174 600 600	COL		White • Black/Silver decal • White fork
PEDALS SEAT BINDER . ADDITIONALS derailleur hange FIT Frame S Rider height I C Handlebar V Stem L	2 w er Size Inches Cm Width, mm Length, mm	y w/integral bolt Inner diameter, mm vater bottle mounts XS 64 163 600 n 60	S M 66 68 168 174 600 600 75 75	COL		White • Black/Silver decal • White fork
PEDALS	2 wer Size Inches Cm Width, mm	y w/integral bolt Inner diameter, mm vater bottle mounts XS 64 163 600	S M 66 68 168 174 600 600	COL		White • Black/Silver decal • White fork

Crank Seatpost

Steerer

Length, mm

Length, mm

Length, mm

170

300

175.2

170

300

175.2

175

350

190.2

FRAMESET	
MAIN TUBES Silver series 7005 aluminum	
STAYS Silver series 7005 aluminum	
Frame weight	3.9 lb (1.77 kg)
FORK RockShox Judy TT	
Travel, mm	80
Axle-crown length, mm	451
HEADSET STR Aheadset	
Size	25.4/34.0/30.0
Stack height, mm	23.0

HANDLEBAR Bontrager Crowbar Sport, 25mm rise

STEM Bontrager Sport

SHIFT LEVERS Shimano EZ Fire+ EF33

CRANKSET Shimano Altus 42/34/24

BB Shimano BB-CT92E

CASSETTE SRAM 5.0 11-32, 8spd

FRONT TIRE IRC Mythos XC

REAR TIRE IRC Mythos XC

SPOKES DT 14G stainless

INNER TUBES Schraeder valve

SEATPOST Bontrager Sport

BRAKES Alloy direct pull

SEAT BINDER Alloy w/integral bolt

PEDALS Alloy platform

SADDLE WTB SST.X

BRAKE LEVERS Integrated brake/shift

GRIPS Serfas dual density

FT DERAILLEUR Shimano Altus

RR DERAILLEUR Shimano Alivio

CHAIN IG-31

Clamp diameter, mm

Cable routing

Bolt hole circle, mm

Chain length (links)

Shell x axle, mm

Chain type

FRONT WHEEL Alloy, QR hub, 32°, Bontrager Corvair rim E.R.D., mm

REAR WHEEL Shimano RM40 hub, 32°, Btrg Corvair rim

E.R.D., mm Rim strip

Rim strip

Tire size

Tire size

Rear mm

Outer diameter, mm

Inner diameter, mm

Axle diameter

ADDITIONALS 2 water bottle mounts (1 on XS), rack

Attachment

Steerer clamp height, mm

CONTROLS

DRIVETRAIN

WHEELSET

OTHER

mounts

Big game fish known for its strength and beauty.

Why this Fisher rocks:

Rider: Athletic every-day or Adventure rider

Frameset

25.4

41.0

Top pull

Riveted

3/32

106

542

542

Velox 19mn

Velox 19mm

26 x 2.1

73 x 121, Square

Plate style w/34.9mm clamp

Genesis geometry-stable, fast

Silver series aluminum- super strong

Wheelset

Bontrager rims- light, strong, smooth braking IRC Mythos XC tires- good all-round treads

Components

Enthusiast level- Shimano Alivio, Bontrager accessories

Judy TT fork- great steering control

Bontrager Crowbar- riser for comfort, wide for control

Attention to comfort points- user friendly pedals, wide bars for control, and comfy saddle

BIKE WEIGHT 28.5 lb. 12.94 kg.

COLORS

Black Metallic / Yellow Metallic • Red/Black decal • Black fork Silver Metallic/Titanium • White/Silver decal • Black fork

FIT						
Frame	Size	XS	S	M	L	XL
Rider height	Inches	65	68	72	75	76
	Cm	166	174	182	190	193
Handlebar	Width, mm	620	620	620	620	620
Stem	Length, mm	60	75	90	105	105
	Angle	15	15	15	15	15
Crank	Length, mm	170	170	170	170	170
Seatpost	Length, mm	300	300	350	350	350
Steerer	Length, mm	170.2	170.2	185.2	205.2	225.2

Genesis Unplugged

For 2002

These hardtails were updated in the 2001 model year. The frame is unchanged.

Geometry

The regular Genesis hardtails uses Gary
Fisher's race-proven Genesis Geometry. These
bikes use a slightly more recreational version of
that race design. The rider sits more upright,
and the steering has been tuned to offer
increased stability with a little less weight on the
front wheel.

Ride

These bikes are stable, yet still plenty nimble for some really fun singletrack riding. The most noticeable difference in the ride will be the slightly more comfortable, and less 'committed' riding position. Other than that, they still ride like a Fisher.

Frame details

These frames use our Cro-Moly and Hi-tensile steel technology. Steel is very durable, and has great ride characteristics tuned by 100 years of perfecting. With Fisher's intelligent design, its also astoundingly light weight.

These frames have 2 water bottle mounts.

Fit Information Reminder

When considering the "Rider Height" portion of the Fit information on each page, bear in mind that we made these fit estimations with the stem at its highest point. With Ahead stems, that means all the spacers were under the stem. With quill stems, the handlebars reach their maximum height with the stem pulled up to the minimum insertion line. With adjustable stems, it's calculated with the stem at a 40 degree angle. Lowering the bars, or changing the parts, or changing the stem angle, changes the fit of the bike as well as its Rider Height. Primarily, if you lower the stem, the bike will fit a smaller person. If you make the stem more upright, it will also make the bike fit a smaller person.

	Frame sizes	XS	S	M	L	XL	XXL
	Head angle	70.5	71.0	71.5	71.5	71.5	72.0
	Seat angle	74.5	74.0	74.0	73.5	73.5	73.0
S							
MILLIMETERS	Standover	646	701	743	772	811	
Ę	Seat tube	324	401	451	490	540	604
Ξ	Head tube	105	125	145	165	185	225
吕	Eff top tube	545	568	586	604	622	640
∄	Chainstays	415	415	415	415	415	415
≥	BB height	288	291	295	295	295	295
	Offset	38.0	38.0	38.0	38.0	38.0	38.0
	Trail	79	75	72	72	72	69
	Wheelbase	1022	1037	1053	1067	1085	1093
	Standover	25.4	27.6	29.3	30.4	31.9	
[T]	Seat tube	12.8	15.8	17.8	19.3	21.3	23.8
INCHES	Head tube	4.1	4.9	5.7	6.5	7.3	8.9
2	Eff top tube	21.5	22.4	23.1	23.8	24.5	25.2
=	Chainstays	16.3	16.3	16.3	16.3	16.3	16.3
	BB height	11.3	11.5	11.6	11.6	11.6	11.6
	Offset	1.5	1.5	1.5	1.5	1.5	1.5
	Trail	3.1	3.0	2.8	2.8	2.8	2.7
	Wheelbase	40.2	40.8	41.5	42.0	42.7	43.0
		13.2	10.0	11.0	12.0		20.0

ED 1) (EGET					I					
FRAMESET	Davible	h								Wahoo
	Double-		oly steel							Wallot
	RockSh	•								
TORIK		el, mm		80					Thin, silvery fish. E	xclamation of excited fun
		-crown length, mm	ı	451.0						
HEADSET	Steel									
	Size			25.4/34.0/30.0						
	Stack	k height, mm		23.0						
CONTROLC										
CONTROLS	Steel, 3	O								
HANDLEBAR		omm rise np diameter, mm		25.4						
STEM	Bontrag			2).4						
		er clamp height, n	im	40.0						
SHIFT LEVERS	S Shimano	EF29								
	RS Integrat	-	it				77	1	,	
GRIPS	Serfas d	lual density					•	Fisher ro		
DRIVETRAIN	N					R	Rider: Do	ubletrack	rider or athle	tic newbie
FT DERAILLEU	JR Shiman	c050				F	rameset			
		le routing		Top pull		1	Adapt	ed Genesi	s geometry- mo	re upright design
	Attac UR Shiman	chment		31.8 mm/ 1 1/4"		1	is stable	e, comforta	able	1 0 0
	FCM55,		/2/			1	Steel-	tough and	d durable	
CRANKSEI		hole circle, mm	24	Riveted				tough und	a durable	
ВВ	Cartridg					V	Vheelset	_	_	
		l x axle, mm		68 x 113, Square		1	Matri	x rims- lig	ht, strong, smo	ooth braking
CHAIN	KMC Z-7						IRC N	Mythos XC	tires- great all-	round treads
		in type		3/32"		_	'omnono	ata		
CASSETTE	SRAM 5	in length (links) 50 11-32 8sn:	d	110		1	Compone		l- Alivio, Acera	
WHEELSET	SitAin S	11 32, 035	4						ŕ	
	L Alloy, Q	D huh 360 I	Matrix 550) rim			Rocks	Shox fork-	comfort and co	ontrol over bumps
I RONT WILL		D., mm	viati ix 550	559		1	Riser	bar- riser	for comfort, wi	de for control
	Rim			Rubber		1	Atten	tion to cor	nfort points- us	ser friendly pedals,
FRONT TIRE .	IRC Myt	hos XC				1			trol, and comfy	
DE A D WILLEE	Tire		260 14-6	26 x 1.95		1			· ·	
KEAR WHEEL	Shiman	D., mm	30°, Mali	559						
	Rim			Rubber						
REAR TIRE	IRC Myt	hos XC			GEA	RIN	G			
	Tire			26 x 1.95	0.2		34 42			
SPOKES	14G stai			-	11		81 100			
		t, mm		265, 3x 262/263, 3x	12		74 92			
INNER TURES	Schraed	, mm ler valve		202/203, 3X	l					
	······ Scinaca	ici vaive			14		64 79			
OTHER	Alloy mi	icro-adjust			16		56 69			
SEATPOST	•	er diameter, mm		29.2	18		50 61			
SADDLE	Fisher F			27.2	21	30	42 52			
	Alloy di				26	24	34 42			BIKE WEIGHT
PEDALS	Platforn	n			32	20	28 34			32.1 lb.
		diameter		9/16"						14.57 kg.
SEAT BINDER	Kalloy M									
ADDITIONALC		r diameter, mm	ha /1 am VC	31.8	COL					
mounts	2 water	bottle moun	IS (I OII AS	, 5), rack			=	llic Dark Gre	en • White/Dark Si	ilver decal •
illoulits							tallic fork	White City	- Matallia dasal - I	Diagle fault
					Віасі	K/ MIII	ror Sliver	wnite/Slive	r Metallic decal • I	SIACK TOPK
FIT										
Frame	Size	XS	S	M	L		XL	XXL		
Rider height	Inches	68	70	74	76		79	81		
	Cm	173	179	188	192		202	207		
Handlebar Stom	Width, mm	580	580	600	600		600	620 130		
Stem	Length, mm Angle	90 25	90 25	110 25	110 25		130 25	130 25		
Crank	Length, mm	170	170	175	175		175	25 175		
Seatpost	Length, mm	300	300	350	350		350	350		
Steerer	Length, mm	206	226	246	266		286	325		
							· · · · · · · · · · · · · · · · · · ·			

FRAMESET										Mamba
MAIN TUBES	Hi Tensi	le steel								Mailina
	Hi Tensi	le steel								
FORK	SR XCC							A great dance	e you can do on yo	our bike.
		el, mm		63						
		crown length, m	n	448						
HEADSEI	Steel			25 //2 / 0/20 0						
	Size	height, mm	2	25.4/34.0/30.0 23						
	Suck	: neigni, mm		23						
CONTROLS										
HANDLEBAR	Steel, 30	Omm rise								
		ıp diameter, mm		25.4						
STEM	Alloy Ah	ead type								
		er clamp height, 1	nm	41.0		Wh	y this	Fisher roc	ks:	
	S Shimano					Ric	der: Do	ubletrack	rider or casu	al newbie
	RS Integrat		ft				ameset			
GRIPS	Serfas d	ual density				LIS			goomet	no unnight dealer-
DRIVETRAI	IN									ore upright design
	UR Shimano	C051						e, comforta		
		e routing	Top p	ull, (W-down)			Steel-	tough and	durable	
		chment	31.	.8 mm/ 1 1/4"		3371	1	_		
	EUR Shimand					l wr	eelset			.1.1.1.
CRANKSET .	FCM35,	• •	/28				Matri	x rims- ligh	nt, strong, sm	ooth braking
		hole circle, mm		Riveted					ection tires- bi	
BB	Semi-ca					1	reduced	l knob size	for easy pedal	ing
CHAIN		x axle, mm	73 x	121.5, Square					V -	<u> </u>
CHAIN	KMC Z-5			2/22"		Co	mponei		411 4 04	1 (77) . 1 1
		n type n length (links)		3/32" 110			Recre	eation level-	· Alivio, 24 spe	eed, 'V' type brakes
CASSETTE	Sun Rac		d	110			Rocks	Shox fork-	comfort and co	ontrol over bumps
		c 13 30, 13p	u							ide for control
WHEELSET			==0 :							
FRONT WHEE	EL Alloy, QI E.R. Rim	D., mm	Matrix 550 rim	1 559 Rubber		,			nfort points- us rol, and comfy	ser friendly pedals, saddle
	Bontrag	size		26 x 1.95						
REAR WHEEL	L Alloy, QI E.R.A Rim	D., mm	Matrix 550 rim	1 559 Rubber						
	Bontrag	er Connectionsize	on	26 x 1.95	GEA	RING		1		
SPOKES	14G stai				I	28 38		1		
		t, mm		265, 3x		56 77	7 97			
INNED TURE	Rear,			262-263, 3x	15	49 66	5 84			
INNER TUBES	S Schraed	er vaive			17	43 59	9 74			
OTHER					19	39 52				
SEATPOST .	Alloy mi	cro-adjust								
		r diameter, mm		29.2		33 4				
	Fisher P				25	29 40	0 50			
	Alloy dir			9/16"	30	24 33	3 42			BIKE WEIGHT 32.7 lb.
SEAT BINDER	R Bolt, M6			31.8						14.85 kg.
ADDITIONAL: mounts	S 2 water	bottle moun	ts (1 on XS, S),	rack		w Meta	-		White/Silver decaled decaled decaled to the contract of the co	• Yellow Metallic fork
					Jiive	ı weldi	iic, Reu	Diack/ Wille	accai - Silvei 10	ın
FIT										
Frame	Size	XS	S	М	L		XL	LS-M		
Rider height	Inches	68	70	74	- 76		79	73		
	Cm	173	179	188	192		201	186		
Handlebar	Width, mm	580	580	600	600		600	600		
Stem	Length, mm	90	90	110	110		130	110		
	Angle	25	25	25	25		25	40		
Crank	Length, mm	170	170	175	175		175	170		
Seatpost	Length, mm	300	300	350	350		350	300		
Steerer	Length, mm	206	226	246	266		286	246		

FRAMESET									Tarnon
	Hi Tensil								Tarpon
	Hi Tensil								•
FURK	High ten	isile steel el, mm							Big (up to 100 lbs.) game fish
		ei, mm crown length, mm		39	8				
HEADSET	Sealed			3)					
	Size			25.4/34.0/30.	0				
	Stack	height, mm		36.	5				
CONTROLS	 								
HANDLEBAR	Steel, 30	Omm rise							
		ıp diameter, mm		25.	4				
STEM	Steel AT								
CHIET LEVED		er clamp height, mi	n			Why this	s Fisher ro	ocks:	
	RS Shimano RS Integrato								ler or newbie
	Serfas d					Framese			
		aai aciisity				1		de geometre	more upright design
DRIVETRAI	IN IUR Shimano	COE1					ptea Genes ble, comfor		- more upright design
FIDERAILLE		e routing	τ	p pull, (W-down	,)				
		e routing hment		31.8 mm/ 1 1/4		Stee	el- tough ar	nd durable	
RR DERAILLE	EUR Shimano			/-		Wheelse	t		
CRANKSET .	FCM35,	alloy, 48/38/	28					ght, strong,	smooth braking
	Bolt i	hole circle, mm		Rivete	d				•
BB	Semi-ca	-						nection tires te for easy p	s- big for comfort,
		x axle, mm	6	8 x 122.5, Squar	e	reduce	ea knob siz	e for easy po	edaling
CHAIN	KMC Z-5			2/22	,,,	Compon	ents		
		n type n length (links)		3/32 11		Rec	reation lev	el- 21 speed,	'V' type brakes
CASSETTE .	Sun Rac	U		11		1		-	comfort, wide for con-
WHEELSET		,-				trol			
	L Alloy, QF	R hub. 36°. M	atrix 550 r	im			ntion to co	mfort points	s- user friendly pedals,
		D., mm	x 550 I	55	9			ntrol, and co	
	Rim :	1		Rubbe	r	"""	,ais 101 COI		Judaic
FRONT TIRE	Bontrage		1	26 : -	_ ا	1			
DEVD WITE	Tire : Alloy, QF		atriv 550 -	26 x 1.9 im	7				
LINEAR WHEEL		7. Hub, 30°, IV D., mm	ati ix 330 l	55	9				
	Rim :			Rubbe					
REAR TIRE .	Bontrag	er Connection	1		GEA	RING			
	Tire s			26 x 1.9	5	28 38 48			
SPOKES	14G stair			265.0	13	56 77 97			
	Frons Rear,	t, mm		265, 3 262/263, 3	x	49 66 84			
INNER TUBES	S Schraed			2021203, 3	17	43 59 74			
OTHER					_				
	Alloy mi	cro-adiust			19	39 52 66			
52,311,551 .	•	r diameter, mm		29.	22	33 45 57			
SADDLE	Fisher P	added			25	29 40 50			
	Alloy dir				30	24 33 42			BIKE WEIGHT
PEDALS	Platform								31.1 lb.
		diameter		9/16	7"				14.12 kg.
SEAT BINDER	R Bolt, M6			21	o COL	ODG			
ADDITIONAL	Inner S 2 water	r diameter, mm bottle mount	s (1 on YS 4	<i>31.</i> 5). rack	COL		Motallia - Di	201/White de-	J. Doorl White fort
mounts	water	_ottle mount	. (1 JII AJ, (-,, . acr		· · ·		=	al • Pearl White fork ecal • Silver Metallic fork
					31146	metame/blu	c metanic *	mine/Silver de	.car : Sirver Metalife IVIA
FIT									
FIT	Sizo	VC	S	NA.		VI	100	I C-N4	
Frame Rider height	Size Inches	XS 67	S 69	М 72	L 75	XL 79	LS-S 67	LS-M 71	
Rider height	inches Cm	67 170	69 175	72 184	75 191	79 200	67 170	7 I 181	
Handlebar	Width, mm	580	580	600	600		580	600	
Stem	Length, mm	90	90	105	120	135	105	105	
""	Angle	25	25	25	25	25	40	40	
Crank	Length, mm	170	170	175	175	175	170	170	
Seatpost	Length, mm	300	300	350	350	350	300	300	
Steerer	Length, mm	144	164	184	204	222	164	184	

Comfort Series

For 2002

Gary's Comfort series bikes address an emerging segment of the bike market were a big hit in the introductory year of 2001. They are unchanged for 2002 (why mess with success?).

Geometry

The Comfort series is designed with geometry which puts you in a full 'heads up' position. The dimensions look a bit odd on paper, but there is a reason; we designed these frames from the ground up to use suspension seatposts and adjustable stems.

Ride

For the recreational cyclist, these bikes are an epiphany. Instead of focusing on race qualities like carving turns, or power uphill, the Comfort series' first feature is comfort. Some aficionados will point out that an upright position is not aero, and is therefore inefficient. We'll point out that if you are off the bike because your back hurts, aerodynamic efficiency isn't worth much. Furthermore, the Comfort series rider is not trying to beat the clock, they just want to have fun.

Riding a Comfort series bike, you will enjoy anything from a spin around the neighborhood to commuting and day tours. The comfort features, like suspension fork, sprung saddle, or seatpost are all tuned to react at low bump forces, so you don't have to be going really fast or hit big bumps to enjoy their benefits. The smooth tires make these bikes pretty fast, but the large footprint also makes them stable on dirt footpaths or Rails-to-Trails tours.

Frame details

The Comfort series uses Silver series aluminum frame technology.

Designed for suspension seatposts and adjustable stems, this frame has a unique look to it. The seat tube is short compared to other bikes because a suspension seatpost has a section which cannot be lowered into the frame. This means the normal seat height is quite a ways above the top tube. Meanwhile, this rider wants to sit upright. If a suspension seatpost were put on a 'normal' frame, the head tube would be too short to position the handlebars for a comfortable, bent-elbow position.

Comfort series bikes have 2 water bottle mounts, except the S and Ladies frames. These frame sizes do not have enough seat tube to allow a water bottle mount to be used.

Fit Information Reminder

When considering the "Rider Height" portion of the Fit information on each page, bear in mind that we made these fit estimations with the stem at its highest point. With Ahead stems, that means all the spacers were under the stem. With quill stems, the handlebars reach their maximum height with the stem pulled up to the minimum insertion line. With adjustable stems, it's calculated with the stem at a 40 degree angle, and many of these stems have very long quills. Lowering the bars, or changing the parts, or changing the stem angle, changes the fit of the bike as well as its Rider Height. Primarily, if you lower the stem, the bike will fit a smaller person. If you make the stem more upright, it will also make the bike fit a smaller person.

	Frame sizes	S	M	L	XL	M-L
	Head angle	70.5	70.5	70.5	70.5	70.5
	Seat angle	73.5	73.0	73.0	72.5	73.5
Š						
IMETERS	Standover	679	716	760	810	595
H	Seat tube	368	431	495	533	419
$\overline{\mathbb{N}}$	Head tube	125	145	185	225	145
Ţ	Eff top tube	550	574	598	610	574
	Chainstays	425	425	425	425	425
\geq	BB height	291	291	291	291	291
	Offset	38.0	38.0	38.0	38.0	38.0
	Trail	79	79	79	79	79
	Wheelbase	1029	1049	1053	1083	1049
	Standover	26.7	28.2	29.9	31.9	23.4
\mathbf{S}	Seat tube	14.5	17.0	19.5	21.0	16.5
H	Head tube	4.9	5.7	7.3	8.9	5.7
INCHES	Eff top tube	21.7	22.6	23.5	24.0	22.6
—	Chainstays	16.7	16.7	16.7	16.7	16.7
	BB height	11.5	11.5	11.5	11.5	11.5
	Offset	1.5	1.5	1.5	1.5	1.5
	Trail	3.1	3.1	3.1	3.1	3.1
	Wheelbase	40.5	41.3	41.5	42.6	41.3

FRAMESET MAIN TUBES Silver series 7005 aluminum STAYS Silver series 7005 aluminum	Presidio
FORK RockShox Judy TT Travel, mm 80 Axle-crown length, mm 451	A popular pplace to begin your ride at the south end of San Francisco's Golden Gate bridge.
HEADSET Steel	
CONTROLS	
HANDLEBAR Alloy, 50mm rise	
Clamp diameter, mm 25.4 STEM Alloy quick change, adj. rise, direct connect Steerer clamp height, mm 41.0	
SHIFT LEVERS SRAM DualDrive	Why this Fisher rocks:
BRAKE LEVERS Alloy, direct pull	Rider: Bike path, commuter, or comfort rider
GRIPS Serfas dual density DRIVETRAIN	Frameset
RR DERAILLEUR SRAM ESP 7.0	Comfort geometry- special design for suspension post and adjustable stem
CRANKSET SRAM DualDrive, 38T, w/chainguard Bolt hole circle, mm Riveted	Silver series aluminum light weight
BBCartridge Shell x axle, mm , Square	Wheelset
CHAIN KMC Z-72	Matrix rims- light, strong, smooth braking
Chain type 3/32" Chain length (links)	Acrobat tires- smooth for speed, and wide for low- pressure comfort
CASSETTE SRAM 5.0 11-32, 8spd	Components Sophisticated recreation level- SRAM DualDrive
	Road-type gearing- easy uphills, plus you don't
WHEELSET	have to over-spin on the downhill
FRONT WHEEL Alloy, QR hub, 32°, Matrix 750 rim E.R.D., mm 561	Suspension fork, seatpost- soft springs for comfort suspension
Rim strip Rubber FRONT TIRE Hutchinson Acrobat	Attention to comfort points- user friendly pedals,
Tire size 26 x 1.95 REAR WHEEL SRAM DualDrive hub, 32°, Matrix 750 rim E.R.D., mm 561	wide bars for control, and comfy sprung saddle
Rim strip Velox 19mm REAR TIRE	GEARING
<i>Tire size</i> 26 x 1.95 SPOKES 15G stainless	
Front, mm 261, 3x	11 91 12 83
Rear, mm , 3x INNER TUBES Schraeder valve	14 71
OTHER	16 62
SEATPOST Suspension, alloy	18 55
Outer diameter, mm 27.2 SADDLE Oasis Webspring	21 47
BRAKES Alloy direct pull	26 38 BIKE WEIGHT
PEDALS Platform	32 31 34.3 lb.
Axle diameter 9/16" SEAT BINDER Alloy w/quick release	15.57 kg.
Inner diameter, mm 31.8 ADDITIONALS 2 water bottle mounts, rack mounts (1 bottle/no rack on Women's)	COLORS Silver Metallic/Metallic Red • Silver/White decal • Silver fork
EIT .	
FIT Frame Size S M L	XL
Rider height Inches 72 74 77	79
Cm 182 187 195	200
Handlebar Width, mm 600 600 600 Stem Length, mm 125 125 125	600 125
Angle 35 35 35	35
Crank Length, mm 170 170 170	170
Seatpost Length, mm 300 300 350 Steerer Length, mm 225 245 285	350 325
Steerer Length, IIIII 223 243 205	JLJ

					7			
FRAMESET	C:1	wies 7005 - 1	ıma İm					Solstice
MAIN TUBES .					1			2013t1CE
STAYS			ıminum			TPI	la constata de la Calle de la	and the Comment
FORK				-	,	I ne	longest day of the year (or sh	stice. A great day to ride!
		el, mm		7. 45			Soi	stice. A great day to ride:
HEADSET		crown length, mm		4)	•			
HEADSET	Size			25.4/34.0/30.0	2			
		height, mm		23.4/34.0/30.0				
	Stack	neignt, mm		2.	'l			
CONTROLS								
HANDLEBAR .	Steel 50	nmm risa						
HANDLEDAN .		op diameter, mm		25.4	í			
STEM			di risa dira		f			
31LW		er clamp height, m		41.	2	3371 (1)	E. 1	
SHIFT LEVERS				41.0	Ί	, ,	Fisher rocks:	
		•	II C F		1	Rider: Bik	ke path, commuter, oi	r comfort rider
BRAKE LEVERS	•	•			1	Frameset	•	
GRIPS		uai uensity					ant doom to the total	lasion for
DRIVETRAIN						Comfo	ort geometry- special d	lesign for suspension
FT DERAILLEU	R Shimano	T301			1	post and	d adjustable stem	
	Cable	e routing		Down pu	7	Silver	series aluminum- ligh	nt weight
	Attac	hment		34.9 mm/ 1 3/8	"			
RR DERAILLEU	R Shimand	Deore SGS			1	Wheelset		
CRANKSET	Shimand	T303 48/38	/28, w/cha	inguard	1	Matri	x rims- light, strong, s	smooth braking
		hole circle, mm		Rivete	d		0	eed, and wide for low-
BB	Cartridg	e			1			eeu, and wide for low-
	Shell	x axle, mm		73 x 116, Squar	e	pressure	e comfortt	
CHAIN	KMC Z-7	2			1	Componer	nts	
	Chai	n type		3/32	"		ation level- Nexave 30	0
		n length (links)		11.	2	1		
CASSETTE	SRAM 5	.0 11-32, 8spd					type gearing- easy up	hill, don't have to
WHEELSET						over-spi	n on the downhill	
FRONT WHEEL	Alloy Of	2 hub 32° M	atrix 750	im		1	nsion fork, seatpost- s	oft springs for com-
I WOINT WITELL		7. mm D., mm	GUIN 130 I	56.	, [fort sus		ore springs for com-
	Rim .			Rubbe		•	-	
FRONT TIRE				10000	1		tion to comfort points-	
	Tire :			26 x 1.9.	5	wide ba	rs for control, and con	nfy sprung saddle
REAR WHEEL .			2°, Matrix		1			
		D., mm		56	1			
	Rim .			Velox 19mn				
REAR TIRE	Hutchins	son Acrobat			c=:	NI C	1	
	Tire :			26 x 1.9.	GEAF			
SPOKES	14G stair	nless				28 38 48		
	Fron	t, mm		261, 3.	r 11	67 91 114		
	Rear,	mm		258/259, 3.	1	61 83 105		
INNER TUBES	Schraed	er valve						
OTHER						52 71 90		
SEATPOST	Sucnone	ion alloy			16	46 62 79		
JEAIPUSI	•	r diameter, mm		27		41 55 70	1	
SADDLE				2/			1	
SADDLE						35 47 60	1	
BRAKES					26	28 38 48	1	BIKE WEIGHT
PEDALS				21.5	" 32	23 31 39	1	34.3 lb.
		diameter		9/16			1	15.57 kg.
SEAT BINDER .	•	•]	
ADDITIONALO		diameter, mm		31.0	COLO)RS		
ADDITIONALS		pottie mount	s, rack mou	ints (1			/Metallic Deep Blue • Silve	er/White decal • Warm
bottle/no rack o	on women's)					r Metallic fork	, stame Deep Dide - Slive	, accui Huilli
					Jiive	. Metallic IOIK		
FIT								
	Size	S	М	L	XL			
	nches	72	74	77	79			
_	nches Cm	12 183	14 188	17 195	200			
		600	600	600	600			
	Nidth, mm							
	Length, mm	125	125	125	125			
	Angle	35 170	35 170	35 170	35 170			
	_ength, mm	170	170	170	170			
1	_ength, mm	300	300	350	350			
Steerer L	_ength, mm	225	245	285	325			
L								

					7				
FRAMESET									Napa
	Silver se								izaha
	Silver se		ninum				ъ.	1 10	
FORK	SR XCC-			(2				_	rea, near wineries and ho he location of the opening
		el, mm -crown length, mm		63 448			springs.	•	mountain bike World Cup
HEADSET	Steel	crown ungus, mm		110					
	Size			25.4/34.0/30.0					
	Stack	height, mm		23.0					
CONTROLS									
HANDLEBAR	Steel, 50								
		ıp diameter, mm		25.4					
SIEM	Alloy qu	ick change, adj	. rise, direc			1371 +1 1	Et -1	-1	
SHIFT I FVFD	Steere RS Shimano	er clamp height, mm		41.0		Why this			
	RS Integrate					Rider: Bik	ke path, c	ommuter, or co	omfort rider
	Serfas d					Frameset			
DRIVETRAI									gn for suspension
	UR Shimano	CO51					d adjustab		- <u>*</u>
		e routing		Down pull		Silver	series alu	ıminum- light v	veight
1	Attac	chment	3.	4.9 mm/ 1 3/8"					0 -
	EUR Shimano					Wheelset			.1.1.2.
CRANKSET .	Shimand		28, w/chain			Matrix	x rims- lig	ght, strong, smo	oth braking
		hole circle, mm		Riveted		Acrob	at tires- s	mooth for speed	d, and wide for low-
ВВ	Cartridg	j e ' <i>x axle, mm</i>	7:	3 x 116, Square		pressure	e comfort		
CHAIN	KMC Z-7		/-) x 110, square		Componer	nte		
		n type		3/32"		1 1		l- Shimano C Se	rios
		in length (links)		114					
CASSETTE .	SRAM 5	.0 11-32, 8spd				Road-	type geari	ing- easy up hil	l, don't have to
WHEELSET						1	n on the o		
FRONT WHEE	EL Alloy, QF	R hub, 36°, Ma	trix 750 rin	n				k, seatpost- soft	springs for com-
		D., mm		561		fort sus	pension		
EDON'T TIDE	Rim.	1		Rubber		Attent	tion to cor	nfort points- us	er friendly pedals,
FRONT TIRE	Tire			26 x 1.95		wide ba	rs for con	trol, and comfy	sprung saddle
REAR WHEEL	L Shimand		6°, Matrix						
1		D., mm		561					
	Rim .	1		Velox 19mm			-		
REAR TIRE .	Hutchins			26 10=	GEA	RING			
SPOKES	<i>Tire</i> :			26 x 1.95		28 38 48			
JEUNES		niess t, mm		259, 3x	11	67 91 114			
1	Rear,			256/257, 3x		61 83 105			
INNER TUBES	S Schraed				14	52 71 90			
OTHER					16	46 62 79			
	Suspens	sion, alloy			18	41 55 70			
1	•	r diameter, mm		27.2		35 47 60			
	Oasis W				21				
	Alloy dir	,			26	28 38 48			BIKE WEIGHT
PEDALS	Platform				32	23 31 39			34.3 lb.
CEAT DINE		diameter		9/16"					15.57 kg.
SEAL BINDER	R Alloy w/	quick release r diameter, mm		210	COL)DC			
ADDITIONALS	S 2 water		rack mount		COLO		Doarl - Dia	ock/Dark Silver des	al • Silver Metallic fork
	k on Women's)			•	Jiive	i metanic/wille	reall Did	ick/ Dark Silver dec	aı - Siivel Metallic IOIK
FIT									
FIT	Sizo	6	М		VI	1.00	1 C 14		
Frame	Size	S 72	M 74	L 77	XL 79	LS-S	LS-M		
Rider height	Inches Cm	72 182	74 187	77 195	79 200	72 182	74 187		
Handlebar	Width, mm	600	600	600	600	600	600		
Stem	Length, mm	125	125	125	125	125	125		
5.5	Angle	35	35	35	35	35	35		
Crank	Length, mm	170	170	170	170	170	170		
Seatpost	Length, mm	300	300	350	350	300	300		
Steerer	Length, mm	225	245	285	325	225	245		

FRAMESET	1					1				0:1-1-
		Silver s	eries 7005 alum	inum						Capitola
			series 7005 alum							
FORK		High te		iii uiii				Bead	ch town just sou	ıth of Santa Cruz, California
HEADSET		Axl	e-crown length, mm		398					
		Size Stat	e ck height, mm		25.4/34.0/30.0 36.5					
CONTROLS	!									
HANDLEBAR		Stool 5	Omm rise							
STEM		Cla	mp diameter, mm		25.4					
		Stee	erer clamp height, mm							
SHIFT LEVER							Why this	Fisher roc	ke:	
GRIPS		-	ted brake/shift dual density				, and the second			comfort rider
DRIVETRAI	N						Frameset	• .	•	
FT DERAILLE			o CO51 ble routing		Down pull		Comfo			esign for suspension
DD 555	TUE.	Atta	achment		34.9 mm/ 1 3/8"		1 -	d adjustable		t woight
RR DERAILLE CRANKSET .		FCM35	, alloy, 48/38/28	w/chai			Wheelset	series aiul	ninum- ligh	r weignt
BB			t hole circle, mm artridge		Riveted			x rims- ligh	nt, strong, si	mooth braking
		She	ll x axle, mm		73 x 124.5, Square				nooth for spe	eed, and wide for low-
CHAIN			:51 1in type		3/32"		-	e comfort		
CASSETTE .			ain length (links) ce 13-34, 7spd		112		Componer Recre		Shimano C	Series
WHEELSET	1						1			
			R hub, 36°, Mat	rix 550				n on the d		nill, don't have to
FRONT TIRE		Rin	P.D., mm n strip		559 Rubber		Suspe pension		oost- soft sp	rings for comfort sus-
FRONT TIRE		Tire	e size		26 x 1.95		1 *		fort points-	user friendly pedals,
REAR WHEEL		E.R	R hub, 36°, Mat 2.D., mm	rix 550	559					fy sprung saddle
REAR TIRE .			<i>i strip</i> nson Acrohat		Velox 19mm			•		
		Tire	e size		26 x 1.95	GEAF	RING			
SPOKES			ninless nt, mm		265, 3x		28 38 48 56 77 97			
		Rea	r, mm		262/263, 3x		49 66 84			
INNER TUBES	s	Schrae	der valve				43 59 74			
OTHER							39 52 66			
SEATPOST .		•			27.2		33 45 57			
SADDLE			ter diameter, mm Vehspring		27.2		28 38 48			
BRAKES			, ,				20 30 40 3 2 29 37			DIVENIER
PEDALS		Platfor	m		0/1/"	3 4	<u> </u>			BIKE WEIGHT 34.3 lb.
SEAT BINDER	₹	Alloy w	e diameter /quick release		9/16"					15.57 kg.
ADDITIONALS	S		er diameter, mm r bottle mounts,	rack me	31.8 ounts (1	COLC				
bottle/no rack						Silve fork	r Metallic/Slate	Blue Metallic	Black/Silver	decal • Silver Metallic
FIT						_				
Frame	Size		S	М	L	XL	LS-S	LS-M		
Rider height	Inches		68	71	74	76	68	71		
	Cm		172	180	187	192	172	180		
Handlebar	Width,			600	600	600	600	600		
Stem	Length	, mm	110	110	110	110	110	110		
Crank	Angle	mm	40 170	40 170	40 170	40 170	40 170	40 170		
Seatpost	Length Length		300	300	350	350	300	300		
Steerer	Length		164	184	222	264	164	184		

City/Path Series

For 2002

These frames remain unchanged from 2000.

Geometry

Most of our Hybrid frames are just that- a blend of road and mountain bike geometries. They use lightweight, large diameter 700c wheels for speed and a smooth ride. They use mountain bike angles and wheelbase dimensions for stability and a more upright position.

The Fast City has an unique geometry for this type of bike; it has a focus on performance, with other hybrid features being secondary. This is the bike for those who always thought a hybrid made sense but the ride was too docile.

Ride

Our Hybrid bikes offer stable handling and steady tracking. They smoothly glide over the ground, and are not as reactive to weight changes or bumps and other irregular terrain. This makes them ideal for all-round riding, commuting, or those just getting into cycling.

Frame details

The aluminum hybrid frames use Silver series frame technology. With this frame, somewhat oversize tubing creates a rigid structure between the bottom bracket and head tube, for pedaling efficiency. But we didn't overdo the stiffness; our Silver series hybrids are very comfortable and shock absorptive.

The Fast City, being a performance-oriented hybrid, is equipped with our premium Platinum butted ZR9000 tubeset.

Our most economical Hybrid is the Tiburon. This bike uses a hi-tensile steel frame. On this bike, we've focused on providing the best ride for the cost. By carefully designing the frame geometry, tubing wall thicknesses, and tubing diameters, we've managed to create a bike that rides like it should cost a lot more. This allows riders a viable high quality alternative to chain store bikes which don't ride nearly as well.

Hybrid bikes have 2 water bottle mounts, except the Ladies sizes. These frame sizes do not have enough seat tube to allow a water bottle mount to be used.

	Frame sizes	XS	S	M	L	XL	W-M
	Head angle	70.0	70.0	70.5	70.5	71.5	70.5
	Seat angle	74.5	74.0	74.0	73.0	73.0	74.0
Ų	_						
MILLIMETER	Standover	654	685	731	769	817	603
-i	Seat tube	330	381	445	508	572	445
₹	Head tube	90	90	105	105	125	125
]	Eff top tube	538	544	548	565	581	547
₫	Chainstays	445	445	445	445	445	445
≥	BB height	281	281	281	281	281	281
	Offset	50.0	50.0	50.0	50.0	50.0	50.0
	Trail	74	74	70	70	64	70
	Wheelbase	1055	1056	1056	1062	1069	1056
	Standover	25.8	27.0	28.8	30.3	32.2	23.7
T] V	Seat tube	13.0	15.0	17.5	20.0	22.5	17.5
Ę	Head tube	3.5	3.5	4.1	4.1	4.9	4.9
INCHES	Eff top tube	21.2	21.4	21.6	22.2	22.9	21.5
⊣	Chainstays	17.5	17.5	17.5	17.5	17.5	17.5
	BB height	11.1	11.1	11.1	11.1	11.1	11.1
	Offset	2.0	2.0	2.0	2.0	2.0	2.0
	Trail	2.9	2.9	2.8	2.8	2.5	2.8
	Wheelbase	41.6	41.6	41.6	41.8	42.1	41.6

Fast City

	Frame sizes	S	M	L	XL
	Head angle	70.5	71.0	71.5	71.5
	Seat angle	74.0	74.0	73.5	73.0
Š					
LIMETERS	Standover	695	729	757	799
[[_]	Seat tube	394	442	479	529
Ξ	Head tube	80	80	90	105
Ę	Eff top tube	590	608	628	647
	Chainstays	440	440	440	440
2	BB height	292	292	292	297
	Offset	42.0	42.0	42.0	42.0
	Trail	87	83	80	80
	Wheelbase	1081	1094	1103	1119
	Standover	27.3	28.7	29.8	31.5
INCHES	Seat tube	15.5	17.4	18.9	20.8
H	Head tube	3.1	3.1	3.5	4.1
ž	Eff top tube	23.2	23.9	24.7	25.5
Н	Chainstays	17.3	17.3	17.3	17.3
	BB height	11.5	11.5	11.5	11.7
	Offset	1.7	1.7	1.7	1.7
	Trail	3.4	3.3	3.1	3.1
	Wheelbase	42.6	43.1	43.4	44.1

FRAMESET		E1 C:1
MAIN TUBES Platinum series butted ZR9000		Fast Cit
STAYS Platinum series aluminum		
Frame weight	lb (kg)	An exciting place to be. An 80's-type expression of exclamat
FORK Manitou Luxe		
Travel, mm Axle-crown length, mm	75 450	
HEADSET STR Aheadset	430	
Size	25.4/34.0/30.0	
Stack height, mm	23.2	
CONTROLS		
HANDLEBAR Bontrager Select		
Clamp diameter, mm	25.4	
STEM Bontrager Comp		
Steerer clamp height, mm	41.0	
SHIFT LEVERS Shimano Deore RapidFire+		
BRAKE LEVERS Alloy, direct pull		Why this Fisher rocks:
GRIPS Serfas dual density		Rider: Performance commuter, extended urban
DRIVETRAIN		adventure, or Fast day tourer
FT DERAILLEUR Shimano Deore LX		F
Cable routing	Top pull	
Attachment RR DERAILLEUR Shimano Deore LX SGS	34.9 mm/ 1 3/8"	Performance hybrid geometry- mountain style comfort, road style responsiveness
CRANKSET Shimano Deore 48/36/26		· ·
Bolt hole circle, mm	64/104	Platinum series ZR9000 aluminum- light weight
BB Shimano BB-UN40		Wheelset
Shell x axle, mm	73 x 113, Square	
CHAIN Shimano HG-53		with optimal strength, low weight
Chain type	9 speed	
Chain length (links) CASSETTE SRAM 7.0 11-32, 9spd	108	IRC Duro-Tour tires- fast and tough
		Components
WHEELSET		Performance level- Shimano LX
FRONT WHEEL Bontrager Select Hybrid, 20° E.R.D., mm	592	Road gearing- easy up hill, don't have to over-sp
Rim strip	Velox 16mm	
FRONT TIRE IRC Duro Tour		
Tire size	700 x 35c	Barends- more hand positions for comfort, extra position provides more power on the hills
REAR WHEEL Bontrager Select Hybrid, 24°		
E.R.D., mm	603	
Rim strip REAR TIRE IRC Duro Tour	Velox 16mm	
Tire size	700 x 35c	GEARING
SPOKES DT 14/15G butted stainless	,	20 30 40
Front, mm	278, Radial	
Rear, mm	293/294, 2x	II II
INNER TUBES Presta valve		14 54 75 99
OTHER		16 47 65 87
SEATPOST Bontrager Sport		18 42 58 77
Outer diameter, mm	31.6	21 36 50 66
SADDLE WTB SST.X BRAKES Shimano M420, V type		1 24 24 44 52
PEDALS Shimano SPD M515, clipless		24 31 44 58 BIKE WEIGHT 25.4 lb.
Axle diameter	9/16"	
SEAT BINDER Alloy w/integral bolt	29	32 24 33 44 11.33 kg.
Inner diameter, mm	36.4	COLORS
ADDITIONALS 2 water bottle mounts, rack mo	unts, Cane	Silver Metallic/Black Metallic • Silver Metallic decal • Silver fork
Creek Ergo barends		
FIT		
Frame Size S M	L	XL
Rider height Inches 67 69	72	73
Cm 170 176	183	186
Handlebar Width, mm 620 620	620	620
Stem Length, mm 75 90	105	105
Angle 5 5	10	10
Crank Length, mm 170 175	175	175
Seatpost Length, mm 300 350 Steerer Length, mm 163.2 163.2	350 173.2	350 188.2
Steerer Length, mm 163.2 163.2	113.4	100,2

HANDLEBAR		Silver se							Utopi	ia
Track man 10				хc				1		9
CONTROLS Such Ample, max			•		50		F	AII IGE	teal society. Where we would be it more people rode t	nkes.
Star	HEADSET				428					
CONTROLS HANDLEBAR Bontrager Crowbar Sport, 25mm rise Chang filiamore may 25.4 STEM Contrager Sport Simman Chiving Rapid Free BRAKE LEVERS Shiman Aliving Rapid Free BRAKE LEVERS Shiman Sheaver 130	HEADSEI		eausei		25.4/34.0/30.0	,				
HANDLEBAR			k height, mm							
STEM	CONTROLS	Bontrag	er Crowhar Spo	ort 25mn	n rise					
Shiff LeVERS Shimano Alivo RapidFree Shimano Nexave T301 Gale rousing Anademore Anademor	HANDLEBAN .	-	•	71 t, 2511111						
Shiff LEVERS	STEM	-	•		/1./					
RRAKE LEVERS	SHIFT I FVFRS			re+	41.0		Why th	is F	Fisher rocks:	
Day tourn			•							or
FT DEFAILLEUR			•				ı		r	
Cold to receive	DRIVETRAIN	I							,	
### Silver series aluminum- light weight ### Silver series aluminum- light weight ### Silver series aluminum- light weight ### Wheelset ### Bankannan Deore LX SCS ### CRANKSET	FT DERAILLEU									i
RR DEFAILLEUR	1						ľ	•		
Shimano Nexave T411 48/38/28 Bib the direds, mm	RR DERAILLEU			;	54.7 mm/ 1 5/8		Sil	ver s	series aluminum- light weight	
BB							Wheels	et		
Chair Chai					<i>7</i> 9					
Duro-Tour tires- fast, and tough	BB				73 v 112 C		Bont	rage	er design for low maintenance	
Components	CHAIN		i a usic, mm		/ 5 x 113, square		Du	ro-T	Гour tires- fast, and tough	
CASSETTE SRAM 5.0 11-32, 8spd WHEEL.SET FRONT WHEEL Bontrager Select Hybrid, 20° E.R.D., mm Tire tire REAR WHEEL Bontrager Select Hybrid, 24° E.R.D., mm REAR TIRE IRC Duro Tour Tire tire Tire tire SPOKES DT 14/156 butted stainless Presta valve OTHER SEATPOST Bontrager Sport SADDLE Oasis CR2+ BRAKES Alloydirect pull PEDALS Alloydiloy cage w/clips and straps Abd diameter SEAT BINDER Alloydiloy cage w/clips and straps Abd diameter ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size S M Numer Class Size]	Cha				1	Compos	nen	nts	
### WHEEL SET FRONT WHEEL	CASSETTE				112					
FRONT WHEEL Bontrager Select Hybrid, 20° E.R.D., mm		SKAM S	5.0 11-32, OSPU				1			nin
READ		Bontrag	er Select Hybri	d. 20°			on th	ie do	ownhill	r
REAR WHEEL REC Duro Tour Tire size Touro x 35c	I WORT WILLE			u, 20	592		Sus	sper	nsion fork- smoothens the ride	
REAR WHEEL Bontrager Select Hybrid, 24° E.R.D., mm Rour four Ric Duro Tour Tire size 700 x 35c			1		Velox 16mm			1		
REAR WHEEL Bontrager Select Hybrid, 24° E.R.D., mm REAR TIRE IRC Duro Tour The size 700 x 35c SPOKES DT 14/15G butted stainless From, mm 293/294, 28 INNER TUBES Presta valve 293/294, 28 SEATPOST Bontrager Sport Other diameter, mm 27.2 SADDLE Oals CRZ+ BRAKES Alloy direct pull PEDALS Alloy/alloy cage w/clips and straps Add July Wintegral OR Inner diameter, mm ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L XL Rider height Inches 66 67 69 71 Rider height Inches 66 67 69 71 Radiel Bank	FRONT TIRE				700 ~ 35					
REAR TIRE IRC Duro Tour The size T00 x 355 SPOKES DT 14/156 butted stainless Front, mm 293/294, 2x 14 54 74 93 16 48 65 82 82 84 84 16 16 16 16 16 16 16 1	REAR WHEEL .			d, 24°	7 00 x 3)t					
REAR TIRE	1	E.R.	D., mm							
SPOKES	DEAD TIDE		1		Velox 16mm				1	
11 69 94 119	KLAK TIKE				700 x 350	GEAL				
INNER TUBES Presta valve 12 64 86 109 INNER TUBES Presta valve 14 54 74 93 OTHER SEATPOST Bontrager Sport Outer diameter, mm 27.2 SADDLE Oasis CRZ+ BRAKES Alloy direct pull PEDALS Alloy direct pull 12.30 kg. FURTHER SEAT BINDER Alloy Wintegral QR Inner diameter, mm 31.9 ADDITIONALS 2 water bottle mounts, rack mounts ADDITIONALS 2 water bottle mounts, rack mounts ADDITIONALS Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 170 Seatpost Length, mm 300 350 350 350 350 Source Size S M L XL SAL Size S Size S Size Siz	SPOKES	-		less		11				
INNER TUBES	1									
OTHER SEATPOST	INNER TUBES				4.7314.74, 2X	I				
SEATPOST Bontrager Sport										
SADDLE Oasis CRZ+ BRAKES Alloy direct pull PEDALS Alloy direct pull SEAT BINDER Aske diameter BINDER Miner diameter, mm ADDITIONALS COLORS Black Metallic Silver • Black/Dark Silver decal • Silver fork FIT		Bontrag	er Sport							
BRAKES Alloy direct pull PEDALS Alloy/alloy cage w/clips and straps Axle diameter SEAT BINDER Alloy w/integral QR Inner diameter, mm ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 15 Crank Length, mm 170 170 170 170 170 Seatpost Length, mm 300 350 350 350 BIKE WEIGHT 27.1 lb. 12.30 kg. COLORS Black Metallic/Metallic Silver • Black/Dark Silver decal • Silver fork	6455: 5				27.2					
PEDALS Alloy/alloy cage w/clips and straps Axle diameter SEAT BINDER Alloy w/integral QR Inner diameter, mm ADDITIONALS 2 water bottle mounts, rack mounts FIT Frame Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 15 Crank Length, mm 170 170 170 170 Seatpost Length, mm 300 350 350 350 Seatpost Length, mm 300 350 350 350									RIKE WEICHT	1
SEAT BINDER		-		and stra	ps					
### ADDITIONALS 2 water bottle mounts, rack mounts ###################################		Axle	diameter		9/16'					
FIT Frame Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 170 Seatpost Length, mm 300 350 350 350	ADDITIONAL									
Frame Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350	ADDITIONALS	2 water	pottle mounts,	rack mou	unts	Blac	(Metallic/Me	etalli	ic Silver • Black/Dark Silver decal • Silver fork	
Frame Size S M L XL Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350	EIT									
Rider height Inches 66 67 69 71 Cm 168 170 174 180 Handlebar Width, mm 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350		Size	ς	М	ı	Ϋ́Ι				
Cm 168 170 174 180 Handlebar Width, mm 620 620 620 Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350										
Stem Length, mm 90 90 105 105 Angle 15 15 15 15 Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350	,									
Angle 15 15 15 15 15 Crank Length, mm 170 170 170 170 Seatpost Length, mm 300 350 350 350		•								
Crank Length, mm 170 170 170 Seatpost Length, mm 300 350 350		•								
Seatpost Length, mm 300 350 350 350		•								
Steerer Length mm 175.2 190.2 190.2 210.2		•								
Coccion Length min 11-3.2 17-5.2 17-5.2 LIVIE	Steerer	Length, mm	175.2	190.2	190.2	210.2				

FRAMESET	Γ				1				N19
	Silver se	eries alumin	um						Nirvana
	Silver se								
		ıe weight		lb (kg)		Kinda like	heaven. A place	e you'll find your	self when you ride a bike.
FORK	Cozy ST								
		el, mm		40 450					
HEADSET	Axie-	-crown length, mi	n	430					
HEADSET	Size	causei		25.4/34.0/30.0					
		k height, mm		23.2					
		J							
1									
CONTROLS	S ≀ Bontrag	or Crowbar	Sport 25:	mm riso					
	Clan	np diameter, mm		25.4		7777		,	
STEM	Alloy qu					1 -	Fisher ro		
CLUET LEVE	<i>Steer</i> RS GripShif	er clamp height, i	mm	40.0				e commuter,	urban adventure, or
	•					Day tour			
	ERS Alloy, di Dual der					Framese			_
		,				Hybi	rid geometr	y- mountain	style comfort, road
DRIVETRA	IIN EUR Shimano	Nevavo T2	03			style r	esponsivene	ess	
FIDEKAILLE		nexave 13 le routing	U.S	Top pull, (W-down)		Silve	er series alu	minum- ligh	t weight
		e routing chment		34.9 mm/ 1 3/8"		Wheelset		0	S
RR DERAILL	EUR Shimano						=	1:1-+ C	l
	Shimano			w/chainguard			_	_	ed, smooth braking
		hole circle, mm		Riveted		Inve	rt II tires- c	omfortable w	vidth, and tough
BB	Shimano					Compone	ante		
CLIAIN		! x axle, mm		73 x 122.5, Square				l- Deore, Nex	200 300
CHAIN	HG-50			3/32"					
		in type in length (links)		112		Road	d gearing- e	asy up hill, c	lon't have to over-spin
CASSETTE .	Shimano		30, 8spd				downhill		
WHEELSET	Γ		· ,					tive gear cha	nges without letting
	EL Alloy, Qi	R hub. 32°.	Bontragei	r Fairlane rim		go of t	he grips		
		D., mm		604					
	Rim	strip		Velox 19mm					
FRONT TIRE	Bontrag								
DEAD WILES	Tire		t 220 B	700 x 38c					
REAR WHEE	L Shimand		ID, 32°, B	trg Fairiane rim 604					
	Rim	D., mm strip		Velox 19mm					
REAR TIRE .	Bontrag	1		reson 15mm			_		
	Tire			700 x 38c	GEA	RING			
SPOKES	DT 14G	stainless				28 38 48			
		t, mm		296, 3x	11	69 94 119			
ININED TUDE		mm		294/295, 3x	13	59 80 101			
	S Schraed	er vaive			15	51 69 87			
OTHER					17	45 61 77			
SEATPOST .	Suspens				20	38 52 65			
CADDIE		r diameter, mm		27.2					
	Oasis CI Alloy dir				23	33 45 57			
	Alloy all Platforn				26	29 40 50			BIKE WEIGHT
FLUALS		diameter		9/16"	30	25 35 44			29.1 lb.
SEAT BINDE	R Alloy w/			2110	I				13.21 kg.
	Inne	r diameter, mm		31.9	COL	ODC			
ADDITIONAL	.S 2 water	bottle mour	nts, rack m	nounts		ORS	allia Daan Blu	a a Cilvar/White	a daaal a Cilvar Matallia
					fork		anic Deep Blu	e • Silver/White	e decal • Silver Metallic
					1011	`			
FIT									
Frame	Size	XS	S	М	L	XL	L-M		
Rider height		68	68	69	69		69		
,	Cm	172	172	174	175		176		
Handlebar	Width, mm	620	620	620	620		620		
Stem	Length, mm	105	105	105	105	5 105	105		
	Angle	35	35	35	35	35	35		
Crank	Length, mm	170	170	170	170		170		
Seatpost	Length, mm	318	318	350	350	0 350	318		

Steerer

189.2

Length, mm Length, mm

189.2

204.2

224.2

224.2

FRAMESET								•	Zebrano
l .	Platinum			00				•	Zeni alio
STAYS	Platinum	n series alumir e weight	num	lb (kg)				A zebra-striped African ha	rdwood of unusual beauty
FORK	Manitou							1	J
		eı, mm crown length, mm		75 450					
HEADSET	STR Ahe			150					
	Size			25.4/34.0/30.0					
	Stack	height, mm		23.2					
CONTROLS									
	Bontrage	or Soloct							
HANDLEBAK	-	op diameter, mm		25.4					
STEM	Bontrage			41.0					
SHIFT LEVERS	S Shimano			41.0					
	RS Alloy, dir	•				Why tl	his I	Fisher rocks:	
	Serfas d							formance commuter, u	rhan adventure on
DRIVETRAIN						Day to			van auventure, or
	JR Shimano	Deore LX				1 *		•	
	Cable	e routing		Top pull		Frame		d geometry- mountain st	vle comfort road
		hment	_	34.9 mm/ 1 3/8"				r geometry- mountain st ponsiveness	yre connort, road
	UR Shimano					1		series aluminum- durabl	e, and light
		hole circle, mm		64/104		1			J
BB	Shimano			70 440 °		Wheels		nim light for	ooth hadda
CHAIN	Shell Shimano	x axle, mm		73 x 113, Square		1		rim- light for speed, sm	
CHAIN		n type		9 speed				ager Select tires- comfor	table width, and
		n type n length (links)		108		toug	gh		
CASSETTE	SRAM 7.					Compo	onen	its	
WHEELSET								ation level- Shimano C So	eries
	L Bontrage	er Select Hybr	id, 20°					gearing- easy up hill, doi	
	E.R.I	D., mm		592		on t	he d	gearnig- easy up iiii, uoi ownhill	it have to over-spin
EDONT TIDE	Rim s			Velox 16mm					comfort
FRONT TIRE .	IRC Durc			700 x 35c		L R	ıser	bars and adjustable stem	- cominort
REAR WHEEL	Bontrage		id, 24°	, 00 x 3)t					
	•	D., mm		603					
	Rim	•		Velox 16mm				1	
REAR TIRE	IRC Durc			700 25	GEAF				
SPOKES	Tire s		less	700 x 35c		26 36 48	_		
J. J. J. L. J.		t, mm		278, Radial	11	69 95 12	7		
	Rear,			293/294, 2x	12	63 87 116	6		
INNER TUBES	Presta v	alve			14	54 75 99	9		
OTHER					16	47 65 87	7		
SEATPOST	Bontrage				1	42 58 77			
CARRIE		r diameter, mm		31.6		36 50 66			
	WTB SS					31 44 58			BIKE WEIGHT
	Shimano					27 37 50			BIKE WEIGHT 25.4 lb.
FEDALS		diameter	ihig22	9/16"					25.4 lb. 11.53 kg.
SEAT BINDER	Alloy w/i					24 33 44	+		
ADDITIONALS	Inner 2 water		, rack m	36.4 nounts, Cane	COLC		N- 1	M-1-10 69 - M 1 19 1	-1 - 6:1 5 - 1
Creek Ergo ba			,		Silve	r Metallic/E	siack	Metallic • Silver Metallic dec	ai • Silver fork
FIT									
Frame	Size	S	М	L	XL				
Rider height	Inches	67	69	72	73				
	Cm	170	176	183	186				
Handlebar	Width, mm	620	620	620	620				
Stem	Length, mm	75	90	105	105				
Const	Angle	5	5 175	10	10				
Crank	Length, mm	170	175 250	175 350	175				
Seatpost Steerer	Length, mm Length, mm	300 163.2	350 163.2	350 173.2	350 188.2				
Steelel	Length, mill	103.2	100.2	113.4	100.2				

		1			
FRAMESET					Tiburon
MAIN TUBES Platinum series butted ZR9000)				i ibui oii
STAYS Platinum series aluminum					
Frame weight	lb (kg)			Δ town on the San	Francisco bay in Marin
FORK Manitou Luxe				County, California.	•
Travel, mm	<i>75</i>			councy, camerman	Spariisir for Stiartii
Axle-crown length, mm	450				
HEADSET STR Aheadset					
Size	25.4/34.0/30.0				
Stack height, mm	23.2				
CONTROLS					
HANDLEBAR Bontrager Select					
Clamp diameter, mm	25.4				
STEM Bontrager Comp					
Steerer clamp height, mm	41.0				
SHIFT LEVERS Shimano Deore RapidFire+					
BRAKE LEVERS Alloy, direct pull			Why this	Fisher rocks:	
GRIPS Serfas dual density		1	, and the second		1 1 .
DRIVETRAIN		1		rformance commuter, u	rban adventure, or
FT DERAILLEUR Shimano Deore LX		1	Day toure	er	
	T 11		Frameset		
Cable routing Attachment	Top pull 34.9 mm/ 1 3/8"	1		d geometry- mountain st	vle comfort road
	34.9 mm/ 1 3/8			sponsiveness	yie connort, road
RR DERAILLEUR Shimano Deore LX SGS			1	-	
CRANKSET Shimano Deore 48/36/26	641104		Silver	series aluminum- durab	le, and light
Bolt hole circle, mm	64/104		1 1 1		
BB Shimano BB-UN40	70 440 0		Wheelset		
Shell x axle, mm	73 x 113, Square		Matri	x rim- light for speed, sn	nooth braking
CHAIN Shimano HG-53			Bontr	ager Select tires- comfor	table width, and
Chain type	9 speed		tough	ager beleet thes connor	tubic widen, und
Chain length (links)	108		tougii		
CASSETTE SRAM 7.0 11-32, 9spd			Componer	nts	
WHEELSET				ation level- Shimano C S	eries
FRONT WHEEL Bontrager Select Hybrid, 20°					
E.R.D., mm	592		Road	gearing- easy up hill, do	n't have to over-spir
Rim strip	Velox 16mm		on the o	lownhill	
FRONT TIRE IRC Duro Tour			Riser	bars and adjustable stem	n- comfort
Tire size	700 x 35c		101501		
REAR WHEEL Bontrager Select Hybrid, 24°					
E.R.D., mm	603				
Rim strip	Velox 16mm			_	
REAR TIRE IRC Duro Tour		GEA	RING		
Tire size	700 x 35c		26 36 48	1	
SPOKES DT 14/15G butted stainless		1,			
Front, mm	278, Radial	11	69 95 127		
Rear, mm	293/294, 2x	12	63 87 116		
INNER TUBES Presta valve		14	54 75 99		
OTHER		16	47 65 87	1	
SEATPOST Bontrager Sport				1	
Outer diameter, mm	31.6	18	42 58 77	1	
SADDLE WTB SST.X	31.0	21	36 50 66	1	
BRAKES Shimano M420, V type		24	31 44 58		BIKE WEIGHT
PEDALS Shimano SPD M515, clipless					
· ·	0/1/"	28	27 37 50	1	25.4 lb.
Axle diameter	9/16"	32	24 33 44	1	11.53 kg.
SEAT BINDER Alloy w/integral bolt	26.1	<u> </u>			
Inner diameter, mm	36.4	COL			
ADDITIONALS 2 water bottle mounts, rack mo	unis, cane	Silve	er Metallic/Black	Metallic • Silver Metallic dec	al • Silver fork
Creek Ergo barends		I			
		I			
FIT		_			
	L	XL			
Rider height Inches 67 69	72 183	73			
Cm 170 176	183	186			
Handlebar Width, mm 620 620	620	620			
Stem Length, mm 75 90	105	105			
Angle 5 5	10	10			
Crank Length, mm 170 175	175	175			
Seatpost Length, mm 300 350	350	350	1		
Steerer Length, mm 163.2 163.2	173.2	188.	2		
Steerer Length, IIIII 103.2 103.2	113.4	100.	<u>-</u>		

Intermediate mountain

For 2002

These Fishers will fit both smaller adults and kids. They have been very well accepted because they ride great, and remain unchanged for 2002.

Geometry

These frames use a geometry which delivers performance for a smaller rider. The head angles are slightly slackened to allow good off-road stability for a rider with less upper body strength. Standover is maximized to allow a rider to get on early, and ride it for a longer period of time as they grow.

Ride

These are real mountain bikes, and that's how they ride. This is important, because although we show them in the Kids section in the catalog, they have the ride performance and handling required to be enjoyed by smaller adults.

Frame details

These bikes use hi-tensile steel, and with a Cro-Moly seat tube on the hardtails. The advantage of Cro-Moly steel is higher tensile strength and fatigue resistance; it's no more rigid than good hi-tensile steel. For this reason, we've only used Cro-Moly in the seat tube, which can see lots of flexing as the seatpost quick release is used. For the rest of the bike, we've focused on providing the best ride for the cost. By carefully designing the frame geometry, tubing wall thicknesses, and tubing diameters, we've managed to get a lot of ride from a less expensive frame material. This allows riders a viable high quality alternative to chain store bikes which don't ride nearly as well.

Bike Fit

Once again, we remind you that the fit information is for an average rider with the handlebars adjusted to their highest possible position. The rider fitting this bike may be several inches taller than our recommendations due to personal preference of other factors which we can't readily predict. But we do, in fact, expect that a smaller rider would also fit a given bike simply by lowering the handlebars.

Mt. Jam FS

	Frame sizes	S
	Head angle	70.0
	Seat angle	71.5
Ñ		
MILLIMETERS	Standover	
E	Seat tube	380
ME	Head tube	100
ij	Eff top tube	529
	Chainstays	400
\geq	BB height	306
	Offset	45.0
	Trail	62
	Wheelbase	993
	Standover	
ES	Seat tube	15.0
NCHES	Head tube	3.9
2	Eff top tube	20.8
	Chainstays	15.7
	BB height	12.0
	Offset	1.8
	Trail	2.5
	Wheelbase	39.1

Hardtails

	Frame sizes	13B	13G
	Head angle	70.0	70.0
	Seat angle	72.0	72.0
Ñ			
MILLIMETERS	Standover	606	550
H	Seat tube	335	335
Ξ	Head tube	90	90
Ţ	Eff top tube	524	524
Ħ	Chainstays	405	405
2	BB height	272	272
	Offset	45.0	45.0
	Trail	62	62
	Wheelbase	983	983
	Standover	23.9	21.7
INCHES	Seat tube	13.2	13.2
Ę	Head tube	3.5	3.5
$\frac{2}{2}$	Eff top tube	20.6	20.6
Н	Chainstays	15.9	15.9
	BB height	10.7	10.7
	Offset	1.8	1.8
	Trail	2.5	2.5
	Wheelbase	38.7	38.7

FRAMESET		M4 lam FC
MAIN TUBES Hi Tensile steel		Mt. Jam FS
STAYS Hi Tensile steel	0.0 # // 1	
Frame weight FORK	8.8 lb (4.01 kg)	
Travel, mm	63	
Axle-crown length, mm	410	
REAR SHOCK Aintec AB-7000		
Stroke Length	30mm 125mm	
Width	24mm	
Eyes	6mm	
HEADSET Sealed	//- / -/	
Size Stack height, mm	25.4/34.0/30.0 36.5	
CONTROLS	50.5	
HANDLEBAR Steel, 5° bend, 40mm rise		
Clamp diameter, mm	25.4	Why this Fisher rocks:
STEM Steel ATB		Rider: Aggressive youth or smaller adult single-
Steerer clamp height, mm		track rider
SHIFT LEVERS SR 225 BRAKE LEVERS CS VL-313D		Frameset
GRIPS Kraton		Joshua suspension- all-round performance
DRIVETRAIN		URT design- no suspension activation through
FT DERAILLEUR Shimano Altus		chain tension
Cable routing	Down pull	
Attachment	31.8 mm/ 1 1/4"	Wheelset
RR DERAILLEUR Shimano TY-30 GS		Alloy rims- light, good braking action
CRANKSET SR XR17G 42/34/24	מי ני	Bontrager tires- name brand known for easy ped-
Bolt hole circle, mm BBVP-B33W	Riveted	aling, traction
Shell x axle, mm	68 x 122.5, Square	Components
CHAIN KMC Z-51	7	Youth enthusiast level- Altus, SYNC suspension
Chain type	3/32"	fork
Chain length (links)	102	Size specific- parts fit smaller rider for improved
CASSETTE HG72 13-28, 7spd		comfort, control
WHEELSET		
FRONT WHEEL Alloy, nutted hub, 32°, Wein E.R.D., mm	mann 519 rim <i>499</i>	Direct pull brakes- extra stopping power
Rim strip	Rubber	
FRONT TIRE Bontrager Revolt ST-2		
Tire size	24 x 2.1	
REAR WHEEL Alloy, nutted hub, 32°, Weinm E.R.D., mm	ann 519 alloy rim <i>499</i>	
Rim strip	Rubber	
REAR TIRE Bontrager Revolt ST-2		GEARING
Tire size	24 x 1.95	24 34 42
SPOKES 14G UCP	2/2/	13 44 62 76
Front, mm Rear, mm	242, 4x 240/241, 4x	l
INNER TUBES Schraeder valve	210/271, 71	17 33 47 58
OTHER		19 30 42 52
SEATPOST Alloy micro-adjust		22 26 37 45
Outer diameter, mm	27.2	25 23 32 40
SADDLE Fisher Padded		
BRAKES Alloy direct pull		28 20 29 35 BIKE WEIGHT
PEDALS Platform	0/1/2"	34.3 lb.
Axle diameter SEAT BINDER Quick release	9/16"	15.57 kg.
Inner diameter, mm	ļ.	COLORS
ADDITIONALS 1 water bottle mount	l	
EIT.		
FIT Size S		
Frame Size S Rider height Inches 58		
Cm 147		
5.0		
Handlebar Width. mm 560		
Handlebar Width, mm 560 Stem Length, mm 50		
Stem Length, mm 50 Angle 15 Crank Length, mm 162		
Stem Length, mm 50 Angle 15		

CONTROLS HANDLEBAR Steel 25.4 Clamp diameter, mm STEM Quick change, quill Steerer clamp height, mm SHIFT LEVERS SRAM Centera BRAKE LEVERS Alloy, direct pull GRIPS Kraton DRIVETRAIN FT DERAILLEUR Shimano Altus Cable routing Down pull Attachment 31.8 mm/ 1 1/4' RR DERAILLEUR Shimano Tourney TY40 CRANKSET SunRace TK-1, 42/34/24 Bolt hole circle, mm Riveted BB Three-piece type 70 x 3L, Square Shell x axle, mm CHAIN KMC Z-51 3/32 Chain type Chain length (links) 104 CASSETTE HG72 13-28, 7spd WHEELSET FRONT WHEEL Alloy, nutted hub, 32°, Aluminum alloy rim E.R.D., mm Rim strip Rubber FRONT TIRE Innova MTB 24×2.1 Tire size REAR WHEEL Alloy, nutted hub, 32°, Aluminum alloy rim E.R.D., mm 499 Rubber REAR TIRE Innova MTB Tire size 24 x 2.1 SPOKES 14G UCP 242, 4x Front, mm 240/241, 4x INNER TUBES Schraeder valve OTHER SEATPOST Alloy micro-adjust Outer diameter, mm 30.4 SADDLE Fisher Padded BRAKES Alloy direct pull PEDALS Platform Axle diameter 9/16 SEAT BINDER Quick release Inner diameter mm 31.8 ADDITIONALS 1 water bottle mount, chainguard, kickstand

Why this Fisher rocks:

Rider: Aggressive youth or smaller adult single-track rider

Frameset

Steel- strong and durable

Off-road geometry- stable in rough terrain

Wheelset

Alloy rims- light, good braking action

Bontrager tires- name brand known for easy pedaling, traction

Nutted hubs- secure wheel attachment for new rider

Components

Youth enthusiast level- Altus, wide-ratio gearing Suspension fork- smoothens the bumps, adds con-

Size specific- parts fit smaller rider for improved comfort, control

Direct pull brakes- extra stopping power

BIKE WEIGHT 29.7 lb. 13.48 kg.

COLORS Blue/Yellow

FIT Frame Size 13 Rider height Inches 61 156 Cm 560 Handlebar Width, mm Stem Length, mm 70 40 Angle Crank Length, mm 162 250 Seatpost Length, mm Steerer Length, mm 126

FRAMESET	Tyro
MAIN TUBES Hi Tensile steel w/CroMoly seat tube	ΙΥΓΟ
STAYS Hi Tensile steel	
Frame weight 6.8 lb (3.	3.10 kg)
FORK Hi Tensile steel	
Travel, mm Axle-crown length, mm	361
HEADSET Steel	301
Size 25.4/34.	4 0/30 0
Stack height, mm	34.5
CONTROLS	
HANDLEBAR Steel	
Clamp diameter, mm	25.4
STEM Quick change, quill	Why this Fisher rocks:
Steerer clamp height, mm	Rider: Youth or smaller adult doubletrack rider
SHIFT LEVERS SRAM Centera	Frameset
BRAKE LEVERS Alloy, direct pull GRIPS Kraton	Steel- strong and durable
DRIVETRAIN	Off-road geometry- stable in rough terrain
FT DERAILLEUR Shimano Altus	" Wheelset
	Own pull Allow pines light, good by align greation
Attachment 31.8 mm/	
RR DERAILLEUR Shimano Tourney TY40	Bontrager tires- name brand known for easy ped-
CRANKSET SunRace TK-1, 42/34/24 Bolt hole circle, mm	aling, traction
BB Three-piece type	Nutted hubs- secure wheel attachment for new
Shell x axle, mm 68 x 122,	nidon
CHAIN KMC Z-51	·
Chain type	Components
Chain length (links)	Youth enthusiast level- Altus, wide-ratio gearing
CASSETTE HG72 13-28, 7spd	Size specific- parts fit smaller rider for improved
WHEELSET	comfort, control
FRONT WHEEL Alloy, nutted hub, 32°, Aluminum alloy	
E.R.D., mm	499 Direct pull brakes- extra stopping power
	Rubber
FRONT TIRE Innova MTB	
	24 x 2.1
REAR WHEEL Alloy, nutted hub, 32°, Aluminum alloy	
E.R.D., mm	499
1	Rubber
REAR TIRE Innova MTB	24 x 2.1 GEARING
Tire size 2: SPOKES	24 x 2.1 GEARING 24 34 42
Rear, mm 240/2	1241 4.
INNER TUBES Schraeder valve	
	17 33 47 58
OTHER	19 30 42 52
SEATPOST Alloy Outer diameter, mm	27.2 22 26 37 45
SADDLE Fisher Padded	25 23 32 40
BRAKES Alloy direct pull	
PEDALS Platform	28 20 29 35 BIKE WEIGHT
Axle diameter	9/16" 31.9 lb.
SEAT BINDER Quick release	14.48 kg.
Inner diameter, mm	
ADDITIONALS 1 water bottle mount, chainring guard, k	kick- COLORS
stand	Silver/Black (boys)
	Purple/Blue (girls)
PIT	
FIT	
Frame Size 13B 13G	
Rider height Inches 59 59	
Cm 149 149	
Handlebar Width, mm 560 560	
Stem Length, mm 50 50	
Angle 15 15	
Crank Length, mm 162 162	
Seatpost Length, mm 250 250	
Steerer Length, mm 126 126	

BMX

For 2002

These successful frames remain unchanged from 2000.

Geometry

Our BMX bikes are designed to satisfy both kids and their parents. By carefully designing the frame and components, we make the bikes easier for kids to get on and ride. At the same time, we provide competition level performance that's tested by our Fisher BMX Pro team.

Frame details

BMX riding and performance is all about durability. Check out the hefty dropouts and grind plates on our bikes. Look at the massive welds joining the tubes. Notice the strategically placed gussets. What you can't see is the carefully selected tubing wall thicknesses, and the almost endless testing that's required before a Fisher BMX bike hits the market.

Our Jumping bikes are all built from rugged steel. These bikes are beefy. Look at the super heavy-duty head tube. This is to resist headset stretch, a major problem when the bikes suddenly aren't airborne anymore. Both the top tube and down tube intersect the head tube, making for the strongest possible frame. At the other end of the bike, we've increased the diameter of the stays to add strength for rear first landings.

Our Racing frames are aluminum for lower weight, but we still built them beefy for competition. The down tubes are slightly smaller in diameter to allow a slight flex for excellent handling on the berms, but they're still stiff enough to land smoothly after jumping a double.

Our freestyle bikes feature long top tubes, with short rear ends. This design provides great balance for those radical tricks. They're also heavily built, with thick tubes and extra gussets.

FRAMESET			Cal
MAIN TUBES	. HiTensile w/ Cro-Moly top and dow	n tube	Ca
STAYS			
FORK	. Fisher Dirt, 1 3/8" tapered Cro-Mo	ly blades	
	Travel, mm		
	Axle-crown length, mm	322.0	
HEADSET			
		25.4/34.0/30.0	
	Stack height, mm	25.5	
CONTROLS			
HANDLEBAR	Fisher		
TIANDEEDAN	Clamp diameter, mm	22.2	
STEM		22.2	
	Steerer clamp height, mm	31.8	
BRAKE LEVERS	. Alloy, direct pull		Why this Fisher rocks:
GRIPS			Rider: Aggressive BMX rider or Racer
DRIVETRAIN			Frameset
	Fisher forged		Cro-Moly steel- strong and durable
CRANKSET	. Fisher forged Bolt hole circle, mm	110	Massive tubes- stiff for jumping, slight flex for
BB	-	110	berm shots
טט	Shell x axle, mm	24 TPI,	XX71 1
CHAIN		24 111,	Wheelset
OHAIN	Chain type	1/8"	Alloy rims w/48 spokes- light, but tough
	Chain lype Chain length (links)	90	14mm axles- super strong
CASSETTE		[]	_
			Components
			Name brand parts- quality and durability
			Cro-Moly and alloy parts- high strength, low
			weight
WHEEL CET			weight
WHEELSET	Allow nutted but 400 3/0	I allow rim	
FRONT WHEEL	. Alloy, nutted hub, 48°, 3/8 axle, A		
	E.R.D., mm Rim strip	406 PVC	
FRONT TIRF	. Knobby, square style	1,10	
A CONTRIBLE	Tire size	20 x 2.1	
REAR WHFFI	. Alloy, nutted hub, 48°, 3/8 axle, A		
********************************	E.R.D., mm	406	
	Rim strip	PVC	
REAR TIRE	. Knobby, square style	CI	EADING
	Tire size	20 x 2.1 GI	EARING
SPOKES	. 14G UCP	I	44
	Front, mm	185, 4x 16	5 55
	Rear, mm	183/183, 4x	
INNER TUBES	. Schraeder valve		
OTHER			
SEATPOST	. Steel		
	Outer diameter, mm	25.4	
SADDLE	. Bontrager FS10 BMX	I	
BRAKES	-	I	
PEDALS		I	
	Axle diameter	1/2"	
SEAT BINDER		[
	Inner diameter, mm	28.6	OL ODC
ADDITIONALS	. SST Oryg rotor, Fisher pegs (1 pr.)		OLORS
	, , ,	l G	Green
RIT.			
FIT	<u> </u>		
Frame Size	Pro		
Distance to start 1 1 1	- 4		

Frame	Size	Pro
Rider height	Inches	54
	Cm	136
Handlebar	Width, mm	685
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	160

FRAMESET MAIN TUBES Cro-Moly steel STAYS Cro-Moly steel FORK Fisher Dirt, 1 3/8" tapered Cro-Moly Travel, mm Axle-crown length, mm 322.0 HEADSET Tioga threadless Size 25.4/34.0/30.0 Stack height, mm 25.5 CONTROLS HANDLEBAR Fisher Cro-Moly 22.2 Clamp diameter, mm STEM Alloy Ahead type Steerer clamp height, mm 31.8 BRAKE LEVERS Alloy, direct pull GRIPS Bontrager BMX DRIVETRAIN CRANKSET Fisher forged Cro-Moly Bolt hole circle, mm 110 BB One-piece type Shell x axle, mm 24 TPI, CHAIN KMC Chain type 1/8" Chain length (links) 90 CASSETTE ACS Claw, 16T WHEELSET FRONT WHEEL Alloy, nutted hub, 48°, Aluminum alloy rim E.R.D., mm Rim strip FRONT TIRE Maxxis Holy Roller Tire size REAR WHEEL Alloy, nutted hub, 48°, Aluminum alloy rim E.R.D., mm Rim strip

Mullet

Why this Fisher rocks:

Rider: Aggressive BMX rider or Racer

Frameset

Cro-Moly steel- strong and durable

Massive tubes- stiff for jumping, slight flex for berm shots

Wheelset.

Bontrager Bruiser rims w/48 spokes- light, but tough

14mm axles- super strong

Components

Name brand parts- quality and durability Cro-Moly and alloy parts- high strength, low weight

PVC20 x 2.1 406 PVC REAR TIRE Maxxis Holy Roller 20 x 1.95 Tire size SPOKES 14G UCP Front, mm 185, 4x 183/183, 4x Rear mm INNER TUBES Schraeder valve OTHER SEATPOST Steel Outer diameter, mm 25.4 SADDLE Fisher Dirt Jumper BRAKES Alloy direct pull PEDALS Alloy platform 1/2' Axle diameter SEAT BINDER Alloy w/integral bolt 28.6 Inner diameter, mm ADDITIONALS SST Oryg rotor

GEARING 44 55 16 **COLORS**

Black

FIT Frame Size Pro XL Rider height Inches 54 137 Cm 685 Handlebar Width, mm Stem Length, mm 55 0 Angle Crank Length, mm 180 350 Seatpost Length, mm Steerer Length, mm 160

FRAMESET	
MAIN TUBES Hi Tensile steel	
STAYS High tensile steel	
FORK Fisher Freestyle, 1 3/8" taper	-ed
Travel, mm	cu
Axle-crown length, mm	322.0
HEADSET Tioga threadless	
Size	21.2/32.5/26.4
Stack height, mm	40.5
CONTROLS	
HANDLEBAR Fisher	
Clamp diameter, mm	22.2
STEM Alloy Ahead type	
Steerer clamp height, mm	
BRAKE LEVERS Alloy, direct pull	
GRIPS Bontrager dual density	
DRIVETRAIN	
CRANKSET Fisher forged	
Bolt hole circle, mm	1 piece
BB One-piece type	1
Shell x axle, mm	24 TPI,
CHAIN KMC	
Chain type	1/8"
Chain length (links)	88
CASSETTE ACS Claw, 16T	
WHEELSET FRONT WHEEL Steel hub, 48°, Aluminum al	lov rim
E.R.D., mm	422
Rim strip	PVC
FRONT TIRE Fisher Freestyle	
Tire size	20 x 2.0
REAR WHEEL Steel hub, 48°, Aluminum al	loy rim
E.R.D., mm	422
Rim strip	PVC
REAR TIRE Fisher Freestyle	
Tire size	20 x 2.0
SPOKES 14G UCP	
Front, mm	185, 4x
Rear, mm	184/184, 4x
INNER TUBES Schraeder valve	
OTHER	
SEATPOST Steel	

Outer diameter, mm

Axle diameter

ADDITIONALS SST Oryg rotor, Fisher pegs (2 pr.)

Inner diameter, mm

Woody

Why this Fisher rocks:

Rider: BMX racer

Frameset

Heavy duty steel- strong for radical moves

Full freestyle features- grinders, massive dropouts

for pegs

Wheelset

Alloy rims, 48 spokes- super tough, good stopping

Components

Freestyle parts- rotor and pegs

Steel parts-durability

GEARING
44
15, 4x
16 55

25.4

1/2"

28.6 COLORS

COLORS Green Black

FIT

Frame All Around Size Rider height Inches 59 151 Cm Handlebar Width, mm 685 Stem Length, mm 55 0 Angle Crank 175 Length, mm Seatpost Length, mm 350 Steerer Length, mm 174

SADDLE Fisher Freestyle, padded BRAKES Alloy direct pull PEDALS Alloy platform

SEAT BINDER Alloy w/integral bolt

FRAMESET MAIN TUBES Hi Tensile steel STAYS Hi Tensile steel FORK Fisher Dirt, 1 3/8" tapered Travel, mm Axle-crown length, mm 322.0	Mr. Skinner
HEADSET Tioga threadless Size 21.2/32.5/26.4 Stack height, mm 40.5	
COMPROIS	
CONTROLS HANDLEBAR Fisher	
Clamp diameter, mm 22.2 STEM Alloy Ahead type	
Steerer clamp height, mm SHIFT LEVERS Alloy, direct pull GRIPS Bontrager BMX	
DRIVETRAIN	Why this Fisher rocks:
CRANKSET Fisher forged Bolt hole circle, mm 110 BB One-piece type	Rider: BMX racer
Shell x axle, mm 24 TPI,	Frameset Cro-Moly steel- extra strong for radical moves
CHAIN KMC Chain type 1/8" Chain length (links) 90	Full freestyle features- grinders, massive dropouts
CASSETTE ACS Claw, 16T	for pegs Wheelset Bontrager rims- super tough, smooth stopping
	Components Steel parts- durability
WHEELSET	Direct pull brakes- extra stopping power
FRONT WHEEL Steel hub, 36°, 3/8 axle, Bontrager Bruiser rim E.R.D., mm 406 Rim strip PVC	Direct pull brakes- extra stopping power
FRONT TIRE Knobby, square style Tire size 20 x 1.95	
REAR WHEEL Steel hub, 36°, 3/8 axle, Bontrager Bruiser rim E.R.D., mm 406 Rim strip PVC	
REAR TIRE Knobby, square style	GEARING
Tire size 20 x 1.95 SPOKES 14G UCP Front, mm 186, 4x	16 55
Rear, mm 183/183, 4x	
INNER TUBES Schraeder valve	
OTHER SEATPOST Steel Outer diameter. mm 25.4	
Outer diameter, mm 25.4 SADDLE Bontrager FS10 BMX BRAKES Alloy direct pull	
PEDALS Alloy platform Axle diameter 1/2"	
	COLORS
ADDITIONALS SST Oryg rotor, Fisher pegs (1 pr.)	Dark blue Yellow
FIT	
Frame Size Pro	
Rider height Inches 54	
Cm 138 Handlebar Width, mm 685	
Stem Length, mm 55	
Angle 0	
Crank Length, mm 175 Seatpost Length, mm 350	
Steerer Length, mm 174	

Kids'

For 2002

These successful frames remain unchanged from 2000.

Geometry

Our Kids' bikes are designed to satisfy both kids and their parents. By carefully designing the frame and components, we make the bikes easier for kids to get on and ride. At the same time, we make the bikes provide a wide range of fit so kids can get on a model early, and enjoy it longer as they grow.

Ride

Within the normal limits of parts availability, we've looked at keeping the pedals close together. We use size specific crank lengths, bar widths, and saddle sizing. We keep the bottom brackets as low as possible for easy on and off, as well as a low center of gravity. When we spec a hand brake, we also make sure that fits. With our attention to these details, Fisher kids bikes are easier to learn on, and more fun to ride.

Frame details

Our frame details will likely be lost on the kids. But the parents will be concerned with durability and cost.

These bikes aren't really about a technical dissertation, so we don't even include frame geometry here. The important difference here is that our Kids' bikes go through the full Fisher testing regimen. Passing this rigorous evaluation means they're designed and built to last.

For the rest of the bike, we've focused on providing the best ride for the cost. By carefully designing the frame geometry and tubing, and carefully selecting the components, we've managed to get a lot of ride from a bike that will still pass our testing requirements. This allows riders a viable high quality alternative to chain store bikes which don't ride or last nearly as well. These are bikes that can be handed down from kid to kid as a family grows, and which will promote cycling because they make riding more fun.

Extra attention to specs on kids' bikes.

To an experienced cyclist, many of the details of our Kids' bikes may seem humdrum or at best 'normal'. There-in lies a key to our Fisher kids' bikes; they use parts you'd expect on other Fisher bikes. While other brands may use plastic bushings, we use real, round steel ball bearings because the parts will run smoother and last longer. Even on our 12" wheeled models. On bikes where we spec training wheels, they are massively overbuilt, because we know your toddler is depending on them. We use 4 bolt stems, for extra handlebar security (parents, just how often do you thoroughly check your kids' bikes?). Our saddles use adjustable seatpost clamps, offering both fore/aft adjustment and tilt. Just like on an adult bike, this allows proper positioning and comfort for your child. Many of our competitors forego these simple details to cut costs. We go the extra mile and specify size specific cranks, handlebars, pedals, and even saddles. For bikes with hand brakes, we've found better fitting levers, so your child can comfortably apply all the stopping power they need. All this attention costs a bit more, but we think your child will be more comfortable, safer, and learn faster on a Fisher bike.

FRAMESET		
MAIN TUBES	III Tanaila ataul	
STAYS		
	Frame weight	4.0 lb (1.80 kg)
FORK		
	Travel, mm	60
	Axle-crown length, mm	352
HEADSET		
	Size	25.4/34.0/30.0
	Stack height, mm	34.5
CONTROLS		
HANDLEBAR	Staal	
HANDLEDAR	Clamp diameter, mm	25.4
STEM	. Quick change, quill	23.4
0111ET EV:===	Steerer clamp height, mm	
	. SRAM MRX, right only	
BRAKE LEVERS	• •	
GRIPS	. Kraton	
DRIVETRAIN		
	. Shimano Tourney TY22	
CRANKSET		•
CRANKSET		n: . 1
DD	Bolt hole circle, mm	Riveted
BB		60
	Shell x axle, mm	68,
	1/140 7 54	
CHAIN		
CHAIN	Chain type	3/32"
CASSETTE	Chain type Chain length (links)	3/32" 100
CASSETTE	Chain type Chain length (links)	
CASSETTE	Chain type Chain length (links) . HG60 14-28, 6spd	100
CASSETTE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°,	Aluminum alloy rim
CASSETTE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm	Aluminum alloy rim
CASSETTE WHEELSET FRONT WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip	Aluminum alloy rim
CASSETTE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB	Aluminum alloy rim 395 PVC
CASSETTE WHEELSET FRONT WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size	Aluminum alloy rim 395 PVC 20 x 2.1
CASSETTE WHEELSET FRONT WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°,	Aluminum alloy rim 395 PVC 20×2.1 Aluminum alloy rim
CASSETTE WHEELSET FRONT WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395
WHEELSET FRONT WHEEL FRONT TIRE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip	Aluminum alloy rim 395 PVC 20×2.1 Aluminum alloy rim
CASSETTE WHEELSET FRONT WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Innova MTB Tire size	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395
WHEELSET FRONT WHEEL FRONT TIRE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tre size . 14G UCP Front, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL REAR TIRE SPOKES	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL REAR TIRE SPOKES	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL REAR TIRE SPOKES	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES DTHER	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES DTHER	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES OTHER SEATPOST SADDLE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES OTHER SEATPOST SADDLE	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull . Platform	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull . Platform Axle diameter	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull . Platform Axle diameter . Quick release, 47mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL REAR TIRE SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull . Platform Axle diameter . Quick release, 47mm Inner diameter, mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x 27.2
WHEELSET FRONT WHEEL FRONT TIRE REAR WHEEL REAR TIRE SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER	Chain type Chain length (links) . HG60 14-28, 6spd . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . Alloy, nutted hub, 32°, E.R.D., mm Rim strip . Innova MTB Tire size . 14G UCP Front, mm Rear, mm . Schraeder valve . Alloy Outer diameter, mm . Fisher Padded . Alloy direct pull . Platform Axle diameter . Quick release, 47mm	Aluminum alloy rim 395 PVC 20 x 2.1 Aluminum alloy rim 395 PVC 20 x 2.1 192, 3x 189/191, 3x 27.2

Cosmo

Why this Fisher rocks:

Rider: Young off roader or First geared bike

Frameset

Steel- strong and tough

Low standover- fits wider range for longer use

Wheelset

Alloy rims- light, good stopping

Bontrager tires- easy pedaling and fast, yet grippy

Components

Shimano derailleur- easy shifting and pedaling $% \left(1\right) =\left(1\right) \left(1\right)$

Suspension fork-comfort and control

Size specific fit parts- more comfortable, easier to control $% \left(1\right) =\left(1\right) \left(1\right)$

GEARING					
	38				
14	55				
16	48				
18	42				
21	36				
24	32				
28	27				

BIKE WEIGHT 26.0 lb. 11.80 kg.

COLORS

Silver/Black (boys)

Purple/Dark Purple (girls)

FIT			
Frame	Size	12B	12G
Rider height	Inches	53	53
	Cm	134	134
Handlebar	Width, mm	580	580
Stem	Length, mm	40	40
	Angle	15	15
Crank	Length, mm	140	140
Seatpost	Length, mm	250	250
Steerer	Length, mm	123	123

FRAMESET		Comet
MAIN TUBES Hi Tensile steel		Connet
STAYS Hi Tensile steel		
Frame weight	4.0 lb (1.80 kg)	
FORK Hi Tensile steel		
Travel, mm	20.4	
Axle-crown length, mm HEADSETSteel	284	
Size	22.2/30.0/27.0	
Stack height, mm	35.0	
outer Height, min	33.0	
CONTROLS		
CONTROLS		
HANDLEBAR Steel BMX	25 6	
Clamp diameter, mm STEM 4 bolt BMX Steerer clamp height, mm	25.4	
BRAKE LEVERS Alloy, right only		
GRIPS Fisher Star		
DRIVETRAIN		Why this Fisher rocks:
CRANKSET One-piece type, 36T		why this Fisher rocks: Rider: Developing new rider
Bolt hole circle, mm BBVP-B33W	1 piece	
	<i>(</i> 0	Frameset
Shell x axle, mm	68,	Steel- strong and tough
Chain type	1/8"	Low standover- fits wider range for longer use
Chain lype Chain length (links)	86	
CASSETTE19		Wheelset
S.1332.112 111111111111		Bontrager tires- brand-name performance in a
		kids' size
		Components
		Coaster brake with rear hand brake- stepping
WHEELSET		stone to hand controls on 'big' bikes
FRONT WHEEL Steel hub, 36°, Aluminum a	lloy rim	_
E.R.D., mm	422	Size specific fit parts- more comfortable, easier to
Rim strip	PVC	control
FRONT TIRE Fisher Star		
Tire size	20 x 2.0	
REAR WHEEL Coaster brake hub, 36°, Alu		
E.R.D., mm	422	
Rim strip REAR TIRE Fisher Star	PVC	
Tire size	20 x 2.0	GEARING
SPOKES14G UCP	20 x 2.0	36
Front, mm	189, 3x	19 38
Rear, mm	185, 3x	
INNER TUBES Schraeder valve	2,5%	
OTHER		
SEATPOST Alloy micro-adjust		
Outer diameter, mm	27.2	
SADDLE Padded	2/.2	
BRAKES Coaster type		BIKE WEIGHT
PEDALS Platform		
Axle diameter	9/16"	26.0 lb.
SEAT BINDER Quick release, 47mm		11.80 kg.
Inner diameter, mm		COLORS
ADDITIONALS Chainguard		Red/Black (boys)
		White/Pink (girls)
FIT		
Frame Size 12B 12G		
Rider height Inches 48 48		
Cm 121 121		
Handlebar Width, mm 550 550		
Stem Length, mm 50 50		
Angle 0 0		
Crank Length, mm 140 140		
Seatpost Length, mm 255 255		
•		
Steerer Length, mm 123 123		

EDANGEGE		1 -
FRAMESET		Gamma Ray
MAIN TUBES Hi Tensile steel		Janina May
STAYS Hi Tensile steel		
FORK Hi Tensile steel Travel, mm		
Axle-crown length, mm	234	
HEADSET Steel	231	
	.2/30.0/27.0	
Stack height, mm	35.0	
o ·		
CONTROLS		
HANDLEBAR Steel BMX, 130mm rise		
Clamp diameter, mm	22.2	
STEM 4 bolt BMX, alloy top	22.2	
Steerer clamp height, mm		
GRIPS Fisher Star		
DRIVETRAIN		
CRANKSET One-piece type, 32T		Wil 41-2- E2-1-
Bolt hole circle, mm	1 triaca	Why this Fisher rocks:
BB One-piece type	1 piece	Rider: First timer or Developing new rider
Shell x axle, mm		Frameset
CHAIN KMC 410	<u> </u>	Steel- strong and tough
Chain type	1/8"	1 1
Chain length (links)	74	Low standover- fits wider range for longer use
CASSETTE19		Wheelset
		Comp III type tires- popular BMX styling
		Components
		Coaster brake with rear hand brake- stepping
WHEELSET		stone to hand controls on 'big' bikes
FRONT WHEEL Steel hub, 28°, Steel rim		Size specific fit parts- more comfortable, easier to
E.R.D., mm	321	control -
Rim strip	PVC	
FRONT TIRE Fisher Star		
Tire size	16 x 2.125	
REAR WHEEL Coaster brake hub, 28°, Steel rim	221	
E.R.D., mm Rim strip	321 PVC	
REAR TIRE Fisher Star	1,40	GEARING
Tire size	16 x 2.125	
SPOKES14G UCP		1 32
Front, mm	138, 3x	19 26
Rear, mm	133, 3x	
INNER TUBES Schraeder valve		
OTHER		
SEATPOST Steel		
Outer diameter, mm	22.2	
SADDLE Fisher Padded		
BRAKES Coaster type		
PEDALS Platform		
Axle diameter	1/2"	
SEAT BINDER Bolt		GOL ODG
Inner diameter, mm		COLORS
ADDITIONALS Training wheels, chainguard, fenders		Blue (boys)
		Purple (girls)
FIT		
Frame Size 9B 9G		
Rider height Inches 47 47		
Cm 120 120		
Handlebar Width, mm 510 510		
Stem Length, mm 50 50		
Angle 0 0		
Angle 0 0 Crank Length, mm 114 114		
Angle 0 0		

FRAMESET MAIN TUBES Hi Tensile steel		Sun Spot
STAYS Hi Tensile steel FORK Hi Tensile steel Travel. mm		
Axle-crown length, mm HEADSET Steel	185	
Size Stack height, mm	22.2/30.0/27.0 35.0	
CONTROLS		
HANDLEBAR BMX Clamp diameter, mm	22.2	
STEM 4 bolt BMX Steerer clamp height, mm		
GRIPS Fisher Space		
DRIVETRAIN		
CRANKSET One-piece type, 24T Bolt hole circle, mm	1 piece	Why this Fisher rocks:
BB One-piece type Shell x axle, mm	24 TPI,	Rider: First timer or Developing new rider Frameset
CHAIN KMC 410 Chain type	1/8"	Steel- strong and tough
Chain length (links)	60	
		Wheelset Fisher Paw tires- easy pedaling, popular animal motif
		Components
WHEELSET FRONT WHEEL Steel hub, 20°, Steel rim		Coaster brake- use strong leg muscles to control speed
E.R.D., mm Rim strip	220 PVC	Size specific fit parts- more comfortable, easier to
FRONT TIRE Fisher Space Tire size	12 x 2.5	control
REAR WHEEL Coaster brake hub, 20°, Stee E.R.D., mm	l rim 220	
Rim strip	PVC	
REAR TIRE Fisher Space Tire size	12 x 2.5	GEARING
SPOKES 14G UCP Front, mm	75, 3x	24 19 15
rront, mm Rear, mm	75, 5x 86, 3x	
INNER TUBES Schraeder valve		
OTHER SEATPOST Steel		
Outer diameter, mm	22.2	
SADDLE Padded		
BRAKES Coaster type PEDALS Platform		
Axle diameter SEAT BINDER Bolt, M6 x 30	1/2"	
Inner diameter, mm ADDITIONALS Training wheels, chainguard, for pads	enders, and	COLORS Red (boys) Pink (girls)
FIT		
Frame Size 8 8G		
Rider height Inches 42 42 Cm 107 107		
Handlebar Width, mm 480 480 Stem Length, mm 50 50		
Angle 0 0 Crank Length mm 89 89		

Crank

Seatpost

Steerer

Length, mm

Length, mm

Length, mm

89

250

123

89

250

123

LeMond Titanium

For 2002

The LeMond titanium frames remain unchanged from their introduction in 2001.

Geometry

The titanium LeMond models use Greg's proven geometry, like all LeMond models. These bikes ride really, really well, so we've used the same geometry centerlines for all of them.

Ride

We did a lot of research and development to tune the ride of this bike. The result is an amazing ride, unlike any other Titanium bike on the market.

Its quick to accelerate, and feels lively underneath you like the best of the competitors.

But this LeMond is firm to the pedal when standing on a climb, not whippy like some Ti bikes.

And even though its sprints great, its amazingly comfortable, not harsh in the saddle like other Ti bikes can be.

Compared to our own bikes, the Ti frame offers similar drivetrain efficiency to our Aeroluminum, and its very near our lightest. This makes it a great sprinting and climbing bike. At the same time, this Ti bikes offers the liveliness and comfort of our 853 frame. Basically, the LeMond titanium models combine the best of both worlds.

Frame details

We spared no details in the design of this bike. Starting with the fully butted tubeset, where we've put the stiffness and strength where it needs to be, without needlessly reducing the outer diameter of the tubes. Butting reduced the overall weight, and the thin tubing shows in the lively, resilient ride. Some call it silky.

We use an outer-butted head tube which provides a home for the integral $1^{1/8}$ " headset. The outer butting puts more beef at the bearing seats as well as providing increased weld area for additional frame stiffness and strength.

The tubing is shaped to tune the ride, while adding weld area and additional strength at both the top tube and bottom bracket.

The stays are also shaped, instead of cost cutting with cylindrical tubing. This extra attention to detail makes the bike more comfortable at the saddle, yet actually increases the pedal response when sprinting or climbing. Sure, it costs more, but it makes the bike look so much nicer! Even the dropouts are elegant, functional pieces.

The seat tube of our Ti bikes uses a composite internal sleeve to prevent galvanic corrosion of the seatpost to the frame. Do not grease the seatpost, or the seatpost clamp may not provide adequate clamping force.

All LeMond road bikes have 2 water bottle mounts.

	Frame sizes	49	51	53	55	57	59	61
	Head angle	72.0	72.5	73.0	73.5	73.5	74.0	74.0
	Seat angle	74.0	73.8	73.3	73.0	72.5	72.5	72.0
Ñ								
ER	Standover	752	754	772	790	808	831	848
H	Seat tube	517	537	557	576	596	616	636
$\overline{\mathbb{N}}$	Head tube	102	117	134	151	169	191	209
MILLIMETERS	Eff top tube	519	532	545	565	576	591	606
	Chainstays	412	415	415	415	415	417	417
2	BB height	266	266	266	266	266	270	270
	Offset	47	47	47	45	45	43	43
	Trail	61	58	55	54	54	53	53
	Wheelbase	967	980	984	995	1000	1013	1021
	Standover	29.6	29.7	30.4	31.1	31.8	32.7	33.4
ES	Seat tube	20.3	21.1	21.9	22.7	23.5	24.3	25.0
H	Head tube	4.0	4.6	5.3	5.9	6.7	7.5	8.2
INCHES	Eff top tube	20.4	20.9	21.5	22.3	22.7	23.3	23.9
П	Chainstays	16.2	16.3	16.3	16.3	16.3	16.4	16.4
	BB height	10.5	10.5	10.5	10.5	10.5	10.6	10.6
	Offset	1.9	1.9	1.9	1.8	1.8	1.7	1.7
	Trail	2.4	2.3	2.1	2.1	2.1	2.1	2.1
	Wheelbase	38.1	38.6	38.7	39.2	39.4	39.9	40.2

FRAMESET								T	ste 4	de Cours
	Reynold							16	21 C	u e v ouisi
STAYS	Reynold		apered							
50 51/		me weight		3.1 lb (1.41 kg)						
FORK	Air Rail									
		vel, mm e-crown length, mm		371						
HFADSFT	LeMond	_		3/1						
HEADSET	Size			25.4/34.0/30.0						
	Stac	k height, mm		8.0						
CONTROLS										
HANDLEBAR	3T Zep	p XL mp diameter, mm		31.75						
STEM	3T Zep									
		rer clamp height, m		34.0						
	SS Shiman			compatible		1171 ₋ T	o M = 1 1	1	lo o 1 ·	0.001
	RS Integra		τ					eads t	the pelote	on:
	Powerc	OFK				Rider:	Racer			
DRIVETRAI						Frames	set			
FT DERAILLE	UR Shiman					I	Mond ge	ometr	Y	
		ole routing schment		Down pull 31.8 mm/ 1 1/4"			_		_	out any shortcuts
BB DEBAILLE	Atta EUR Shiman			31.0 mm/ 1 1/4"				ııı tub	eset with	iout arry shortcuts
	Shiman		3/39			Wheels	set			
J		t hole circle, mm	-,	130				Race 2	X-Lite- in	credibly light, yet stron
BB	Shiman	o Ultegra					PST TM			v G v
		Shell x axle, mn	n 68 x 109.5	, Splined, Shimano		Co	ntinenta] Grar	nd Prix 30	000 tires- super fast rol
CHAIN	Shiman	o Dura-Ace				ing	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. Grai		ooo areo super last 101.
		iin type		9 speed						
CACCETTE		nin length (links)		108		Compo				
	Shiman	o Dura-Ace 12	-23, 9spd			Pr	o level- I	Oura-A	ce, 3T	
WHEELSET										
FRONT WHEE	L Bontra		e, 20°							
		.D., mm		592						
FRONT TIRE	Contine	o strip ental Grand Pr e size	ix 3000	Velox 16mm 700 x 23c						
REAR WHEEL	Bontrac		e, 24°	700 x 25t						
REAR TIRE	Rim	ostrip ental Grand Pr	ix 3000	Velox 16mm						
		e size		700 x 23c	GEA	RING 39 53				
2. 22		nt, mm	-	278, Radial	12	86 117				
		r, mm		291/291, 2x	13	79 108				
INNER TUBES	S Presta	valve, 48mm	stem							
OTHER					14	74 100				
	LeMond	d, 2014 alloy		27.2	15 16	69 93 64 88				
SADDLE	SSM Er	_			17	61 82				
	Shiman				19	54 74				BIKE WEIGHT
	not su				21	49 67				16.7 lb.
		e diameter		9/16"						7.58 kg.
SEAT BINDER	R Alloy w	-			23	45 61				7.50 kg.
ADDITIONALS	S 2 water	er diameter, mm bottle mount	ts (1 bottle	31.9 on 49),	COL	ORS shed Titaniur	n/Yellow D	eboss	• Deboss de	ecals • Black Fade fork
Pamp peg (110	,, on 47, 51)									
FIT	Cina	40								
Frame	Size	49 65	51 67	53 69	55 71		5		61 76	
Rider height	Inches Cm	65 166	67 171	69 176	71 180				76 193	
Handlebar	Width, mm	420	440	440	460				460	
Stem	Length, mm	90	100	110	110				130	
20011	Angle	10	100	10	10	10	10		10	
Crank	Length, mm	170	172.5	172.5	175				175	

Crank Seatpost

Steerer

175

250

229.0

172.5

250

212.0

175

250

247.0

175

250

269.0

175

250

287.0

170

250

180.0

Length, mm

Length, mm

Length, mm

172.5

250

FRAMESET MAIN TUBES Reynolds titanium, double butted STAYS Reynolds titanium, tapered Frame weight 3.1 lb (1.41 kg) FORK Air Rail Travel, mm Axtle-crown length, mm 371 HEADSET LeMond internal Size 25.4/34.0/30.0 Stack height, mm 8.0 CONTROLS HANDLEBAR 3T Forgie XL Clamp diameter, mm 31.75 STEM Steerer clamp height, mm 41.0	
FORK	
Travel, mm	
HEADSET LeMond internal Size 25.4/34.0/30.0 Stack height, mm 8.0 CONTROLS HANDLEBAR 3T Forgie XL Clamp diameter, mm 31.75 STEM 3T Forgie XL	
Size 25.4/34.0/30.0 Stack height, mm 8.0 CONTROLS HANDLEBAR 3T Forgie XL Clamp diameter, mm 31.75 STEM 3T Forgie XL	
CONTROLS HANDLEBAR 3T Forgie XL Clamp diameter, mm 31.75 STEM 3T Forgie XL	
HANDLEBAR3T Forgie XL Clamp diameter, mm 31.75 STEM3T Forgie XL	
HANDLEBAR3T Forgie XL Clamp diameter, mm 31.75 STEM3T Forgie XL	
HANDLEBAR 3T Forgie XL Clamp diameter, mm 31.75 STEM 3T Forgie XL	
STEM 3T Forgie XL	
Steerer clamb height, mm 4101	
SHIFT LEVERS Shimano Ultegra STI, Flite Deck compatible BRAKE LEVERS Integrated brake/shift GRIPS Powercork	
DRIVETRAIN FT DERAILLEUR Shimano Ultegra Why LeMond leads the peloton:	
FT DERAILLEUR Shimano Ultegra Cable routing Down pull Rider: Racer	
Attachment 31.8 mm/ 1 1/4"	
RR DERAILLEUR Shimano Ultegra CRANKSET Shimano Ultegra 53/39 Frameset LeMond geometry	
Christian Street Salaria Salaria	
Bolt hole circle, mm 130 Full titanium tubeset without any shortcut. BBShimano Ultegra	S
Shell x axle, mm 68 x 109.5, Splined, Shimano Wheelset	_
CHAIN Shimano HG-92 Bontrager wheelset- aerodynamic for speed	i,
Chain type 9 speed strong and low maintenance with PST ^{IM} Chain length (links) 108	
CASSETTE Shimano Ultegra 12-25, 9spd Continental Grand Prix 3000 tires- super fa	ast roll-
WHEELSET	
FRONT WHEEL Bontrager Race Lite Road, 20° Components	
E.R.D., mm 592 Race level- Ultegra; Pro performance for ec	onomi-
FRONT TIRE Continental Grand Prix 3000 Tire size 700 x 23c	
REAR WHEEL Bontrager Race Lite Road, 24° E.R.D., mm 595	
Rim strip Velox 16mm	
REAR TIRE Continental Grand Prix 3000 Tire size 700 x 23c 30 53	
SPOKES DT Aero allov ninnles 39 53	
Front, mm 278, Radial 12 86 117	
Rear, mm 291/291, 2x 13 79 108 INNER TUBES Presta valve, 48mm stem 14 74 100	
CEATROCT LAMOR & 2014 all suc	
Outer diameter mm 27.2	
SADDLE	a
BRAKES Shimano Ultegra 21 49 67 BEDALS and supplied 23 45 61	GHT
PEDALSnot supplied- Axle diameter 9/16" 23 45 61 18.5 lb. 25 41 56 8.40 kg.	
SEAT BINDER Alloy w/integral bolt Inner diameter, mm 9/16 25 41 56 COLORS	
ADDITIONALS 2 water bottle mounts (1 bottle on 49), pump peg (not on 49, 51) Brushed Titanium/Blue Deboss • Deboss decals • Black Fade fork	
EIT	
FIT Frame Size 49 51 53 55 57 59 61	
Rider height Inches 65 67 69 71 72 74 76	
Cm 166 171 176 181 182 188 193	
Handlebar Width, mm 420 440 440 460 460 460	
Stem Length, mm 90 100 110 110 120 130	
Angle 10 10 10 10 10 10 10 10 10 10 10 10 10	
Craink Length, min	
Steerer Length, mm 187.0 202.0 219.0 236.0 254.0 276.0 294.0	

FRAMESET	1				1				
	Reynold:	s titanium	double butte	d				Le \	/ictoire T
	Reynold:			-					
	Fram	e weight	,	3.1 lb (1.41 kg)					
FORK	Air Rail								
		el, mm crown length, m		371					
HEADSET	LeMond	U	m	3/1					
TIEADSET	Size	incoma		25.4/34.0/30.0					
	Stack	height, mm		8.0					
CONTROLS									
	3T Forgi	e XL							
		p diameter, mm		31.75					
STEM	3T Forgi								
CHIET LEVED		er clamp height,		41.0					
	S Shimano			compatible		Whatan	and land-	the relat-	n.
	RS Integrate Powerco		III L					the peloto	11.
						Rider: Ra	cer		
DRIVETRAI		Illtonr- T				Frameset			
FIDERAILLE	UR Shimano	Oltegra T		Down pull		LeMo	nd geome	try	
		e routing hment	Braze-on type	w/31.8mm clamp					out any shortcuts
RR DERAILLE	EUR Shimano							LUCECT WITH	at any bhorteans
	Shimano	-				Wheelset		_	
		hole circle, mm		74/130					ynamic for speed,
BB	Shimano		_	0.10. 1.71		strong	and low m	aintenance	with PST ^{IM}
		x axle, mm	68 x 118,	Splined, Shimano		Conti	nental Gra	and Prix 30	00 tires- super fast roll-
CHAIN	Shimano			0		ing			-
		n type n length (links)		9 speed 108		Componer	nte		
CASSETTE .	Shimano		-25, 9spd	130				gra. Pro po	rformance for economi-
WHEELSET		-							riple chainrings
	L Bontrage	er Race Lite	e Road. 20°					, pedamig t	
	-	D., mm		592		-			
	Rim s	strip		Velox 16mm					
FRONT TIRE	Continer		Prix 3000						
DEAD WILES	Tire s		Dood 240	700 x 23c					
KEAR WHEEL	Bontrage	er Race Lite D., mm	e κυdα, ∠4°	595					
	Rim s			Velox 16mm					
REAR TIRE .	Continer		Prix 3000						
	Tire s			700 x 23c	GEA.	RING			
SPOKES	DT Aero,		es			30 42 52			
	Front			278, Radial		66 93 115			
INNED TIBES	Rear, S Presta v		n stam	291/291, 2x	13	61 85 106			
	J FIESIG V	aive, 40IIII	ı ətemi		14	57 79 98			
OTHER	1 - 1 - 1	2014 - !!			15	53 74 92			
SEATPOST .	LeMond,	2014 alloy r diameter, mm		27.2		47 65 81			
SADDLE	Outer		her	2/.2	19	42 58 72			
	Shimano				1				DIVE WEY COM
	not sup				21	38 53 66			BIKE WEIGHT
	·	diameter		9/16"	23	35 48 60			18.8 lb.
SEAT BINDER	R Alloy w/i		t		25	32 44 55			8.54 kg.
		diameter, mm		31.9	COL	ORS			
	S 2 water	bottle mou	nts (1 bottle (on 49),			lue Dehoss	Deboss deca	ls • Black Fade fork
pump peg (no	τ on 49, 51)					Italiiaiii, Di	200000	ucu	
FIT									
Frame	Size	49	51	53	55	57	59	61	
Rider height	Inches	65	67	69	71	73	74	76	
l	Cm	166	171	176	181	185	188	193	
Handlebar	Width, mm	420	440	440	460		460	460	
Stem	Length, mm	90 10	100	110	110	120	120	130	
Crank	Angle	10 170	10 172 5	10 172 5	10 175	10 175	10 175	10 175	
Crank Seatpost	Length, mm Length, mm	170 250	172.5 250	172.5 250	175 250	175 250	175 250	175 250	
Steerer	Length, mm Length, mm	250 187.0	250 202.0	250 219.0	236.0		250 276.0	250 294.0	
Steelel	Length, mill	107.0	202.0	£19.U	۷.٥٥.١	234.0	210.0	£ 34.0	

New for 2001

We first built a Reynolds 853 LeMond in 1996. These frames are very similar, but improved. For this year, we have made slight changes in the tube designs to further tweak the great ride. They also now use an oversize headset system (see page 20).

Geometry

The 853 LeMond models use Greg's proven geometry, like all LeMond models. These bikes ride really, really well, so we've used the same geometry centerlines for all of them. See page 10-11 for a more detailed description.

Ride

Steel is famous for two things: durability and ride quality (see Comparing Materials on pages 2-3 and Reynold's 853, page 7). Combined with Greg's geometry, these bikes give an awesome ride. It's no wonder the Zurich has been our most popular model.

The outstanding ride qualities of these frames are a smooth, comfortable ride and a wonderful balance and stable feeling.

They are very predictable in corners, even allowing a rider to 'push' the bike around a turn. These qualities make the steel LeMond bikes particularly fine bikes for smaller riders, although we know lots of big riders who swear by the feel of steel.

Frame details

Starting with the butted tubeset, we've put the stiffness and strength where it needs to be. The material, wall thicknesses, and butting reduced the overall weight to make these very light steel framesets.

853 Designer Select

The Buenos Aires, Tourmalet, and Nevada City share a frameset built from round 853 Designer Select tubes. This tubeset combines an 853 main triangle with Reynolds 525 stays. 853 and 525 have the same modulus (stiffness), but 853 has a greater tensile strength. In the main triangle, the higher strength of 853 allows us to use thinner, lighter tubes. With the stays, there's a limit on how thin the metal can be that's not determined by strength, but weldable thickness. If the material were any thinner, it would be extremely difficult to make a reliable weld. Since the 525 stays are already stronger than they need to be, there's no performance advantage to using 853 in the stays, just added cost. For the rider looking for LeMond performance at a more affordable price, we didn't feel it wise to use a more expensive material just to upgrade the frame sticker.

853 Pro

On Maillot Jaune and Zurich, the tubing is shaped to tune the ride. The down tube is bi-axial, meaning it is ovalized in two planes. (Fig. 12) The upper end is taller than wide. The lower end is wider than tall.

The stiffness of a tube in a given direction is determined by the length of the axis in the plane in which the force is applied (Fig. 13). By using an oval shape, the tube gains stiffness in the plane where its wider, and the smaller axis across the oval has a decrease in

	Frame sizes	49	51	53	55	57	59	61
	Head angle	72.0	72.5	73.0	73.5	73.5	74.0	74.0
	Seat angle	74.0	73.8	73.3	73.0	72.5	72.5	72.0
$\dot{\mathbf{N}}$								
MILLIMETERS	Standover	752	754	772	790	808	831	848
H	Seat tube	517	537	557	576	596	616	636
$\overline{\mathbb{Z}}$	Head tube	85	100	116	133	151	175	195
ij	Eff top tube	519	532	545	565	576	591	606
	Chainstays	412	415	415	415	415	417	417
\geq	BB height	266	266	266	266	266	270	270
	Offset	47	47	47	45	45	43	43
	Trail	61	58	55	54	54	53	53
	Wheelbase	967	980	984	995	1000	1013	1021
	Standover	29.6	29.7	30.4	31.1	31.8	32.7	33.4
ES	Seat tube	20.3	21.1	21.9	22.7	23.5	24.3	25.0
INCHES	Head tube	3.3	3.9	4.6	5.2	5.9	6.9	7.7
\tilde{Z}	Eff top tube	20.4	20.9	21.5	22.3	22.7	23.3	23.9
Τ	Chainstays	16.2	16.3	16.3	16.3	16.3	16.4	16.4
	BB height	10.5	10.5	10.5	10.5	10.5	10.6	10.6
	Offset	1.9	1.9	1.9	1.8	1.8	1.7	1.7
	Trail	2.4	2.3	2.1	2.1	2.1	2.1	2.1
	Wheelbase	38.1	38.6	38.7	39.2	39.4	39.9	40.2
				11		. 1	1 7	1 14.4

stiffness This allows us to tune the ride. In addition, stiffness in a structure like a bike frame can also add to its strength, since stiffness is resistance

to deflection, and you must deflect the frame before you can bend it. By ovalizing the down tube at the head tube junction, we've added frontal impact strength to these frames.

In addition to the performance increase of our design, shaping the tubes has other benefits. Tubes shaped in this way provide a greater weld area, directly increasing the frame strength.

All LeMond road bikes have 2 water bottle mounts.

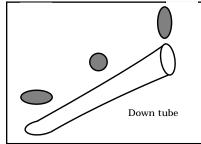


Fig. 12

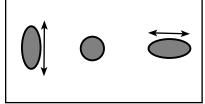


Fig. 13

LeMond for Women

New for 2002

Greg LeMond created his own geometry during his racing days. Over those years he rode many bikes, and often rode them to success. To maximize his own results, Greg made a study of what makes a bike perform; fit, function, handling, comfort, aerodynamics, low weight, and durability.

Now we've applied those lessons to the needs of a woman, a woman who still wants to achieve racing success. These are not 'comfort' bikes, they are thoroughbreds. But they are thoroghbreds designed to interface with a woma's proportions and ergonomics.

Geometry

These bikes ride really, really well. Our goal was to create a geometry that provided similar benefits to a woman that Greg's classic geomtry provides to a man; smoother profile, more powerful pedaling, and predictable cornering manners ideal for long road races and stage races.

Ride

Steel is famous for two things: durability and ride quality. Combined with Greg's new Women's geometry, these bikes give an awesome ride.

The outstanding ride qualities of these frames are a smooth, comfortable ride and a wonderful balance and stable feeling. They are very predictable in corners, even allowing a rider to 'push' the bike around a turn. These qualities make the steel LeMond bikes particularly fine bikes for smaller riders, although we know lots of big riders who swear by the feel of steel.

Frame details

Starting with the butted tubeset, we've put the stiffness and strength where it needs to be. The material, wall thicknesses, and butting reduced the overall weight to make these very light steel framesets.

853 Designer Select

The Tourmalet frameset is built from round 853 Designer Select tubes. This tubeset combines an 853 main triangle with Reynolds 525 stays. 853 and 525 have the same modulus (stiffness), but 853 has a greater tensile strength. In the main triangle, the higher strength of 853 allows us to use thinner, lighter tubes. With the stays, there's a limit on how thin the metal can be that's not determined by

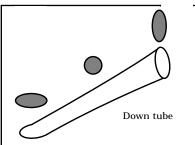


Fig. 12

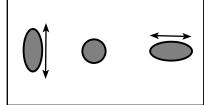


Fig. 13

strength, but weldable thickness. If the material were any thinner, it would be extremely difficult to make a reliable weld. Since the 525 stays are already stronger than they need to be, there's no performance advantage to using 853 in the stays, just added cost. For the rider looking for LeMond performance at a more

Frame sizes	45	49	53
Head angle	71.0	72.0	72.5
Seat angle	75.0	74.5	73.8
Standover Seat tube Head tube Eff top tube Chainstays BB height Offset Trail Wheelbase	725	756	784
	477	517	554
	85	100	116
	498	510	530
	412	415	415
	266	266	266
	47.0	47.0	47.0
	67	61	58
	968	970	979
Standover Seat tube Head tube Eff top tube Chainstays BB height Offset Trail Wheelbase	28.5	29.8	30.9
	18.8	20.3	21.8
	3.3	3.9	4.6
	19.6	20.1	20.9
	16.2	16.3	16.3
	10.5	10.5	10.5
	1.9	1.9	1.9
	2.6	2.4	2.3
	38.1	38.2	38.5

affordable price, we didn't feel it wise to use a more expensive material just to upgrade the frame sticker.

853 Pro

On the Zurich, the tubing is shaped to tune the ride. The down tube is bi-axial, meaning it is ovalized in two planes. The upper end is taller than wide. The lower end is wider than tall.

The stiffness of a tube in a given direction is determined by the length of the axis in the plane in which the force is applied. By using an oval shape, the tube gains stiffness in the plane where its wider, and the smaller axis across the oval has a decrease in stiffness. This allows us to tune the ride. In addition, stiffness in a structure like a bike frame can also add to its strength, since stiffness is resistance to deflection, and you must deflect the frame before you can bend it. By ovalizing the down tube at the head tube junction, we've added frontal impact strength to these frames.

In addition to the performance increase of our design, shaping the tubes has other benefits. Tubes shaped in this way provide a greater weld area, directly increasing the frame strength.

All LeMond road bikes have 2 water bottle mounts.

FRAMESET	1								Mail	lot Jaune
	Reynold								Maii	ot Jaulie
STAYS	Reynold	ls 853 Pro ne weight		3.3 lb (1.50 kg)						
FORK	Air Rail	ne weigm		3.3 W (1.30 kg)						
		vel, mm								
		-crown length, m		371						
HEADSET	Dia-Con	•	adset, alloy							
	Size			25.4/34.0/30.0						
	Staci	k height, mm		27.1						
CONTROLS										
HANDLEBAR	3T Zepp			21.75						
STFM	3T Zepr	np diameter, mm		31.75						
31LW		rer clamp height, i	mm	34.0						
SHIFT LEVER	S Shiman									
	RS Integrat			, , , , , , , , , , , , , , , , , , , ,						
	Powerco									
DRIVETRAI	N					1	Why I all	and leads	the peloto	n·
7	UR Shiman	o Dura-Ace					3		the below	11.
		le routing		Down pull			Rider: Ra	cer		
		chment	Braze-on typ	e w/31.8mm clamp		F	rameset			
	UR Shiman						LeMo	nd geome	try	
CRANKSET .	Shiman		3/39	120			Reyno	olds 853 P	ro tubeset-	steel feel and durabil-
DD.	Shiman	hole circle, mm		130				low weig		
BB		ll x axle, mm	68 x 109 °	5, Splined, Shimano		١,		O		
CHAIN	Shiman		00 % 109.5	o, opinica, ommano		'	Vheelset	ъ	37 7 1	111 1 1 1
		in type		9 speed					X-Lite- inc	redibly light, yet strong
		in length (links)		108			with PS			
CASSETTE .	Shiman	o Dura-Ace 1	2-23, 9spd					nental Gra	and Prix 30	00 tires- super fast roll-
WHEELSET							ing			
FRONT WHEE	L Bontrag		te, 20°			10	Componer	nts		
		D., mm		592				vel- Dura-	-Ace. 3T	
FDONT TIDE	Contine	strip	riv 3000	Velox 16mm					, -	
FRONT TIKE	Tire		11X 3000	700 x 23c						
REAR WHEEL	Bontrag		te, 24°	,						
		D., mm		595						
		strip		Velox 16mm				_		
REAR TIRE .	Contine		rix 3000	700 22	GEA:	RIN	G			
CDOKEC	Tire		(Aara D sid	700 x 23c		39	53			
SPURES		nution 14/176 nt, mm	(Aeio R Siu	e rear), ar mps 279, Radial	12	86	117			
		m, mm		271/271, 2x	13	79	108			
INNER TUBES	S Presta v	valve, 48mm	stem		14		100			
OTHER					15		93			
	LeMond	l, 2014 allov			16		88			
	Out	er diameter, mm		27.2						
	SSM Era				17		82			
	Shiman				19		74			BIKE WEIGHT
PEDALS	not sup				21		67			17.1 lb.
CEAT DINIDED		diameter		9/16"	23	45	61			7.76 kg.
JEAI DINDER	R Alloy w	rintegrai boit Er diameter, mm	•	31.9	COL)DC	,	1		
ADDITIONALS	S 2 water		nts (1 bottle		COL			Black/Dod	/Yellow decals	Black fork
	ot on 47, 49, 51)			//	""		i enowy iteu '	DidCK/ REU	, renow decals	, Didention
	•									
FIT										
Frame	Size	49	51	53	55		57	59	61	
Rider height	Inches	49 66	67	53 68	55 71		72	59 74	76	
ittaer neight	Cm	168	171	174	180		182	188	194	
Handlebar	Width, mm	420	440	440	460		460	460	460	
Stem	Length, mm	100	100	100	110		110	120	130	
	Angle	10	10	10	10		10	10	10	
Crank	Length, mm	170	172.5	172.5	175		175	175	175	
Seatpost	Length, mm	250	250	250	250		250	250	250	
Steerer	Length, mm	182.1	197.1	213.1	229.6	5	248.1	272.1	292.1	

FRAMESET		1			Zuric	h
MAIN TUBES Reynolds 853 Pro STAYS Reynolds 853 Pro					Zuiic	>
Frame weight FORK Air Rail Travel, mn	3.3 lb (1.50 kg)					
Axle-crown length, mm HEADSET Cane Creek S-2 Aheadse	371 t					
Size Stack height, mm	25.4/34.0/30.0 26.5					
CONTROLC						
CONTROLS HANDLEBAR 3T Forgie XL						
Clamp diameter, mm	31.75					
Steerer clamp height, mm SHIFT LEVERS Shimano Ultegra STI, Flit BRAKE LEVERS Integrated brake/shift GRIPS Powercork	41.0 te Deck compatible	When	I aMarad land	a the pelet		
DRIVETRAIN			LeMond lead	s the peloto	on:	
FT DERAILLEUR Shimano Ultegra Cable routing	Down pull	Fram				
Attachment RR DERAILLEUR Shimano Ultegra	31.8 mm/ 1 1/4"		LeMond geom Revnolds 853	· ·	- steel feel and durabi	il-
CRANKSET Shimano Ultegra 53/39 Bolt hole circle, mm	130	ity	, very low wei			
BB	8 x 109.5, Splined, Shimano			ce Lite whee	ls- aero for speed,	
Chain type Chain length (links)	9 speed 108	,	Continental G		000 tires- super fast r	oll-
CASSETTE Shimano Ultegra 12-25, 9	9spd	ing				
WHEELSET			onents			
FRONT WHEEL Bontrager Race Lite Roa E.R.D., mm Rim strip	d, 20° 592 Velox 16mm	l at	Race level- Ult an affordable	tegra group price	gives Pro performano	ce
FRONT TIRE Continental Grand Prix 3						
REAR WHEEL Bontrager Race Lite Roa E.R.D., mm	595					
Rim strip REAR TIRE Continental Grand Prix 3 Tire size	Velox 16mm 5000 700 x 23c	GEARING				
SPOKES DT Aero, alloy nipples Front, mm	278, Radial					
Rear, mm INNER TUBES Presta valve, 48mm ster	291/291, 2x	13 79 108				
OTHER		14 74 100				
SEATPOST LeMond, 2014 alloy Outer diameter, mm	27.2	15 69 93 17 61 82				
SADDLE SSM Era, CrMo/leather		19 54 74				
BRAKES Shimano Ultegra PEDALSnot supplied-		21 49 67 23 45 61			BIKE WEIGHT 19.0 lb.	
Axle diameter SEAT BINDER Alloy w/integral bolt	9/16"	25 41 56			8.63 kg.	
Inner diameter, mm ADDITIONALS 2 water bottle mounts (1 pump peg (not on 47, 49, 51)	31.9 bottle on 47, 49),	COLORS	nad Silver • Silve	r/Blue decals •	Chad Silver fork	
FIT						
	49 51	53 5	55 57	59	61	
Rider height Inches 65	65 67	68	71 72	74	76	
	166 171 120 440		81 182 60 460	189 460	194 460	
•	440 90 100		60 460 10 110	460 120	460 130	
, ·	10 10		0 10	10	10	
, ·	170 172.5		75 175	175	175	
, , , , , , , , , , , , , , , , , , , ,	250 250 38.5 203.5		50 250 6.0 254.5	250 278.5	250 298.5	

FRAMESET									7	Zurich T
	Reynold								_	-uiicii i
SIAYS	Reynold	s 853 Pro 1e weight		3.3 lb (1.50 kg)						
FORK	Air Rail	ic acigni		5.5 to (1.50 kg)						
	Trave	el, mm								
		-crown length, mm		371						
HEADSET	Cane Cr	eek S-2 Ahea	dset							
	Size	1.1.1.		25.4/34.0/30.0						
	Stack	k height, mm		26.5						
CONTROLS										
	3T Forgi	ie XI								
HANDLEDAN	-	np diameter, mm		31.75						
STEM	3T Forgi		m	41.0					_	
	S Shimano	o Ultegra STI,	Flite Dec			Why I	LeMond l	eads the pe	eloton:	
	RS Integrat			,		Rider	: Racer			
	Powerco					Frame				
DRIVETRAI	IN						eset eMond ge	ometry		
-	UR Shimano	Ultegra T					_	ŭ		
· · DENAILLE		le routing		Down pull					eset- stee	el feel and durabil-
		chment	Braze-on tv	pe w/31.8mm clamp		ity,	very low	weight		
RR DERAILLE	EUR Shimano		91	. · · · · · · · · · · · · · · · · · · ·		Wheel	leet			
	Shimand		42/30			1		Daco I ita	hools a	ore for speed
	Bolt i	hole circle, mm		74/130		l B	ontrager ong with l	Kace Lite w	neers- ae	ero for speed,
BB	Shimano	o Ultegra					O			
	Shell	x axle, mm	68 x 11	8, Splined, Shimano		C	ontinenta	ıl Grand Pri	x 3000 t	ires- super fast roll-
CHAIN	Shimano					ing				
		in type		9 speed		Comp	onents			
CACCETTE		in length (links)	. O	108				Illtowno was	~!	. Dua nanfannana
	Shimano	o onegra 12-2	.s, 9spa				ace level- in afforda		oup gives	s Pro performance
WHEELSET						ata	iii aiioi ua	bie price		
FRONT WHEE	EL Bontrag		Road, 20°							
		D., mm		592 Velox 16mm						
FDONT TIDE	Rim Continer	1	iv 3000	veiox 10mm						
FRONT TIRE	Tire .		IX 3000	700 x 23c						
REAR WHEEL	Bontrag		Road. 24°							
	-	D., mm	, = .	595						
	Rim .			Velox 16mm						
REAR TIRE .	Continer	ntal Grand Pr	ix 3000		GEA	RING				
	Tire .			700 x 23c	0.2	30 42 5	52			
SPOKES	DT Aero		S		12	66 93 1				
		t, mm		278, Radial	12		I			
ININED TUBE	Rear,		a+a u-	291/291, 2x		61 85 1				
	S Presta v	aive, 48mm	siem		14	57 79 9	I			
OTHER					15	53 74 9	92			
SEATPOST .	LeMond,				17	47 65 8	31			
CARR: =		er diameter, mm		27.2	19	42 58 7	I			
	SSM Era		er		21	38 53 6				DIVE WEIGHT
	Shimand	-								BIKE WEIGHT
PEDALS	not sup	opiiea- diameter		9/16"	23	35 48 6	I			19.3 lb.
SEAT BINDER	R Alloy w/	integral bolt			25	32 44 5	55			8.76 kg.
ADDITIONAL	S 2 water	r diameter, mm hottle mount	s (1 hottle	31.9 on 47 49 1	COL		ad C!!	::hua#/Dl	nla - Ct -	I Cilvan fa-l-
	ot on 47, 49, 51)	bottle mount	.s (1 bottle	011 41, 42),	Spe	ea Blue/Cna	ad Silver • S	Silver/Blue dec	ais • Chac	I Sliver fork
DIE										
FIT	C:	47	40	F4		_				-1
Frame	Size	47	49	51	53	55		57 59		51
Rider height	Inches	65 165	65	67 171	68 174	7		2 74		76 24
11-6-4-7	Cm	165	166	171	174			32 189		94
Handlebar	Width, mm	420	420	440	440			50 460		60
Stem	Length, mm	90 10	90	100	100			0 120		30
Crank	Angle	10 170	10 170	10 173 F	10	10 = 17		0 10		0
Crank	Length, mm	170 250	170 250	172.5	172.5			75 175 50 250		75 50
Seatpost Steerer	Length, mm Length, mm	250 188.5	250 188.5	250 203.5	250 219.5			50 250 4.5 278.!		50 8.5
	∟cngtii, iiiiii	100.3	100.5	203.3	۱۶.۵		,.u 25	7.5 210.	. 29	0.0

FRAMESET		c 952 D=c					Zurich 1	「women's
	Reynold				l			
	•	e weight		3.7 lb (1.68 kg)	l			
FORK	Air Rail			. 5				
1		el, mm		==	l			
LIEADCET		crown length, m		371				
HEADSEI	Cane Cr	eek 5-2 Ane		25.4/34.0/30.0				
		height, mm		26.5				
		neigni, min		20.9				
CONTROLS								
HANDLEBAR	3T Forgi							
		ıp diameter, mm		31.75				
SIEM	3T Forgi			41.0		Why LeN	Mond leads the pelot	ton:
SHIFT I FVFD	Steen S Shimano	er clamp height, i NIIItogra ST				Rider: R	lacer	
	RS Integrat			ompannie	1	Framese	et	
	Powerco				1		lond women's geomet	ry
DRIVETRAI							•	t- steel feel and durabil-
	Shimano	Illteara T					ry low weight	i- Steer feer and durabil-
I DENAILLE		e routing		Down pull			v e	
		chment	Braze-on type u	/31.8mm clamp		Wheelse	t	
	EUR Shimand		21	1	1		trager Race Lite whe	els- aero for speed,
CRANKSET .	Shimano	•	/42/30		1	strong	g with PST™	
		hole circle, mm		74/130	1	Con	tinental Grand Prix 3	000 tires- super fast roll-
BB	Shimand	-	60 116 6	.1: 1 01:		ing		F
CHAIN	المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد	x axle, mm	68 x 118, S	plined, Shimano				
CHAIN		n type		9 speed		Compon		. D
		n length (links)		108	1			gives Pro performance
CASSETTE .	Shimand		25, 9spd		1		affordable price	
WHEELSET	,					Size	specific- cranks, bars	s, saddle to fit a woman
	L Bontrag	er Race Lite	Road, 20°					
	E.R.	D., mm	-	592	1			
	Rim	•		Velox 16mm	1			
FRONT TIRE	Contine		rix 3000	700 23				
BEAD WHEEL	Tire . Bontrag		Road 240	700 x 23c	1			
L WEAR WHEEL		ет касе ште D., <i>mm</i>	Rodd, 24	595	1			
	Rim	strip		Velox 16mm	1			
REAR TIRE .	Contine		rix 3000		O.E.	ADING		
	Tire			700 x 23c	GEA	ARING		
SPOKES	DT Aero		es	a== = : :	l	30 42 52		
	Fron. Rear.	t, mm		278, Radial		66 93 115		
INNER TURES	Rear, S Presta v			291/291, 2x	13	61 85 106		
		G17C			14	57 79 98		
OTHER	Lablace	2014 -11			15	53 74 92		
SEAIPUSI .	LeMond	r diameter, mm		27.2		47 65 81		
SADDLF	Oasis wo		her/Cro-Moly	4/.2	19	42 58 72		
	Shimand		,o.,		21	38 53 66		DIVENCE
	not sup							BIKE WEIGHT
	Axle	diameter		9/16"	23	35 48 60		19.1 lb. 8.67 kg.
SEAT BINDER	R Alloy w/	•			25	32 44 55		6.67 kg.
ADDITIONAL		diameter, mm	.4.	31.9	COI	LORS		
ADDITIONALS	S 2 water	pottle mour	แร				Silver • Silver/Blue decals	Chad Silver fork
								- :== =::: =: !=:::
FIT								
Frame	Size	45	49	53				
Rider height	Inches	64	65 165	67 171				
Handlake:	Cm Width mm	163 430	165 420	171 420				
Handlebar Stem	Width, mm	420 90	420 90	420 100				
Stelli	Length, mm Angle	90 10	90 10	100 10				
Crank	Length, mm	165	170	170				
Seatpost	Length, mm	250	250	250				
Steerer	Length, mm	188.5	203.5	219.5				
	. y							

HEADSET Cane Creek C-1 Aheadset Size 22.2/30.2/2 Stack height, mm 2.5	71
BRAKE LEVERS Integrated brake/shift	
GRIPS Powercork	Why LeMond leads the peloton:
DRIVETRAIN Chimana Illianna	Rider: Racer
FT DERAILLEUR Shimano Ultegra Cable routing Down p	dl Frameset
Attachment 31.8 mm/ 1 1	LeMond geometry
RR DERAILLEUR Shimano Ultegra CRANKSET Shimano Ultegra 53/39	Reynolds 853 Designer Select tubeset- steel feel
<u>-</u>	and durability, very low weight
BB Shimano 105	Wheelset
Shell x axle, mm 68 x 109.5, Splined, Shima CHAIN Shimano HG-72	bontrager beleet wheels- light for speed, strong
Chain type 9 sp	ed with PST™
8 , 7	Components
CASSETTE Shimano HG70 12-25, 9spd WHEELSET	Race level- Ultegra group
FRONT WHEEL Bontrager Select Road, 20°	
E.R.D., mm	22
Rim strip Velox 16n FRONT TIRE Continental Ultra 3000	m e e e e e e e e e e e e e e e e e e e
Tire size 700 x 2	3c
REAR WHEEL Bontrager Select Road, 32°	
E.R.D., mm Rim strip Velox 161	03 m
REAR TIRE Continental Ultra 3000	GEARING
Tire size 700 x 2 SPOKES DT 14/15G butted stainless	^{3c} 39 53
Front, mm 278, Rac	
Rear, mm 293/294,	
INNER TUBES Presta valve, 48mm stem OTHER	14 74 100
SEATPOST LeMond, 2014 alloy	15 69 93
Outer diameter, mm 2.	17 61 82 19 54 74
SADDLE SSM New Millennium, CrMo rails	
BRAKES Shimano Ultegra PEDALS Shimano SPD M515, clipless	21 49 67 BIKE WEIGHT 20.3 lb.
Axle diameter 9/.	I I
SEAT BINDER Alloy w/integral bolt	
Inner diameter, mm 3 ADDITIONALS 2 water bottle mounts (1 bottle on 49), pun	COLORD
peg (not on 49, 51)	Metallic Red/Silver - Red/Silver decars - Metallic Red Tork
FIT	
Frame Size 49 51 53 Rider height Inches 64 67 68	55 57 59 61 71 72 74 77
Rider height Inches 64 67 68	181 182 189 195
Handlebar Width, mm 420 440 440	460 460 460
Stem Length, mm 80 100 100	110 110 120 135
Angle 12 12 12 Crank Length, mm 170 172.5 172.5	12 12 12 12 175 175 175 175
Seatpost Length, mm 250 250 250	250 250 250 250
Steerer Length, mm 188.5 203.5 219.5	236.0 254.5 278.5 298.5

FRAMESET						D	eno	c V:	ro	c T
MAIN TUBES	. Reynolds 853	3 Designer Sel	ect			Du	eno:	S AI	re	5 I
STAYS	. Reynolds 853	3 Designer Sel	ect							
	Frame weigh		3.7 lb (1.68 kg)							
FORK										
	Travel, mm		271							
LIEADCET	Axle-crown		371							
HEADSET	. Cane Creek C Size	,-i Aneadset	22.2/30.2/26.4							
	Stack height	t. mm	22.2/30.2/20.4							
	outh neight	,	20.9							
CONTROLS										
HANDLEBAR										
	Clamp dian		26.0							
STEM										
CHIET I EVEDS		ıp height, mm	41.0							
SHIFT LEVERS			veck compatible							
BRAKE LEVERS		ake/SNITT			Wh	y LeMo	ond leads	the pelot	on:	
	. Powercork				,	er: Ra		•		
DRIVETRAIN										
FT DERAILLEUR			_		Fra	meset	1			
	Cable routir Attachment	0	Down pull				nd geomet	v		
			on type w/31.8mm clamp			Reyno	olds 853 D	esigner Se	elect t	ubeset- steel feel
RR DERAILLEUR CRANKSET					a		ability, ver			
CRANNSEI	. Sillillallo Oite Bolt hole cir	•	74/130				J		O	
BB			/4/130		Wh	eelset	~ 1			
DD	Shell x axle,		x 118, Splined, Shimano					t wheels-	light f	for speed, strong
CHAIN			n 110, opuneu, onmuno		v	vith PS	$T^{\text{\tiny IM}}$			
	Chain type		9 speed		Cor	nponei	nts			
	Chain lengt	h (links)	108					gra/105 gr	coup v	vith 9 speed, Flite
CASSETTE	. Shimano HG7	70 12-25, 9spd			г	Deck re		gra/100 gr	oup v	vitii o specu, i iite
WHEELSET					'	CCK IC	auy			
FRONT WHEEL	. Bontrager Se	elect Road, 20)							
	E.R.D., mm		592							
	Rim strip		Velox 16mm							
FRONT TIRE	. Continental l	Jitra 3000								
	Tire size		700 x 23c							
REAR WHEEL	_									
	E.R.D., mm	1	603							
REAR TIRE	Rim strip	Iltra 2000	Velox 16mm	<u></u>			_			
REAR TIRE	. Continental C Tire size	JILIA 3000	700 x 23c	GEA	RING					
SPOKES		itted stainless	/00 x 23c		30 42	52				
J. O.K. J	Front, mm	acca stailiess	278, Radial	12	66 93					
	Rear, mm		293/294, 2x	I						
INNER TUBES	. Presta valve,	48mm stem		13	61 85					
OTHER				14	57 79					
SEATPOST	LeMond 201	4 alloy		15	53 74	92				
JERN USI	Outer diam.	•	27.2	17	47 65	81				
SADDLE				19	42 58					
BRAKES					38 53				Г	
PEDALS			s	21						BIKE WEIGHT
	Axle diamet		9/16"	23	35 48					20.6 lb.
SEAT BINDER	. Alloy w/integ	ıral bolt		25	32 44	- 55				9.35 kg.
	Inner diame		31.9	COL	ODC					
ADDITIONALS		e mounts (1 bo	ottle on 47, 49),		ORS	/Cilve-	Dod/Cil	doode a Mat	allia D	od fork
pump peg (not on 47,	49, 51)			I ^{меt}	allic Red	Silver •	Red/Silver	iecais • Met	aiiic Re	eu rork
FIT										
FIT Size		47 /0	51	22		55	57	50	6	1
Frame Size		47 49 64 64		53 68		55 71	57 72	59 74	6 7	
Frame Size Rider height Inches	(64 64	67	68	i	71	72	74	7	7
Frame Size	1		67 1 171							7 5

Stem

Crank

Seatpost

Steerer

Length, mm

Length, mm

Length, mm

Length, mm

Angle

188.5

188.5

172.5

203.5

172.5

219.5

236.0

254.5

278.5

FRAMESET								A 1:	no di	Циот
MAIN TUBES	Reynolds	s 853 Design	er Select					All	he a	Huez
STAYS	Reynolds	s 853 Design e weight	er Select	3.7 lb (1.68 kg)				•		
FORK	Carbon (3.7 to (1.00 kg)						
		l. mm								
		crown length, mm		371						
HEADSET	Cane Cre		lset	5,-						
112,13021 111	Size	en o i micuc	.500	22.2/30.2/26.4						
		height, mm		26.5						
				2009						
CONTROLS										
	3T THE									
		p diameter, mm		26.0						
STEM	3T THE v	w/shim to 25.								
CUIET LEVED		r clamp height, m		41.0						
	S Shimano			ipatible	I					
	RS Integrate Powerco		:			Why LeM	and leads	the polet	on:	
					I	,		the perot	011.	
DRIVETRAI					I	Rider: Ra	cer			
FT DERAILLE	UR Shimano				I	Frameset				
		routing		Down pull	I		nd geome	trv		
l		hment		31.8 mm/ 1 1/4"	I	I	_	· ·		
	UR Shimano				I				elect tubeset	steel feel
CRANKSET	Shimano	-			I	and du	ability, ve	ry low wei	ght	
		bole circle, mm		74/130		1	· ·	·		
BB	Shimano				I	Wheelset				
		x axle, mm	68 x 109.5,	Splined, Shimano					ed, machined	l sidewalls
CHAIN	Shimano	HG-53				for smo	oth brakir	ng		
		n type		9 speed		Committee	ata			
		n length (links)		108	I	Compone		1	=	, ,
CASSETTE	Shimano	HG70 12-25,	9spd		I	Perfo	rmance lev	⁄el- 105 gr	oup with Tia	igra hubs
WHEELSET					I					
	L Shimano	Tiagra hub	32°, Auror	a rim	I					
)., mm	, ,,,,,,,,,,,	610	I					
	Rim s			Velox 16mm						
FRONT TIRE .	IRC Red	1								
	Tire s			700 x 25c						
REAR WHEEL	Shimano		32°. Auror							
		D., mm	,	603						
				Velox 16mm						
	Rim s	1			CEA	D.T.1.0				
REAR TIRE	Rim s IRC Red	Storm				יאווט				
REAR TIRE	IRC Red			700 x 25c	GLA	RING				
	IRC Red	rize		700 x 25c	GLA	39 53	1			
	IRC Red <i>Tire s</i> DT 14G s	rize stainless			12					
	IRC Red	ize stainless s, mm		299, 3x	12	39 53 86 117				
SPOKES	IRC Red Tire sDT 14G s Front	ize stainless s, mm mm			12 13	39 53 86 117 79 108				
SPOKES	IRC Red Tire sDT 14G s Front Rear,	ize stainless s, mm mm		299, 3x	12 13 14	39 53 86 117 79 108 74 100				
SPOKES INNER TUBES OTHER	IRC Red Tire s DT 14G s Front Rear, Presta v	ize stainless s, mm mm alve		299, 3x	12 13 14 15	39 53 86 117 79 108 74 100 69 93				
SPOKES INNER TUBES OTHER	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond,	ize stainless s, mm mm alve		299, 3x 293/294, 3x	12 13 14	39 53 86 117 79 108 74 100				
SPOKES INNER TUBES OTHER SEATPOST	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond,	tainless , mm mm alve 2014 alloy r diameter, mm		299, 3x	12 13 14 15 17	39 53 86 117 79 108 74 100 69 93 61 82				
SPOKES INNER TUBES OTHER SEATPOST SADDLE	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev	tainless , mm mm alve 2014 alloy e diameter, mm w Millennium		299, 3x 293/294, 3x	12 13 14 15 17	39 53 86 117 79 108 74 100 69 93 61 82 54 74				
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy due	tainless , mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, carti		299, 3x 293/294, 3x	12 13 14 15 17 19 21	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67				WEIGHT
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM New Alloy due Shimano	tainless , mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, carti		299, 3x 293/294, 3x 27.2	12 13 14 15 17	39 53 86 117 79 108 74 100 69 93 61 82 54 74			BIKE 20.4 I	
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, carti o SPD M515, c		299, 3x 293/294, 3x	12 13 14 15 17 19 21	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67				b.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i	ize stainless mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, carti o SPD M515, c diameter integral bolt		299, 3x 293/294, 3x 27.2	12 13 14 15 17 19 21 23 25	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56			20.4 1	b.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr s SPD M515, c diameter integral bolt diameter, mm	lipless	299, 3x 293/294, 3x 27.2 9/16" 31.9	12 13 14 15 17 19 21 23	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56			20.4 1	b.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i Inner S 2 water	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr s SPD M515, c diameter integral bolt diameter, mm	lipless	299, 3x 293/294, 3x 27.2 9/16" 31.9	12 13 14 15 17 19 21 23 25	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56	د • Green/Bla	ack decals •	20.4 I 9.26 I	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr s SPD M515, c diameter integral bolt diameter, mm	lipless	299, 3x 293/294, 3x 27.2 9/16" 31.9	12 13 14 15 17 19 21 23 25	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56	< • Green/Bla	ack decals •	20.4 I 9.26 I	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i Inner S 2 water	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr s SPD M515, c diameter integral bolt diameter, mm	lipless	299, 3x 293/294, 3x 27.2 9/16" 31.9	12 13 14 15 17 19 21 23 25	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56	α • Green/Bla	ack decals •	20.4 I 9.26 I	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS	IRC Red Tire s IRC Red Tire s Front Rear, Presta v. LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/ri Inner 1 2 water 1 1 0 1 2 water 1	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount	lipless s (1 bottle d	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49),	12 13 14 15 17 19 21 23 25 COLC Meta	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS			20.4 l 9.26 k Metallic Green	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s DT 14G s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle e Alloy w/i Inner S 2 water	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr s SPD M515, c diameter integral bolt diameter, mm	lipless	299, 3x 293/294, 3x 27.2 9/16" 31.9	12 13 14 15 17 19 21 23 25	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56	< • Green/Bla	ack decals •	20.4 I 9.26 I	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s IRC Red Tire s Front Rear, Presta v. LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/ri Inner 1 2 water 1 1 0 1 2 water 1	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount	lipless s (1 bottle d	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49),	12 13 14 15 17 19 21 23 25 COLC Meta	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS			20.4 l 9.26 k Metallic Green	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s IRC Red Tire s Front Rear, Presta v. LeMond, Outer SSM Nev Alloy du Shimano Axle a Inner 1 ner 1 ner 1 ner 1 ner 2 water 1	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount	lipless s (1 bottle o	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49),	12 13 14 15 17 19 21 23 25 COLC Meta	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57	59	20.4 I 9.26 k Metallic Green	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/i Inner To a y water To n 47, 49, 51) Size Inches	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount	lipless s (1 bottle o	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49),	12 13 14 15 17 19 21 23 25 COLC Meta	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72	59 74	20.4 I 9.26 k Metallic Green 61 77	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not) FIT Frame Rider height Handlebar	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/i Inner To n 47, 49, 51) Size Inches Cm Width, mm	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount 47 64 163 420	49 64 164 420	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49), 51 67 171 440	12 13 14 15 17 19 21 23 25 COLC Meta	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72 182 460	59 74 189 460	20.4 I 9.26 k Metallic Green 61 77 195 460	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/i Inner To n 47, 49, 51) Size Inches Cm Width, mm Length, mm	ize stainless s, mm mm alve 2014 alloy r diameter, mm w Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount 47 64 163 420 80	49 64 164 420 80	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49), 51 67 171 440 100	12 13 14 15 17 19 21 23 25 COLC Meta 53 68 174 440 100	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72 182 460 110	59 74 189 460 120	20.4 I 9.26 Metallic Green 61 77 195 460 135	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not FIT Frame Rider height Handlebar Stem	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/i Inner To n 47, 49, 51) Size Inches Cm Width, mm Length, mm Angle	ize stainless s, mm mm alve 2014 alloy r diameter, mm v Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount 47 64 163 420 80 12	49 64 164 420 80 12	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49), 51 67 171 440 100 12	12 13 14 15 17 19 21 23 25 COLC Meta 53 68 174 440 100 12	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72 182 460 110	59 74 189 460 120 12	20.4 I 9.26 k Metallic Green 61 77 195 460 135 12	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not FIT Frame Rider height Handlebar Stem Crank	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Asle c Alloy w/i Inner To n 47, 49, 51) Size Inches Cm Width, mm Length, mm Angle Length, mm	ize stainless s, mm mm alve 2014 alloy r diameter, mm v Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount 47 64 163 420 80 12 170	49 64 164 420 80 12 170	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49), 51 67 171 440 100 12 172.5	12 13 14 15 17 19 21 23 25 COLC Meta 53 68 174 440 100 12 172.5	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72 182 460 110 12 175	59 74 189 460 120 12 175	20.4 I 9.26 k Metallic Green 61 77 195 460 135 12 175	b. .g.
SPOKES INNER TUBES OTHER SEATPOST SADDLE BRAKES PEDALS SEAT BINDER ADDITIONALS pump peg (not FIT Frame Rider height Handlebar Stem	IRC Red Tire s IRC Red Tire s Front Rear, Presta v LeMond, Outer SSM Nev Alloy du Shimano Axle c Alloy w/i Inner To n 47, 49, 51) Size Inches Cm Width, mm Length, mm Angle	ize stainless s, mm mm alve 2014 alloy r diameter, mm v Millennium al pivot, cartr o SPD M515, c diameter integral bolt diameter, mm bottle mount 47 64 163 420 80 12	49 64 164 420 80 12	299, 3x 293/294, 3x 27.2 9/16" 31.9 on 47, 49), 51 67 171 440 100 12	12 13 14 15 17 19 21 23 25 COLC Meta 53 68 174 440 100 12	39 53 86 117 79 108 74 100 69 93 61 82 54 74 49 67 45 61 41 56 ORS allic Green/Black	57 72 182 460 110	59 74 189 460 120 12	20.4 I 9.26 k Metallic Green 61 77 195 460 135 12	b. .g.

FRAMESET	1						1	11	AILL T
	Reynold	s 853 Desig	ner Select				#	41pe	d'Huez T
	Reynold							•	
		ie weight		3.7 lb (1.68 kg)					
FORK	Carbon								
		el, mm crown length, mn	10	371					
HEADSET	Cane Cro			3/1					
I HEADSET	Size	cen o i Ance	iusci	22.2/30.2/26.4					
	Stack	height, mm		26.5					
CONTROLS									
	3T THE								
HANDLEBAN		ıp diameter, mm		26.0					
STEM	3T THE		5.4						
		er clamp height, n		41.0		Why LeMo	ond leads	the pelot	on:
	S Shimano	•		mpatible		Rider: Ra	cer		
	RS Integrat		ft			Frameset			
	Powerco	ork					nd geomet	trv	
DRIVETRAI	= :								1
FT DERAILLE	UR Shimano								elect tubeset- steel feel
		e routing		Down pull		and dur	rability, ve	ry Iow wei	gnt
DD DEDAULT		hment		31.8 mm/ 1 1/4"		Wheelset			
	EUR Shimano Shimano		/30				ra rims- ae	ro for spe	ed, machined sidewalls
CRAINASEI .) 105 52/42/ hole circle, mm	50	74/130		for smo	oth brakir	ng	,
BB	Shimand			7 1/150				O	
		x axle, mm	68 x 118	, Splined, Shimano		Componer		1 105	
CHAIN	Shimand	HG-53							ith Tiagra hubs, triple
		n type		9 speed		Chainrii	ng gearing	g makes u	ne hills a little easier
		n length (links)	- 01	108					
	Shimano	HG/U 12-25	o, 9spa						
WHEELSET									
FRONT WHEE	L Shimano		, 32°, Auro						
	E.R.I Rim	D., mm		610 Velox 16mm					
FRONT TIRE	IRC Red	•		veiox 10mm					
	Tire .			700 x 25c					
REAR WHEEL	Shimano	Tiagra hub,	, 32°, Auro	ra RDR rim					
		D., mm		603					
DEAD TIDE	Rim	•		Velox 16mm					
REAR TIRE .	IRC Red			700 x 25c	GEA	RING	1		
SPOKES	DT 14G s			/00 x 23c	0.2.	30 42 52	1		
31 01(23		t, mm		299, 3x	12	66 93 115			
	Rear,			293/294, 3x		61 85 106			
INNER TUBES	S Presta v	alve			113				
OTHER					14	57 79 98			
	LeMond,	, 2014 alloy			15	53 74 92			
	Oute	r diameter, mm		27.2	17	47 65 81			
	SSM Nev				19	42 58 72			
	Alloy du				21	38 53 66			BIKE WEIGHT
PEDALS	Shimano		clipless		23	35 48 60			20.7 lb.
CEAT DINIDED		diameter intogral holt	,	9/16"	25	32 44 55			9.40 kg.
SEAL BINDER	? Alloy w/	integral boit r diameter, mm		31.9		J_ +- JJ			
ADDITIONALS	S 2 water		ts (1 bottle		COL				
	ot on 47, 49, 51)			//	Met	allic Green/Black	c • Green/Bla	ack decals •	Metallic Green fork
, , , , , , , , , , , ,	, ,,,								
FIT									
Frame	Size	47	49	51	53	55	57	59	61
Rider height	Inches	4 <i>1</i> 64	49 64	51 67	53 68		5 <i>1</i> 72	59 74	61 77
I Maei Height	Cm	163	164	171	174		182	189	195
Handlebar	Width, mm	420	420	440	440		460	460	460
Stem	Length, mm	80	80	100	100		110	120	135
	Angle	12	12	12	12	12	12	12	12
Crank	Length, mm	170	170	170	175		175	175	175
Seatpost	Length, mm	250	250	250	250		250	250	250
Steerer	Length, mm	188.5	188.5	203.5	219.	5 236.0	254.5	278.5	298.5

FRAMESET	D	(- 052 Davis	C.lt						-	Γοι	urmalet
	Reynold									. •	
STAYS	Reynold	is 853 Desigi ne weight	ner Select	3.7 lb (1.68 kg)							
FORK	Aero Cr			3.7 W (1.00 kg)							
		vel, mm									
		-crown length, mr	n	371							
HEADSET	STS Ahe										
	Size	k height, mm		22.2/30.2/26.4 24.5							
	Staci	t neight, mm		24.3							
CONTROLS											
HANDLEBAR	Alloy Er	-		26.0							
STEM	3T THE	np diameter, mm rer clamp height, n		26.0 41.0							
SHIFT I EVERS	steer S Shiman	1 0									
BRAKE LEVER	RS Integrat	ed brake/shi					v	ond leads	the pelot	on:	
		эгк				R	ider: Ra	icer			
DRIVETRAIN						F	rameset				
FT DERAILLEU	JR Shimano Cabi	o Tiagra le routing		Down pull				nd geome	· ·		
		chment		31.8 mm/ 1 1/4"							ubeset- steel feel
	UR Shimano		20				and du	rability, ve	ry low wei	ght	
CRANKSEI	Shimano	o Hagra 53/. hole circle, mm	39	74/130		Ιw	heelset				
BB	Shiman			/4/130			Auroi	ra rims- ae	ro for spee	ed. ma	chined sidewalls
55		l x axle, mm		68 x 110, Square				oth brakir		,	
CHAIN	SRAM P	C-59 Power		-			omnono	nta	O		
		in type		9 speed			ompone		ual Tiagma	~	with O and
CACCETTE	Chai	in length (links)	= Oand	108			offers le	rmance lev	ei- Hagra	group	with 9 speed hoose from
	Sillilland	J NG50 12-23	o, 9spu				oners ic	01 01030	e-ratio geal	13 10 0	noose nom
WHEELSET	Allan 0	D bub 220	A								
FRONT WHEEL	Alloy, Q	R nub, 32°, . D., mm	Aurora rim	610							
		strip		Velox 16mm							
FRONT TIRE .	IRC Red	Storm									
	Tire			700 x 25c							
REAR WHEEL		D., mm	32°, Auror	603							
DEAD TIDE		strip		Velox 16mm			-	_			
REAR TIRE	IRC Red			700 x 25c	GEA.						
SPOKES	DT 14G			700 x 23t		39					
0. 0		ıt, mm		299, 3x	12	86	117				
		; mm		293/294, 3x	13	79	108				
INNER TUBES	Presta v	/alve			14	74	100				
OTHER					15	69	93				
SEATPOST	Alloy mi	•			17	61	82				
		er diameter, mm		27.2	19	54					
	SSM Ne		1		21	49				Г	DIVE WEIGHT
	Alloy du		inc and etra	ne	23	45					BIKE WEIGHT 21.7 lb.
	Axle	diameter	•	9/16"	25 25	41					9.85 kg.
SEAT BINDER	Alloy w/	lintegral bolt Integral bolt		31.9	COL)DC					
ADDITIONALS	2 water		ts (1 bottle		COL		Metallic/S	Silver Metalli	r • Silvar/Rlı	ie decal	ls • Medium Blue
pump peg (not			•	, , ,		allic fo	· -	onver metani	c · Silvei/ Dic	ie uecai	is - Medidili Bide
FIT											
Frame	Size	47	49	51	53		55	57	59	61	
Rider height	Inches	64	64	67	68		71	72	74	77	
-	Cm	162	163	171	174		180	182	188	195	5
Handlebar	Width, mm	420	420	440	440		460	460	460	46	0
Stem	Length, mm	80	80	100	100		110	110	120	135	
C	Angle	12	12	12	12		12	12	12	12	
Crank	Length, mm	170	170	170	170		175	175	175	175	
Seatpost	Length, mm	250 186.5	250 186.5	250 201.5	250 217.5		250 234.0	250 252.5	250 276.5	250	
Steerer	Length, mm		126 6	2016					7/6 6	296	. 5

FRAMESET]		
	Reynolds 853 Designer Sele	ct			
STAYS					
31A13	Frame weight	3.7 lb (1.68 kg)			
FORK		317 20 (1100 Ng)			
	Travel, mm				
	Axle-crown length, mm	371			
HEADSET	STS Aheadset				
	Size	22.2/30.2/26.4			
	Stack height, mm	24.5			
CONTROLS					
HANDLEBAR	Alloy Ergo Clamp diameter, mm	26.0			
STEM	-	41.0			
SHIFT I EVERS	Shimano Tiagra STI Dual Co				
	Integrated brake/shift			Why Le	Mond leads
GRIPS				Rider:	
DRIVETRAIN					
	Shimano Tiagra T			Frames	
FT DERAILLEUR	Cable routing	Down pull		Lel	Mond geomet
	Cavie routing Attachment	31.8 mm/ 1 1/4"		Re	ynolds 853 D
RR DERAILLEUR		51.0 mm 1 1/4			durability, ver
	Shimano Tiagra 52/42/30 Bolt hole circle, mm	74/130		Wheels	· ·
BB	· ·	/4/130		Au	rora rims- aeı
J	Shell x axle, mm	68 x 113, Square		for si	mooth brakin
CHAIN		55 × 115, 59uure			•
	Chain type	9 speed		Compo	
	Chain length (links)	108			rformance lev
CASSETTE	Shimano HG50 12-25, 9spd			rings	s and 9 speed
WHEELSET				choo	se from
	Alloy, QR hub, 32°, Aurora r	im			
	E.R.D., mm	610			
	Rim strip	Velox 16mm			
FRONT TIRE	1				
	Tire size	700 x 25c			
REAR WHEEL	Shimano Tiagra hub, 32°, A	urora RDR rim			
	E.R.D., mm	603			
	Rim strip	Velox 16mm			
REAR TIRE			CEAD	INC	
	Tire size	700 x 25c			
SPOKES				30 42 52	
	Front, mm	299, 3x		56 93 115	
INNER TUBES	Rear, mm	293/294, 3x	13 6	51 85 106	5
-	riesta vaive		14 5	57 79 98	
OTHER				53 74 92	
SEATPOST			L		
CARRIE	Outer diameter, mm	27.2		47 65 81	
SADDLE				42 58 72	
BRAKES			21 3	38 53 66	
PEDALS	Alloy/alloy cage w/clips and		23 3	35 48 60	
CEAT DIVIDED	Axle diameter	9/16"		32 44 55	
SEAT BINDER		2	`	JE 44 JJ	
ADDITIONALS	Inner diameter, mm 2 water bottle mounts (1 bot	31.9	COLO	RS	_
		.tie Uli 47, 49),			c/Silver Metallic
pump peg (not on 47,	79, JI)		Metall		

Tourmalet T

the peloton:

etry

Designer Select tubeset- steel feel ery low weight

ero for speed, machined sidewalls

vel- Tiagra group with triple chaind offers lots of close-ratio gears to

> BIKE WEIGHT 22.0 lb. 9.99 kg.

ic • Silver/Blue decals • Medium Blue Metallic fork

FIT										
Frame	Size	47	49	51	53	55	57	59	61	
Rider height	Inches	64	64	67	68	71	72	74	77	
	Cm	162	163	171	174	180	182	188	195	
Handlebar	Width, mm	420	420	440	440	460	460	460	460	
Stem	Length, mm	80	80	100	100	110	110	120	135	
	Angle	12	12	12	12	12	12	12	12	
Crank	Length, mm	170	170	170	170	175	175	175	175	
Seatpost	Length, mm	250	250	250	250	250	250	250	250	
Steerer	Length, mm	186.5	186.5	201.5	217.5	234.0	252.5	276.5	296.5	

FRAMESET		Tourmalat T warmania
MAIN TUBES Reynolds 853 Designer Select		Tourmalet T women's
STAYS Reynolds 853 Designer Select		
Frame weight	3.7 lb (1.68 kg)	
FORK Aero Cro-Moly		
Travel, mm		
Axle-crown length, mm	371	
HEADSET STS Aheadset		
Size	22.2/30.2/26.4	
Stack height, mm	24.5	
CONTROLS		
HANDLEBAR Alloy Ergo		
Clamp diameter, mm	26.0	
STEM 3T THE	20.0	
Steerer clamp height, mm	41.0	
SHIFT LEVERS Shimano Tiagra STI Dual Control		
BRAKE LEVERS Integrated brake/shift		Why LeMond leads the peloton:
GRIPS Powercork		1
DRIVETRAIN		Rider: Racer
FT DERAILLEUR Shimano Tiagra T		Frameset
	Down tull	LeMond Women's geometry
Cable routing Attachment	Down pull 31.8 mm/ 1 1/4"	
RR DERAILLEUR Shimano 105 GS	31.0 mm 1 1/1	Reynolds 655 Designer Select tubeset- steel leef
CRANKSET Shimano Tiagra 52/42/30		and durability, very low weight
Bolt hole circle, mm	74/130	Wheelset
BB Shimano BB-UN40		Aurora rims- aero for speed, machined sidewalls
Shell x axle, mm	68 x 113, Square	
CHAIN SRAM PC-59 Power	•	
Chain type	9 speed	
Chain length (links)	108	Terrormance lever Tragita group with triple chain
CASSETTE Shimano HG50 12-25, 9spd		rings and 9 speed offers lots of close-ratio gears to
WHEELSET		choose from
FRONT WHEEL Alloy, QR hub, 32°, Aurora rim		Size specific- componenets selected to optimize a
E.R.D., mm Rim strip	610 Velox 16mm	woman's performance; cranks, handlebars, saddle
FRONT TIRE IRC Red Storm		
Tire size	700 x 25c	
REAR WHEEL Shimano Tiagra hub, 32°, Auror	a RDR rim	
E.R.D., mm	603	
Rim strip	Velox 16mm	
REAR TIRE IRC Red Storm	500 25	GEARING
Tire size	700 x 25c	30 42 52
SPOKES DT 14G stainless Front, mm	299, 3x	12 66 93 115
rioni, mm Rear, mm	293, 3x 293/294, 3x	l l
INNER TUBES Presta valve	2731274, 38	
OTHER		15 53 74 92
SEATPOST Alloy micro-adjust	27.2	17 47 65 81
Outer diameter, mm SADDLE Oasis women's	27.2	19 42 58 72
BRAKES Alloy dual pivot		21 38 53 66 BIKE WEIGHT
PEDALS Alloy/alloy cage w/clips and stra	ns	23 35 48 60 21.8 lb.
Axle diameter	9/16"	
SEAT BINDER Alloy w/integral bolt	2/10	25 32 44 55 9.90 kg.
Inner diameter, mm	31 9	COLORS
ADDITIONALS 2 water bottle mounts	52.5	Dark Blue Metallic/Silver Metallic • Silver/Blue decals • Medium Blue
		Metallic fork
FIT		
Frame Size 45 49	53	
Rider height Inches 63 64	67	
Cm 161 163	171	
Handlehar Width mm 420 420	420	

Handlebar

Stem

Crank

Seatpost

Steerer

Width, mm

Angle

Length, mm

Length, mm

Length, mm

Length, mm

420

80

12

170

250

186.5

420

80

12

170

250

201.5

420

100

12

170

250

217.5

					1		
FRAMESET							
	Reynold						
STAYS	Reynold	-	ner Select	2 = 11 (4 (2 1)			
EODK	<i>Fran</i> Aero Cr	ne weight		3.7 lb (1.68 kg)			
rokk		vel, mm					
		-crown length, mn	ı	371			
HEADSET	STS Ah			5,1			
	Size			22.2/30.2/26.4			
	Stac	k height, mm		24.5			
CONTROLS							
HANDLEBAR	Alloy Er	go					
	Clar	np diameter, mm		26.0			
STEM	Alloy qι	iick change, o	direct conn	ect			
		rer clamp height, n		40.0			
	S Shiman						
	RS Integrat	-	rt		[Why I el	Iond leads t
	Powerco	DIK					
DRIVETRAI						Rider: R	
FT DERAILLE	UR Shiman					Framese	
		le routing		Down pull		LeM	ond geometr
	Atta UR Shiman	chment		31.8 mm/ 1 1/4"		Revi	nolds 853 De
	Shiman		/20				ırability, very
CRAINISEI .		hole circle, mm	/30	74/130			0 0
BB	Shiman			7 17130		Wheelset	
		l x axle, mm		68 x 113, Square			ora rims- aero
CHAIN	HG-50			1		for sm	ooth braking
	Cha	in type		3/32"		Compone	ents
		in length (links)		108			nusiast level-
CASSETTE .	Shiman	o HG50 13-26	5, 8spd				nd brake wit
WHEELSET						the lev	
FRONT WHEE	L Alloy, Q	R hub, 32°,	Aurora rim			0110 10 1	0101
	E.R.	D., mm		610	L		
		strip		Velox 16mm			
FRONT TIRE	IRC Red						
DEAD WHEEL	Tire		A	700 x 25c			
REAR WHEEL	Alloy, Q	R 11ub, 32°, 1 D., mm	Autora RDR	603			
		D., mm strip		Velox 16mm			
REAR TIRE	IRC Red	1		veion 10mm			_
	Tire			700 x 25c	GEARI	NG	
SPOKES	DT 14G					0 42 52	
		et, mm		299, 3x	13 6	1 85 106	
		; mm		293/294, 3x		7 79 98	
INNER TUBES	S Presta v	/alve					
OTHER						3 74 92	
	Bontrag	er Sport				7 65 81	
		er diameter, mm		27.2	19 4	2 58 72	
SADDLE	SSM Ne	w Millennium	1		21 3	8 53 66	
	Alloy dι	•			23 3	5 48 60	
PEDALS	Alloy w	clips and str	aps			1 43 53	
		diameter		9/16"	1 -5 3	3 33	
SEAT BINDER	l Alloy w	-					
		r diameter, mm		31.9	COLOR	25	
	5 2 water	bottle moun	ts (1 bottle	on 47, 49),			Metallic • Silve
pump peg (no	t on 47, 49, 51)				Jiiveri	metanic/ blue	. Metanic - Silve
FIT							
Frame	Size	47	49	51	53	55	57
Rider height	Inches	64	65	67	69	71	72
	Cm	163	165	170	175	179	184
Handlebar	Width, mm	420	420	440	440	460	460
Stem	Length, mm	85	90	100	110	110	120
	Angle	0	0	0	0	0	0
Crank	Lenath. mm	170	170	170	170	175	175

Nevada City

the peloton:

esigner Select tubeset- steel feel y low weight

o for speed, machined sidewalls

- Sora group with Dual Control-thout moving your hands from

BIKE WEIGHT 23.0 lb. 10.44 kg.

er/Blue decals • Silver Metallic fork

FIT										
Frame	Size	47	49	51	53	55	57	59	61	
Rider height	Inches	64	65	67	69	71	72	74	76	
	Cm	163	165	170	175	179	184	188	193	
Handlebar	Width, mm	420	420	440	440	460	460	460	460	
Stem	Length, mm	85	90	100	110	110	120	120	130	
	Angle	0	0	0	0	0	0	0	0	
Crank	Length, mm	170	170	170	170	175	175	175	175	
Seatpost	Length, mm	250	250	250	250	250	250	250	250	
Steerer	Length, mm	185.5	185.5	200.5	216.5	233.0	251.5	275.5	295.5	

LeMond Cyclo-cross

For 2002

We first built a Reynolds 853 LeMond in 1996. The Poprad uses this same great material, but in a competition cyclocross design. The frame remains unchanged from its introduction in 2001.

Geometry

The Poprad combines dirt-worthy handling with the advanced ergonomics of Greg's geometry to create a fast, stable ride.

The dirt features of the geometry include a slacker head tube for more trail. This allows the bike to track straighter in rough terrain. The bottom bracket is a touch higher, increasing pedal clearance for ruts and sidehills. The chainstays are longer, so the bike is more comfortable on rough surfaces. There is a lot more tire clearance, for riding bigger tires, or in muddy conditions

Although the function of the bike is different, the rider compartment is within 1 or 2 millimeters of being exactly the same as our road bikes. If you like your LeMond road bike on pavement, you'll love the Poprad in the dirt.

Ride

Steel is famous for two things: durability and ride quality. Combined with Greg's geometry, the Poprad give an awesome ride.

The outstanding ride qualities of this frame is a smooth, comfortable ride and a wonderful reassurance in soft conditions.

Frame details

Starting with the butted tubeset, we've put the stiffness and strength where it needs to be. The material, wall thicknesses, and butting reduced the overall weight to make these very light steel framesets.

853 Designer Select

The Poprad is built from round 853 Designer Select tubes. This tubeset combines an 853 main triangle with Reynolds 525 stays. 853 and 525 have the same modulus (stiffness), but 853 has a greater tensile strength. In the main triangle, the higher strength of 853 allows us to use thinner, lighter tubes. With the stays, there's a limit on how thin the metal can be that's not determined by strength, but weldable thickness. If the material were any thinner, it would be extremely difficult to make a reliable weld. Since the 525 stays are already stronger than they need to be, there's no performance advantage to using 853 in the stays, just added cost.

All LeMond road bikes have 2 water bottle mounts.

	Frame sizes	49	52	55	57	59
	Head angle	72.0	72.0	72.5	72.5	73.0
	Seat angle	74.0	73.5	73.0	72.5	72.5
Ŋ						
MILLIMETERS	Standover	776	795	817	833	852
Ē	Seat tube	519	549	578	598	618
Ĭ.	Head tube	85	100	116	133	151
ij	Eff top tube	525	542	562	578	590
	Chainstays	430	430	430	430	430
\geq	BB height	269	269	269	269	269
	Offset	45	45	45	45	45
	Trail	65	65	62	62	59
	Wheelbase	992	1004	1015	1025	1033
	Standover	30.5	31.3	32.2	32.8	33.5
ES	Seat tube	20.4	21.6	22.8	23.5	24.3
H	Head tube	3.3	3.9	4.6	5.2	5.9
INCHES	Eff top tube	20.7	21.3	22.1	22.7	23.2
_	Chainstays	16.9	16.9	16.9	16.9	16.9
	BB height	10.6	10.6	10.6	10.6	10.6
	Offset	1.8	1.8	1.8	1.8	1.8
	Trail	2.6	2.6	2.4	2.4	2.3
	Wheelbase	39.0	39.5	39.9	40.4	40.7

FRAMESET]	Danzad
MAIN TUBES Reynolds 853 Designer Se			Poprad
STAYS Reynolds 853 Designer Se			-
Frame weight FORK StraightBlade Cross	3.7 lb (1.70 kg)		
Travel, mm			
Axle-crown length, mm	405		
HEADSET STS Aheadset			
Size	22.2/30.2/26.4		
Stack height, mm	24.5		
CONTROLC			
CONTROLS HANDLERAD Bentrager Dags CV			
HANDLEBAR Bontrager Race CX Clamp diameter, mm	25.4		
STEM Bontrager Comp	25.1		
Steerer clamp height, mm	41.0	Why Le	eMond leads the peloton:
SHIFT LEVERS Shimano Sora STI Dual Co	ntrol	Rider:	Racer
BRAKE LEVERS Integrated brake/shift		Frames	set
GRIPS Powercork			Mond geometry
DRIVETRAIN		1	ynolds 853 Designer Select tubeset- steel feel
FT DERAILLEUR Shimano Sora	_	l and	durability, very low weight
Cable routing	Down pull		v v
Attachment RR DERAILLEUR Shimano Sora	31.8 mm/ 1 1/4"	Wheels	
CRANKSET Shimano Sora 52/39			rora rims- aero for speed, machined sidewalls
Bolt hole circle, mm	130	for s	mooth braking
BB Shimano BB-UN40			ntrager Jones CX tires- grip designed by a
Shell x axle, mm	68 x 110, Square	mou	ntain bike legend
CHAIN HG50	0.00 = 11	Compo	nents
Chain type Chain length (links)	3/32" 112		athusiast level- Sora group with 'Cross gearing-
CASSETTE Shimano HG50 13-26, 8sp		wide	range, yet shift accuracy of a double chainring
WHEELSET		1	orty 4 brakes- powerful stopping, low clearance
FRONT WHEEL Alloy, QR hub, 32°, Auror	a rim	1 1	
E.R.D., mm	610		tegra bar-end shifters- durable for real 'Cross
Rim strip	Velox 16mm	actio	on
FRONT TIRE Bontrager Jones CX			
Tire size	700 x 32c		
REAR WHEEL Alloy, QR hub, 32°, Auror	a RDR rim		
Rim strip	Velox 16mm		
REAR TIRE Bontrager Jones CX		an in the	
Tire size	700 x 32c	GEARING	
SPOKES 14G stainless		39 52	
Front, mm Rear, mm	299, 3x		
INNER TUBES Presta valve	293/294, 3x	14 75 100	
OTHER		15 70 94	
SEATPOST Bontrager Sport		17 62 83	
Outer diameter, mm	27.2	19 55 74	
SADDLE SSM New Millennium	27.2	21 50 67	
BRAKES Avid Shorty 4		23 46 61	BIKE WEIGHT
PEDALS Shimano SPD M515, cliple		26 41 54	23.8 lb.
Axle diameter	9/16"	-~ -, ,,	10.81 kg.
SEAT BINDER Alloy w/integral bolt, cable	-		10.01 kg.
Inner diameter, mm ADDITIONALS 2 water bottle mounts	31.9	COLORS	
Stem shim from 1" to 1 1/8"			ange • White/Gold decals • Gold Metallic fork
Front cable hanger			
•		L	
FIT Size 49 5	2 EF	57 50	
Frame Size 49 5 Rider height Inches 67 6		57 59 73 74	
		13 14	
l Cm 169 17		185 190	
Cm 169 17 Handlebar Width. mm 420 44	5 179	185 189 460 460	
Handlebar Width, mm 420 44	5 179 10 460	185 189 460 460 120 120	
Handlebar Width, mm 420 44	5 179 40 460 95 105	460 460	
Handlebar Width, mm 420 44 Stem Length, mm 90 10	15 179 10 460 15 105 0 10	460 460 120 120	
Handlebar Width, mm 420 44 Stem Length, mm 90 10 Angle 5 10	179 140 460 15 105 0 10 15 175 00 300	460 460 120 120 10 10	

LeMond Hybrid

For 2002

We first built a Reynolds 853 LeMond in 1996. The Poprad uses this same great material, but in a competition cyclocross design. The frame remains unchanged from its introduction in 2001.

Geometry

The Wayzata combines the advanced ergonomics of Greg's geometry with an upright, city-type position to create a fast, stable ride.

The hybrid features of the geometry include a slacker head tube for more trail. The chainstays are longer, so the bike is more comfortable on rough surfaces. There is a lot more tire clearance, for riding bigger tires.

Ride

Steel is famous for two things: durability and ride quality. Combined with Greg's geometry, the Wayzata give an awesome ride. Its very nimble and lively feeling, as well as providing a great amount of comfort.

Frame details

Starting with the butted tubeset, we've put the stiffness and strength where it needs to be. The material, wall thicknesses, and butting reduced the overall weight to make these very light steel framesets.

853 Designer Select

The Wayzata is built from round 853 Designer Select tubes. This tubeset combines an 853 main triangle with Reynolds 525 stays. 853 and 525 have the same modulus (stiffness), but 853 has a greater tensile strength. In the main triangle, the higher strength of 853 allows us to use thinner, lighter tubes. With the stays, there's a limit on how thin the metal can be that's not determined by strength, but weldable thickness. If the material were any thinner, it would be extremely difficult to make a reliable weld. Since the 525 stays are already stronger than they need to be, there's no performance advantage to using 853 in the stays, just added cost.

All LeMond hybrid bikes have 2 water bottle mounts.

	Frame sizes	49	52	55	57	59
	Head angle	72.0	72.0	72.5	72.5	73.0
	Seat angle	74.0	73.5	73.0	72.5	72.5
Ñ	Ü					
MILLIMETERS	Standover	776	795	817	833	852
H	Seat tube	519	549	578	598	618
Ξ	Head tube	85	100	116	133	151
Ţ	Eff top tube	525	542	562	578	590
	Chainstays	430	430	430	430	430
2	BB height	269	269	269	269	269
	Offset	45	45	45	45	45
	Trail	65	65	62	62	59
	Wheelbase	992	1004	1015	1025	1033
	Standover	30.5	31.3	32.2	32.8	33.5
ES	Seat tube	20.4	21.6	22.8	23.5	24.3
H	Head tube	3.3	3.9	4.6	5.2	5.9
INCHES	Eff top tube	20.7	21.3	22.1	22.7	23.2
—	Chainstays	16.9	16.9	16.9	16.9	16.9
	BB height	10.6	10.6	10.6	10.6	10.6
	Offset	1.8	1.8	1.8	1.8	1.8
	Trail	2.6	2.6	2.4	2.4	2.3
	Wheelbase	39.0	39.5	39.9	40.4	40.7

FRAMESET							
MAIN TUBES Reynolds 853 Designer S	elect Cross						
STAYS Reynolds 853 Designer Select Cross							
Frame weight	3.7 lb (1.70 kg)						
FORK StraightBlade Cross							
Travel, mm							
Axle-crown length, mm	405						
HEADSET STS Aheadset							
Size	22.2/30.2/26.4						
Stack height, mm	24.5						

Wayzata

CONTROLS		
HANDLEBAR	Bontrager Select	
	Clamp diameter, mm	25.4
STEM	Bontrager Comp	
	Steerer clamp height, mm	41.0
SHIFT LEVERS	Shimano R440	
BRAKE LEVERS	Avid AD 3L, long pull	
GRIPS	Serfas dual density	
DRIVETRAIN		
FT DERAILLEUR	Shimano Tiagra T	
	Cable routing	Down pull
	Attachment	31.8 mm/ 1 1/4"
RR DERAILLEUR	Shimano Tiagra GS	
CRANKSET	Shimano Tiagra 52/42/30	
	Bolt hole circle, mm	74/130
BB	Shimano BB-UN40	
	Shell x axle, mm	68 x 113, Square
CHAIN	SRAM PC-59 Power	
	Chain type	9 speed
	Chain length (links)	106
CASSETTE	Shimano HG50 12-25, 9spd	
WHEELSET		
FRONT WHEEL	Bontrager Select Road, 20°	
	E.R.D., mm	592
	Rim strip	Velox 16mm
FRONT TIRE	Continental Ultra 3000	

Rider: Racer Frameset

LeMond geometry

Reynolds 853 Designer Select tubeset- steel feel and durability, very low weight

Wheelset

Aurora rims- aero for speed, machined sidewalls for smooth braking

Bontrager Jones CX tires- grip designed by a mountain bike legend

Components

Enthusiast level- Sora group with 'Cross gearingwide range, yet shift accuracy of a double chainring Shorty 4 brakes- powerful stopping, low clearance Ultegra bar-end shifters- durable for real 'Cross action

ı	FRONT TIRE Continental Ultra 3000			
ı	Tire size	700 x 23c		
ı	REAR WHEEL Bontrager Select Road, 24°			
ı	E.R.D., mm	603		
ı	Rim strip	Velox 16mm		
ı	REAR TIRE Continental Ultra 3000		CE	ADINI
ı	Tire size	700 x 23c	GE	ARIN
ı	SPOKES DT 14/15G butted stainless			30
ı	Front, mm	278, Radial	12	68
ı	Rear, mm	293/294, 2x	13	62
ı	INNER TUBES Presta valve, 48mm stem		14	
ı	OTHER			58
ı	SEATPOST Bontrager Sport		15	54
ı	Outer diameter, mm	27.2	17	48
ı	SADDLE SSM New Millennium		19	43
ı	BRAKES Avid Single Digit 3, linear pull		21	39
ı	PEDALS Shimano SPD M515, clipless			
ı	Axle diameter	9/16"	23	35
ı	SEAT BINDER Alloy w/integral bolt		25	32
ı	Inner diameter, mm	31.9		
ı	ADDITIONALS 2 water bottle mounts		COI	LORS
ı	Stem shim from 1" to 1 1/8"		Tita	anium
ı			İ	
ı			4	

	30	42	52	l		
12	68	95	117			
13	62	87	108			
14	58	81	100			
15	54	76	94			
17	48	67	83			
19	43	60	74			
21	39	54	67			
23	35	49	61			
25	32	45	56			
COLORS						

BIKE WEIGHT 23.8 lb. 10.81 kg.

n/Pearl White • Black/Titanium decals • Titanium fork

FIT								
Frame	Size	49	52	55	57	59		
Rider height	Inches	64	66	68	70	72		
	Cm	161	168	173	179	183		
Handlebar	Width, mm	600	600	600	600	600		
Stem	Length, mm	90	105	105	120	120		
	Angle	5	10	10	10	10		
Crank	Length, mm	170	175	175	175	175		
Seatpost	Length, mm	300	300	300	300	300		
Steerer	Length, mm	171.5	186.5	202.5	219.0	237.5		

A Word About Torque Specifications

Torque is a measurement of the tightness of a threaded fastener such as a screw or bolt, determined by using a torque wrench. The torque specifications in this manual are listed to help you determine the correct tightness of parts and their threaded fasteners. More than anything, these should be used to make sure you do not over tighten the fasteners. Applying more than recommended torque to a fastener does not provide extra holding power and may actually lead to damage or failure of a part. For example, over tightening bar ends can crush a handlebar. Once a part is tight enough to stay tight and be safe, it rarely does any good to tighten the part any further.

We offer a range of torque specifications. Similar parts in different bikes may require different torques due to slight differences.

There are simple function tests you should perform to make sure a part is properly tightened. They should be performed whether a torque wrench was used or not and will suffice as a test for proper tightness if you do not have a torque wrench. As an example after assembling a bike you should determine if a stem is properly tightened to the fork. Place the front wheel between your knees and try to rotate the stem by twisting the handlebars from side to side. If the stem does not twist, it is properly tightened. While this test is somewhat subjective, it places a much greater force on the system than is required of the stem clamping force in normal riding.

Torque Specs and Fastener Prep

Item	LB•IN	Nm
Handlebars Handlebar clamp bolt, forged stem Handlebar clamp bolt, welded stem	150-180	17-20.3
5mm allen wrench	100-120	11.3-13.6
Double clamp bolts, 4mm allen	45-60	5-6.8
Stem expander wedge bolt	175-260	19.8-29.4
Direct connect steerer clamp bolt		
External pinch type	100-120	11.3-13.6
ICON stem w/external bolts	70-90	7.9-10.1
Bar end attaching bolts	85-125	9.8-14.1
Seats		
Single seat attaching bolt w/6mm allen	125-200	14.1-22.6
Double seat attaching w/5mm allen	95-150	10.7-17
Double seat attaching w/4mm allen	35-55	4-6.2
Seat post binder bolt	50-180	17-20.3
Cranks		
Crank arm bolt, Shimano	310-380	35-43
Chainring bolt	50-70	5.7-7.9
Pedal attachment	350-380	40.2-42.9
Shimano cartridge fixed cup	350-608	40-70
Wheels		
Shimano cassette lock ring	261-434	30-50
Derailleurs/Shifters		
Front derailleur clamp bolt, clamp	25-35	2.8-4
Front derailleur clamp bolt, braze-on	44-60	4.9-6.8
Rear derailleur attaching bolt	70-85	7.9-9.6
Front and rear derailleur cable clamp bo	olt 35-52	3.5-5.9
Shifter clamp bolt	44	5
Combi shift/brake lever attaching bolt	53-69	6-8
Brakes		
Brake lever attaching bolt, standard	44-60	5-6.8
Integrated shift/brake lever attach bolt	53-69	6-8
Brake caliper attaching bolt	69-87	8-10
Cantilever/direct pull brake attach bolt	44-60	4.9-6.8
Caliper brake pad attaching bolt	43-61	5-7
Cantilever/direct pull brake pad attach r		7.9-9
Brake cable clamping bolt	50-70	5.7-7.9
Int'national disc brake adapter, outer bo		10.7-13
Int'national disc brake adapter, inner bo		5.7-8.5
Rotor attachment bolt	40-60	4.5-6.8
Hayes caliper attachment bolt	60	6.8
Hayes lever clamp bolt	15-25	1.7-2.8
Frame Attachments		
Water bottle attaching bolt	20-25	2.3-2.8
Derailleur hanger attachment bolt	50-70	5.7-7.9
Sugar		
Shock mount bolts	133-164	15-18.5
Pivot bolts	95-115	10.7-13
Linkage bolts	50-75	5.7-8.5
Suspension Forks		
Brake boss	60	6.8

Loctite Applications

We use Loctite, or similar product, in a variety of applications in fabrication and assembly of Fisher and LeMond bikes, and components on those bikes. Here's a partial list, and the recommended Loctite product:

242 Blue
242 Blue
242 Blue
290 Green
242 Blue
290 Green
242 Blue

Use Loctite carefully. Follow the instructions on the package, avoiding contact with your skin, or inhaling the vapors. As noted on the package, Loctite contains a known carcinogen.

For Loctite to work correctly, the parts must be clean and dry, with no grease, oil, or dirt. Loctite Kleen 'N Prime is an excellent cleaner and will reduce fixture time.

With blue 242 Loctite, apply to the threads prior to assembly. It will set up in 20 minutes, with full cure taking 24 hours. With green 290 Loctite, application is recommended after assembly. However, this can be impractical with hidden threads, like on the rear suspension pivot bolts or rear suspension bushings. 290 is set in 3 minutes, and again requires 24 hours for a full cure. Please do not confuse Loctite 290 with Loctite 640, which is also green, as 640 can make disassembly much more difficult.

Highly Recommended Grease Applications

Most threaded fasteners will benefit from the application of a light grease-type lubricant. This prevents corrosion and galling, as well as allowing a tighter fit with a given torque. For this reason, it's a good idea to lubricate almost all threaded fasteners. But some fasteners and parts interfaces really need grease. Here are a few:

- Seatpost/seat tube interface Grease the seatpost where it inserts into the frame on all aluminum and steel frames (not on LeMond Ti frames).
 Bottom bracket threads We recommend applying grease to all bottom bracket/frame interfaces, as well as the bearing/cup interfaces. This prevents corrosion and will virtually eliminate creaks, a common complaint among riders with cartridge bottom brackets.
- •Stem/steerer interface Grease the quill of conventional stems where they insert into the fork. With Aheadset type stems, a light oil is recommended, as grease may make it difficult to properly secure this type of stem to the steerer.
- •Stem/handlebar/bar end pinch bolts Any and all of these fasteners are small, so corrosion or galling can really cause problems. Its also critically important to the riders safety that they be correctly tightened. Grease both the threads, as well as the bearing surface of the fasteners which rotate against the fixed part.

Places to Avoid Grease

- •With titanium LeMonds, DO NOT grease the seatpost. A fiberglass sleeve bonded into the seat tube prevents corrosion, and any grease may cause the seatpost to slip, even with correct seatpost binder torque.
- •Bottom bracket axle/crank arm interface Avoid greasing the tapered spindle of a bottom bracket, as this may allow the crank arm to insert an incorrect distance onto the bottom bracket spindle. This can cause crank arm clearance problems with the frame, or incorrect chainline with the specified components. A light oil will adequately prevent any unwanted corrosion in most cases.

Sugar Pivot Service

Prepare the bike

- 1. Clamp the frame upright in a workstand by its seatpost with the head tube vertical.
- 2. Remove the rear wheel and right crankarm. Disconnect the rear brake and rear derailleur cable.
- 3. If possible, open the front derailleur cage and remove the chain. Otherwise, remove the rear derailleur..

Remove the rear swingarm

- 1. Remove the upper link bolt and axle (Fig. 14). Be careful not to let the shock swing down and hit a frame tube.
- 2. Remove the lower link bolt and axle.
- 3. Remove the front shock mount bolt.
- 4. Remove the main pivot bolt (Fig. 15).

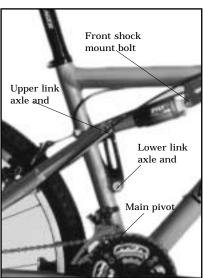


Fig. 14

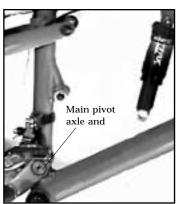


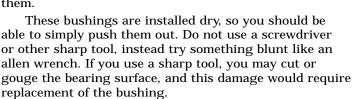
Fig. 15

Separate the parts

1. Remove the main pivot bushing from the frame. This part is held in place with Loktite, so you will probably need to lightly tap it with a hammer to drive it out of the frame (Fig. 16). A socket on an extension makes a good drift. The socket should contact the metal portion of the bushing, barely fitting inside the swingarm and pivot lug.

Do not use heat to loosen the Loktite, as may damage the frame or paint.

- 2. Remove the main pivot bushing "top hats" from the swingarm. These are also installed with Loktite, so again tap them out with hammer using a properly sized socket. Avoid damage to the swingarm by properly supporting it as you drive out the bushings.
- 3. Inspect the bushings from the shock and both linkage axles. If they are in good shape, you can probably leave them. If not, remove them.



Inspect the parts

1. With a clean rag, wipe off all the surfaces. If any part is worn, it should be replaced. Signs of wear on the pivot and link axles are discoloration or a high degree of polish.

Some dark deposits may be left as the bushings and axle 'seat in' to each other. When this happens, some of the bearing material is sort of plated onto the axle. Its normal, and actually makes the pivot run smoother.

The bushings are harder to inspect; some discoloration is normal as the bushings and axle 'seat in' to each other. If wear looks uneven or non-concentric, its best to

replace them.

Note: When in doubt, throw out old parts. Its relatively cheap to replace the parts, and time consuming to perform a rebuild. You do the customer a favor by only tearing their

bike apart once.

Prepare the parts for reassembly

1. Clean the bonding surfaces of the bushings and frame. These surfaces include the outside of the tubular main pivot bushing, the seating surfaces of the main pivot 'top hat' bushings that go into the swingarm, and the parts of the frame and swingarm that the bushings contact. These surfaces should be cleaned with Loktite Kleen 'n Prime.

Be careful no to get Kleen n Prime on the paint or bushing material. It Shock mount bolt

Link bush

Link pivot

Tubular main bush

Main pivot axle

Fig. 17

- will remove paint, and also remove the lubrication in the bushings.
- 2. With the other bushings, simply wipe clean of dust or other debris.
 - 3. Do not lubricate any bushings.
 - 4. Clean the pivot and link bolts with Kleen n Prime.

Install the main pivot bushings

- 1. Check the fit of the bushings in the frame and swingarm by dry-assembling them (practice installation, but without Loktite). Normally the bushings are a light press fit, meaning they are snug but easily go into place with hand pressure. If the parts fit correctly, go to Step 2. If they seem very loose, go to Step 3.
- 2. If the parts fit correctly, apply Loktite 290 to all contact surfaces between the bushings and the frame or swingarm, and install the bushings.
- 3. If the parts seem very loose, Loktite RC680 is required. 290 is a thread locker, and it works best where parts are in tight contact. RC 680 is a filler, so it has the ability to fill larger gaps and securely bond parts that do not fit tightly together.
- 4. After installing the bushings, wipe off any excess Loktite, particularly removing any Loktite that contacts the bearing surface.

Install the main pivot axle.

1. Carefully align the swingarm with the main pivot of the frame. The fit is tight. Avoid contact between the bushings and any residual Loktite.

- 2. Align the swingarm and install the main pivot axle (the long one) from the right side of the bike. Slide it all the way through the frame and swingarm eyes.
- 3. Apply Loktite 290 to the threads of the pivot bolt, and install the bolt from the left side of the bike. Tighten to 61-75 lb•in (6.9-8.5Nm).

Install the link bushings

1. The bushings supporting the link, the swingarm link pivot, and rear shock are all installed dry. Simply press them into place, being careful to keep them aligned during insertion.

Install the lower link pivot axle.

- 1. This axle goes through the link and the frame. Make sure the link is oriented in the way you'd like it (note printing on the side, etc.). Insert the lower link axle from the left side of the bike.
- 2. Apply Loktite 290 to the threads of the pivot bolt, and install the bolt from the right side of the bike. Tighten to 50-75 lb•in (5.7-8.5 Nm).

Install the upper link pivot axle.

- 1. This axle goes through the swingarm, link, and rear shock. Make sure the shock orientation is how you would like it. Insert the upper link axle from the right side of the bike.
- 2. Apply Loktite 290 to the threads of the pivot bolt, and install the bolt from the left side of the bike. Tighten to $15-20\ lb \cdot in (1.7-2.2\ Nm)$.

Install the shock mount bolt.

- 1. Insert the shock mount bolt.
- 2. Apply Loktite 290 to the threads of the pivot bolt, and install the bolt from the right side of the bike. Tighten to 61-75 lb•in (6.9-8.5Nm).

Allow to Dry

Loktite normally requires 24 hours to full set. During this time, the bike should not be ridden. Do not compress the suspension or in other ways disturb the Loktite until is has fully set.