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OCLV types

Carbon fiber structures have huge variability

Not all carbon bikes are built the same. Some of the variations could occur in manufacturing. Remember that variations occur in design. The fiber orientation within a part effects both its strength and stiffness. The part's shape and thickness will effect its ride as well. Different manufacturers use a wide variety of shapes, diameters, and wall thicknesses which change the stiffness, weight, and strength of the frame. With our OCLV process, we've refined the ride of our bikes, and created a highly repeatable process so every OCLV rider can have a bike just like the one that carried Lance in yellow to the finish line on the Champs d'Elysee at the end of the Tour de France.

OCLV 150 (or just OCLV)

Pre-2001 Trek 5500, 5200, 5000 models

Winner, 1999 Tour de France

Frame and fork- 1658 grams

With this material, a square meter of flat tow weighs 150 grams. OCLV 150 was first used in the 5500 road bike back in 1992. Since that time, we have produced a lot of bikes using this technology. The 9900 OCLV hardtail came out in 1993. The OCLV Y full suspension bike came out in '94. The Y Foil road bike was first produced for the 1997 model year.

Over the years we continued to learn about making carbon bikes. As we learned, we made subtle changes to the frames. As an example, we changed the 5500 bottom bracket shape to make it easier to build accurately. We changed the way we built the head lug, supporting the headset with two separate (and lighter) metal inserts instead of a long tube. We re-engineered the bottom bracket insert moving the bonding stress from peel to sheer mode, greatly increasing its strength. We changed the fiber orientation of the carbon to modify the ratio of strength and comfort in the saddle. All these improvements were designed to improve the ride and durability. As we made these changes, we also reduced the frame weight.

OCLV 120

2001 and 2002 Trek 5500, 5200

Winner, 2000 and 2001 Tour de France

Frame and fork- 1539 grams

A magazine editor once did the math to find substituting titanium for steel in a bike costs about $33 per gram. Using this formula, an OCLV 120 frame is worth $3300 more than an OCLV 150 frame.

OCLV 120 is a lower areal weight, where a square meter of tow weighs only 120 grams. An OCLV 120 frame uses the same grade of carbon as an OCLV 150, just less of it.

Our engineers pulled a few tricks on the 120. You could reasonable expect a frame with less material to be somewhat less stiff and strong. Amongst the tricks we can discuss, we changed the shape and outer dimensions of the lugs. From our tests the strength and stiffness are roughly equivalent between an OCLV 120 and 150 frame.

OCLV 110

Trek 5900, 5700

Superlight bike ridden to Huatacam, 2000 Tour de France

Frame and fork- 1353 grams

This is the material we use in the Superlight frame ridden by Lance Armstrong in the mountains. A square meter of OCLV 110 tow weighs just 110 grams.

Since there is even less carbon in this frame than in the 120, we use a higher strength, higher modulus carbon. The resulting frame has the same strength and stiffness as an OCLV 150 frame, but is about 1/2 pound (200gm) lighter. The drawback to high modulus carbon is greatly increased material costs. In plain English, this frame is very expensive.

OCLV HC

Trek 9.9 Pro, winner, World Championships, 2001.

OCLV HC sandwiches a layer of Nomex honeycomb between two layers of OCLV carbon (Fig. 22, note the bend in the section without the HC layer). Sandwich construction provides a large increase in wall rigidity, similar to using a very thick section of carbon. However, the honeycomb layer is essentially hollow. The result is a very rigid structure with low weight.

Since rigidity prevents the fibers from moving out of alignment in the laminate, OCLV HC also provides a high level of strength per weight.

To understand why we only use OCLV HC in flat ares, here's an illustration. In a flat sheet, 1mm thick aluminum is very flexible. Rolled into a tube, a 1mm aluminum wall can't be squeezed at all.

OCLV HC is only useful in areas that are fairly flat. It would be very difficult to place it in areas with a tight radius, but the illustration above shows that in a small diameter tube it would provide little to no benefit anyway.

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.

Doesn't steel resist fatigue better than aluminum?

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.

A high strength steel alloy will exhibit a longer fatigue life at a high, fully reversing load level. But remember, these numbers always reflect performance for a unit volume. Steel weighs 3 times as much as aluminum for the same volume. In other words, if these statistics were based on weight instead of volume, steel would have to exhibit 3 times the fatigue strength of aluminum to be considered stronger, and it doesn't. Steel is only the better material if you don't care how much your bike weighs.

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. Contrast that to steel, where the same cubic inch weighs three times that amount. You can use twice the volume of metal that a good steel frame uses and the steel frame will still weigh 50% more than an aluminum frame. And the lighter weight positively affects the ride quality.

Aluminum provides a great ride, if you use it to its optimum. Aluminum's low density and high formability 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 four-digit 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.

ALPHA NOMENCLATURE EXPLAINED-

Alpha

Proprietary Trek aluminum tubing, using 7005 or 6061 T6 aluminum. These frames use special tubing diameters, wall thicknesses, designed by our engineering staff. Alpha frames are built by outside vendors to Trek specifications. They go through the full Trek engineering process starting with design and including a full testing protocol. Some Alpha frames are built in Wisconsin, some are imported then painted and assembled in Wisconsin. Alpha tubesets are on the 4000 series ATBs, 1000 series road bikes, Navigators, and some hybrids.

Alpha ZX

Like the Alpha frames, Alpha ZX is Trek designed aluminum tubing. However, Alpha ZX frames are built with 6061 T6 aluminum. Trek's proprietary heat treating process enhances the Alpha ZX tensile strength, yield strength, and elongation making for a superior frame.

Alpha ZX frames are all built and painted in Wisconsin. They are slightly lighter than the standard Alpha frames, and with the same durability, making them ideal for riders concerned with faster times. Alpha ZX tubesets are on 4000 series ATBs, and some hybrids.

Alpha SL

Alpha SL and SLR frames are also Trek designed tubes of 6061 T6. They are built and painted in Wisconsin. In addition, SL frames are use butted tubing to reduce weight and enhance the ride. Trek's proprietary heat treating process enhances the Alpha SL tensile strength, yield strength, and elongation making for a superior frame.

Alpha SL and SLR tubesets are on 6000 series ATBs, 2000 series road bikes, XO-1, and Hilos.

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 structure.

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 benefit.

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 methods.

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

Developed for the Trek Professional mountain bike team, the basic concept of Pro Geometry is a bike that better handles the higher speeds of Pro racers. There are several key features used in Pro geometry to accomplish these goals.

Position

The rider compartment is slightly more upright. A road rider needs to be bent into an aerodynamic position because wind resistance is a major source of fatigue on the road. A road racer's average speed is in the 20mph range and higher. Mountain bikes usually only go this fast downhill, so you don't need to be bent over as much. Another argument for an upright position is balance. In humans, the body's balance mechanisms are mostly in the head. Your sense of body position is anchored by your vision. If your eyes are parallel with the horizon, your balance is improved. With a more upright position, it's easier to keep your head oriented for optimal balance. Better balance is critical to handling technical terrain or carving a fast turn on singletrack.

Long front/center

Pro Geometry uses a long front/center. Front/center is the distance from the bottom bracket to the axle of the front wheel. The location of the front wheel is important, since it's the first part of the bike to meet obstacles in the trail. The front axle is also the pivot point of the bike when a rider takes a flyer over the handlebars.

With a longer front/center, the front wheel is pushed further ahead of you. When you find yourself moving back on your bike, it's usually 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.

When the Trek engineers moved the front axle forward, it added resistance to over-the-bars flight. With this added stability, you're more relaxed at speed, and since you're more in the saddle than behind it, you're in a better position to keep the power on the pedals.

Steering

With a long front/center, a bike needs a longer top tube. To correctly place your hands when riding a bike with a long top tube, you must use a shorter stem. The shorter stem used with Pro Geometry puts your hands closer to the steering axis so 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.

Pro geometry is designed around today's longer forks. Thanks to the long front/center, Pro geometry places slightly less weight on the front wheel. Due to a combination of steering angle, trail, weight distribution, and a slightly longer wheelbase, a bike with Pro geometry likes to be steered by angulation, an advanced skill that allows a rider to stay balanced over the bike's tire contact patches through a turn.

The technique is much like a downhill skier's position, where the torso remains upright while the lower body is angled for steering. This position keeps the center of gravity over the skis for maximum edge hold. And if the skis should slip, the skier can extend to control them. As a high speed cycling maneuver, this angled position makes controlling the bike in a corner much easier. If the tires slide, extending your body keeps your center of mass on top of the tire contact patches.

Handling

Instead of making a bike that steers quickly so you can adjust your line in a turn, this bike has additional directional stability that lets you pick a line early and hold it. It has a touch of understeer, so if you go into a corner a little too hot, just lean it in a bit more with a touch of rear brake, and go. Instead of skittering around and washing the front tire, the additional lean puts more edge knobs onto the ground, and a Pro Geometry bike really carves. Coupled with a lightweight frame, Pro Geometry makes a bike quick from edge to edge, so it handles tight turns really well. And the longer wheelbase works like a giant slalom ski so high speed fire road riding is way fun.

Doesn't the short stem make the bike climb poorly?

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 a Pro Geometry bike actually climbs 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 Pro 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 used in Pro geometry, you stay over the bike, and the bike tracks straighter, making it climb very well indeed.

Fitting Pro Geometry frames

Pro Geometry bikes (OCLV hardtails, Alpha SLR, ZR9000, Fuel, and STP) are designed to put you in a similar position to our other performance mountain bikes. The only difference in position is that the larger sizes of Pro Geometry use taller head tubes than we offered in the past. With taller head tubes and 25mm of spacers it may be necessary to move some spacers to the top of the stem if you prefer a more deeply bent-over fit.

Fuel

Although the Fuel is a relatively new frame platform, it has already proven itself to be a top level performer. In 2001,the Trek Fuel set the pace with Trek's Roland Green on board. Clearly, the Roland and the new Fuel are a fast combination. The Fuel is also an excellent handling machine. And it doesn't waste your energy. Everything a perfect full suspension bike should be. So even on a casual afternoon spin, the Fuel makes riding more fun.

Suspension design

The Fuel uses a rocker linkage to activate the rear shock. This rocker adds lateral rigidity to the frame, so the Fuel steers and handles like a hardtail. Likewise, the relatively short travel (by Trek 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 Fuel 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 Fuel the ultimate all-round suspension bike.

The new Fuel uses ZR9000 frame technology. You'll notice the large diameter tubing, especially the down tube. Although it's more expensive, you'll see we even manipulated it into a bi-axial shape for the additional frame strength . Those large diameter aluminum tubes make the Fuel very stiff laterally, so it handles like it's following a set of rails. The frame stiffness also works to put power to the ground efficiently. Less flex means your pedaling energy translates directly into forward motion. And of course, with Alpha technology the frame is very light for a full suspension bike.

While the frame design and tubing selection work to add steering control and maximize pedaling power, the suspension design is also helping out in a big way. The tires follow the terrain for maximum traction, pedal interrupting bumps virtually disappear, and big hits are swallowed up without bottoming. The key to doing all this while staying invisible to the rider is tuning of the overall suspension. Designed for the progressive action and low weight of an air shock, the Fuel 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 all the while being almost undetectable.

And don't forget the details!

It should be obvious our engineers worked really hard on this one. In addition to hard work, they had the advantage of borrowing from a lot of technology we've developed in full suspension bikes over the last 9 years. Trek has made a lot of bikes, period, and from this palette of experience we made sure the Fuel has all the little details a great all-round bike needs. Even though it's full suspension, the Fuel has three usable water bottle mounts so long rides don't leave you shriveled like a prune. It has a replaceable derailleur hanger, to help you get home from the back country. Of course, the Fuel also has top routed cables to keep the controls free from muck-induced friction.

Fuel suspension setup

As a starting point for adjusting the suspension on a Fuel, we recommend setting the forks for about 15% sag (12mm), and the rear shock at about 25% sag (9mm). This will provide a good, all-round ride. If your riding is slower or more technical, you may want a softer setup. If you ride really fast, or on smoother terrain, you may like the Fuel set up a bit firmer. Find out what the correct pressures for the starting sag are, and then try changing by increments of 5 to 10 psi.

To make it easier to set a Fuel up for a test ride, a shop can use body weight. However, be aware that the distribution of your body weight, both on your body and on the bike, may not balance out at the previous sag recommendations. As an example, if you like your saddle pushed way back, you will apply more force to the rear shock, increasing the sag. That said, try using a setting in the rear shock of 2/3 your body weight in pounds. If the shock has damping adjustment, set it at 2 clicks in from full fast.

Body Weight LBS	/Preload PSI	Body Weight KG	/Preload ATM
100	67	45	4.6
110	74	50	5.1
120	81	55	5.5
130	87	60	6.0
140	94	65	6.6
150	101	70	7.3
160	107	75	7.8
170	114	80	8.2
180	121	85	8.7
190	127	90	9.1
200	134	95	9.7
210	141	100	10.2
220	147	105	10.6
230	154	110	11.1
240	161		

Professional Downhill Racing

For years now, Trek 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 Trek Diesel

For 2002, we have finally unleashed our awesome downhill frame for public consumption. Here's what the Diesel 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	**8.75"**
Eye width	**7/8"**
Eye I.D.	**8mm**
Stroke	**2.75"**

Diesel DH

	Frame sizes	14.5	16
	Head angle	70.0	70.0
	Seat angle	71.0	71.0
MILLIMETERS	Standover	700	716
	Seat tube	368	406
	Head tube	112	112
	Eff top tube	570	592
	Chainstays	420	420
	BB height	323	323
	Offset	33.0	33.0
	Trail	80	80
	Wheelbase	1032	1054
INCHES	Standover	27.6	28.2
	Seat tube	14.5	16.0
	Head tube	4.4	4.4
	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

STP

Are you a rider who would love full suspension, but you've decided to wait until the bikes get lighter? Wait no more! At a mere 4.10 pounds (1860 grams), including the frame and shock mounting hardware, the Trek STP frame is lighter than many hardtail race frames.

The acronym STP stands for Soft Tail Pro. A Soft Tail is a suspension bike without pivots, where the frame flex provides rear wheel travel over bumps. Pro geometry is the successful design Trek uses on high end race bikes. This design provides increased handling performance at higher speeds. Put them together with another Trek acronym, OCLV (see pages 4-8), and you have one fantastic full suspension racing mountain bike.

STP suspension features

The STP offers 35mm of rear wheel travel, or about 1 1/2". This travel is controlled by a RockShox SID rear shock. The shock is placed with a very low leverage ratio, so it does not take much pressure in the shock to provide adequate preload. This low leverage ratio also allows the shock's damping to do an excellent job, so the suspension action is not readily noticeable. Basically, the bike feels like a hardtail in steering, pedaling, and uphill performance. The difference comparing the STP to a high-end racing hardtail is that the STP offers more comfort and extra rear wheel traction. Not a bad combination of features.

Why not just put a suspension seatpost in a hardtail?

It's true that a suspension seatpost offers some comfort. However, few suspension seatposts provide a lot of travel. And none of them help you when you stand.

There are those suspension seatposts that provide a lot of travel. This can add lots of comfort, like any suspension. However, most suspension seatposts use pretty basic suspension, without much opportunity for tuning beyond simple preload. Another issue is that the same movement that provides comfort also allows too much motion between the seat and the bottom bracket. Moving the seat up and down by an inch or two detracts from your pedaling power. In some cases, the motion of the saddle can aggravate your lower back, since with a suspension seatpost the angle changes between the back and thighs during the suspension stroke.

Last, allowing the seat height to change during cornering or other maneuvers reduces rider control. Some seatpost advocates argue that on tough sections a rider stands up anyway, but when standing the seatpost is no longer providing suspension.

With the STP, the suspension works full time, seated or standing. There is a generous amount of suspension, yet the distance from seat to bottom bracket (as well as the seat to bars) is fixed for pedaling efficiency. And with a RockShox SID rear shock, the suspension is highly tunable.

Compared to pivoting suspension systems

There can be several objections to full suspension. Most prevalent of these are loss of frame rigidity, added weight, increased frame noise and/or maintenance, and reduced pedaling efficiency. In each of these categories, the STP compares favorably to a hardtail. Most of these issues are generated by pivots, in either designing the frame for the pivots, or the result of pivot wear.

No Noise- Noise, or maintenance to avoid or eliminate noise, is eliminated since there are no pivots to squeak on an STP.

No Flex-As pivots wear, they can allow unwanted frame flex. As the frame flexes laterally and torsionally, the rear wheel can come out alignment with the front of the bike, and this makes the bike steer poorly. Again, the STP has no pivots to allow flex, so steering is just like a similarly designed hardtail. All the time.

No added weight- Although the STP has the weight of a rear shock, the use of an OCLV carbon composite frame balances out the shock weight. Even with the shock in it, the frame weighs barely over 5 pounds. While this isn't the lightest frame on the market, it's within a full water bottle of that weight.

No pedal bob- Since the seatpost and the bottom bracket are rigidly fixed, there is no change in seat height, and no loss of pedaling efficiency. Since the bottom bracket can move relative to the rear wheel, it can be argued that energy will be lost due to excitation of the shock. That is, as you move your mass up and down when pedaling, the shock will be compressed slightly. This does take away some pedaling energy. But this energy loss is certainly no greater than without suspension, when you have to deal with bumps coming directly from the rear wheel to the saddle.

Frame details

The STP has 2 water bottle mounts, just like a hardtail. It has a replaceable derailleur hanger. Of course, the STP also has top routed cables to keep the controls free from muck-induced friction.

STP suspension setup

As a starting point for adjusting the suspension on an STP, we recommend setting the forks for about 15% sag (12mm), and the rear shock at about 25% sag (6mm). This will provide a good race feel.

To make it easier to set an STP up for a test ride, a shop can use body weight. Try using a setting in the rear shock of 1/3 your body weight in pounds in the main spring, and 1/2 of that in the negative spring. Adjust the damping in 2 to 3 clicks from minimum.

Body Weight LBS	Preload Main PSI	Preload Neg PSI	Body Weight KG	Preload Main ATM	Preload Neg ATM
100	33	16.5	45	2.3	1.1
110	36	18	50	2.5	1.3
120	40	20	55	2.7	1.4
130	43	22	60	3.0	1.5
140	46	23	65	3.3	1.7
150	50	25	70	3.5	1.8
160	53	26.5	75	3.7	1.9
170	56	28	80	4.0	2.0
180	60	30	85	4.2	2.1
190	63	31	90	4.5	2.3
200	66	33	95	4.8	2.4
210	69	35	100	5.0	2.5
220	73	36	105	5.2	2.6
230	76	38	110	5.5	2.7
240	79	40			

No excuses.

Where else can you buy the exact same frameset as the one that won the 2001 Tour de France? Yes, Lance rode a stock 2001 model year 5900 frameset on almost every stage. On other road stages, he rode a Trek OCLV TT frame.

Our beautiful OCLV bikes ride extremely well in a wide variety of conditions. In the Tour the riders must conquer incredibly steep, long climbs. They have to ride long miles, day in and day out. And the wild bunch sprints are beyond compare.

In every stage, Trek's OCLV framesets performed flawlessly for the Postal team. On climbs, descents, and even the sprints, Trek bikes were at the front of the peloton.

You can proudly ride the same frames as the Postal team. The only problem with owning one of these beautys is if your buddy nips you in the next county line sprint, you can no longer blame the equipment.

Do Trek's OCLV frames provide an unfair advantage?

The Trek OCLV frames are quick and agile, making them ideal for riding in the tight professional peloton. While stable enough for long Tour stages, they still respond very quickly to rider input. These frames are sensitive to weight shifts, so a racer can respond intuitively to situations as they happen. This sensitivity also lets the bike work with you in hard sprints and climbing efforts, helping you develop power as they rock the bike back and forth.

Knowing what your wheels are doing is really important to the pros. When they've got a knee out, leaning into the apex of a turn in the Alps at 50MPH, they need to feel their tires hooking up. Although our OCLV carbon frame damps vibration, there is still excellent road feel.

The comfort offered by an OCLV frame also leaves our Pros less fatigued after a 250km stage. In 2001, USPS rider George Hincapie rode a Trek 5500 to a podium spot at the spring classic Paris-roubaix, a course notorious for its abusive cobble sections. Of course, if George was a bit fresher in the sprint, maybe he wasn't working as hard on the climbs. After all, the Trek OCLV is the lightest frameset in the peloton.

TT frame

An old maxim states that Aero means heavy. The Trek OCLV Time Trial frame disproves the old maxim.

These frames were designed specifically for Lance and the Postal team in a wind tunnel. But we built a few extras, because we knew you'd want one.

The frame is built in just three sizes; S, M, and L. The seat height is adjustable by using a shim stack, measured from the saddle rails to the center of the bottom bracket. Top tube length is measure here from the top of the seat mast to the top of the head tube. We expect that you will use your favorite aero bar and stem combination to fine tune the fit.

The frame uses a 1" headset, and 700c wheels.

	S	M	L
Top tube	589-602	603-616	617-631
Seat tube	664-692	691-719	718-746

Oversize steerer system for road bikes

Road bicycles have traditionally used a steerer with 1" outer diameter. The development of this standard was so long ago that we don't know exactly how it came about. We suspect it was largely happenstance. At any rate, the 1" steel steering column came in at a reasonable weight, and it proved to be fairly robust for the riding styles of the time.

In the late 1980's, mountain bikes began taking over the sales floor. These bikes were ridden in much harsher terrain, often off road. Compared to pavement, riding over rocks, logs, and in rough terrain puts a great deal more stress on the steering systems of these bikes. An innovator of bike designs, Gary Fisher, came up with the idea of increasing the diameter of the steerer to add strength. Along with this improvement, larger diameter headsets provide more bearing surface area for longer bearing life. Frames would benefit from this change too. The larger joining areas at the head, down, and top tubes increased the strength of these critical frame joints. Although the original Fisher Evolution $1^{1/4}$" steering size was bypassed, an oversized standard of $1^{1/8}$" was almost universally adopted for mountain bikes by 1991.

Stronger frames resulted from the new $1^{1/8}$" mountain bike standard, but it was at a price. Additional material was required for the larger head tube, steerer, headset, and stem. This added weight to the bike. Road bikes designers stayed with the 1" steering system to avoid the weight penalty.

Over the last decade, new materials technology has flooded the road bike racing market. These materials, notably aluminum and carbon fiber composite, allow a much lighter frame and fork while maintaining the strength needed for riding. Larger diameter tubing allows frames built with these new materials to provide similar frame stiffness to steel. However, there were problems using the new materials in the fork steerer. A 1" aluminum or carbon steerer is not as stiff as a similarly sized steel steerer.

Furthermore, cutting the required headset threads in either of these materials weakened them to the point where they were not usable. So while bikes built with exotic materials became popular, these new bikes continued to use forks with 1" steel steerers.

Oversize is the key

One problem of the new materials is that they require additional volume. It takes a greater volume of aluminum to get the same strength and stiffness a smaller volume of steel (see Comparing Materials, pages 2-3). In the 1" format, lighter steerer materials required so much material to maintain strength, there was little weight loss to be gained in a safe fork.

Stiffness is also an issue. Stiffness effects fatigue resistance. In addition, an overly flexible fork decreases steering accuracy. Neither aluminum nor carbon composite is as stiff as steel per unit volume. Only by increasing the diameter of the steerer could these new materials provide the strength, fatigue resistance, and stiffness needed.

In addition, the technical issues have been ironed out. The Aheadset system does not require the steerer to be threaded, instead adjusting the headset bearing with an internal compression system (starfangled nut). The oversize headset system on road bikes allows a large diameter aluminum steerer which produces similar stiffness and strength of a 1" steel steerer. With this new design, there is actually a weight reduction.

What does all this mean?

A 1" aluminum steerer is more flexible than a CrMo steerer of the same weight, and not as strong. A carbon fiber steerer could be as strong but would still be more flexible, with a loss of steering control.

As a solution, our Air Rail fork uses an $1^{1/8}$" steerer of 6061 T6 aluminum alloy. This new fork has the same strength, stiffness and fatigue resistance as our earlier 1" CrMo version, but is 125 grams lighter.

For 2001, the 5500, 5200, and 2300 have the new $1^{1/8}$" steering system.

What about the Superlight bike?

The new OCLV Superlight road bike uses an oversize aluminum steerer, but with a proprietary bearing system. The fork design is adapted from a Gary Klein design called the Airheadset. The lower bearing is an aircraft torque tube bearing pressed into the frame. The upper bearing is a standard $1^{1/8}$" Aheadset model.

Why the difference? This Superlight fork weighs just 355 grams, 70 grams less than the Air Rail!

Note for mechanics: The lower bearing requires special handling. See pages at the back of this manual for instructions on maintenance and bearing installation.

Good fit defined

A rider pedaling a bicycle touches the bike in three places; pedals, saddle, and handlebars. For the bike to fit properly, these three points must interface with your body in a comfortable and functional way. In other words, 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 this 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-size-fits-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 possibly (depending on the model) with a wider range from 67 to 73".

Average rider- When we design or spec a bike, we have a certain style of riding in mind. As an example, when we spec a 8500, 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 8500 on the bike path. But someone buying a 8500 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.

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 40 degree angle. Lowering the bars, or changing the parts, changes the fit of the bike as well as its Rider Height.

WSD (Women's Specific Design)

Most bikes are built for men

For years women have been riding bikes designed partly, if not totally, for men. For the lucky ones, their dealer substituted a few parts which made their men's bike work pretty well for a woman, especially in larger sizes.

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. On a small bike, the stem is likely to be quite short. 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 WSD bikes are spec'd with women's specific components, like saddles, bars, and crank lengths. The WSD mountain bikes have women's specific suspension forks with softer springs.

More importantly, these frames are a completely different geometry than the men's bikes. So while most 'women's' bikes make due by just tweaking a mens 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

Trek engineers addressed these issues in several ways in the WSD geometry. To support their wider pelvis, women tend 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 Trek 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 for her the bike may be 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.

Women's road bike geometry

Most women have only been able to choose from a single category of bike design; men's. On taller women, this choice was often satisfactory. Perhaps a few easy changes were necessary, such as a shorter stem and adjusting a different, ladies saddle further forward. Smaller women found it much harder to get a good fit and even if the fit was accomplished, performance on the small bike often suffered.

Some companies tried to address this by using shorter top tubes coupled to shorter seat tubes. This may have helped some, but the usual compromise on these attempts was to raise the bottom bracket considerably. Why the high bottom bracket? As the top tube is shortened, the toe clearance around the front wheel is compromised. Raising the bottom bracket alleviates this somewhat. This doesn't help with an already restricted standover. Raising your center of gravity doesn't help the bike's handling, instead making it tippy and precarious in corners. An additional problem is that raising the bottom bracket without adjusting the handlebar position upward puts the bars lower, when the bars

really need to be higher for a woman.

Another solution has been to use a smaller front wheel. This allows a shorter front center, but having two tire sizes, two tube size, two rim sizes, etc. causes some maintenance headaches for riders.

Our engineers evaluated all this and decided that to get the best overall fit, AND PERFORMANCE, smaller wheels front and rear coupled to an entirely new geometry was the best way to solve the small rider fit. An important point here is that although the frame engineers were working on women's solutions, many smaller males may find that these bikes ride better than past compromises they've made to get a good fit.

Smaller wheels

Most sizes of WSD road bikes use a 650c diameter wheelset. To properly position the handlebars and avoid excessive toe-clip overlap, they have to use smaller wheels. On the plus side, smaller wheels are easier to accelerate. They present less frontal area, making them more aerodynamic. No wonder we also use the smaller wheel size on our built-for-speed Hilo tri bikes.

Using smaller wheels has many effects on the bike design. Instead of being forced into particular angles to accommodate an ill-fitting wheelset, 650c wheels allowed our engineers the freedom to pick the exact angles that would yield the best ride. It also allows more 'normal' tubing lengths so the bike has the normal flex and liveliness 'big' people expect from their bikes. Better fit. Better feel. Better function.

For better fit, we started by offering a shorter top tube. Previous attempts used a radically slack head angle and steep seat angle to shorten the top tube. While Trek women's geometry is different than men's in this respect, our shorter top tube is not at the sacrifice of handling. The head angles are slightly more relaxed, but this is to add steering stability, not toe clip clearance. Toe clip clearance is adequate on even the smallest frame size, assuming that the small rider also has small feet. But women riders do not have as much weight in their shoulders as a man of similar height. That weight works with trail to provide steering stability and tracking on a bicycle. The WSD head angles are tuned just to provide good handling.

Another special detail we've added is to address the lower centripetal force generated by the smaller diameter wheel. The wheel's rotation provides a stabilizing force much like a gyroscope. The lighter the wheel, or the closer to the hub the mass is located, the lower this force is. Since this force provides stability coupled with trail, we use a shorter fork rake (offset) to add trail. The result is a bike that handles neutrally, even with the lighter, smaller wheel. Yet those smaller wheels really accelerate, so a smaller person who might not have the horsepower of a bigger rider can really move. Fun. And fast!

Keys to fitting a woman on a bicycle

Accommodating the gender difference

For those who want the short version of what we did to make the WSD bikes work for women, it's fairly basic. We have designed and spec'd the WSD bikes to provide narrower hand position, with grips and controls adapted for smaller hands where possible. We have placed the handlebars horizontally closer to the bottom bracket, but higher. We use crank lengths appropriate for a smaller person.

The changes may sound fairly basic, but we went beyond what most have done. We wanted to make these bikes ride as well for a woman as a man's rides for a man. These frames are not just the connect-the-dots approach of adapting a man's frame with women's parts. We went the extra mile and changed the geometry to increase overall riding performance.

We tuned the geometry for better steering, weight balance, and shock absorption. Achieving the right weight balance is highly individual, but there are several common themes. First, you use your weight to push on the pedals. Second, your weight helps hold you stationary on the saddle. Third, your weight balance over the wheels is part of the complicated steering of a bicycle. These different needs don't always agree on where your weight should be placed; it's a compromise.

Have you ever noticed that when sprinting, you tend to move forward in the saddle? Ever notice that your bike is less stable when you sit upright 'no hands'? Ever try climbing really hard without touching the handlebars? To some extent, these examples illustrate how weight distribution effects bike riding.

Anatomical differences between males and females

There are quite a few differences between men and women that effect fit on a bicycle. All have some effect. Some are more important than others. Here we make comparisons between a man and woman of the same overall height.

Body height- the distance from the floor to the top of the torso (sternal notch). This distance is more relevant to bike fit than overall height because the neck and head are not accommodated by the contact points on a bike (the legs, arms, and torso are). A woman's 'body height' is greater than a man's. Simply put, women have shorter neck/heads than men. This means a woman of a given height will need a slightly bigger bike than a man.

Body weight- the weight of the rider. Women tend to be lighter than men. More importantly, the center of mass is lower on a woman. A man's center of gravity is closer to his shoulders, while a woman's is normally closer to her hips. Since the torso is angled toward horizontal on a bike, that means a woman's center of gravity on a bike may be placed more rearward. To preserve good weight distribution for handling and applying power to the pedals, a woman needs to sit slightly further forward on a bike.

Shoulder width- the distance between the outside of the shoulder blades (acromion of the scapulae). Although there is little correlation between height and shoulder width, there is a strong tendency for a woman of a given height to have narrower shoulders than a man. The difference is often 10 to 40mm. To apply mechanical advantage and achieve good ergonomics, a woman needs narrower handlebars.

Leg to torso ratio, arm to torso ratio Comparisons between leg and torso lengths by gender, or between arm and torso, are often made in attempts to explain gender differences in bicycle fit. While there are some tendencies, both of these comparisons exhibit scattered data. In other words, between individuals there is lots of variation, but grouped by gender, there aren't any strong conclusions to be made.

Foot size- the shoe size of the foot. Women tend to have smaller feet. Another important consideration is that women more often exhibit over-pronation, which effects pedaling biomechanics. While pronation is seen as an inward rolling of the foot as weight is applied, the source of this rolling is over-rotation of the tibia. As a result of the misalignment of the foot and ankle in over-pronation, women more often need orthotics. It's also important that a woman's pedals allow rotation (fortunately most modern pedals provide this).

Hand size- the width of the hand across the knuckles, and the length of the fingers. Women generally have smaller hands then men. It's also true that women generally have less hand strength. To fit a woman's smaller hands, grips should be smaller in diameter, and less width is needed. To accommodate shorter fingers, controls should be closer to the grips. However, the mechanical advantage of levers on a woman's bike should be at least as great, if not greater.

We do the best we can to fit our bikes to womens' hands, but consumers demand certain components. Many popular items are simply not available to properly fit a woman (yet).

Pelvic width- the distance between the sit bones (ischial tuberosities). A woman's pelvis is wider than a man's. A woman's saddle needs to be wider than a man's.

The arrangement of a woman's pelvis makes it difficult for her to roll her pelvis forward on the saddle. Pelvic tilt effects the angle of the lower back, so flattening the upper back can put a sharp bend where the two meet. This can cause pain, so a woman's handlebars need to be raised slightly in an effort should be made to avoid sharp angles to the back.

The ischial tuberosities aren't a single spot on the pelvis, but curved sections of bone. They start wide at the back and curve inward to meet at the center in the front of the pelvis, sort of like two side of a triangle. As the pelvis rotates forward, the part of the sit bones meeting the saddle becomes narrower. The contact spots also move rearward. As you sit more upright, the sit bones are spaced further apart, but move forward on the saddle.

There are other important pelvic differences between a man and a woman. A woman's acetabulum (hip sockets) are further forward than a man's. In some cases, this can make it look like a woman is overhanging the back of the saddle. But it's really that her spine and tailbone (coccyx) is further behind her sit bones. It's an important difference for ergonomics, since compared to the biomechanics of a man, this puts about 15% more stress on a woman's lower back when lifting. Pulling up on the handlebars requires the same lever system as lifting, so it effects standing out of the saddle on a bike.

Positioning women

Handlebar position

Most current fitting systems are the result of studying position commonalities of elite male road racers. Rules like "get a flat back" are difficult for recreational males, and with females it's even harder. Likewise, similarly derived rules like "Knee Over Pedal Spindle" or "the bars should cover the front axle" don't address the biomechanics and ergonomics of females. As we've discussed, the female body is different than the male body.

To accommodate a woman's pelvic shape, a woman needs to sit more upright on the bike. The handlebars must be raised to accommodate this. As she sits more upright her shoulders move rearward, so the reach must be decreased. As an added benefit, this higher, more rearward bar position moves the handlebars closer to her hips when she stands. Moving the handlebars closer to her hips decreases the leverage applied to her lower spine, so she can efficiently 'honk' on the bars if desired.

Saddle position

Moving the handlebars may decrease any sharp angles in her lower back. However, it may not provide enough relief. In such a case, the saddle should be moved forward to ease any discomfort. Moving the saddle forward has two effects. It will allow her to eliminate sharp bends in her back, and it will keep her center of mass better distributed over the wheels. Better weight balance increases handling and her ability to apply power to the pedals.

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.

Tubeless Compatible Technology

Snakebite

One of the more common mechanical problems encountered by a rider on a mountain bike ride is the pinch flat. With their tire pressure set on the soft side to enhance traction, the rider runs 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, its very expensive. The key to UST is a rim without spoke holes through its outer 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 the rider has to buy an entire wheel. Third, a UST rim will not work with a standard tire. And lastly, there is a 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; a real plus for the rider. Second, our rim design is compatible with standard mountain bike tires, given that the rider 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 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 its impervious to air. Installed correctly in the special mated rim, it seals tightly 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 its 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 (1/4 ATM) 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. Its 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, its will probably flat 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 out on the trail its 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 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, its 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.

Disc Brakes

New for bikes

A few years ago, disc brakes were an oddity in the bike industry, mostly isolated to a few odd downhill bikes. Today there are many brands and models of disc brakes on the market. While this proliferation has some benefits, the relative youth of this portion of the industry also has led to some myths as well as some really lousy product making a bad name for some really excellent brakes. Here we will try to cover some of the important issues you should know when selling disc brakes, but our remarks will address the good brakes; those we have chosen for specification on our bikes.

Disc brake benefits

The main focus on most marketing of disc brakes is stopping power. It's true that good disc brakes stop really well. But so do good V type brakes. There are a lot of other benefits from using disc brakes, and we'll list a few of them here.

Disc brakes work in pretty much all conditions. They don't seem to mind wet, mud, or even snow. Certainly these conditions can degrade their stopping performance, but not to nearly the degree that a rim brake will suffer. If you are anticipating wet or snow, or simply an occasional creek crossing, you can get almost the same stopping power with wet discs as dry.

Disc brakes are easy to adjust, with little change in performance due to setup. Although adjustment was more of an issue with cantilever brakes than V type brakes, there can still be a loss of performance with a V type brake if it is not set up correctly. Due to the way they work, and their small tolerance for misalignment, it's hard to set up a disc brake so it won't work right.

Disc brakes have little fade. When rim brakes are used hard, the heat generated by the rim-pad contact tends to degrade their stopping power.

Heavy use doesn't require constant cable barrel adjustment. With rim brakes in high wear conditions, sometimes you will have to adjust the brake cable barrel adjusters several times on a single ride. You may even have to use an allen key to re-adjust the cable length. With a cable actuated disc brake, it only takes a few turns of the adjuster to go from brand new to completely worn out pads. With a Hayes full hydraulic brake, pad adjustment is automatically adjusted simply by opening and closing the lever.

Common rim brake problems can be avoided. As an example, a rim brake can dive under the rim if not maintained properly. Worse yet, as the pads wear they can slide above the rim and wear a hole in the tire sidewall. Disc brakes cannot dive or wear the tire sidewall.

Disc brakes do not wear the rim. With rim brakes, it's just a matter of time before the rim wears out and has to be replaced. This is especially true with off road bikes ridden in wet conditions, but even happens to bikes ridden exclusively in the desert.

Wheel requirements for disc brakes

Rims on disc brake wheels can be designed to be lower weight. Since the rim no longer needs braking flats, the rim can be made trimmer. Also, the rim designer does not have to anticipate the loss of strength as the pads wear away the rim material.

Disc brake wheels need to have spokes tangential (or close to tangential) to the hub. This allows transfer of braking torque from the hub to the rim and tire.

Disc brake wheels need heavy duty quick releases, like those we spec on our bikes. Radically lightweight quick releases may not provide adequate clamping force. As the brake is applied, the wheel will try to rotate around the disc brake pad. Under heavy loads, this force is significant. Should the rotational force exceed the clamping force of the quick release, it could be possible in some cases for the wheel to be pulled from the dropout.

Spacing / bolt pattern information

We saw the advantages of disc brakes early enough to add disc brake mounts to many framesets before the disc brake market was fully mature (not that it is now, but it's a lot closer). Unfortunately, those early mounts may not accept some of the newer brakes. Our newer designs are moving to what's being referred to as the "International standard" which places the brake attachment bolts for the front and rear brakes perpendicular to the bike centerline, or parallel with the wheel axles. In some cases it will be necessary to use an adapter to mount the brake to the frame or fork. Make sure the adapter you use correctly positions the brake on the rotor so the pads make full engagement of the rotor, and that the rotor does not contact the caliper body (through correct selection of the rotor outside diameter). Usually this is best accomplished by using the rotor supplied by the brake manufacturer. If you choose to intermix brake and rotor brands, pay attention; they do vary!

This new standard also dictates the bolt hole circle for the rotor / hub attachment. We were already using the 44mm rotor bolt BCD.

The last fit issue is the spacing from the centerline of the bike. Our hubs have either conformed to this standard, or we have offered adapters to meet it.

Use caution with disc brakes

With every new technology, there is a learning curve. Make sure you are aware of the issues. We have included this information in the bicycle Owner's Manual, but repeat it here.

Disc brakes get hot. Very hot. After a hard stop, the disc brake rotor can get up into the 300 to 350 degree (F) range.

Avoid rotating parts on a bike, like disc rotors. The rotors are steel, so while the wheel is spinning the rotor can easily cut a misplaced finger.

Make sure all disc brake bolts are tight. This includes brake attachment bolts, brake adapter bolts, and rotor attachment bolts. It should be obvious that loose bolts would not be a good thing.

Make sure the brakes, adapters, and rotors are installed with the correct length of bolts. This is especially a concern when using spacers between the rotor and the hub. Make sure the bolts have adequate engagement in the hub. Not only are short bolts more likely to loosen prematurely, they could potentially strip the hub threads.

Keep the brakes clean, but avoid getting cleaning material on the pads. Chain lube or other common chemicals used on bikes can contaminate the pads such that the brake will squeal or lose stopping power. Should the rotor or brake pads become contaminated, the only solution may be to replace both the pads and rotor. Before you do so, try using isopropyl alcohol as a cleaner. DO NOT use degreaser or other cleaning

agents containing petroleum. Hydraulic fluid can also contaminate the brake. Any time you are going to clean the bike or bleed the brakes, make sure the wheel is removed, and also remove the brake pads (place something between the pistons to prevent them from hyperextending if the lever is applied).

With rim brakes, pad wear is usually easy to see, even from a distance. This makes it easy to monitor pad wear. With a disc brake, the pads are inside the caliper, so they require a little more vigilance. Replace disc brake pads if they are less than 1mm thick.

A few words about new brakes

When a disc brake is brand new, it's likely that they will not stop really well. This is because the rotor is steel, and the new brake pads do not exactly conform to the smooth surface of the rotor. As the brakes "burn in", pad material is transferred to the rotor on a microscopic level. As this occurs, the brake pads will wear to exactly match the surface of the rotor. Also, pad material will be embedded in the rotor, and the coefficient of friction goes way up.

Before providing a test ride on a bike with new disc brakes, explain to the customer that full stopping power will only happen after a dozen or so hard, hot stops have fully burnished, or bedded in, the rotor and pads.

During this burn in time, it's best to avoid wet weather riding which may impede the burn-in process.

Cable operated mechanical disc brakes

The new generation of cable operated, mechanical disc brakes work really well. They can be tuned to provide good feel and modulation, and meet the expectations of riders who are accustomed to rim brakes in regards to feel and lever travel prior to pad contact. They can even be made to match the feel of a V-type brake used on the rear, if so desired. However, even though the two feel the same at the lever, the mechanical disc brake will stop better once the rotor is burned in.

So if they feel the same, what's the benefit? The disc brake will stop better, works in all conditions, is easy to adjust and maintain adjustment, and does not wear the rim.

Full Hydraulic disc brakes

The full hydraulic disc brake is the most powerful of the brakes we spec. This extra power exists even when the rotor and brake pads are identical between a mechanical disc and hydraulic disc. It's thought that the difference is mostly cable friction and housing compression. It probably also is the result of differences in mechanical advantage, and the need for return springs on the mechanical brake.

Some experienced riders do not like the feel of full hydraulic brakes due to their very short lever throw. People experienced with motorcycle brakes say this is how brakes should be. Why the difference? With a rim brake, it's necessary for the brake to open a large distance for the rim to allow debris or mud to pass by, or to allow an out-of-true wheel to rotate freely. With a disc brake, these are not issues. So instead of wasting time moving the lever a long ways prior to pad contact, a full hydraulic brake gives almost instant response. They still offer reach adjustment, so the lever can be adjusted so the stopping power is applied where the hands have the most strength.

Some riders object to full hydraulic brakes because they simply do not understand them. They have a comfort level with the traditional brake cable and housing. For these riders, it's important to explain that hydraulic brakes do not have to be bled all the time. Bleeding is normally only necessary when the fluid has been degraded due to heat over a period of time, which on a bike would normally be several years. And actually the whole bleeding procedure is fairly simple.

Lastly, if the extra stopping power isn't enough of an advantage, full hydraulic brakes are actually lighter than most cable operated disc brake systems.

Disc brake squeal and other issues

Disc brakes on a bike, like those on a car, can make noise. Noise, in its rawest sense, is the vibration of air molecules. The air molecules are usually excited by something else vibrating, and in the case of brake squeal the start of the vibration is one of the brake parts. But which one?

The first thing to check with squealing disc brakes are the myriads of bolts. Check that all the bolts are properly tightened; rotor attachment bolts, brake attachment bolts, and bolts holding an adapter to the frame.

Another source of vibration is between the brake pads and the rotor. This can be caused by debris, chemical contamination, or simply misalignment. Debris can mean anything picked up from the trail. Dust can make discs squeal, and so does water.

Chemical contamination can come from chain lube, brake fluid, or any number of other sources. In the case of chemicals, they may impregnate the disc brake pad material or the surface of the rotor. This can be very hard, or impossible, to remove. If the contamination cannot be removed, the only solution may be to replace the parts. For this reason, its very important that you remove the rotor (remove the wheel) and pads prior to bleeding the brakes so brake fluid does not contaminate them (place something between the pistons to prevent them from hyperextending if the lever is applied).

Misalignment can come from several sources. First, check that the dropouts of the frame are parallel. Then, with the wheel inserted in the frame and the quick release properly closed, check the brake adjustment. If the pads do not meet the rotor evenly, some vibration may occur prior to both pads making contact. If the pads do not meet the rotor squarely, in all three planes, some vibration may occur. Disc brakes do not allow 3-plane adjustment, but do the best you can. Ultimately, it may require that the pads wear-in slightly before their surface is truly in alignment with the rotor.

A less obvious source of vibration is air bubbles in the brake fluid. Brake fluid is essentially not compressible, but air is, If the brake pad vibrates while air is in the system, the air will more easily allow the pad to vibrate, enhancing any resulting noise. Even a tiny amount of air can be a problem, so don't rely on lever feel to tell you if there are air bubbles in the oil.

Its possible for the brake to vibrate, even with everything properly adjusted. Its a matter of the coefficient of friction of the pad against the rotor occurring at just the right frequency. In our experience, this only happens with certain brakes and certain pads. We have designed a 'brake booster' for disc brakes which quiets this.

Note: We recommend that disc brakes only be serviced by your dealer.

Fuel

New for 2002

From the outside, the Fuel looks the same for 2002. However, a major change happened under the paint; we used our new ZR9000 alloy to make all the Fuel frames 15% lighter and 15% stronger.

We also changed the emphasis of use, dividing the Fuel line in to two types of bikes. The Fuel 100 and Fuel 98 are spec'd as race bikes, with low weight as the emphasis. The Fuel 90 series, and the Fuel 80 are spec'd as adventure bikes, with control and steering rigidity the premium consideration.

To go with their racing style, we also added some technology to the 98 and 100 framesets. First, both bikes get new carbon chainstays and seatstays, further reducing their weight. They also get a Ti hardware kit. Finally, the top of the line Fuel 100 has our new OCLV MC carbon link which even further reduces its weight.

Geometry

The regular Fuel uses Trek's race-proven Pro Geometry, explained on page 10. The Fuel WSD uses an adapted version of the WSD geometry on the WSD ATB hardtails. It varies slightly to accommodate the suspension, but handling and fit are very similar.

Ride

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

The Fuel 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. This combination makes the Fuel ideal for racing in technical terrain, or having fun on a short ride after work. It's 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 Fuel uses 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 at the top and bottom to support the headset cups.

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

The rocker design of the Fuel 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 Fuel are almost all forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

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

Fuel bikes have 3 water bottle mounts, except WSD models have 2.

Fuel

	Frame sizes	S	M	L	XL
MILLIMETERS	Head angle	71.0	71.0	71.0	71.0
	Seat angle	73.5	73.5	73.5	73.5
	Standover	691	703	714	724
	Seat tube	394	445	495	546
	Head tube	105	125	145	165
	Eff top tube	550	588	625	641
	Chainstays	423	423	423	423
	BB height	312	312	312	312
	Offset	39.0	39.0	39.0	39.0
	Trail	74	74	74	74
	Wheelbase	1055	1077	1098	1117
INCHES	Standover	27.2	27.7	28.1	28.5
	Seat tube	15.5	17.5	19.5	21.5
	Head tube	4.1	4.9	5.7	6.5
	Eff top tube	21.7	23.1	24.6	25.2
	Chainstays	16.7	16.7	16.7	16.7
	BB height	12.3	12.3	12.3	12.3
	Offset	1.5	1.5	1.5	1.5
	Trail	2.9	2.9	2.9	2.9
	Wheelbase	41.5	42.4	43.2	44.0

Fuel WSD

	Frame sizes	XS	S	M
MILLIMETERS	Head angle	70.0	70.0	70.0
	Seat angle	73.5	73.5	73.5
	Standover	685	717	755
	Seat tube	356	406	457
	Head tube	90	90	105
	Eff top tube	528	532	563
	Chainstays	423	423	423
	BB height	312	312	312
	Offset	39.0	39.0	39.0
	Trail	81	81	81
	Wheelbase	1018	1023	1053
INCHES	Standover	26.9	28.2	29.7
	Seat tube	14.0	16.0	18.0
	Head tube	3.5	3.5	4.1
	Eff top tube	20.8	21.0	22.2
	Chainstays	16.7	16.7	16.7
	BB height	12.3	12.3	12.3
	Offset	1.5	1.5	1.5
	Trail	3.2	3.2	3.2
	Wheelbase	40.1	40.3	41.5

Fuel 100

FRAMESET

MAIN TUBES	ZR9000 aluminum	
STAYS	Carbon w/OCLV-MC rocker and Ti links	
	Frame weight	*4.8 lb (2.16 kg)*
FORK	RockShox SID Race	
	Travel, mm	*80*
	Axle-crown length, mm	*451*
REAR SHOCK	Fox Float RC, air/oil, adj. rebound, lockout lever	
	Stroke	*1.5*
	Length	*6.5*
	Width	*.86"*
	Eyes	*6mm*
HEADSET	Dia-Compe S-6 Aheadset, alloy	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*27.1*

CONTROLS

HANDLEBAR	Bontrager Race Lite	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Race Lite	
	Steerer clamp height, mm	*39.5*
SHIFT LEVERS	Shimano Deore XT RapidFire SL	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Bontrager Ergo	

DRIVETRAIN

FT DERAILLEUR	Shimano Deore XT	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano XTR SGS	
CRANKSET	Bontrager Race Lite 44/32/22	
	Bolt hole circle, mm	*64/104*
BB	Bontrager Race, ISIS splined	
	Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	Shimano HG-92	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano Deore XT 11-34, 9spd	

WHEELSET

FRONT WHEEL	Btrg Race Lite ATB, tubeless compatible, 24º	
	E.R.D., mm	*539*
	Rim strip	*Tubeless*
FRONT TIRE	Bontrager Super-X, tubeless	
	Tire size	*49/48*
REAR WHEEL	Btrg Race Lite ATB, tubeless compatible, 28º	
	E.R.D., mm	*542*
	Rim strip	*Tubeless, asymmetric*
REAR TIRE	Bontrager Super-X, tubeless	
	Tire size	*49/48*
SPOKES	DT Revolution 14/17G, alloy nipples	
	Front, mm	*251, Radial*
	Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light	

OTHER

SEATPOST	Bontrager Race Lite	
	Outer diameter, mm	*31.6*
SADDLE	Bontrager Race Lite, Ti/leather	
BRAKES	Avid Single Digit Ti, linear pull	
PEDALS	Time ATAC Carbon, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*36.4*
ADDITIONALS	3 water bottle mounts (2 on 15.5, 17.5), Wrench Force shock pump	

COLORS

Starry Night/Candy Blue • White/Red decals • Red fork

GEARING

	22	32	44
11	52	76	105
13	44	65	89
15	38	56	77
17	34	49	68
20	29	42	58
23	25	36	50
26	22	32	44
30	19	28	38
34	17	25	34

Key features:

Rider: Racer

Frameset

ZR9000- stiff, strong, and lightweight

Pro geometry- Excellent high speed handling

Fuel suspension system- Hardtail feel with extra comfort and traction

Wheelset

Bontrager tubeless compatible wheelsets- light, low maintenance, and work with regular or tubeless tires

Tubeless compatible- no pinch flats

Components

Race level (XTR and XT)- precise, light, and durable

SID Race and Float RC- total tuning adjustments

BIKE WEIGHT

24.1 lb.
10.94 kg.

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	67	70	73	76
	Cm	170	177	185	192
Handlebar	Width, mm	600	600	600	600
Stem	Length, mm	105	105	105	120
	Angle	7	7	7	7
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	195.6	215.6	235.6	255.6

Fuel 98

FRAMESET

MAIN TUBES	ZR9000 aluminum	
STAYS	Carbon with Ti links	
	Frame weight	*4.8 lb (2.16 kg)*
FORK	RockShox Duke Race	
	Travel, mm	*80*
	Axle-crown length, mm	*451*
REAR SHOCK	Fox Float R, air/oil, adjustable rebound	
	Stroke	*1.5*
	Length	*6.5*
	Width	*.86"*
	Eyes	*6mm*
HEADSET	SAS Aheadset, alloy	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Race	
	Steerer clamp height, mm	*44.5*
SHIFT LEVERS	Shimano Deore XT RapidFire SL	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Bontrager Ergo	

DRIVETRAIN

FT DERAILLEUR	Shimano Deore XT	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano XTR SGS	
CRANKSET	Bontrager Race 44/32/22	
	Bolt hole circle, mm	*64/104*
BB	Bontrager Race, ISIS splined	
	Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	Shimano HG-72	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano HG70 11-32, 9spd	

WHEELSET

FRONT WHEEL	Btrg Race Modified, tubeless compatible, 24°	
	E.R.D., mm	*539*
	Rim strip	*Tubeless*
FRONT TIRE	Bontrager Super-X, folding	
	Tire size	*49/48*
REAR WHEEL	Btrg Race Modified, tubeless compatible, 28°	
	E.R.D., mm	*542*
	Rim strip	*Tubeless*
REAR TIRE	Bontrager Super-X, folding	
	Tire size	*49/48*
SPOKES	DT 14/15G butted stainless, alloy nipples	
	Front, mm	*251, Radial*
	Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light	

OTHER

SEATPOST	Bontrager Race	
	Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000, Cro-Moly/leather	
BRAKES	Avid Single Digit 5, linear pull	
PEDALS	Time ATAC, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*36.4*
ADDITIONALS	3 water bottle mounts (2 on 15.5, 17.5), Wrench Force shock pump	

COLORS

Georgia Blue/Bright Silver • Black/Silver decals • Electric Ice Blue fork

GEARING

	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

Key features:

Rider: Racer

Frameset

ZR9000- stiff, strong, and lightweight

Pro geometry- Excellent high speed handling

Fuel suspension system- Hardtail feel with extra comfort and traction

Wheelset

Bontrager tubeless compatible wheelsets- light, low maintenance, and work with regular or tubeless tires

Bontrager Super-X- fast, all-condition tires

Components

Race level (XTR and XT)- precise, light, and durable

Duke Race and Float R- light, wide range air-spring tuning

BIKE WEIGHT

25.1 lb.
11.40 kg.

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	67	70	73	76
	Cm	169	178	185	192
Handlebar	Width, mm	600	600	600	600
Stem	Length, mm	105	105	105	120
	Angle	7	7	7	7
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	200.5	220.5	240.5	260.5

Fuel 90

FRAMESET

MAIN TUBES	ZR9000 aluminum
STAYS	ZR9000 aluminum
Frame weight	*4.8 lb (2.16 kg)*
FORK	Manitou Black Elite, adjustable travel (+20mm)
Travel, mm	*80*
Axle-crown length, mm	*451*
REAR SHOCK	Fox Float, air/oil
Stroke	*1.5*
Length	*6.5*
Width	*.86"*
Eyes	*6mm*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Crowbar Comp
Clamp diameter, mm	*25.4*
STEM	Bontrager Select
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore LX RapidFire+
BRAKE LEVERS	Integrated brake/shift
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Deore LX
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Bontrager Select 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-UN52
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	SRAM 7.0 11-32, 9spd

GEARING

	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

BIKE WEIGHT

27.7 lb.
12.58 kg.

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	68	71	74	77
	Cm	173	181	189	197
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	105	105	105	120
	Angle	10	10	10	10
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	390	390	390
Steerer	Length, mm	199.0	219.0	239.0	259.0

WHEELSET

FRONT WHEEL	Bontrager Select ATB, 24°
E.R.D., mm	*541*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
REAR WHEEL	Bontrager Select ATB, 28°
E.R.D., mm	*541*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
SPOKES	DT 14/15G butted stainless, alloy nipples
Front, mm	*255, Radial*
Rear, mm	*268/269, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Select
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000, Cro-Moly
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*36.4*
ADDITIONALS	3 water bottle mounts (2 on 15.5), shock pump

COLORS

Trek Red/Platinum • White/Black decals • Black fork

Fuel 90 Disc

CONTROLS

BRAKE LEVERS	Hydraulic, attached to brake

WHEELSET

FRONT WHEEL	Bontrager Race Disc, 28°
E.R.D., mm	*538*
Rim strip	*Velox 22mm*
REAR WHEEL	Bontrager Race Disc, 28°
E.R.D., mm	*538*
Rim strip	*Velox 22mm*
SPOKES	DT 14/15G butted stainless, alloy nipples
Front, mm	*264/266, 3x*
Rear, mm	*264/265, 3x*

OTHER

BRAKES	Hayes HFX Comp, full hydraulic disc
Rotor diameter	*6.3 in.*
Bolt circle diameter	*44mm*

BIKE WEIGHT

28.8 lb.
13.08 kg.

Key features:

Rider: Every day enthusiast or Racer

Frameset

ZR9000- stiff, strong, and lightweight

Pro geometry- Excellent high speed handling

Fuel suspension system- Hardtail feel with extra comfort and traction

Wheelset

Bontrager Wheelsystems- light, low maintenance

Bontrager Jones AC- all-round treads

Components

All-round level (XT/LX)- 9 speed, powerful brakes

Fuel 90 WSD

FRAMESET

MAIN TUBES	ZR9000 aluminum
STAYS	ZR9000 aluminum
Frame weight	*4.8 lb (2.16 kg)*
FORK	Manitou Black Elite Diva, adj. travel (+20mm)
Travel, mm	*80*
Axle-crown length, mm	*451.0*
REAR SHOCK	Fox Float, air/oil
Stroke	*1.5*
Length	*6.5*
Width	*.86"*
Eyes	*6mm*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*25.4*
STEM	Bontrager Select
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore LX RapidFire+
BRAKE LEVERS	Integrated brake/shift
GRIPS	Bontrager Race, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Deore LX
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Bontrager Select 44/32/22
*Bolt hole circle, m*m	*64/104*
BB	Shimano BB-UN52
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	SRAM 7.0 11-32, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select ATB, 24°
E.R.D., mm	*541*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
REAR WHEEL	Bontrager Select ATB, 28°
E.R.D., mm	*541*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
SPOKES	DT 14/15G butted stainless, alloy nipples
Front, mm	*255, Radial*
Rear, mm	*268/269, 3x*
INNER TUBES	Presta valve, ultra light

OTHER

SEATPOST	Bontrager Select
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000 WSD, CrMo
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts (1 on seatpost), Wrench Force shock pump

COLORS

Georgia Blue/Bright Silver • Silver/White decals • Candy Chrome fork

GEARING

	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

BIKE WEIGHT

27.5 lb.
12.49 kg.

FIT

Frame	Size	14	16	18
Rider height	Inches	61	62	66
	Cm	154	158	168
Handlebar	Width, mm	580	580	580
Stem	Length, mm	60	75	90
	Angle	5	5	5
Crank	Length, mm	170	175	175
Seatpost	Length, mm	300	390	390
Steerer	Length, mm	184.0	184.0	199.0

Key features:

Rider: Woman every day enthusiast or Racer

Frameset

ZR9000- stiff, strong, and lightweight

WSD geometry- Fit and performance especially for a woman

Fuel suspension system- Hardtail feel with extra comfort and traction

Wheelset

Bontrager Wheelsystems- light, low maintenance

Bontrager Jones AC- all-round treads

Components

All-round level (LX)- 9 speed, powerful brakes

WSD- forks, handlebars, grips, saddle, and cranks for a woman's body and riding style

Fuel 80

FRAMESET

MAIN TUBES	ZR9000 aluminum
STAYS	ZR9000 aluminum
Frame weight	*4.8 lb (2.16 kg)*
FORK	Manitou Black Comp, adj. travel (+20mm)
Travel, mm	*80*
Axle-crown length, mm	*451*
REAR SHOCK	Fox Float, air/oil
Stroke	*1.5*
Length	*6.5*
Width	*.86"*
Eyes	*6mm*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+
BRAKE LEVERS	Alloy, direct pull
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Alivio
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	Bontrager Sport 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	IG-31
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm	*542*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC
Tire size	*49/54*
REAR WHEEL	Alloy, QR hub, 32°, Bontrager Corvair OSB rim
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC
Tire size	*49/54*
SPOKES	DT 14G stainless
Front, mm	*266, 3x*
Rear, mm	*263/265, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000
BRAKES	Alloy direct pull
PEDALS	Alloy w/clips and straps
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*36.4*
ADDITIONALS	3 water bottle mounts (2 on 15.5, 17.5), shock pump

COLORS

Starry Night/Platinum • White/Red decals • Red fork

GEARING

	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
26	22	32	44
32	18	26	36

BIKE WEIGHT

30.1 lb.
13.67 kg.

Key features:

Rider: Every day enthusiast or aggressive newbie

Frameset

ZR9000- stiff, strong, and lightweight

Pro geometry- Excellent high speed handling

Fuel suspension system- Hardtail feel with extra comfort and traction

Wheelset

Bontrager Corvair/OSB rims- strong and light

Bontrager Jones AC- all-round treads

Components

Enthusiast level- wider bars, powerful brakes, help rider conquer technical terrain

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	68	71	75	78
	Cm	173	181	189	197
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	105	105	105	120
	Angle	15	15	15	15
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	193.2	213.2	233.2	253.2

STP (Soft Tail Pro)

For 2002

The STP was introduced in the 2000 model year. The frame is unchanged.

Geometry

The STP uses Trek's race-proven Pro Geometry. Sizes are only offered down to size M because smaller frame sizes would not have room for the rear shock.

Ride

Today's race courses are generally smoother, and the racers fitter, than in the past. Racers have very strong legs, which can effortlessly absorb a lot of terrain. Racer's don't need a lot of suspension, instead looking for low weight. Only one bike offers exactly what these racers need. The STP is a racing suspension bike for today and the future.

The STP frame is lighter than some racing hardtails. The suspension reacts only on the biggest hits, or when pedaling in the saddle. The rest of the time the STP feels like a very light, OCLV hardtail. In this capacity, the frame offers outstanding pedaling efficiency.

The STP 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 improved traction. The traction advantages are full-time, both climbing and braking hard. This combination makes the STP ideal for racing.

Frame details

The STP uses OCLV frame technology. Inside the head tube, bonded aluminum 'top hats' support the headset cups. Rather than a continuous tube, the top hats allow a significant weight reduction. Mechanics need to exercise care when removing headset cups to make sure a removal tool is inside the top hats, not outside where hammering can damage the frame.

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

When the rear wheel hits a bump, the frame must flex. Carbon composite is the ideal material for this application, having an almost infinite fatigue life. In addition, our engineers designed the STP so more than just the chainstays flex; the down tube also flexes. The frame is designed as a system, not just as an added shock.

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

The STP seat tube uses a fiberglass 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.

The STP design incorporates a special, built-in chainstay protector to resist chainslap damage to the carbon chainstays.

The STP does not have fittings for disc brakes, which could transmit heat into the carbon stays.

All STP bikes have 2 water bottle mounts.

	Frame sizes	M	L	XL
	Head angle	71.0	71.0	71.0
	Seat angle	73.0	73.0	73.0
MILLIMETERS	Standover	747	776	814
	Seat tube	501	501	546
	Head tube	110	123	159
	Eff top tube	589	625	634
	Chainstays	424	424	424
	BB height	298	298	298
	Offset	42.0	42.0	42.0
	Trail	71	71	71
	Wheelbase	1064	1101	1112
INCHES	Standover	29.4	30.5	32.0
	Seat tube	19.7	19.7	21.5
	Head tube	4.3	4.8	6.3
	Eff top tube	23.2	24.6	24.9
	Chainstays	16.7	16.7	16.7
	BB height	11.7	11.7	11.7
	Offset	1.7	1.7	1.7
	Trail	2.8	2.8	2.8
	Wheelbase	41.9	43.4	43.8

STP 400

FRAMESET

MAIN TUBES	OCLV 150, carbon fiber composite
STAYS	OCLV 150, carbon fiber composite
Frame weight	*4.1 lb (1.86 kg)*
FORK	RockShox SID Race
Travel, mm	*80*
Axle-crown length, mm	*451.0*
REAR SHOCK	RockShox SID
Stroke	*22.2*
Length	*144*
Width	*7/8" X 1.0" O.D.*
Eyes	
HEADSET	Cane Creek S-6 Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*27.1*

CONTROLS

HANDLEBAR	Bontrager Race Lite
Clamp diameter, mm	*31.75*
STEM	Bontrager Race Lite
Steerer clamp height, mm	*39.5*
SHIFT LEVERS	Shimano XTR RapidFire SL
BRAKE LEVERS	Integrated brake/shift
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano XTR
Cable routing	*Top pull (high band clamp only)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano XTR SGS
CRANKSET	Shimano XTR 46/34/24
Bolt hole circle, mm	*64/104*
BB	Shimano XTR, cartridge
Shell x axle, mm	*73 x 113, Splined, Shimano*
CHAIN	Shimano Dura-Ace
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano XTR 12-34, 9spd

WHEELSET

FRONT WHEEL	Btrg Race Lite ATB, tubeless compatible, 24°
E.R.D., mm	*539*
Rim strip	*Tubeless*
FRONT TIRE	Bontrager Super-X, tubeless
Tire size	*49/48*
REAR WHEEL	Bontrager Race Lite ATB, tubeless compatible, 28°
E.R.D., mm	*542*
Rim strip	*Tubeless, asymmetric*
REAR TIRE	Bontrager Super-X, tubeless
Tire size	*49/48*
SPOKES	DT Revolution 14/17G, alloy nipples
Front, mm	*251, Radial*
Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light (for display)

OTHER

SEATPOST	Bontrager Race Lite
Outer diameter, mm	*27.2*
SADDLE	Bontrager Race Lite, Ti/leather
BRAKES	Avid Single digit Ti, linear pull
PEDALS	Time ATAC, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts, Wrench Force shock pump

COLORS

Smoke Carbon/Candy blue • White/Red decals • Electric Blue fork

GEARING

	24	34	46
12	52	74	101
14	45	64	86
16	39	56	75
18	35	50	67
20	31	45	60
23	27	39	52
26	24	34	46
30	21	30	40
34	19	26	35

BIKE WEIGHT

22.1 lb.
10.03 kg.

FIT

Frame	Size	17.5	19.5	21.5
Rider height	Inches	70	72	75
	Cm	177	183	192
Handlebar	Width, mm	600	600	600
Stem	Length, mm	105	105	120
	Angle	7	7	7
Crank	Length, mm	175	175	175
Seatpost	Length, mm	350	350	350
Steerer	Length, mm	202.6	215.6	251.6

Key features:

Rider: Racer

Frameset

OCLV- Elite racing frame material feels light and fast

Pro geometry- Excellent high speed handling

STP (Soft Tail Pro) suspension system- Hardtail feel with extra comfort and traction, no pivot maintenance

Wheelset

Bontrager tubeless compatible wheelsets- light, low maintenance, and work with regular or tubeless tires

Components

Race level (XTR and XT)- precise, light, and durable

SID Race fork and Race rear shock- low weight with race tuning

Y

For 2002

The Y design was first introduced by Trek for the 1995 model year. Since then, it has become what is likely the most popular full suspension design of all time.

Geometry

The Y uses traditional NORBA geometry, adapted for suspension through a slightly higher bottom bracket. The extra bottom bracket height helps avoid pedal to ground contact under compression of the rear suspension.

Ride

This design is a great all-round suspension. The Y features makes the Y bike a great mountain bike for the newbie, who will learn faster and have more fun with suspension. It also is a great bike for every-day, casual riders who will benefit from the comfort and added traction provided by the suspension. With more travel than many popular designs, the Y is an all-mountain design that's sure to make many a rider smile (it's already done that for thousands!).

The Y offers a good compromise of frame rigidity, pedaling efficiency, longer travel, lower weight, low maintenance, and good suspension feel. The Y bike uses a URT, or Unified Rear Triangle. In this design, there is no motion between the bottom bracket and rear wheel, so chain tension cannot effect the suspension action. This provides efficient pedaling, with zero 'inch-worming'.

Frame details

The Y uses Alpha frame 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.

	Frame sizes	S	M	L
	Head angle	71.0	71.0	71.0
	Seat angle	74.0	73.0	72.0
MILLIMETERS	Standover	710	740	739
	Seat tube	432	483	533
	Head tube	115	125	125
	Eff top tube	564	612	644
	Chainstays	425	425	425
	BB height	302	302	302
	Offset	42	42	42
	Trail	71	71	71
	Wheelbase	1047	1087	1109
INCHES	Standover	28.0	29.1	29.1
	Seat tube	17.0	19.0	21.0
	Head tube	4.5	4.9	4.9
	Eff top tube	22.2	24.1	25.4
	Chainstays	16.7	16.7	16.7
	BB height	11.9	11.9	11.9
	Offset	1.7	1.7	1.7
	Trail	2.8	2.8	2.8
	Wheelbase	41.2	42.8	43.7

Y 26

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Cro-Moly
FORK	RST Capa CL
Travel, mm	*63*
Axle-crown length, mm	*435.5*
REAR SHOCK	RST 20B coilover
Stroke	
Length	*165mm*
Width	*7/8"*
Eyes	
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*23*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano EF29
BRAKE LEVERS	Integrated brake/shift
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano C050
Cable routing	*Top pull (low band clamp only)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Acera-X
CRANKSET	FCM55, alloy, 42/34/24
Bolt hole circle, mm	*Riveted*
BB	Semi-cartridge
Shell x axle, mm	*73 x 122.5, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*110*
CASSETTE	Sun Race 13-30, 7spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 750 rim
E.R.D., mm	*561*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Connection
Tire size	*26 x 1.95*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 750 rim
E.R.D., mm	*561*
Rim strip	*PVC*
REAR TIRE	Bontrager Connection
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*259, 3x*
Rear, mm	*256/258, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*30.4*
SADDLE	Trek ATB Comfort
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*34.9*
ADDITIONALS	1 water bottle mount

COLORS

Ball Burnished/Candy Blue • Black/Red decals • Candy Blue fork

GEARING

	24	34	42
13	48	69	85
15	42	59	73
17	37	52	65
19	33	47	58
22	29	41	50
25	25	36	44
30	21	30	37

BIKE WEIGHT

30.8 lb.
13.98 kg.

FIT

Frame	Size	17	18	21
Rider height	Inches	68	72	75
	Cm	173	182	190
Handlebar	Width, mm	580	600	600
Stem	Length, mm	90	90	110
	Angle	25	25	25
Crank	Length, mm	170	170	175
Seatpost	Length, mm	300	350	350
Steerer	Length, mm	221	231	231

Key features:

Rider: Pleasure rider or aggressive newbie

Frameset

Y design- Our most popular suspension design ever

URT- great overall performance

Wheelset

Matrix 750 rims- strong and light

Bontrager Connection tires- all-round treads

Components

Recreational level- coil spring suspension, soft saddle, large-platform pedals make mountain biking more comfortable

OCLV HC Hardtail

For 2002

The OCLV HC was introduced in the 1999 model year. The frame is unchanged.

Geometry

The regular OCLV HC hardtail uses Trek's race-proven Pro Geometry.

Ride

The OCLV HC hardtail frame is one of the lightest racing hardtails ever produced. Of the bikes that can compete with this frame in weight, few if any can offer the pedaling efficiency and outstanding frame rigidity that makes the 9.8 handle so well.

Like with other OCLV bikes, high lateral frame rigidity is coupled with unique vertical compliance. This bike soaks up bumps in ways that you don't expect. The 9.8 comfort will surprise anyone who has ridden other efficient frames, which are usually quite harsh.

Frame details

The OCLV HC hardtail uses OCLV HC frame technology. Inside the head tube, bonded aluminum 'top hats' support the headset cups. Rather than a continuous tube, the top hats allow a significant weight reduction. Mechanics need to exercise care when removing headset cups to make sure a removal tool is inside the top hats, not outside where hammering can damage the frame.

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

The dropouts on the OCLV HC hardtail are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

The OCLV HC hardtail seat tube uses a fiberglass 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.

This frame uses aluminum chainstays. The primary reason for the aluminum is to allow a disc brake. Disc brakes generate a lot of heat, and our engineers did not feel comfortable having heat dissipate into the composite. With aluminum, there is no problem. The mount is Hayes style. As an added benefit, the aluminum stands up to chainslap better than carbon, so we didn't have to engineer extra protection as we do on other OCLV models.

OCLV HC hardtail frames have 3 water bottle mounts

	Frame sizes	M	L	XL
	Head angle	71.0	71.0	71.0
	Seat angle	73.0	73.0	72.5
MILLIMETERS	Standover	744	782	821
	Seat tube	445	495	545
	Head tube	126	147	167
	Eff top tube	588	625	641
	Chainstays	424	424	424
	BB height	297	297	297
	Offset	42	42	42
	Trail	71	71	71
	Wheelbase	1064	1102	1113
INCHES	Standover	29.3	30.8	32.3
	Seat tube	17.5	19.5	21.5
	Head tube	5.0	5.8	6.6
	Eff top tube	23.1	24.6	25.2
	Chainstays	16.7	16.7	16.7
	BB height	11.7	11.7	11.7
	Offset	1.7	1.7	1.7
	Trail	2.8	2.8	2.8
	Wheelbase	41.9	43.4	43.8

FOR THE MECHANIC

Removing Headset Cups

When removing an headset in an OCLV frame, make sure the headset removal tool is engaging the headset cup. OCLV framesets do not utilize a continuous headtube, but instead use two short inserts to support the headset cups. If the headset tool is outside the insert rather than inside the insert and pressing on the cup, frame damage can result.

Elite 9.8

FRAMESET

MAIN TUBES	OCLV HC, carbon fiber composite	
STAYS	OCLV/ aluminum	
	Frame weight	*3.0 lb (1.36 kg)*
FORK	RockShox SID SL	
	Travel, mm	*80*
	Axle-crown length, mm	*453.0*
HEADSET	SAS Aheadset, alloy	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Race	
	Steerer clamp height, mm	*44.5*
SHIFT LEVERS	Shimano Deore XT RapidFire SL	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Bontrager Ergo	

DRIVETRAIN

FT DERAILLEUR	Shimano Deore XT	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8", high clamp only*
RR DERAILLEUR	Shimano XTR SGS	
CRANKSET	Bontrager Race 44/32/22	
	Bolt hole circle, mm	*64/104*
BB	Bontrager Race, ISIS splined	
	Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	Shimano HG-92	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano Deore XT 11-34, 9spd	

WHEELSET

FRONT WHEEL	Btrg Race Modified, tubeless compatible, 24°	
	E.R.D., mm	*539*
	Rim strip	*Tubeless*
FRONT TIRE	Bontrager Super-X, folding	
	Tire size	*49/48*
REAR WHEEL	Btrg Race Modified, tubeless compatible, 28°	
	E.R.D., mm	*542*
	Rim strip	*Tubeless*
REAR TIRE	Bontrager Super-X, folding	
	Tire size	*49/48*
SPOKES	DT 14/15G butted stainless, alloy nipples	
	Front, mm	*251, Radial*
	Rear, mm	*267/269, 3x*
INNER TUBES	Presta, for display	

OTHER

SEATPOST	Bontrager Race	
	Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000, Gel, Cro-Moly/leather	
BRAKES	Avid Single Digit 5, linear pull	
PEDALS	Time ATAC, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*39.85*
ADDITIONALS	3 water bottle mounts	

COLORS

Starry Night/Candy Blue • White/Red decals • Black fork

GEARING

	22	32	44
11	52	76	105
13	44	65	89
15	38	56	77
17	34	49	68
20	29	42	58
23	25	36	50
26	22	32	44
30	19	28	38
34	17	25	34

BIKE WEIGHT

23.9 lb.
10.85 kg.

Key features:

Rider: Racer

Frameset

OCLV HC- Our best racing frame- fast and efficient

Pro geometry- Excellent high speed handling

Wheelset

Bontrager tubeless compatible wheelsets- light, low maintenance, and work with regular or tubeless tires

Components

Performance level (XTR and XT)- Race features

FIT

Frame	Size	17.5	19.5	21.5
Rider height	Inches	70	74	76
	Cm	179	187	194
Handlebar	Width, mm	600	600	600
Stem	Length, mm	105	105	120
	Angle	7	7	7
Crank	Length, mm	175	175	175
Seatpost	Length, mm	350	350	350
Steerer	Length, mm	223.5	244.5	264.5

ZR9000 Hardtails

New for 2002

These frames were formerly known as Alpha SLR, but for 2002 we changed the frame material to ZR9000. The result of the lighter tubing is 15% lighter, 15% stronger frames. Other design detials remain the same.

Geometry

The regular ZR9000 ATB uses Trek's race-proven Pro Geometry. The ZR9000 ATB WSD uses our proven WSD geometry.

Ride

These are race bikes. As such, the ZR9000 ATB's frame offers outstanding pedaling efficiency. This exceptional frame rigidity also gives the ZR9000 ATB it's 'riding on rails' cornering ability. This explains why these are some of the most popular bikes on the race circuit today. Even our Pros have ridden these frames to success (although mostly they ride our high end OCLV).

Frame details

The ZR9000 ATB uses double butted, and shaped, ZR9000 aluminum frame technology. An oversize 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 at the top and bottom to support the headset cups.

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

The fittings, like dropouts and seatstay yoke, on the ZR9000 ATB are almost all forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

ZR9000 ATB bikes have 2 water bottle mounts, except the XS WSD. This frame size does not have a tall enough seat tube to allow a water bottle mount to be used.

The ZR9000 ATB frame uses a special dropout to accommodate a disc brake adapter. This adapter provides mounting for an International style rear disc brake.

ZR9000 ATB

	Frame sizes	15.5	17.5	19.5	21.5
	Head angle	71.0	71.0	71.0	71.0
	Seat angle	73.5	73.0	73.0	72.5
MILLIMETERS	Standover	706	742	780	821
	Seat tube	394	445	495	546
	Head tube	105	125	145	165
	Eff top tube	550	588	625	641
	Chainstays	424	424	424	424
	BB height	297	297	297	300
	Offset	42	42	42	42
	Trail	71	71	71	71
	Wheelbase	1030	1064	1101	1114
INCHES	Standover	27.8	29.2	30.7	32.3
	Seat tube	15.5	17.5	19.5	21.5
	Head tube	4.1	4.9	5.7	6.5
	Eff top tube	21.7	23.1	24.6	25.2
	Chainstays	16.7	16.7	16.7	16.7
	BB height	11.7	11.7	11.7	11.8
	Offset	1.7	1.7	1.7	1.7
	Trail	2.8	2.8	2.8	2.8
	Wheelbase	40.6	41.9	43.4	43.9

ZR9000 WSD ATB

	Frame sizes	XS	S	M
	Head angle	70.0	70.0	70.0
	Seat angle	75.0	74.0	73.5
MILLIMETERS	Standover	670	700	740
	Seat tube	356	406	457
	Head tube	90	90	105
	Eff top tube	518	532	563
	Chainstays	424	424	424
	BB height	289	289	293
	Offset	41.9	41.9	41.9
	Trail	78	78	78
	Wheelbase	1018	1023	1051
INCHES	Standover	26.4	27.6	29.1
	Seat tube	14.0	16.0	18.0
	Head tube	3.5	3.5	4.1
	Eff top tube	20.4	21.0	22.2
	Chainstays	16.7	16.7	16.7
	BB height	11.4	11.4	11.6
	Offset	1.6	1.6	1.6
	Trail	3.1	3.1	3.1
	Wheelbase	40.1	40.3	41.4

8500

FRAMESET

MAIN TUBES	ZR9000 aluminum	
STAYS	ZR9000 aluminum	
	Frame weight	*3.4 lb (1.54 kg)*
FORK	RockShox Duke Race	
	Travel, mm	*80*
	Axle-crown length, mm	*451.0*
HEADSET	SAS Aheadset, alloy	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Race	
	Steerer clamp height, mm	*44.5*
SHIFT LEVERS	Shimano Deore XT RapidFire SL	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Bontrager Ergo	

DRIVETRAIN

FT DERAILLEUR	Shimano Deore XT	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano XTR SGS	
CRANKSET	Bontrager Race 44/32/22	
	Bolt hole circle, mm	*64/104*
BB	Bontrager Race, ISIS splined	
	Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	Shimano HG-72	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano HG70 11-32, 9spd	

WHEELSET

FRONT WHEEL	Bontrager Race ATB, tubeless compatible, 24°	
	E.R.D., mm	*539*
	Rim strip	*Tubeless*
FRONT TIRE	Bontrager Jones AC, folding	
	Tire size	*49/54*
REAR WHEEL	Bontrager Race ATB, tubeless compatible, 28°	
	E.R.D., mm	*542*
	Rim strip	*Tubeless*
REAR TIRE	Bontrager Jones AC, folding	
	Tire size	*49/54*
SPOKES	DT 14/15G butted stainless, alloy nipples	
	Front, mm	*251, Radial*
	Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light, for display	

OTHER

SEATPOST	Bontrager Race	
	Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000, Cro-Moly/leather	
BRAKES	Avid Single Digit 5, linear pull	
PEDALS	Shimano SPD M515, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts	

COLORS

Georgia Blue/Starry Night • Black/Silver decals • Electric Ice Blue fork

GEARING

	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

BIKE WEIGHT
23.5 lb.
10.67 kg.

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	67	71	73	76
	Cm	171	179	186	193
Handlebar	Width, mm	600	600	600	600
Stem	Length, mm	105	105	105	120
	Angle	7	7	7	7
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	390	390	390
Steerer	Length, mm	202.5	222.5	242.5	262.5

8500 Disc

BIKE WEIGHT
24.1 lb.
10.94 kg.

CONTROLS

BRAKE LEVERS	Hydraulic, attached to brake
GRIPS	Bontrager Ergo

WHEELSET

FRONT WHEEL	Bontrager Race Modified Disc, 28°	
	E.R.D., mm	*538*
	Rim strip	*Velox 22mm*
REAR WHEEL	Bontrager Race Modified Disc, 28°	
	E.R.D., mm	*538*
	Rim strip	*Velox 22mm*
SPOKES	DT 14/15G butted stainless, alloy nipples	
	Front, mm	*264/266, 3x*
	Rear, mm	*264/265, 3x*

OTHER

BRAKES	Hayes Mag, full hydraulic disc	
	Rotor diameter	*6.3 in.*
	Bolt circle diameter	*44mm*

Key features:

Rider: Racer

Frameset

ZR9000- light, strong, and stiff

Pro geometry- Excellent high speed handling

Wheelset

Bontrager tubeless compatible wheelsets- light, low maintenance, and work with regular or tubeless tires

Bontrager Super-X- fast, all-conditions tread

Components

Racing level (XTR and XT)- light, precise, and durable

SID XC fork- light, highly tunable

8000

FRAMESET

MAIN TUBES	ZR9000 aluminum
STAYS	ZR9000 aluminum
Frame weight	*3.4 lb (1.54 kg)*
FORK	RockShox Duke XC
Travel, mm	*80*
Axle-crown length, mm	*451.0*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*25.4*
STEM	Bontrager Select
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore LX RapidFire+
BRAKE LEVERS	Integrated brake/shift
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Deore LX
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Bontrager Select 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-UN52
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-53
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano HG50 11-32, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select ATB, 24°
E.R.D., mm	*541*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
REAR WHEEL	Bontrager Select ATB, 28°
E.R.D., mm	*541*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
SPOKES	DT 14/15G butted stainless, alloy nipples
Front, mm	*255, Radial*
Rear, mm	*268/269, 3x*
INNER TUBES	Presta valve, ultra light

OTHER

SEATPOST	Bontrager Select
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS2000, Cro-Moly
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts

COLORS

Bright Silver/Starry Night • Black/Red decals • Red fork

GEARING

	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

BIKE WEIGHT

25.6 lb.
11.62 kg.

Key features:

Rider: Racer

Frameset

ZR9000- light, strong, and stiff

Pro geometry- Excellent high speed handling

Wheelset

Bontrager Wheelsystems- light, low maintenance

Components

All-round level (XT and LX) -racing features at an affordable price

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	66	70	74	76
	Cm	168	179	187	193
Handlebar	Width, mm	600	600	600	600
Stem	Length, mm	90	105	105	120
	Angle	5	10	10	10
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	300	390	390	390
Steerer	Length, mm	197.0	217.0	237.0	257.0

8000 WSD

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	RockShox Duke XC, light springs
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*25.4*
STEM	Bontrager Select
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore LX RapidFire+
BRAKE LEVERS	Integrated brake/shift
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Deore LX
Cable routing	*Top pull*
Attachment	*Plate style w/34.9mm clamp*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Bontrager Select 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-UN52
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-53
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	Shimano HG50 11-32, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select ATB, 24°
E.R.D., mm	*541*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
REAR WHEEL	Bontrager Select ATB, 28°
E.R.D., mm	*541*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC, folding
Tire size	*49/54*
SPOKES	DT 14/15G butted stainless, alloy nipples
Front, mm	*255, Radial*
Rear, mm	*268/269, 3x*
INNER TUBES	Presta valve, ultra light

OTHER

SEATPOST	Bontrager Select
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000 WSD, CrMo
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle/no rack on 14)

COLORS

Frost/Starry Night • Black/White decals • Black fork

GEARING

	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

BIKE WEIGHT

25.5 lb.
11.58 kg.

Key features:

Rider: Woman Racer

Frameset

ZR9000- light, strong, and stiff

WSD geometry- Fit and performance for a woman's body

Wheelset

Bontrager Wheelsystems- light, low maintenance

Components

All-round level (XT and LX) -racing features at an affordable price

WSD forks, handlebars, grips, saddle, and cranks to fit and perform for a woman

FIT

Frame	Size	14	16	18
Rider height	Inches	62	64	67
	Cm	157	162	170
Handlebar	Width, mm	580	580	580
Stem	Length, mm	60	75	90
	Angle	5	5	5
Crank	Length, mm	170	170	175
Seatpost	Length, mm	300	300	390
Steerer	Length, mm	184	184	199

Alpha SLR hardtails

New for 2002

Alpha SLR ATB frames, both standard and WSD, were formerly Alpha ZX. This means these frames are now double-butted 6061 T6 aluminum, and the men's frames now use Pro geometry.

Geometry

The regular Alpha SLR hardtail uses our race-proven Pro geometry, which has its roots in racing. The Alpha SLR WSD hardtail uses our proven WSD geometry.

Ride

These are race bikes. As such, the Alpha SLR hardtail's frame offers outstanding pedaling efficiency. This exceptional frame rigidity also gives the Alpha SLR it's 'riding on rails' cornering ability. This explains why these are some of the most popular bikes on the race circuit today.

Frame details

The Alpha SLR hardtail uses Alpha SLR aluminum frame technology. An oversize 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 at the top and bottom to support the headset cups.

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

The fittings, like dropouts and seatstay yoke, on the Alpha SLR ATB are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

Alpha SLR bikes have 2 water bottle mounts, except the XS WSD. This frame size does not have a tall enough seat tube to allow a water bottle mount to be used.

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

Alpha SLR ATB

	Frame sizes	15.5	17.5	19.5	21.5
	Head angle	71.0	71.0	71.0	71.0
	Seat angle	73.5	73.0	73.0	72.5
MILLIMETERS	Standover	706	742	780	821
	Seat tube	394	445	495	546
	Head tube	105	125	145	165
	Eff top tube	550	588	625	641
	Chainstays	424	424	424	424
	BB height	297	297	297	300
	Offset	42	42	42	42
	Trail	71	71	71	71
	Wheelbase	1030	1064	1101	1114
INCHES	Standover	27.8	29.2	30.7	32.3
	Seat tube	15.5	17.5	19.5	21.5
	Head tube	4.1	4.9	5.7	6.5
	Eff top tube	21.7	23.1	24.6	25.2
	Chainstays	16.7	16.7	16.7	16.7
	BB height	11.7	11.7	11.7	11.8
	Offset	1.7	1.7	1.7	1.7
	Trail	2.8	2.8	2.8	2.8
	Wheelbase	40.6	41.9	43.4	43.9

Alpha SLR WSD ATB

	Frame sizes	XS	S	M
	Head angle	70.0	70.0	70.0
	Seat angle	75.0	74.0	73.5
MILLIMETERS	Standover	670	700	740
	Seat tube	356	406	457
	Head tube	90	90	105
	Eff top tube	518	532	563
	Chainstays	424	424	424
	BB height	289	289	293
	Offset	41.9	41.9	41.9
	Trail	78	78	78
	Wheelbase	1018	1023	1051
INCHES	Standover	26.4	27.6	29.1
	Seat tube	14.0	16.0	18.0
	Head tube	3.5	3.5	4.1
	Eff top tube	20.4	21.0	22.2
	Chainstays	16.7	16.7	16.7
	BB height	11.4	11.4	11.6
	Offset	1.6	1.6	1.6
	Trail	3.1	3.1	3.1
	Wheelbase	40.1	40.3	41.4

6700

FRAMESET

MAIN TUBES	Alpha SLR aluminum
STAYS	Alpha SLR aluminum
Frame weight	*3.6 lb (1.65 kg)*
FORK	RockShox Duke C
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Bontrager Select
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore RapidFire+
BRAKE LEVERS	Avid AD 3L, long pull
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Deore
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore LX SGS
CRANKSET	Bontrager Select 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	SRAM 7.0 11-32, 9spd

WHEELSET

FRONT WHEEL	Bontrager Superstock, 24°
E.R.D., mm	*542*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC
Tire size	*49/54*
REAR WHEEL	Bontrager Superstock, 28°
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC
Tire size	*49/54*
SPOKES	DT 14G stainless
Front, mm	*254, Radial*
Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000
BRAKES	Shimano M420, V type
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts

COLORS

Starry Night/Candy Blue • White/Red decals • Red fork
Autumn Gold • Black/Red decals • Red fork (not available on 6700 Disc)

6700 Disc

CONTROLS

BRAKE LEVERS	Hydraulic, attached to brake

WHEELSET

FRONT WHEEL	Bontrager Superstock Disc, 24°
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR WHEEL	Bontrager Superstock DisC, 28°
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
SPOKES	DT 14G stainless

OTHER

BRAKES	Shimano Deore LX, hydraulic disc
Rotor diameter	*6.3 in.*
Bolt circle diameter	*44mm*

BIKE WEIGHT
27.8 lb.
12.62 kg.

GEARING

	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

BIKE WEIGHT
26.7 lb.
12.12 kg.

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	67	72	75	77
	Cm	171	182	190	197
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	90	105	105	120
	Angle	5	10	10	10
Crank	Length, mm	175	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	195.0	215.0	235.0	255.0

Key features:

Rider: Every day enthusiast or aggressive newbie

Frameset

Alpha SLR butted aluminum - light, strong, and stiff

Pro geometry- Race proven

Wheelset

Bontrager Superstock- light and strong

Bontrager Jones AC- all-round tread

Components

All-round level (LX and Deore)-all round performance with 9 speed and powerful brakes

6700 WSD

FRAMESET

MAIN TUBES	Alpha SLR aluminum	
STAYS	Alpha SLR aluminum	
	Frame weight	*4.2 lb (1.91 kg)*
FORK	RockShox Duke C, light springs	
	Travel, mm	*80*
	Axle-crown length, mm	*451*
HEADSET	STR Aheadset	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Select	
	Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore RapidFire+	
BRAKE LEVERS	Alloy, direct pull, woman's reach	
GRIPS	Bontrager Race, dual density	

DRIVETRAIN

FT DERAILLEUR	Shimano Deore	
	Cable routing	*Top pull*
	Attachment	*Plate style w/34.9mm clamp*
RR DERAILLEUR	Shimano Deore LX SGS	
CRANKSET	Bontrager Select 44/32/22	
	Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27	
	Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-53	
	Chain type	*3/32"*
	Chain length (links)	*108*
CASSETTE	SRAM 7.0 11-32, 9spd	

WHEELSET

FRONT WHEEL	Bontrager Superstock, 24°	
	E.R.D., mm	*542*
	Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC	
	Tire size	*49/54*
REAR WHEEL	Bontrager Superstock, 28°	
	E.R.D., mm	*542*
	Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC	
	Tire size	*49/54*
SPOKES	DT 14G stainless	
	Front, mm	*254, Radial*
	Rear, mm	*267/269, 3x*
INNER TUBES	Presta valve, ultra light	

OTHER

SEATPOST	Bontrager Sport	
	Outer diameter, mm	*31.6*
SADDLE	Bontrager FS 2000 WSD	
BRAKES	Shimano M420, V type	
PEDALS	Shimano SPD M515, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release	
	Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle/ no rack on 14)	

COLORS

Candy Blue/Starry Night • White/Red decals • White fork

GEARING

	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

BIKE WEIGHT

26.1 lb.
11.85 kg.

Key features:

Rider: Every day woman enthusiast or aggressive newbie

Frameset

Alpha SLR butted aluminum - light, strong, and stiff

WSD geometry- Fit and performance for her

Wheelset

Bontrager Superstock- light and strong

Bontrager Jones AC- all-round tread

Components

All-round level (LX and Deore)-all round performance with 9 speed and powerful brakes

WSD forks, handlebars, grips, saddle, cranks to fit and perform for a woman

FIT

Frame	Size	14	16	18
Rider height	Inches	63	65	68
	Cm	159	164	173
Handlebar	Width, mm	600	600	600
Stem	Length, mm	60	75	90
	Angle	5	5	5
Crank	Length, mm	170	170	175
Seatpost	Length, mm	300	300	350
Steerer	Length, mm	178.2	178.2	193.2

6500

FRAMESET

MAIN TUBES	Alpha SLR aluminum
STAYS	Alpha SLR aluminum
Frame weight	*3.6 lb (1.65 kg)*
FORK	Manitou Super 6
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport, 25mm rise
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Deore RapidFire+
BRAKE LEVERS	Alloy, direct pull
GRIPS	Bontrager Ergo

DRIVETRAIN

FT DERAILLEUR	Shimano Deore
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore LX SGS
CRANKSET	Bontrager Sport 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	SRAM 7.0 11-32, 9spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm	*542*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC
Tire size	*49/54*
REAR WHEEL	Shimano C201 hub, 32°, Btrg Corvair OSB rim
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC
Tire size	*49/54*
SPOKES	14G stainless
Front, mm	*266, 3x*
Rear, mm	*263/265, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*31.6*
SADDLE	Bontrager Sport
BRAKES	Alloy direct pull
PEDALS	Alloy cage w/clips and straps
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*36.4*
ADDITIONALS	2 water bottle mounts (1 on XS)

COLORS

Trek Red/Starry Night • White/Silver decals • Black fork
Dusk • Black/Silver decals • Black fork

GEARING

	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

BIKE WEIGHT

27.5 lb.
12.49 kg.

Key features:

Rider: Every day enthusiast or aggressive newbie

Frameset

Alpha SLR butted aluminum - light, strong, and stiff

Pro geometry- Race proven

Wheelset

Bontrager Corvair/OSB rims-low weight, smooth braking action

Bontrager Jones AC- all-round tread

Components

All-round level (LX and Deore)-all round performance with 9 speed and powerful brakes

FIT

Frame	Size	15.5	17.5	19.5	21.5
Rider height	Inches	67	72	76	79
	Cm	171	182	193	200
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	90	105	120	135
	Angle	15	15	15	15
Crank	Length, mm	175	175	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	195.2	215.2	235.2	255.2

Alpha hardtails

For 2002

Alpha ATB hardtail frames, both standard and WSD, remain unchanged from 2000.

Geometry

The regular Alpha ATB uses classic 'NORBA' geometry, which has its roots in racing. The Alpha ATB WSD uses our proven WSD geometry.

Ride

These are bikes capable of racing, but with nimble handling that makes them ideal for all-round riding and fun singletrack.

The Alpha ATB's frame offers outstanding pedaling efficiency. This exceptional frame rigidity also gives the Alpha ATB its 'riding on rails' cornering ability. You may notice this description shares many of the superlatives of our Alpha SLR ATB frames. The similarity should be no surprise, since the Alpha frames share the SLR heritage and are designed by the same engineering staff.

Frame details

The Alpha ATB uses Alpha aluminum frame technology. An oversize 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.

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

The fittings, like dropouts, on the Alpha ATB are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

Alpha ATB bikes have 2 water bottle mounts, except the XS WSD. This frame size does not have a tall enough seat tube to allow a water bottle mount to be used.

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

Alpha ATB

	Frame sizes	13	16.5	18	19.5	21	22.5	24
	Head angle	70.5	71.0	71.0	71.0	71.0	71.0	70.5
	Seat angle	74.0	73.5	73.0	73.0	73.0	72.5	72.0
MILLIMETERS	Standover	647	709	735	764	801	838	872
	Seat tube	330	419	457	495	533	572	610
	Head tube	90	90	105	125	145	185	225
	Eff top tube	529	559	578	588	599	609	615
	Chainstays	430	430	430	430	430	430	430
	BB height	288	295	298	298	298	300	303
	Offset	38.1	38.1	38.1	38.1	38.1	38.1	38.1
	Trail	79	75	75	75	75	75	79
	Wheelbase	1016	1039	1055	1066	1078	1084	1089
INCHES	Standover	25.5	27.9	28.9	30.1	31.5	33.0	34.3
	Seat tube	13.0	16.5	18.0	19.5	21.0	22.5	24.0
	Head tube	3.5	3.5	4.1	4.9	5.7	7.3	8.9
	Eff top tube	20.8	22.0	22.8	23.2	23.6	24.0	24.2
	Chainstays	16.9	16.9	16.9	16.9	16.9	16.9	16.9
	BB height	11.3	11.6	11.7	11.7	11.7	11.8	11.9
	Offset	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Trail	3.1	3.0	3.0	3.0	3.0	3.0	3.1
	Wheelbase	40.0	40.9	41.6	42.0	42.4	42.7	42.9

Alpha WSD ATB

	Frame sizes	XS	S	M
	Head angle	70.0	70.0	70.0
	Seat angle	75.0	74.0	73.5
MILLIMETERS	Standover	670	700	740
	Seat tube	356	407	457
	Head tube	90	90	105
	Eff top tube	518	532	563
	Chainstays	424	424	424
	BB height	289	289	293
	Offset	41.9	41.9	41.9
	Trail	78	78	78
	Wheelbase	1018	1023	1051
INCHES	Standover	26.4	27.6	29.1
	Seat tube	14.0	16.0	18.0
	Head tube	3.5	3.5	4.1
	Eff top tube	20.4	21.0	22.2
	Chainstays	16.7	16.7	16.7
	BB height	11.4	11.4	11.6
	Offset	1.6	1.6	1.6
	Trail	3.1	3.1	3.1
	Wheelbase	40.1	40.3	41.4

4900

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	RockShox Judy C
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport, 25mm rise
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+
BRAKE LEVERS	Alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Alivio
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	Bontrager Sport 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	IG31
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm	*542*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC
Tire size	*49/54*
REAR WHEEL	Shimano C201 hub, 32°, Bontrager Corvair OSB rim
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC
Tire size	*49/54*
SPOKES	DT 14G stainless
Front, mm	*266, 3x*
Rear, mm	*263/265, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*29.2*
SADDLE	Trek ATB
BRAKES	Alloy direct pull
PEDALS	Alloy ATB, clipless adaptable
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle/ no rack on13)

COLORS

MetalFlake Yellow • Black/Silver decals • Black fork
Starry Night • Blue/White decals • Black fork

GEARING

	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
26	22	32	44
32	18	26	36

BIKE WEIGHT

28.1 lb.
12.76 kg.

Key features:

Rider: Casual enthusiast or newbie

Frameset

Alpha aluminum - light, strong, and stiff

Singletrack geometry- Nimble steering and maneuverability

Wheelset

Bontrager Corvair/OSB rims-low weight, smooth braking action

Bontrager Jones AC- excellent all-round traction/ control

Components

Sport level (Deore)-Wide bars for control, comfortable position, and powerful brakes

FIT

Frame	Size	13	16.5	18	19.5	21	22.5
Rider height	Inches	64	66	69	72	74	77
	Cm	163	169	175	182	189	196
Handlebar	Width, mm	620	620	620	620	620	620
Stem	Length, mm	75	75	90	105	120	135
	Angle	15	15	15	15	15	15
Crank	Length, mm	170	170	175	175	175	175
Seatpost	Length, mm	300	300	350	350	350	350
Steerer	Length, mm	180.2	180.2	195.2	215.2	235.2	275.2

4900 WSD

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	RockShox Judy C, light springs
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+
BRAKE LEVERS	Alloy, direct pull, woman's reach
GRIPS	Bontrager Race, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Alivio
Cable routing	*Top pull*
Attachment	*Plate style w/34.9mm clamp*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	Bontrager Sport 44/32/22
Bolt hole circle, mm	*64/104*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	IG31
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm	*542*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Jones AC
Tire size	*49/54*
REAR WHEEL	Shimano C201 hub, 32°, Btrg Corvair OSB rim
E.R.D., mm	*542*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Jones AC
Tire size	*49/54*
SPOKES	DT 14G stainless
Front, mm	*266, 3x*
Rear, mm	*263/265, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*29.2*
SADDLE	Bontrager FS 2000 WSD
BRAKES	Alloy direct pull
PEDALS	Alloy/alloy cage, clipless adaptable
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release
Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle/ no rack on XS, S)

COLORS

Iris • White/Silver decals • White forkk

GEARING

	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
26	22	32	44
32	18	26	36

BIKE WEIGHT

27.8 lb.
12.62 kg.

Key features:

Rider: Casual woman enthusiast or newbie

Frameset

Alpha aluminum - light, strong, and stiff

WSD geometry- Fit and performance for her

Wheelset

Bontrager Corvair/OSB rims-low weight, smooth braking action

Bontrager Jones AC- excellent all-round traction/ control

Components

Sport level (Deore)-Wide bars for control, comfortable position, and powerful brakes

WSD forks, handlebars, grips, saddle, and cranks to fit and function for a woman

FIT

Frame	Size	14	16	18
Rider height	Inches	62	64	68
	Cm	159	164	174
Handlebar	Width, mm	600	600	600
Stem	Length, mm	60	75	90
	Angle	15	15	15
Crank	Length, mm	170	170	175
Seatpost	Length, mm	300	300	350
Steerer	Length, mm	180.2	180.2	195.2

4500

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	RockShox Judy TT
Travel, mm	*80*
Axle-crown length, mm	*451*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*23*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano EF29
BRAKE LEVERS	Integrated brake/shift
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Acera-X
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Alivio
CRANKSET	Bontrager Sport 44/32/22
Bolt hole circle, mm	*64/104*
BB	Cartridge
Shell x axle, mm	*73 x 113, Square*
CHAIN	IG-51
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Matrix 750 rim
E.R.D., mm	*561*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Jones AC
Tire size	*26 x 2.1*
REAR WHEEL	Shimano RM-40 hub, 32°, Matrix 750 rim
E.R.D., mm	*561*
Rim strip	*Rubber*
REAR TIRE	Bontrager Jones AC
Tire size	*26 x 2.1*
SPOKES	14G stainless
Front, mm	*267, 3x*
Rear, mm	*262/263, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*29.2*
SADDLE	Trek ATB Comfort
BRAKES	Alloy direct pull
PEDALS	Alloy platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release
Inner diameter, mm	*34.9*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on 13)

COLORS

Bright Silver/Trek Red • Black/White decals • Red fork
Starry Night/Spanish Gold • Red/White decals • Black fork

GEARING

	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
26	22	32	44
32	18	26	36

Key features:

Rider: Casual enthusiast or newbie

Frameset

Alpha aluminum - light, strong, and stiff

Extra large 24" frame available

Singletrack geometry- Nimble steering and maneuverability

Wheelset

Alloy rims and quick release hubs- light, easy to operate

Bontrager Jones AC tires- all-round treads

Components

Recreation level (Alivio)-Wide bars for control, comfortable position, and powerful brakes

BIKE WEIGHT

29.2 lb.
13.26 kg.

FIT

Frame	Size	13	16.5	18	19.5	21	22.5	24
Rider height	Inches	66	68	71	72	75	77	77
	Cm	167	172	180	184	192	194	196
Handlebar	Width, mm	580	580	600	600	620	620	620
Stem	Length, mm	90	90	110	110	130	130	130
	Angle	25	25	25	25	25	25	25
Crank	Length, mm	170	170	170	175	175	175	175
Seatpost	Length, mm	300	300	350	350	350	350	350
Steerer	Length, mm	191	191	206	226	246	286	325

4300

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	RST Capa CL
Travel, mm	*63*
Axle-crown length, mm	*435.5*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*23*

CONTROLS

HANDLEBAR	Steel, 30mm rise
Clamp diameter, mm	*25.4*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano EF29
BRAKE LEVERS	Integrated brake/shift
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano C050
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Acera-X
CRANKSET	FCM55, alloy, 42/34/24
Bolt hole circle, mm	*62/108*
BB	Cartridge
Shell x axle, mm	*73 x 116, Square*
CHAIN	KMC Z-72
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Cloth*
FRONT TIRE	Bontrager Jones AC
Tire size	*26 x 1.95*
REAR WHEEL	Shimano RM-40 hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR TIRE	Bontrager Jones AC
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*265, 3x*
Rear, mm	*262/263, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*29.2*
SADDLE	Trek ATB Comfort
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release
Inner diameter, mm	*34.9*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on 13)

COLORS

Ball Burnished/Candy blue • Black/Red decals • Candy Blue fork
Stone Pearl/Platinum • Black/Red decals • Candy Red fork

Key features:

Rider: Casual double tracker or newbie

Frameset

Alpha aluminum - light, strong, and stiff

Singletrack geometry- Nimble steering and maneuverability

Wheelset

Alloy rims and quick release hubs- light, easy to operate

Connection tires- smooth and fast on pavement, wide for casual off-road riding

Components

Recreation level (Acera)- wide performance range, comfortable position, and powerful brakes

BIKE WEIGHT
29.2 lb.
13.26 kg.

GEARING

	24	34	42
11	57	81	100
12	52	74	92
14	45	64	79
16	39	56	69
18	35	50	61
21	30	42	52
26	24	34	42
32	20	28	34

FIT

Frame	Size	13	16.5	18	19.5	21	22.5
Rider height	Inches	65	67	70	72	75	76
	Cm	165	171	179	182	190	193
Handlebar	Width, mm	580	580	600	600	600	600
Stem	Length, mm	90	90	110	110	130	130
	Angle	25	25	25	25	25	25
Crank	Length, mm	170	170	170	175	175	175
Seatpost	Length, mm	300	300	350	350	350	350
Steerer	Length, mm	190	190	205	225	245	285

4300 Disc

WHEELSET

FRONT WHEEL	Alloy, disc comp., QR hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR WHEEL	Alloy, disc comp., QR hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
SPOKES	14G stainless
Front, mm	*260/262, 3x*
Rear, mm	*262/263, 3x*

OTHER

BRAKES	Hayes disc, mechanical
Rotor diameter	*6.3 in.*
Bolt circle diameter	*44mm*

BIKE WEIGHT
29.2 lb.
13.26 kg.

For 2002

Our steel frame geometry remain unchanged from 2001.

Geometry

These bikes have angles and top tube lengths that put a rider in a more upright position. The angles have been adjusted to make the bike stable with the more recreational weight distribution (as opposed to the forward, aggressive position of racing bikes).

Ride

Although our steel mountain bikes are more upright than our racing bikes, it's a subtle difference. These are not cruisers or hybrids, but simply more comfortable mountain bikes. The more upright position allows a stable ride, and easier balance for the more casual rider. Extremely technical terrain may be more of a challenge, but this bike wasn't designed for the rider who spends the majority of their time attacking Moab slickrock or slippery Mt. Snow singletrack roots. By contrast, these bikes make cruising dirt roads and doubletrack fun and easy.

	Frame sizes	13	16.5	18	19.5	21	22.5	13W	17W	20W
	Head angle	70.0	70.5	70.5	70.5	71.0	71.0	70.0	70.5	70.5
	Seat angle	74.0	73.5	73.0	73.0	72.5	72.0	74.0	73.5	73.0
MILLIMETERS	Standover	638	697	722	754	790	827	580	501	501
	Seat tube	330	419	457	495	533	572	330	432	508
	Head tube	90	90	90	105	145	185	90	103	143
	Eff top tube	528	545	555	565	575	585	528	542	550
	Chainstays	435	435	435	435	435	435	435	435	435
	BB height	288	291	291	293	293	295	288	283	283
	Offset	42	42	42	42	42	42	42	42	42
	Trail	78	74	74	74	71	71	78	74	74
	Wheelbase	1023	1032	1038	1049	1051	1057	1023	1027	1031
INCHES	Standover	25.1	27.4	28.4	29.7	31.1	32.6	22.8	19.7	19.7
	Seat tube	13.0	16.5	18.0	19.5	21.0	22.5	13.0	17.0	20.0
	Head tube	3.5	3.5	3.5	4.1	5.7	7.3	3.5	4.1	5.6
	Eff top tube	20.8	21.5	21.9	22.2	22.6	23.0	20.8	21.3	21.7
	Chainstays	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
	BB height	11.3	11.5	11.5	11.5	11.5	11.6	11.3	11.1	11.1
	Offset	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
	Trail	3.1	2.9	2.9	2.9	2.8	2.8	3.1	2.9	2.9
	Wheelbase	40.3	40.6	40.9	41.3	41.4	41.6	40.3	40.4	40.6

Frame details

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 create a frame that rides like those costing much more. This allows riders a viable high quality alternative to chain store bikes which don't ride nearly as well.

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

The rear dropouts on these frames are forged steel. Forging provides the highest structural integrity, which is very important for keeping the dropouts in alignment with the rest of the frame. If they are not in alignment, premature wear of hub bearings may result, along with imprecise shifting of the rear derailleur.

Although designed for casual riding, we see folks riding these bikes on long dirt rides, and even road centuries. To keep you hydrated and happy, our steel bikes have 2 water bottle mounts, except the 13, 16.5", and Ladies frames. These frames size do not have enough seat tube to allow a water bottle mount to be used.

820

FRAMESET

MAIN TUBES	Hi Tensile steel w/CroMoly seat tube
STAYS	Hi Tensile steel
Frame weight	*6.0 lb (2.75 kg)*
FORK	RST Capa CL
Travel, mm	*63*
Axle-crown length, mm	*435.5*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Steel ATB
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	SRAM MRX Plus
BRAKE LEVERS	Alloy, direct pull
GRIPS	Kraton

DRIVETRAIN

FT DERAILLEUR	Shimano C051
Cable routing	*Top pull*
Attachment	*31.8 mm/ 1 1/4"*
RR DERAILLEUR	Shimano Altus GS
CRANKSET	FCM35, alloy, 48/38/28
Bolt hole circle, mm	*64/104*
BB	Semi-cartridge
Shell x axle, mm	*68 x 124.5, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*110*
CASSETTE	Sun Race 13-30, 7spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Cloth*
FRONT TIRE	Bontrager Connection
Tire size	*26 x 1.95*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR TIRE	Bontrager Connection
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*265, 3x*
Rear, mm	*262/263, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*29.2*
SADDLE	Trek ATB Comfort
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Bolt, M6 x 50
Inner diameter, mm	
ADDITIONALS	2 water bottle mounts (1 bottle on 13, 17W, 20W), rack mounts (no rack on 13")

COLORS

Platinum/Bright Silver • Black/Yellow decals • Gloss Black fork
Dusk • Silver/White decals • Custom Silver fork

GEARING

	28	38	48
13	56	77	97
15	49	66	84
17	43	59	74
19	39	52	66
21	35	47	60
24	31	42	52
30	24	33	42

BIKE WEIGHT

31.7 lb.
14.39 kg.

Key features:

Rider: Casual double tracker or newbie

Frameset

Steel- strong and durable

Singletrack geometry- Nimble steering and maneuverability

Wheelset

Alloy rims and quick release hubs- light, easy to operate

Center ridge tires- smooth and fast on pavement, wide for casual off-road riding

Components

Recreation level (Acera)- wide performance range, comfortable position, and powerful brakes

FIT

Frame	Size	13	16.5	18	19.5	21	22.5	17W
Rider height	Inches	65	67	69	70	73	74	69
	Cm	166	169	175	178	185	188	176
Handlebar	Width, mm	580	580	600	600	600	600	580
Stem	Length, mm	90	90	110	110	130	130	120
	Angle	25	25	25	25	25	25	25
Crank	Length, mm	170	170	170	175	175	175	170
Seatpost	Length, mm	300	300	350	350	350	350	300
Steerer	Length, mm	190	190	190	205	245	285	205

800 Sport

FRAMESET

MAIN TUBES	Hi Tensile steel w/CroMoly seat tube	
STAYS	Hi Tensile steel	
	Frame weight	*6.0 lb (2.75 kg)*
FORK	High tensile steel	
	Travel, mm	*63*
	Axle-crown length, mm	*435.5*
HEADSET	Sealed	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Steel	
	Clamp diameter, mm	*25.4*
STEM	Steel ATB	
	Steerer clamp height, mm	*41.0*
SHIFT LEVERS	SRAM MRX Plus	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Kraton	

DRIVETRAIN

FT DERAILLEUR	Shimano C051	
	Cable routing	*Top pull*
	Attachment	*31.8 mm/ 1 1/4"*
RR DERAILLEUR	Shimano Altus GS	
CRANKSET	FCM35, alloy, 48/38/28	
	Bolt hole circle, mm	*64/104*
BB	Semi-cartridge	
	Shell x axle, mm	*68 x 124.5, Square*
CHAIN	KMC Z-51	
	Chain type	*3/32"*
	Chain length (links)	*110*
CASSETTE	Sun Race 13-30, 7spd	

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Cloth*
FRONT TIRE	Bontrager Connection	
	Tire size	*26 x 1.95*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Rubber*
REAR TIRE	Bontrager Connection	
	Tire size	*26 x 1.95*
SPOKES	14G stainless	
	Front, mm	*264.5, 3x*
	Rear, mm	*262/263, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Alloy micro-adjust	
	Outer diameter, mm	*29.2*
SADDLE	Trek ATB Comfort	
BRAKES	Alloy direct pull	
PEDALS	Platform	
	Axle diameter	*9/16"*
SEAT BINDER	Bolt, M6 x 50	
	Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts (1 bottle on 13, 17W, 20W), rack mounts (no rack on 13")	

COLORS

Pearl White/Candy Red• Red/Black decals • Candy Red fork
Frost/Niagra Blue • Blue/Black decals • Niagra Blue fork
Starry Night • Blue/White decals • Starry Night fork

GEARING

	28	38	48
13	56	77	97
15	49	66	84
17	43	59	74
19	39	52	66
22	33	45	57
25	29	40	50
30	24	33	42

BIKE WEIGHT

31.7 lb.
14.39 kg.

Key features:

Rider: Casual double tracker or newbie

Frameset

Steel - strong, and durable

All-round geometry- Stable and forgiving

Wheelset

Alloy rims and quick release hubs- light, easy to operate

Center ridge tires- smooth and fast on pavement, wide for casual off-road riding

Components

Recreation level (Acera)- wide performance range, comfortable position, and powerful brakes

FIT

Frame	Size	13	16.5	18	19.5	21	22.5	13W	17W	20W
Rider height	Inches	65	67	69	70	73	74	67	69	70
	Cm	166	169	175	178	185	188	169	176	179
Handlebar	Width, mm	580	580	600	600	600	600	580	580	600
Stem	Length, mm	90	90	110	110	130	130	105	120	120
	Angle	25	25	25	25	25	25	25	25	25
Crank	Length, mm	170	170	170	175	175	175	170	170	175
Seatpost	Length, mm	300	300	350	350	350	350	300	300	350
Steerer	Length, mm	190	190	190	205	245	285	190	205	245

Bruiser

For 2002

No change has been made to this frame platform since its introduction in 2001.

Geometry

The Bruiser frame design is ideal for quick action and fast maneuvering. It's nimble for slalom racing or dodging urban obstacles. It's balanced for airtime in either environment.

Ride

The Bruiser has the frame strength and rigidity necessary for thrash riding. Think of this as a multi-speed BMX bike for adults.

Frame details

The Bruiser uses Alpha aluminum frame technology, but with an emphasis on strength instead of low weight. An ultra-beefy, oversize 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 gusset under the head tube.

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

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

	Frame sizes	14.5	16
	Head angle	70.0	70.0
	Seat angle	71.0	71.0
MILLIMETERS	Standover	700	716
	Seat tube	368	406
	Head tube	112	112
	Eff top tube	570	592
	Chainstays	420	420
	BB height	323	323
	Offset	40.0	40.0
	Trail	80	80
	Wheelbase	1032	1054
INCHES	Standover	27.6	28.2
	Seat tube	14.5	16.0
	Head tube	4.4	4.4
	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

Bruiser Two

FRAMESET		
MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
	Frame weight	*4.2 lb (1.91 kg)*
FORK	Marzocchi Dirt Jumper 2	
	Travel, mm	*110*
	Axle-crown length, mm	*500*
HEADSET	STR Aheadset	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*23.2*

CONTROLS		
HANDLEBAR	Alloy w/crossbar	
	Clamp diameter, mm	*25.4*
STEM	Alloy Ahead type	
	Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager Race, dual density	

DRIVETRAIN		
FT DERAILLEUR	Shimano Alivio	
	Cable routing	
	Attachment	
RR DERAILLEUR	Shimano Deore LX SGS	
CRANKSET	TruVativ Hussefelt, 32/22T	
	Bolt hole circle, mm	
BB	Truvativ	
	Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	KMC Z-82	
	Chain type	*3/32"*
	Chain length (links)	
CASSETTE	SRAM 5.0 11-32, 8spd	

WHEELSET		
FRONT WHEEL	Alloy, disc compatible, QR hub, 36°, Al alloy rim	
	E.R.D., mm	
	Rim strip	*Rubber*
FRONT TIRE	Kenda Kinetics	
	Tire size	*26 x 2.35*
REAR WHEEL	Alloy, disc compatible, QR hub, 36°, Al alloy rim	
	E.R.D., mm	
	Rim strip	*Rubber*
REAR TIRE	Kenda Kinetics	
	Tire size	*26 x 2.35*
SPOKES	14G UCP	
	Front, mm	*, 3x*
	Rear, mm	*, 3x*
INNER TUBES	Presta valve	

OTHER		
SEATPOST	Alloy micro-adjust	
	Outer diameter, mm	*29.2*
SADDLE	Bontrager FS10	
BRAKES	Avid disc, mechanical	
	Rotor diameter	*6.3 in.*
	Bolt circle diameter	*44mm*
PEDALS	Platform	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release	
	Inner diameter, mm	
ADDITIONALS	Bash guard on crank	

COLORS

Raw Smoke• Silver decals• Gloss Black fork

GEARING		
	22	32
11	52	76
12	48	70
14	41	60
16	36	52
18	32	47
21	27	40
26	22	32
32	18	26

Key features:

Rider: Slalom racer or park rider

Frameset

Alpha- strong, and durable

Wheelset

Heavy duty alloy rims- excellent braking, and super-duty strong

Knobby tires- extra big for traction, shock absorption

Components

Bruiser group- heavy duty at all points, with beefy Marzocchi suspension fork

FIT			
Frame	Size	14.5	16
Handlebar	Width, mm	680	680
Stem	Length, mm	50	50
	Angle	0	0
Crank	Length, mm	175	175
Seatpost	Length, mm	400	400
Steerer	Length, mm	183	183

Bruiser One

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	Cro-Moly
Travel, mm	
Axle-crown length, mm	*427*
HEADSET	STS Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Alloy w/crossbar
Clamp diameter, mm	*25.4*
STEM	Alloy Ahead type
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+, right only
BRAKE LEVERS	Alloy, direct pull
GRIPS	Bontrager Race, dual density

DRIVETRAIN

RR DERAILLEUR	Shimano Alivio
CRANKSET	TruVativ Firex, 38T
Bolt hole circle, mm	
BB	Truvativ
Shell x axle, mm	*73 x 113, Splined, ISIS*
CHAIN	KMC Z-82
Chain type	*3/32"*
Chain length (links)	
CASSETTE	Sun Race 12-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Aluminum alloy rim
E.R.D., mm	
Rim strip	*Rubber*
FRONT TIRE	Kenda Kinetics
Tire size	*26 x 2.35*
REAR WHEEL	Alloy, QR hub, 36°, Aluminum alloy rim
E.R.D., mm	
Rim strip	*Rubber*
REAR TIRE	Kenda Kinetics
Tire size	*26 x 2.35*
SPOKES	14G UCP
Front, mm	*, 3x*
Rear, mm	*, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*29.2*
SADDLE	Bontrager FS10
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/quick release
Inner diameter, mm	
ADDITIONALS	Chain tensioner

COLORS

Raw Steel• Silver decals• Gloss Black fork

GEARING

	38
12	83
14	71
16	62
18	55
121	8
24	42
28	36
32	31

Key features:

Rider: Slalom racer or park rider

Frameset

Alpha- strong, and durable

Wheelset

Heavy duty alloy rims- excellent braking, and super-duty strong

Knobby tires- extra big for traction, shock absorption

Components

Bruiser group- heavy duty at all points

FIT

Frame	Size	14.5	16
Handlebar	Width, mm	680	680
Stem	Length, mm	50	50
	Angle	0	0
Crank	Length, mm	175	175
Seatpost	Length, mm	400	400
Steerer	Length, mm	183	183

For 2002

Navigator frames remain unchanged from 2000.

Geometry

The Navigator is designed with geometry which puts you in a full 'heads up' position. The dimensions may 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 Navigator's first feature is comfort. Some afficionados will point out that an upright position is not aero, and is therefore inefficient. We'll point out that aerodynamics only really become important above 20 MPH. Or that if you are off the bike because your back hurts, aerodynamic efficiency isn't worth much, regardless. Furthermore, the Navigator rider is not trying to beat the clock, they just want to have fun.

Riding a Navigator, you will enjoy these bikes for 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 Navigator uses Alpha 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.

Navigator bikes have 2 water bottle mounts, except the 14.5 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. 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	14.5	16.5	18.5	21	14.5L	16.5L
	Head angle	70.5	70.5	70.5	70.5	70.5	70.5
	Seat angle	73.5	73.0	73.0	72.5	73.5	73.0
MILLIMETERS	Standover	679	716	760	810	595	604
	Seat tube	368	419	470	533	368	419
	Head tube	125	145	185	225	125	165
	Eff top tube	544	559	579	595	540	548
	Chainstays	435	435	435	435	435	435
	BB height	287	287	287	287	283	283
	Offset	38.0	38.0	38.0	38.0	38.0	38.0
	Trail	79	79	79	79	79	79
	Wheelbase	1031	1042	1064	1076	1026	1031
INCHES	Standover	26.7	28.2	29.9	31.9	23.4	23.8
	Seat tube	14.5	16.5	18.5	21.0	14.5	16.5
	Head tube	4.9	5.7	7.3	8.9	4.9	6.5
	Eff top tube	21.4	22.0	22.8	23.4	21.3	21.6
	Chainstays	17.1	17.1	17.1	17.1	17.1	17.1
	BB height	11.3	11.3	11.3	11.3	11.1	11.1
	Offset	1.5	1.5	1.5	1.5	1.5	1.5
	Trail	3.1	3.1	3.1	3.1	3.1	3.1
	Wheelbase	40.6	41.0	41.9	42.4	40.4	40.6

Navigator 600

FRAMESET

MAIN TUBES ..... Alpha aluminum
STAYS ..... Alpha aluminum
FORK ..... In Sync 178
Travel, mm — *50*
Axle-crown length, mm — *427*
HEADSET ..... Sealed
Size — *25.4/34.0/30.0*
Stack height, mm — *34.5*

CONTROLS

HANDLEBAR ..... SRAM Smartbar
Clamp diameter, mm — *25.4*
STEM ..... SRAM Smartbar
Steerer clamp height, mm
SHIFT LEVERS ..... SRAM Smartbar
BRAKE LEVERS ..... SRAM Smartbar
GRIPS ..... SRAM Smartbar

DRIVETRAIN

FT DERAILLEUR .... Shimano T301
Cable routing — *Top pull*
Attachment — *34.9 mm/ 1 3/8"*
RR DERAILLEUR .... SRAM ESP 7.0
CRANKSET ..... Shimano T301 48/38/28, w/chainguard
Bolt hole circle, mm — *Riveted*
BB ..... Cartridge
Shell x axle, mm — *73 x 124.5, Square*
CHAIN IG-31
Chain type — *3/32"*
Chain length (links) — *114*
CASSETTE ..... SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL ..... Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm — *559*
Rim strip — *Rubber*
FRONT TIRE ..... Bontrager Comfort w/Kevlar belt
Tire size — *26 x 1.95*
REAR WHEEL ..... Shimano Alivio hub, 32°, Btrg Corvair rim
E.R.D., mm — *559*
Rim strip — *Rubber*
REAR TIRE ..... Bontrager Comfort w/Kevlar belt
Tire size — *26 x 1.95*
SPOKES ..... 14G stainless
Front, mm — *264, 3x*
Rear, mm — *261/262, 3x*
INNER TUBES ..... Schraeder valve w/Slime sealant

OTHER

SEATPOST ..... Shock absorber
Outer diameter, mm — *27.2*
SADDLE ..... Oasis Webspring w/ rear flasher
BRAKES ..... Shimano M420, V type
PEDALS ..... Platform
Axle diameter — *9/16"*
SEAT BINDER ..... Alloy w/integral QR
Inner diameter, mm — *30.4*
ADDITIONALS ..... 2 water bottle mounts, rack mounts (1 bottle, no rack on S), kickstand

COLORS

Starry Night/Warm Silver • Blue/Silver decals • Black fork

GEARING

	28	38	48
11	67	91	114
12	61	83	105
14	52	71	90
16	46	62	79
18	41	55	70
21	35	47	60
26	28	38	48
32	23	31	39

BIKE WEIGHT

30.8 lb.
13.98 kg.

FIT

Frame	Size	14.5	16.5	18.5	21
Rider height	Inches	67	72	74	77
	Cm	171	182	189	195
Handlebar	Width, mm	580	580	600	600
Stem	Length, mm	90	110	110	110
	Angle	35	35	35	35
Crank	Length, mm	170	170	175	175
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	163	183	223	263

Navigator 500

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	In Sync 178
Travel, mm	*50*
Axle-crown length, mm	*427*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*35.9*

CONTROLS

HANDLEBAR	Alloy
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	Shimano Alivio RapidFire+
BRAKE LEVERS	SRAM alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano T301
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	Shimano T301 48/38/28, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Cartridge
Shell x axle, mm	*73 x 124.5, Square*
CHAIN	IG-31
Chain type	*3/32"*
Chain length (links)	*114*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Corvair rim
E.R.D., mm	*559*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Comfort w/Kevlar belt
Tire size	*26 x 1.95*
REAR WHEEL	Shimano Alivio hub, 32°, Btgr Corvair rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR TIRE	Bontrager Comfort w/Kevlar belt
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*264, 3x*
Rear, mm	*261/262, 3x*
INNER TUBES	Schraeder valve w/Slime sealant

OTHER

SEATPOST	Shock absorber
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring w/ rear flasher
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*30.4*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on 14.5 and 14.5W), kickstand

COLORS

Georgia Blue/Pearl Navy • Silver/White decals • Pearl Navy fork

GEARING

	28	38	48
11	67	91	114
12	61	83	105
14	52	71	90
16	46	62	79
18	41	55	70
21	35	47	60
26	28	38	48
32	23	31	39

BIKE WEIGHT

30.8 lb.
13.98 kg.

Key features:

Rider: Comfort

Frameset

Alpha- strong, and durable

Special drop design- designed for suspension seatpost and adjustable stem

Wheelset

Bontrager Corvair- seamless braking, durable, and easy to accelerate

Kevlar belts and tube sealant- highly flat resistant

Components

Comfort oriented- suspension seatpost, webspring saddle, dual density pedals, comfort grips

Unique controls- Smartbar is futuristic in looks, function

FIT

Frame	Size	14.5	16.5	18.5	21	14.5W	16.5W	18.5W
Rider height	Inches	70	71	74	76	70	72	74
	Cm	178	181	189	194	178	182	188
Handlebar	Width, mm	600	600	600	600	600	600	600
Stem	Length, mm	110	110	110	110	110	110	110
	Angle	40	40	40	40	40	40	40
Crank	Length, mm	170	170	170	170	170	170	170
Seatpost	Length, mm	350	350	350	350	350	350	350
Steerer	Length, mm	163	183	223	263	162.9	202.9	222.9

Navigator 400

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	RST Comp TL
Travel, mm	*50*
Axle-crown length, mm	*457.8*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*34*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	Shimano Revo
BRAKE LEVERS	Alloy, direct pull
GRIPS	Foam

DRIVETRAIN

CRANKSET	CPI, 38T, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Cartridge
Shell x axle, mm	*73 x 110.5, Square*
CHAIN	KMC 410
Chain type	*1/8"*
Chain length (links)	*98*
CASSETTE	Shimano 20T

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 750 rim
E.R.D., mm	*573*
Rim strip	*PVC*
FRONT TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
REAR WHEEL	Shimano Nexus, 7spd hub, 36°, Matrix 750 rim
E.R.D., mm	*573*
Rim strip	*Rubber*
REAR TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*261, 3x*
Rear, mm	*250/250, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Shock absorber
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring
BRAKES	Alloy direct pull w/modulator
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on S), kickstand

COLORS

Platinum/Rain Forest • Black/Silver decals • Black fork

GEARING

	38
	91
	83
20	71
	62
	55
	47
	36

BIKE WEIGHT

30.8 lb.
13.98 kg.

Key features:

Rider: Comfort

Frameset

Alpha- strong, and durable

Special drop design- designed for suspension seatpost and adjustable stem

Wheelset

Bontrager Corvair- seamless braking, durable, and easy to accelerate

Components

Suspension seatpost, webspring saddle, dual density pedals, riser bars, adjustable rise stem, comfort grips- Comfort oriented

Chainguard, brake modulator- user friendly

FIT

Frame	Size	14.5	16.5	18.5	21	14.5W	16.5W	18.5W
Rider height	Inches	69	73	76	78	68	73	75
	Cm	174	185	193	199	174	186	192
Handlebar	Width, mm	580	580	600	600	580	580	600
Stem	Length, mm	90	110	110	110	90	110	110
	Angle	40	40	40	40	40	40	40
Crank	Length, mm	170	170	170	175	170	170	170
Seatpost	Length, mm	300	350	350	350	300	350	350
Steerer	Length, mm	162	182	222	262	162	202	222

Navigator 300

FRAMESET

MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
FORK	RST Comp TL	
	Travel, mm	*50*
	Axle-crown length, mm	*457.8*
HEADSET	Sealed	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*34*

CONTROLS

HANDLEBAR	Steel	
	Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise	
	Steerer clamp height, mm	
SHIFT LEVERS	SRAM MRX Plus	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Kraton	

DRIVETRAIN

FT DERAILLEUR	Shimano Nexave 301	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS	
CRANKSET	Shimano C203 48/38/28, w/chainguard	
	Bolt hole circle, mm	*Riveted*
BB	Cartridge	
	Shell x axle, mm	*73 x 116, Square*
CHAIN	KMC Z-72	
	Chain type	*3/32"*
	Chain length (links)	*114*
CASSETTE	SRAM 5.0 11-32, 8spd	

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 750 rim	
	E.R.D., mm	*573*
	Rim strip	*PVC*
FRONT TIRE	Bontrager Comfort	
	Tire size	*26 x 1.95*
REAR WHEEL	Shimano RM-40 hub, 36°, Matrix 750 rim	
	E.R.D., mm	*573*
	Rim strip	*Rubber*
REAR TIRE	Bontrager Comfort	
	Tire size	*26 x 1.95*
SPOKES	14G stainless	
	Front, mm	*261, 3x*
	Rear, mm	*260/258, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Shock absorber	
	Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring	
BRAKES	Alloy direct pull w/modulator	
PEDALS	Platform	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR	
	Inner diameter, mm	*30.0*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on S), kickstand	

COLORS

Glacier • Black/Silver decals • Black fork

Spanish Gold/Starry Night • Silver/Dark Silver decals • Starry Night fork

GEARING

	28	38	48
11	67	91	114
12	61	83	105
14	52	71	90
16	46	62	79
18	41	55	70
21	35	47	60
26	28	38	48
32	23	31	39

BIKE WEIGHT

30.8 lb.

13.98 kg.

Key features:

Rider: Comfort

Frameset

Alpha- strong, and durable

Special drop design- designed for suspension seatpost and adjustable stem

Wheelset

Alloy rims, quick release hubs- light weight, easy to install wheels make transporting to your favorite area a snap

Components

Suspension seatpost, webspring saddle, dual density pedals, riser bars, adjustable rise stem, comfort grips- Comfort oriented

Chainguard, brake modulator- user friendly

FIT

Frame	Size	14.5	16.5	18.5	21	14.5W	16.5W	18.5W
Rider height	Inches	69	73	76	78	68	73	75
	Cm	174	185	193	199	174	186	192
Handlebar	Width, mm	580	580	600	600	580	580	600
Stem	Length, mm	90	110	110	110	90	110	110
	Angle	40	40	40	40	40	40	40
Crank	Length, mm	170	170	170	170	170	170	170
Seatpost	Length, mm	300	350	350	350	300	350	350
Steerer	Length, mm	162	182	222	262	162	202	222

Navigator 200

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	RST Comp CL
Travel, mm	*50*
Axle-crown length, mm	*454.9*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*34*

CONTROLS

HANDLEBAR	*Steel*
Clamp diameter, mm	25.4
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	SRAM MRX Plus w/SRAM SDU
BRAKE LEVERS	Alloy, direct pull
GRIPS	Kraton

DRIVETRAIN

FT DERAILLEUR	Shimano C051
Cable routing	*Top pull*
Attachment	*34.9 mm/* 1 3/8"
RR DERAILLEUR	Shimano Acera-X
CRANKSET	FCM35, alloy, 48/38/28, w/chainguard
Bolt hole circle, mm	Riveted
BB	Cartridge
Shell x axle, mm	*73 x 122.5*, Square
CHAIN	*KMC Z-51*
Chain type	*3/32"*
Chain length (links)	114
CASSETTE	Sun Race 13-34, 7spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*573*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*573*
Rim strip	*Rubber*
REAR TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*264, 3x*
Rear, mm	*261/262, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Shock absorber
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring
BRAKES	Alloy direct pull w/modulator
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on S), kickstand

COLORS

Stone Pearl/Platinum • Red/Silver decals • Candy Red fork
Dusk • Silver/White decals • Custom Silver fork

GEARING

	28	38	48
13	56	77	97
15	49	66	84
17	43	59	74
19	39	52	66
22	33	45	57
26	28	38	48
34	22	29	37

BIKE WEIGHT

30.8 lb.
13.98 kg.

Key features:

Rider: Comfort

Frameset

Alpha- strong, and durable

Special drop design- designed for suspension seatpost and adjustable stem

Wheelset

Alloy rims, quick release hubs- light weight, easy to install wheels make transporting to your favorite area a snap

Components

Suspension seatpost, webspring saddle, riser bars, adjustable rise stem, comfort grips- Comfort oriented

Dashboard, chainguard, brake modulator- user friendly

FIT

Frame	Size	14.5	16.5	18.5	21	14.5W	16.5W	18.5W
Rider height	Inches	68	73	76	78	68	73	75
	Cm	174	185	192	198	173	186	191
Handlebar	Width, mm	580	580	600	600	580	580	600
Stem	Length, mm	90	110	110	110	90	110	110
	Angle	40	40	40	40	40	40	40
Crank	Length, mm	170	170	175	175	170	170	170
Seatpost	Length, mm	300	350	350	350	300	350	350
Steerer	Length, mm	162	182	222	262	162	202	222

Navigator 100

FRAMESET

MAIN TUBES	Hi Tensile steel
STAYS	Hi Tensile steel
FORK	High tensile steel
Travel, mm	
Axle-crown length, mm	*408*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*34.5*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	SRAM ESP 4.0 w/SRAM SDU
BRAKE LEVERS	Alloy, direct pull
GRIPS	Kraton

DRIVETRAIN

FT DERAILLEUR	Shimano C051
Cable routing	*Top pull*
Attachment	*31.8 mm/ 1 1/4"*
RR DERAILLEUR	SRAM ESP 4.0
CRANKSET	FCM35, alloy, 48/38/28, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Semi-cartridge
Shell x axle, mm	*68 x 121.5, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*114*
CASSETTE	Sun Race 13-34, 7spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*573*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	*573*
Rim strip	*Rubber*
REAR TIRE	Bontrager Comfort
Tire size	*26 x 1.95*
SPOKES	14G stainless
Front, mm	*264, 3x*
Rear, mm	*261/263, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Shock absorber
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring
BRAKES	Alloy direct pull w/modulator
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*30.0*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle, no rack on S), kickstand

COLORS

Starry Night/ Warm Silver • Green/Silver decals • Starry Night fork
Candy Red • Black/Silver decals • Candy Red fork

GEARING

	28	38	48
13	56	77	97
15	49	66	84
17	43	59	74
19	39	52	66
22	33	45	57
26	28	38	48
34	22	29	37

BIKE WEIGHT

30.8 lb.
13.98 kg.

FIT

Frame	Size	14.5	16.5	18.5	21	14.5W	16.5W	18.5W
Rider height	Inches	66	71	73	76	66	71	73
	Cm	168	179	187	192	168	180	185
Handlebar	Width, mm	580	580	600	600	580	580	600
Stem	Length, mm	90	110	110	110	90	110	110
	Angle	40	40	40	40	40	40	40
Crank	Length, mm	170	170	175	175	170	170	170
Seatpost	Length, mm	300	350	350	350	300	350	350
Steerer	Length, mm	162	182	222	262	162	202	222

FX (Fitness and Exercise)

New for 2002

The 7200 FX and 7500 FX use the same framee as in 2001, our Alpha hybrid frames. The 7700 FX uses a new, faster and more aggressive design for those want to go faster, farther, and more powerfully. In addition to a more forward position, the 7700 FX also uses an alpha SL frame for reduced wieght and increased liveliness.

Geometry

The FX bikees use a hybrid frame, but with a lightweight rigid fork (not on the 7200 FX). This provides a slightly more spirited ride that's fun and maneuverable at higher speeds. Yet it's stable so you don't have to focus solely on the road or its obstacles.

Ride

The FX bikes offer nimble handling that makes them ideal for faster all-round riding or fitness training.

We have to give credit for this concept to the cycling public. We were out riding when we saw riders moving fast and light in a comfortable, upright position. We've seen these riders scooting around town for work or a cappuccino, as well as all across the country cranking hard on multi-day tours.

Both the Alpha and Alpha SL frames offer outstanding pedaling efficiency so you can crank up hills and go the distance. The exceptional frame rigidity also gives the FX its 'riding on rails' cornering ability. Just because you like to sit up doesn't mean you can't have fun; the FX is fast and lively.

Frame details

The FX frames use Alpha, Alpha ZX, and Alpha SL aluminum frame technology. With these frames, an oversize 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 fittings, like dropouts , are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

FX bikes have 2 water bottle mounts, except the 15L and 17L. These frame sizes do not have enough seat tube to allow a water bottle mount to be used.

7700 FX

	Frame sizes	50	52	54	56	58
	Head angle	71.0	71.0	71.5	72.0	72.5
	Seat angle	74.5	74.0	73.5	73.0	73.0
MILLIMETERS	Standover	763	775	791	805	824
	Seat tube	500	520	540	560	580
	Head tube	97	97	105	105	123
	Eff top tube	515	525	540	555	565
	Chainstays	430	430	430	430	430
	BB height	281	281	281	281	283
	Offset	45.0	45.0	45.0	45.0	45.0
	Trail	74	74	71	68	64
	Wheelbase					
INCHES	Standover	30.0	30.5	31.1	31.7	32.5
	Seat tube	19.7	20.5	21.3	22.0	22.8
	Head tube	3.8	3.8	4.1	4.1	4.8
	Eff top tube	20.3	20.7	21.3	21.9	22.2
	Chainstays	16.9	16.9	16.9	16.9	16.9
	BB height	11.1	11.1	11.1	11.1	11.1
	Offset	1.8	1.8	1.8	1.8	1.8
	Trail	2.9	2.9	2.8	2.7	2.5
	Wheelbase					

7200 FX, 7500 FX

	Frame sizes	15	17.5	20	22.5	15L	17L	20L
	Head angle	70.0	70.5	70.5	71.5	70.0	70.5	70.5
	Seat angle	74.0	74.0	73.0	73.0	74.0	74.0	73.0
MILLIMETERS	Standover	690	732	774	822	598	603	605
	Seat tube	381	445	508	572	381	445	508
	Head tube	90	105	105	125	105	125	145
	Eff top tube	544	548	565	581	543	547	563
	Chainstays	445	445	445	445	445	445	445
	BB height	281	281	281	281	281	281	281
	Offset	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Trail	74	70	70	64	74	70	70
	Wheelbase	1056	1056	1062	1069	1056	1056	1062
INCHES	Standover	27.2	28.8	30.5	32.4	23.5	23.7	23.8
	Seat tube	15.0	17.5	20.0	22.5	15.0	17.5	20.0
	Head tube	3.5	4.1	4.1	4.9	4.1	4.9	5.7
	Eff top tube	21.4	21.6	22.2	22.9	21.4	21.5	22.2
	Chainstays	17.5	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	11.1
	Offset	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Trail	2.9	2.8	2.8	2.5	2.9	2.8	2.8
	Wheelbase	41.6	41.6	41.8	42.1	41.6	41.6	41.8

7700 FX

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	X-Lite aluminum
Axle-crown length, mm	*403.0*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.0*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	
BRAKE LEVERS	Avid AD 3L, long pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Tiagra T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
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	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano HG50 12-25, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select Hybrid, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	IRC Duro Tour
Tire size	*700 x 35c*
REAR WHEEL	Bontrager Select Hybrid, 24°
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	IRC Duro Tour
Tire size	*700 x 35c*
SPOKES	DT 14/15G butted stainless
Front, mm	*278, Radial*
Rear, mm	*293/294, 2x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*27.2*
SADDLE	Bontrager FS 2000, Cro-Moly
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.9*
ADDITIONALS	

COLORS

Platinum Silver/Starry Night • Red/White decals • Platinum fork

GEARING

	30	42	52
12	69	97	120
13	64	89	111
14	59	83	103
15	55	77	96
17	49	68	85
19	44	61	76
21	39	55	68
23	36	50	62
25	33	46	57

BIKE WEIGHT

22.5 lb.
10.22 kg.

Key features:

Rider: Upright fitness or century rider

Frameset

Alpha SL butted aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Paired Spoke Technology- Aero and fast, low maintenance

Duro-Tour tires- fast, tough, shock absorptive

Components

Road/mountain mix:

Tiagra cranks- high gears like a road bike

Direct pull brakes and wide bars- excellent control

FIT

Frame	Size	50	52	54	56	58
Rider height	Inches	63	65	66	69	70
	Cm	159	166	168	175	179
Handlebar	Width, mm	580	580	580	580	580
Stem	Length, mm	90	110	110	130	130
	Angle	25	25	25	25	25
Crank	Length, mm	170	170	170	170	170
Seatpost	Length, mm	300	350	350	350	350
Steerer	Length, mm	190.5	190.5	198.5	198.5	216.5

7500 FX

FRAMESET		
MAIN TUBES	Alpha ZX aluminum	
STAYS	Alpha ZX aluminum	
FORK	Cro-Moly	
	Axle-crown length, mm	*428.1*
HEADSET	STR Aheadset	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*23.0*

CONTROLS		
HANDLEBAR	Bontrager Crowbar Comp	
	Clamp diameter, mm	*25.4*
STEM	Bontrager Sport	
	Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Alivio RapidFire+	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Oasis, dual density	

DRIVETRAIN		
FT DERAILLEUR	Shimano Nexave 301	
	Cable routing	*Top pull*
	Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS	
CRANKSET	Shimano Nexave 401 48/38/28	
	Bolt hole circle, mm	*79*
BB	Shimano BB-LP27	
	Shell x axle, mm	*73 x 113, Square*
CHAIN	IG-31	
	Chain type	*3/32"*
	Chain length (links)	*112*
CASSETTE	Shimano HG50-I 11-30, 8spd	

WHEELSET		
FRONT WHEEL	Bontrager Select Hybrid, 20°	
	E.R.D., mm	*592*
	Rim strip	*Velox 16mm*
FRONT TIRE	IRC Duro Tour	
	Tire size	*700 x 35c*
REAR WHEEL	Bontrager Select Hybrid, 24°	
	E.R.D., mm	*603*
	Rim strip	*Velox 16mm*
REAR TIRE	IRC Duro Tour	
	Tire size	*700 x 35c*
SPOKES	DT 14/15G butted stainless	
	Front, mm	*278, Radial*
	Rear, mm	*293/294, 2x*
INNER TUBES	Presta valve	

OTHER		
SEATPOST	Bontrager Sport	
	Outer diameter, mm	*27.2*
SADDLE	Bontrager Sport	
BRAKES	Alloy direct pull	
PEDALS	Alloy/alloy cage w/clips and straps	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR	
	Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts (1 on 15), rack mounts	

COLORS

Dusk/Bright Silver • Black/White decals • Dusk fork

GEARING

	28	38	48
11	69	94	119
13	59	80	101
15	51	69	87
17	45	61	77
20	38	52	65
23	33	45	57
26	29	40	50
30	25	35	44

BIKE WEIGHT

25.4 lb.
11.53 kg.

Key features:

Rider: Upright fitness or century rider

Frameset

Alpha ZX aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Paired Spoke Technology- Aero and fast, low maintenance

Duro-Tour tires- fast, tough, shock absorptive

Components

Road/mountain mix:

Nexave cranks- wide range gears with high gears like a road bike

Direct pull brakes and wide bars- excellent control

FIT

Frame	Size	15	17.5	20	22.5
Rider height	Inches	66	68	69	73
	Cm	167	174	175	185
Handlebar	Width, mm	620	620	620	620
Stem	Length, mm	90	110	110	130
	Angle	25	25	25	25
Crank	Length, mm	170	170	170	170
Seatpost	Length, mm	300	350	350	350
Steerer	Length, mm	180.2	195.2	195.2	215.2

7200 FX

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	RST Comp CL
Travel, mm	*40*
Axle-crown length, mm	*428*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*23*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy quick change, adj. rise, direct connect
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano EF29
BRAKE LEVERS	Alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano C051
Cable routing	*Top pull, (W-down)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Acera-X
CRANKSET	Shimano T303 48/38/28, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Cartridge
Shell x axle, mm	*73 x 116, Square*
CHAIN	KMC Z-72
Chain type	*3/32"*
Chain length (links)	*114*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Matrix 750 rim
E.R.D., mm	*635*
Rim strip	*Rubber*
FRONT TIRE	Bontrager Select
Tire size	*700 x 38c*
REAR WHEEL	Shimano RM-40 hub, 32°, Matrix 750 rim
E.R.D., mm	*635*
Rim strip	*Velox 19mm*
REAR TIRE	Bontrager Select
Tire size	*700 x 38c*
SPOKES	14G stainless
Front, mm	*292, 3x*
Rear, mm	*291/289, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Suspension
Outer diameter, mm	*27.2*
SADDLE	Trek ATB
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle on 15L)

COLORS

Platinum Silver/Candy Red • Black/White decals • Candy Red fork

GEARING

	28	38	48
11	69	94	119
12	64	86	109
14	54	74	93
16	48	65	82
18	42	58	73
21	36	49	62
26	29	40	50
32	24	32	41

Key features:

Rider: Upright fitness or century rider

Frameset

Alpha aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Matrix 750 rims- seamless braking, light acceleration

Bontrager Select tires- fast, tough, shock absorptive

Components

Road/mountain mix:

Shimano hybrid cranks- wide range gears with high gears like a road bike

Direct pull brakes and wide bars- excellent control

BIKE WEIGHT

28.5 lb.
12.94 kg.

FIT

Frame	Size	17.5	20	22.5	25	17W	20W	23W
Rider height	Inches	67	69	72	73	68	71	73
	Cm	171	176	182	184	172	179	185
Handlebar	Width, mm	580	600	600	620	580	600	600
Stem	Length, mm	105	125	125	125	105	125	125
	Angle	35	35	35	35	35	35	35
Crank	Length, mm	170	170	170	170	170	170	170
Seatpost	Length, mm	300	350	350	350	300	350	350
Steerer	Length, mm	205	205	225	245	225	245	265

Hybrids

For 2002

These frames remain unchanged from 2000.

Geometry

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.

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 Alpha frame technology (see page 9). 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 Alpha hybrids are very comfortable and shock absorptive.

Hybrid bikes have 2 water bottle mounts, except the 15L and 17L. These frame sizes do not have enough seat tube to allow a water bottle mount to be used.

	Frame sizes	13	15	17.5	20	22.5	15L	17L	20L
	Head angle	70.0	70.0	70.5	70.5	71.5	70.0	70.5	70.5
	Seat angle	74.5	74.0	74.0	73.0	73.0	74.0	74.0	73.0
MILLIMETERS	Standover		690	732	774	822	598	603	605
	Seat tube	330	381	445	508	572	381	445	508
	Head tube	90	90	105	105	125	105	125	145
	Eff top tube	538	544	550	565	581	543	547	563
	Chainstays	445	445	445	445	445	445	445	445
	BB height	281	281	281	281	281	281	281	281
	Offset	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Trail	74	74	70	70	64	74	70	70
	Wheelbase	1055	1056	1056	1062	1069	1056	1056	1062
INCHES	Standover		27.2	28.8	30.5	32.4	23.5	23.7	23.8
	Seat tube	13.0	15.0	17.5	20.0	22.5	15.0	17.5	20.0
	Head tube	3.5	3.5	4.1	4.1	4.9	4.1	4.9	5.7
	Eff top tube	21.2	21.4	21.7	22.2	22.9	21.4	21.5	22.2
	Chainstays	17.5	17.5	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	11.1	11.1
	Offset	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Trail	2.9	2.9	2.8	2.8	2.5	2.9	2.8	2.8
	Wheelbase	41.6	41.6	41.6	41.8	42.1	41.6	41.6	41.8

7700

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	RockShox Ruby Metro C
Travel, mm	*50*
Axle-crown length, mm	*456*
HEADSET	VP STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Alloy
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Deore XT RapidFire SL
BRAKE LEVERS	Integrated brake/shift
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Deore XT
Cable routing	*Top pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Shimano Deore 48/36/26
Bolt hole circle, mm	*64/104*
BB	Shimano BB-UN40
Shell x axle, mm	*68 x 110, Square*
CHAIN	Shimano HG-72
Chain type	*3/32"*
Chain length (links)	*114*
CASSETTE	Shimano HG50 11-32, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select Hybrid, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Select
Tire size	*700 x 38c*
REAR WHEEL	Bontrager Select Hybrid, 24°
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Select
Tire size	*700 x 38c*
SPOKES	DT 14/15G butted stainless
Front, mm	*278, Radial*
Rear, mm	*293/294, 2x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Suspension
Outer diameter, mm	*27.2*
SADDLE	Oasis Comfort Zone Plus
BRAKES	Avid Single Digit 3, linear pull
PEDALS	Shimano SPD M324, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts (1 on 15), rack mounts (not 15)

COLORS

Georgia Blue/Starry Night • Silver/Black decals • Silver fork

GEARING

	26	36	48
11	64	89	119
12	59	82	109
14	51	70	93
16	44	61	82
18	39	54	73
21	34	47	62
24	30	41	54
28	25	35	47
32	22	31	41

BIKE WEIGHT

27.5 lb.
12.49 kg.

Key features:

Rider: Comfort Day Tourer or Commuter

Frameset

Alpha ZX aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Paired Spoke Technology- fast and aero, low maintenance

Invert II tires- fast, tough, shock absorptive

Components

Road/mountain mix:

Nexave cranks- wide range gears with high gears like a road bike

Direct pull brakes and wide bars- excellent control

Suspension fork and seatpost- comfort

City features: Double chainring with Megarange requires fewer front shifts for same wide range

FIT

Frame	Size	15	17.5	20	22.5
Rider height	Inches	69	70	70	72
	Cm	174	177	178	183
Handlebar	Width, mm	600	600	600	600
Stem	Length, mm	105	105	105	105
	Angle	40	40	40	40
Crank	Length, mm	170	175	175	175
Seatpost	Length, mm	318	350	350	350
Steerer	Length, mm	179.2	194.2	194.2	214.2

7500

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	InSync Odessa 168
Travel, mm	*45*
Axle-crown length, mm	*456*
HEADSET	VP STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Steel, 60mm rise
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Alivio RapidFire+
BRAKE LEVERS	Alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Nexave 301
Cable routing	*Top pull, (W-down)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore LX SGS
CRANKSET	Shimano Nexave 401 48/38/28
Bolt hole circle, mm	*79*
BB	Shimano BB-LP27
Shell x axle, mm	*73 x 113, Square*
CHAIN	HG-50
Chain type	*3/32"*
Chain length (links)	*116*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Bontrager Select Hybrid, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Select
Tire size	*700 x 38c*
REAR WHEEL	Bontrager Select Hybrid, 24°
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Select
Tire size	*700 x 38c*
SPOKES	DT 14/15G butted stainless
Front, mm	*278, Radial*
Rear, mm	*293/294, 2x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Suspension
Outer diameter, mm	*27.2*
SADDLE	Oasis Comfort Zone Plus
BRAKES	Alloy direct pull
PEDALS	Alloy cage w/clips and straps
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts (1 on 15, 15W), rack mounts (not 15)

COLORS

Sand • Black/Dark Silver decals • Black fork
Slate Pearl • Black/White decals • Black fork

GEARING

	28	38	48
11	69	94	119
12	64	86	109
14	54	74	93
16	48	65	82
18	42	58	73
21	36	49	62
26	29	40	50
32	24	32	41

Key features:

Rider: Comfort Day Tourer or Commuter

Frameset

Alpha aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Wheelsystems- seamless braking, lightweight acceleration

Bontrager Select tires- fast, tough, shock absorptive

Components

Suspension fork and seatpost- comfort

City features: Easy to use twist shifting, wide ratio gearing with road bike range

BIKE WEIGHT

29.5 lb.
13.39 kg.

FIT

Frame	Size	15	17.5	20	22.5	15W	17W
Rider height	Inches	69	70	71	73	68	70
	Cm	176	179	179	185	174	177
Handlebar	Width, mm	580	580	580	580	580	580
Stem	Length, mm	105	105	105	105	90	90
	Angle	40	40	40	40	40	40
Crank	Length, mm	170	170	170	170	170	170
Seatpost	Length, mm	318	350	350	350	300	300
Steerer	Length, mm	179.2	194.2	194.2	214.2	194	214

7300

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
Frame weight	*4.2 lb (1.91 kg)*
FORK	Cozy ST
Travel, mm	*40*
Axle-crown length, mm	*451*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*35.9*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	GripShift Centera
BRAKE LEVERS	Alloy, direct pull (short reach women's)
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Nexave 301
Cable routing	*Top pull, (W-down)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	Shimano Nexave 301 48/38/28, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Shimano BB-CS15
Shell x axle, mm	*73 x 122.5, Square*
CHAIN	HG50
Chain type	*3/32"*
Chain length (links)	*116*
CASSETTE	SRAM 5.0 11-32, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Bontrager Fairlane rim
E.R.D., mm	*604*
Rim strip	*Velox 19mm*
FRONT TIRE	Bontrager Select
Tire size	*700 x 38c*
REAR WHEEL	Shimano C201 hub, 32°, Btrg Fairlane rim
E.R.D., mm	*604*
Rim strip	*Velox 19mm*
REAR TIRE	Bontrager Select
Tire size	*700 x 38c*
SPOKES	DT 14G stainless
Front, mm	*296, 3x*
Rear, mm	*294/295, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Suspension
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral QR
Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle on 13, 15L)

COLORS

Starry Night • Gold/Silver decals • Silver fork
Dusk • Silver/White decals • Silver forkl

GEARING

	28	38	48
11	69	94	119
12	64	86	109
14	54	74	93
16	48	65	82
18	42	58	73
21	36	49	62
26	29	40	50
32	24	32	41

BIKE WEIGHT

29.0 lb.
13.17 kg.

Key features:

Rider: Comfort Day Tourer or Commuter

Frameset

Alpha aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Fairlane rims- seamless braking, lightweight acceleration

Bontrager Select tires- fast, tough, shock absorptive

Components

Suspension seatpost- comfort

City features: Easy to use twist shifting, wide ratio gearing with road bike range

FIT

Frame	Size	13	15	17.5	20	22.5	15W	17W	20W
Rider height	Inches	71	71	72	73	75	69	71	73
	Cm	180	180	184	184	190	176	179	187
Handlebar	Width, mm	580	580	580	580	580	580	580	580
Stem	Length, mm	105	105	105	105	105	90	90	110
	Angle	40	40	40	40	40	40	40	40
Crank	Length, mm	170	170	170	170	170	170	170	170
Seatpost	Length, mm	318	318	350	350	350	300	300	350
Steerer	Length, mm	127.9	127.9	142.9	142.9	162.9	142.9	162.9	182.9

7200

FRAMESET

MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
FORK	Post Moderne Comfy	
	Travel, mm	*40*
	Axle-crown length, mm	*450*
HEADSET	Sealed	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*34.0*

CONTROLS

HANDLEBAR	Steel	
	Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise	
	Steerer clamp height, mm	
SHIFT LEVERS	SRAM MRX Plus w/SRAM SDU	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Kraton	

DRIVETRAIN

FT DERAILLEUR	Shimano C051	
	Cable routing	*Top pull, (W-down)*
	Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Acera-X	
CRANKSET	Shimano C103 48/38/28, w/chainguard	
	Bolt hole circle, mm	*Riveted*
BB	Cartridge	
	Shell x axle, mm	*73 x 116, Square*
CHAIN	KMC Z-51	
	Chain type	*3/32"*
	Chain length (links)	*114*
CASSETTE	Sun Race 13-34, 7spd	

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 750 rim	
	E.R.D., mm	*634*
	Rim strip	*PVC*
FRONT TIRE	Bontrager Select	
	Tire size	*700 x 38c*
REAR WHEEL	Shimano RM-40 hub, 36°, Matrix 750 rim	
	E.R.D., mm	*634*
	Rim strip	*Velox 19mm*
REAR TIRE	Bontrager Select	
	Tire size	*700 x 38c*
SPOKES	14G stainless	
	Front, mm	*292, 3x*
	Rear, mm	*290/288, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Suspension	
	Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring	
BRAKES	Alloy direct pull	
PEDALS	Platform	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle on 15L)	

COLORS

Georgia Blue/Pearl Navy • Black/Silver decals • Pearl Navy fork
Warm Silver • Red/Black decals • Candy Red fork

GEARING

	28	38	48
13	59	80	101
15	51	69	87
17	45	61	77
19	40	54	69
22	35	47	59
26	29	40	50
34	22	30	38

BIKE WEIGHT

28.5 lb.
12.94 kg.

Key features:

Rider: Comfort Day Tourer or Commuter

Frameset

Alpha aluminum- light, strong, and durable

Hybrid styling- comfortable, upright position

Wheelset

Bontrager Fairlane rims- seamless braking, light-weight acceleration

Invert II tires- fast, tough, shock absorptive

Components

Suspension seatpost- comfort

City features: Easy to use twist shifting, wide ratio gearing with road bike range

FIT

Frame	Size	15	17.5	20	22.5	25	15W	17W	20W
Rider height	Inches	67	68	72	74	75	68	69	73
	Cm	171	174	183	188	191	173	175	186
Handlebar	Width, mm	580	580	600	600	600	580	580	600
Stem	Length, mm	90	90	110	110	110	90	90	110
	Angle	40	40	40	40	40	40	40	40
Crank	Length, mm	170	170	170	170	170	170	170	170
Seatpost	Length, mm	300	300	350	350	350	300	300	350
Steerer	Length, mm	127	142	142	162	182	142	162	182

7100

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	High tensile steel
Travel, mm	
Axle-crown length, mm	*439.6*
HEADSET	Sealed
Size	*25.4/34.0/30.0*
Stack height, mm	*34.0*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Alloy adjustable rise
Steerer clamp height, mm	
SHIFT LEVERS	SRAM MRX Plus w/SRAM SDU
BRAKE LEVERS	Alloy, direct pull
GRIPS	Kraton

DRIVETRAIN

FT DERAILLEUR	Shimano C051
Cable routing	*Top pull, (W-down)*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano TY-40 GS
CRANKSET	FCM35, alloy, 48/38/28, w/chainguard
Bolt hole circle, mm	*Riveted*
BB	Semi-cartridge
Shell x axle, mm	*73 x 124.5, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*114*
CASSETTE	Sun Race 13-34, 7spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	
Rim strip	*PVC*
FRONT TIRE	Bontrager Select
Tire size	*700 x 38c*
REAR WHEEL	Alloy, QR hub, 36°, Matrix 550 rim
E.R.D., mm	
Rim strip	*Velox 19mm*
REAR TIRE	Bontrager Select
Tire size	*700 x 38c*
SPOKES	14G stainless
Front, mm	*295, 3x*
Rear, mm	*292/293, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Suspension
Outer diameter, mm	*27.2*
SADDLE	Oasis Webspring
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts (1 bottle on 15L)

COLORS

Warm Silver/Rainforest • Black/Gold decals • Warm Silver fork
Glacier • Black/Silver decals • Glacier fork

GEARING

	28	38	48
13	59	80	101
15	51	69	87
17	45	61	77
19	40	54	69
22	35	47	59
26	29	40	50
34	22	30	38

BIKE WEIGHT

28.5 lb.
12.94 kg.

FIT

Frame	Size	15	17.5	20	22.5	25	15W	17W	20W
Rider height	Inches	67	68	71	73	75	67	68	74
	Cm	170	172	181	187	189	171	174	187
Handlebar	Width, mm	580	580	600	600	600	580	580	600
Stem	Length, mm	90	90	110	110	110	90	90	110
	Angle	40	40	40	40	40	40	40	40
Crank	Length, mm	170	170	175	175	175	170	170	175
Seatpost	Length, mm	300	300	350	350	350	300	300	350
Steerer	Length, mm	127	142	142	162	182	142	162	182

Cruisers

For 2002

The cruisers share the frames of the 2001 line.

Geometry

The Cruisers are designed with geometry which puts you in a full 'heads up' position. These bikes are stable, and easy to get off and on.

Ride

Cruisers are about style, not speed. You sit upright, so you can see your surroundings, and you can be seen. This makes a cruiser great for saying "Howdy" in the neighborhood, or running down to the coffee shop. It should be obvious that they are the perfect bike for cruising the bike path at the beach.

Frame details

The Clyde uses Alpha aluminum frame technology.

The other cruisers use hi-tensile steel with a Cro-Moly seat tube. 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 create a bike that rides like those costing a lot more. This allows riders a viable high quality alternative to chain store bikes which don't ride nearly as well.

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 Cruisers go through the full Trek testing regimen. Passing this rigorous evaluation means they're designed and built to last.

Clyde

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	Cro-Moly
Axle-crown length, mm	*365*
HEADSET	Sealed
Size	*22.2/32.5/26.4*
Stack height, mm	*27*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Revo
BRAKE LEVERS	Alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

CRANKSET	Bontrager, 33T, ww/chainguard
Bolt hole circle, mm	*1 piece*
BB	Cartridge
Shell x axle, mm	*68 x 110, Square*
CHAIN	KMC 410
Chain type	*1/8"*
Chain length (links)	*112*
CASSETTE	20T

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 36°, Matrix 750 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
FRONT TIRE	Blackwall
Tire size	*26 x 2.0*
REAR WHEEL	Shimano Nexus 4spd hub, 36°, Matrix 750 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR TIRE	Blackwall
Tire size	*26 x 2.0*
SPOKES	14G stainless
Front, mm	*264, 3x*
Rear, mm	*260/260, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*25.6*
SADDLE	Bontrager
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*1/2"*
SEAT BINDER	M6 x 55
Inner diameter, mm	
ADDITIONALS	Kickstand, chainguard

COLORS

Matte Black • Silver/Dark Silver decals

GEARING

	42
18	61
	76
	92
	112

Key features:

Rider: Cruiser

Frameset

Alpha aluminum- light, strong, stiff and efficient

Sporty looks and ride- upright, fun ride

Wheelset

Alloy rims and stainless spokes- lightweight acceleration, corrosion resistance

Components

Internal 4-speed gearing- no derailleur, but you can still get up hills

Direct pull brakes- super stoppers

BIKE WEIGHT

32.0 lb.
14.53 kg.

FIT

Frame	Size	20
Handlebar	Width, mm	620
Stem	Length, mm	110
	Angle	25
Crank	Length, mm	175
Seatpost	Length, mm	400
Steerer	Length, mm	214

Town & Country

FRAMESET

MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
FORK	Hi Tensile steel	
	Axle-crown length, mm	*365*
HEADSET	Sealed	
	Size	*22.2/32.5/26.4*
	Stack height, mm	*35.5*

CONTROLS

HANDLEBAR	Cruiser, steel	
	Clamp diameter, mm	*25.4*
STEM	Alloy	
	Steerer clamp height, mm	
SHIFT LEVERS	Shimano Revo	
GRIPS	Oasis, dual density	

DRIVETRAIN

CRANKSET	CPI, 33T	
	Bolt hole circle, mm	*1 piece*
BB	Cartridge	
	Shell x axle, mm	*68 x 110, Square*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*112*
CASSETTE	20T	

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Rubber*
FRONT TIRE	Whitewall	
	Tire size	*26 x 2.0*
REAR WHEEL	Shimano Nexus 3spd w/coaster brake hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Rubber*
REAR TIRE	Whitewall	
	Tire size	*26 x 2.0*
SPOKES	14G stainless	
	Front, mm	*264, 3x*
	Rear, mm	*260/260, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Alloy	
	Outer diameter, mm	*25.6*
SADDLE	Trek Webspring Cruiser	
BRAKES	Coaster type	
PEDALS	Platform	
	Axle diameter	*1/2"*
SEAT BINDER	M6 x 55	
	Inner diameter, mm	
ADDITIONALS	Kickstand, chainguard	

COLORS

Mistral Blue • Dark BlueWhite decals

GEARING

	33
	32
20	43
	59

BIKE WEIGHT

32.0 lb.
14.53 kg.

Key features:

Rider: Cruiser

Frameset

Steel- strong and durable

Sporty looks and ride- upright, fun ride

Wheelset

Alloy rims and stainless spokes- lightweight acceleration, corrosion resistance

Components

Totally simple 3 speed with coaster brake- gearing with easy operation

Cruiser bars and saddle- comfort and style

FIT

Frame	Size	20	17W
Handlebar	Width, mm	700	700
Stem	Length, mm	80	80
	Angle	25	25
Crank	Length, mm	170	170
Seatpost	Length, mm	350	350
Steerer	Length, mm	184	149

Cruiser Calypso

FRAMESET		
MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
	Frame weight	*lb (kg)*
FORK	Hi Tensile steel	
	Travel, mm	
	Axle-crown length, mm	*365*
HEADSET	Sealed	
	Size	*22.2/32.5/26.4*
	Stack height, mm	*35.5*

CONTROLS		
HANDLEBAR	Cruiser, steel	
	Clamp diameter, mm	*25.4*
STEM	Alloy	
	Steerer clamp height, mm	
SHIFT LEVERS	SRAM MRX Plus	
BRAKE LEVERS	Alloy	
GRIPS	Kraton	

DRIVETRAIN		
RR DERAILLEUR	Shimano TY-40 GS	
CRANKSET	One piece type, 40T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*One-piece type,*
CHAIN	KMC Z-51	
	Chain type	*3/32"*
	Chain length (links)	*112*
CASSETTE	Sun Race 13-34, 7spd	

WHEELSET		
FRONT WHEEL	Alloy, nutted hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Rubber*
FRONT TIRE	Whitewall	
	Tire size	*26 x 2.0*
REAR WHEEL	Alloy, nutted hub, 36°, Matrix 550 rim	
	E.R.D., mm	*559*
	Rim strip	*Rubber*
REAR TIRE	Whitewall	
	Tire size	*26 x 2.0*
SPOKES	14G stainless	
	Front, mm	*264, 3x*
	Rear, mm	*260/260, 3x*
INNER TUBES	Schraeder valve	

OTHER		
SEATPOST	Alloy	
	Outer diameter, mm	*25.6*
SADDLE	Trek Webspring Cruiser	
BRAKES	Alloy cantilever	
PEDALS	Platform	
	Axle diameter	*1/2"*
SEAT BINDER	M6 x 55	
	Inner diameter, mm	
ADDITIONALS	Kickstand, chainguard	

COLORS

Anthracite • Silver/Gold decals

GEARING	
	40
13	81
15	70
17	62
19	55
22	48
26	40
34	31

BIKE WEIGHT
32.0 lb.
14.53 kg.

Key features:

Rider: Cruiser

Frameset

Steel- strong and durable

Sporty looks and ride- upright, fun ride

Wheelset

Alloy rims and stainless spokes- lightweight acceleration, corrosion resistance

Components

Wide ratio 7 speed- Cruise uphill!

Cruiser bars and saddle- comfort and style

FIT			
Frame	Size	20	17W
Handlebar	Width, mm	700	700
Stem	Length, mm	80	80
	Angle	25	25
Crank	Length, mm	170	170
Seatpost	Length, mm	350	350
Steerer	Length, mm	184	149

Cruiser Classic

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	Hi Tensile steel
Axle-crown length, mm	*365*
HEADSET	Sealed
Size	*22.2/32.5/26.4*
Stack height, mm	*35.5*

CONTROLS

HANDLEBAR	Cruiser, steel
Clamp diameter, mm	*25.4*
STEM	Alloy
Steerer clamp height, mm	
GRIPS	Cruiser

DRIVETRAIN

CRANKSET	One piece type, 40T
Bolt hole circle, mm	*1 piece*
BB	One-piece type
Shell x axle, mm	*One-piece type,*
CHAIN	KMC 410
Chain type	*1/8"*
Chain length (links)	*100*
CASSETTE	18

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
FRONT TIRE	Whitewall
Tire size	*26 x 2.0*
REAR WHEEL	Shimano coaster hub, 36°, Matrix 550 rim
E.R.D., mm	*559*
Rim strip	*Rubber*
REAR TIRE	Whitewall
Tire size	*26 x 2.0*
SPOKES	14G stainless
Front, mm	*264, 3x*
Rear, mm	*260/260, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy
Outer diameter, mm	*25.6*
SADDLE	Trek Webspring Cruiser
BRAKES	Coaster type
PEDALS	Platform
Axle diameter	*1/2"*
SEAT BINDER	M6 x 55
Inner diameter, mm	
ADDITIONALS	Kickstand, chainguard

COLORS

Big Island Blue • White/Black decals

GEARING

	40
18	58

BIKE WEIGHT

32.0 lb.
14.53 kg.

Key features:

Rider: Cruiser

Frameset

Steel- strong and durable

Sporty looks and ride- upright, fun ride

Wheelset

Alloy rims and stainless spokes- lightweight acceleration, corrosion resistance

Components

Totally simple coaster brakes- no cables, easy operation

Cruiser bars and saddle- comfort and style

FIT

Frame	Size	20	17W
Handlebar	Width, mm	700	700
Stem	Length, mm	80	80
	Angle	25	25
Crank	Length, mm	170	170
Seatpost	Length, mm	350	350
Steerer	Length, mm	184	149

New for 2002

The 2002 line shares the same frame as the 2001. Why change the bike that won the Tour de France?

Geometry

The geometry of the OCLV 110 and 120 frames are basically the same, except the Superlight uses a special internal headset bearing which requires a longer head tube. Both bikes are built for classic road racing feel and performance. Angles, top tubes, and bottom bracket height fit the demands of racing. Comfort, pedaling efficiency, and handling are all optimized for long stage races.

Ride

The first thing most riders notice about OCLV is how incredibly light these bikes feel. They simply "disappear beneath you". You feel like you're flying around, with your legs spinning.

In terms of handling, these frames are full race. The frame rigidity makes an OCLV bike corner like it's on rails.

Comfort is also an outstanding feature. Despite a fairly stiff frame feel, OCLV road bikes absorb a lot of road shock. Part of the secret is carefully designed carbon layup, which allows the engineer to separately control vertical and horizontal flex patterns. The other secret is that frame joints made from carbon lugs can flex. Metal joints cannot flex like this, or they risk fatigue failure.

Frame details

OCLV road bikes have large diameter tubes for excellent frame rigidity. By stiffening the bottom bracket area, these frames provide efficient transfer of your pedaling power to the rear wheel. No energy is wasted. Acceleration is excellent. Of course, the exceedingly low weight helps here, too.

The fittings on the OCLV road bikes are all forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

All OCLV road bikes have 2 water bottle mounts.

FOR THE MECHANIC

Superlight headset

The OCLV 110 uses a proprietary headset system. See the bck pabes of this manual for maintenance details.

Removing Headset Cups

When removing a headset in an OCLV frame, make sure the headset removal tool is engaging the headset cup. OCLV framesets do not utilize a continuous headtube, but instead use two short inserts to support the headset cups. If the headset tool is outside the insert rather than inside the insert and pressing on the cup, frame damage can result.

The seat tube of our OCLV road bikes uses a fiberglass 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.

OCLV 120

	Frame sizes	50	52	54	56	58	60	62
	Head angle	72.0	72.5	73.0	73.8	73.8	74.0	74.0
	Seat angle	75.0	75.0	74.0	73.5	73.0	73.0	72.5
MILLIMETERS	Standover	740	754	769	789	807	826	844
	Seat tube	500	520	540	560	580	600	620
	Head tube	101	101	104	121	140	159	177
	Eff top tube	525	531	546	561	572	582	592
	Chainstays	408	408	410	410	412	412	412
	BB height	266	266	266	268	268	268	268
	Offset	47	47	47	43	43	43	43
	Trail	61	58	55	54	54	53	53
	Wheelbase	980	982	986	987	994	1001	1006
INCHES	Standover	29.1	29.7	30.3	31.1	31.8	32.5	33.2
	Seat tube	19.7	20.5	21.3	22.0	22.8	23.6	24.4
	Head tube	4.0	4.0	4.1	4.8	5.5	6.2	7.0
	Eff top tube	20.7	20.9	21.5	22.1	22.5	22.9	23.3
	Chainstays	16.1	16.1	16.1	16.1	16.2	16.2	16.2
	BB height	10.5	10.5	10.5	10.5	10.5	10.5	10.5
	Offset	1.9	1.9	1.9	1.7	1.7	1.7	1.7
	Trail	2.4	2.3	2.1	2.1	2.1	2.1	2.1
	Wheelbase	38.6	38.7	38.8	38.9	39.1	39.4	39.6

OCLV 110 Superlight

	Frame sizes	50	52	54	56	58	60	62
	Head angle	71.7	72.2	72.7	73.5	73.5	73.8	73.8
	Seat angle	74.7	74.7	73.7	73.3	72.8	72.8	72.3
MILLIMETERS	Standover	749	759	773	793	811	830	848
	Seat tube	500	520	540	560	580	600	620
	Head tube	111	111	114	131	149	168	187
	Eff top tube	525	531	546	561	572	582	592
	Chainstays	408	408	410	410	412	412	412
	BB height	268	268	268	270	270	270	270
	Offset	41.0	41.0	41.0	41.0	41.0	41.0	41.0
	Trail	69	66	63	58	58	56	56
	Wheelbase	979	982	987	986	994	1001	1006
INCHES	Standover	29.5	29.9	30.4	31.2	31.9	32.7	33.4
	Seat tube	19.7	20.5	21.3	22.0	22.8	23.6	24.4
	Head tube	4.4	4.4	4.5	5.2	5.9	6.6	7.4
	Eff top tube	20.7	20.9	21.5	22.1	22.5	22.9	23.3
	Chainstays	16.1	16.1	16.1	16.1	16.2	16.2	16.2
	BB height	10.6	10.6	10.6	10.6	10.6	10.6	10.6
	Offset	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	Trail	2.7	2.6	2.5	2.3	2.3	2.2	2.2
	Wheelbase	38.5	38.7	38.9	38.8	39.1	39.4	39.6

5900

FRAMESET

MAIN TUBES	OCLV 110, carbon fiber composite
STAYS	OCLV 110, carbon fiber composite
Frame weight	*2.3 lb (1.03 kg)*
FORK	Superlight carbon composite
Axle-crown length, mm	*376.25*
HEADSET	Klein Airheadset lower/ Cane Creek S-2 upper
Size	*25.4/34.0-1.75"/33.4*
Stack height, mm	*12.6*

CONTROLS

HANDLEBAR	Bontrager Race Lite
Clamp diameter, mm	*31.75*
STEM	Bontrager Race Lite
Steerer clamp height, mm	*39.5*
SHIFT LEVERS	Shimano Dura-Ace STI
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Dura-Ace
Cable routing	*Down pull*
Attachment	*Braze-on type*
RR DERAILLEUR	Shimano Dura-Ace
CRANKSET	Shimano Dura-Ace 53/39
Bolt hole circle, mm	*130*
BB	Shimano Dura-Ace
Shell x axle, mm	*68 x 109.5, Splined, Shimano*
CHAIN	Shimano Dura-Ace
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano Dura-Ace 12-23, 9spd

WHEELSET

FRONT WHEEL	Bontrager Race X-Lite, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race X-Lite, folding
Tire size	*700 x 23c*
REAR WHEEL	Bontrager Race X-Lite, 24°
E.R.D., mm	*595*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Race X-Lite, folding
Tire size	*700 x 23c*
SPOKES	DT Aero, alloy nipples
Front, mm	*278, Radial*
Rear, mm	*291/291, 2x*
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPOST	Thomson Elite
Outer diameter, mm	*27.2*
SADDLE	Selle San Marco Era, Ti/leather
BRAKES	Shimano Dura-Ace
PEDALS	-not supplied-
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts

COLORS

Bright Silver/Satin Silver • Black/Silver decals • Bright Silver fork

GEARING

	39	53
12	86	117
13	79	108
14	74	100
15	69	93
16	64	88
17	61	82
19	54	74
21	49	67
23	45	61

Key features:

Rider: Racer

Frameset

OCLV 110- Our best (and the world's lightest) racing frameset- fast and efficient

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Professional level (Dura-Ace)- No shortcuts- the same bike as ridden in the Tour de France

BIKE WEIGHT

15.4 lb.
6.99 kg.

FIT

Frame	Size	50	52	54	56	58	60	62
Rider height	Inches	65	66	68	70	72	74	75
	Cm	165	169	172	178	182	187	192
Handlebar	Width, mm	380	400	400	420	440	440	440
Stem	Length, mm	70	80	90	100	110	120	130
	Angle	7	7	7	7	7	7	7
Crank	Length, mm	170	170	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250	250
Steerer	Length, mm	200.4	200.4	203.4	220.4	238.9	257.9	276.4

5500

FRAMESET

MAIN TUBES	OCLV 120, carbon fiber composite	
STAYS	OCLV 120, carbon fiber composite	
	Frame weight	*2.4 lb (1.09 kg)*
FORK	Air Rail	
	Axle-crown length, mm	*370.0*
HEADSET	Dia-Compe S-6 Aheadset, alloy	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*28.6*

CONTROLS

HANDLEBAR	Bontrager Race Lite	
	Clamp diameter, mm	*31.75*
STEM	Bontrager Race Lite	
	Steerer clamp height, mm	*39.5*
SHIFT LEVERS	Shimano Dura-Ace STI, Flite Deck compatible	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Powercork	

DRIVETRAIN

FT DERAILLEUR	Shimano Dura-Ace	
	Cable routing	*Down pull*
	Attachment	*Braze-on type*
RR DERAILLEUR	Shimano Dura-Ace	
CRANKSET	Shimano Dura-Ace 53/39	
	Bolt hole circle, mm	*130*
BB	Shimano Dura-Ace	
	Shell x axle, mm	*68 x 109.5, Splined, Shimano*
CHAIN	Shimano Dura-Ace	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano Dura-Ace 12-23, 9spd	

WHEELSET

FRONT WHEEL	Bontrager X-Lite, 20°	
	E.R.D., mm	*592*
	Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race X-Lite, folding	
	Tire size	*700 x 23c*
REAR WHEEL	Bontrager X-Lite, 24°	
	E.R.D., mm	*595*
	Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Race X-Lite, folding	
	Tire size	*700 x 23c*
SPOKES	DT Revolution 14/17G (Aero drive side rear), alloy nipples	
	Front, mm	*279, Radial*
	Rear, mm	*271/271, 2x*
INNER TUBES	Presta valve, 48mm stem	

OTHER

SEATPOST	Thomson Elite	
	Outer diameter, mm	*27.2*
SADDLE	SSM Era, Ti/leather	
BRAKES	Shimano Dura-Ace	
PEDALS	-not supplied-	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts	

COLORS

Abyss • Silver/White decals

BIKE WEIGHT

16.3 lb.
7.40 kg.

GEARING

	39	53
12	86	117
13	79	108
14	74	100
15	69	93
16	64	88
17	61	82
19	54	74
21	49	67
23	45	61

Key features:

Rider: Racer

Frameset

OCLV 110- Our best (and the world's lightest) racing frameset- fast and efficient

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (Ultegra)- Pro performance at a more affordable price

5500 T

DRIVETRAIN

FT DERAILLEUR	Shimano Dura-Ace T	
	Cable routing	*Down pull*
	Attachment	*Braze-on type*
RR DERAILLEUR	Shimano Dura-Ace GS	
CRANKSET	Shimano Dura-Ace 53/39/30	
	Bolt hole circle, mm	*74/130*
BB	Shimano Dura-Ace	
	Shell x axle, mm	*68 x 118, Splined, Shimano*
CHAIN	Shimano Dura-Ace	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano Dura-Ace 12-23, 9spd	

GEARING

	30	39	53
12	66	86	117
13	61	79	108
14	57	74	100
15	53	69	93
16	50	64	88
17	47	61	82
19	42	54	74
21	38	49	67
23	35	45	61

BIKE WEIGHT

16.6 lb.
7.54 kg.

FIT

Frame	Size	50	52	54	56	58	60	62
Rider height	Inches	67	67	68	70	72	74	75
	Cm	170	171	173	178	182	188	191
Handlebar	Width, mm	380	400	400	420	440	440	440
Stem	Length, mm	90	90	90	100	110	120	130
	Angle	10	10	10	10	10	10	10
Crank	Length, mm	170	170	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250	250
Steerer	Length, mm	205.1	205.1	208.1	225.1	244.1	263.1	281.1

5200

FRAMESET

MAIN TUBES	OCLV 120, carbon fiber composite
STAYS	OCLV 120, carbon fiber composite
Frame weight	*2.4 lb (1.09 kg)*
FORK	Air Rail
Axle-crown length, mm	*370.0*
HEADSET	Cane Creek S-2 Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*26.5*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*26.0*
STEM	Bontrager Race
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Ultegra STI, Flite Deck compatible
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Ultegra
Cable routing	*Down pull*
Attachment	*Braze-on type*
RR DERAILLEUR	Shimano Ultegra
CRANKSET	Shimano Ultegra 53/39
Bolt hole circle, mm	*130*
BB	Shimano Ultegra
Shell x axle, mm	*68 x 109.5, Splined, Shimano*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano Ultegra 12-25, 9spd

WHEELSET

FRONT WHEEL	Bontrager Race Lite Road, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race Lite, folding
Tire size	*700 x 23c*
REAR WHEEL	Bontrager Race Lite Road, 24°
E.R.D., mm	*595*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Race Lite, folding
Tire size	*700 x 23c*
SPOKES	DT Aero, alloy nipples
Front, mm	*278, Radial*
Rear, mm	*291/291, 2x*
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPOST	Bontrager Race
Outer diameter, mm	*27.2*
SADDLE	Selle San Marco Era, CrMo/leather
BRAKES	Shimano Ultegra
PEDALS	-not supplied-
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts

COLORS

USPS Team • White/Red decals
Smoke Carbon • White/Silver decals

GEARING

	39	53
12	86	117
13	79	108
14	74	100
15	69	93
17	61	82
19	54	74
21	49	67
23	45	61
25	41	56

BIKE WEIGHT

18.8 lb.
8.54 kg.

Key features:

Rider: Racer

Frameset

OCLV 120- Lance's best friend- 100 grams lighter than the bike he rode to win the 1999 Tour de France

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (Ultegra)- Pro performance at a more affordable price(also available in a triple)

5200 T

DRIVETRAIN

FT DERAILLEUR	Shimano Ultegra T
Cable routing	*Down pull*
Attachment	*Braze-on type*
RR DERAILLEUR	Shimano Ultegra GS
CRANKSET	Shimano Ultegra 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano Ultegra
Shell x axle, mm	*68 x 118, Splined, Shimano*

GEARING

	30	42	52
12	66	93	115
13	61	85	106
14	57	79	98
15	53	74	92
17	47	65	81
19	42	58	72
21	38	53	66
23	35	48	60
25	32	44	55

BIKE WEIGHT

19.1 lb.
8.67 kg.

FIT

Frame	Size	50	52	54	56	58	60	62
Rider height	Inches	65	66	68	70	72	74	75
	Cm	165	169	173	178	183	188	191
Handlebar	Width, mm	380	400	400	420	440	440	440
Stem	Length, mm	70	80	90	100	110	120	130
	Angle	10	10	10	10	10	10	10
Crank	Length, mm	170	170	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250	250
Steerer	Length, mm	208.5	208.5	211.5	228.5	247.5	266.5	284.5

USPS Time Trial frameset only

No excuses.

Where else can you buy the exact same frameset as the one that won several stages at the 2001 Tour de France? Yes, Lance rode a stock Trek OCLV TT frame.

You can proudly ride the same frames as the Postal team. The only problem with owning one of these beautys is if your buddy clocks 40 kilometers faster than you do, you can no longer blame the equipment.

TT frame

An old maxim states that Aero means heavy. The Trek OCLV Time Trial frame disproves the old maxim.

These frames were designed specifically for Lance and the Postal team in a wind tunnel. But we built a few extras, because we knew you'd want one.

The frame is built in just three sizes; S, M, and L. The seat height is adjustable by using a shim stack, measured from the saddle rails to the center of the bottom bracket. Top tube length is measure here from the top of the seat mast to the top of the head tube. We expect that you will use your favorite aero bar and stem combination to fine tune the fit.

The frame uses a $1^{1/8}$" headset, and 700c wheels. It has two standard water bottle mounts.

Color:

	S	M	L
Top tube	589-602	603-616	617-631
Seat tube	664-692	691-719	718-746

ZR9000 Road

New for 2002

This year's 2300 frameset shares something from the 2001 model, but its really an entirely new frame. First, its made with our new ZR9000 aluminum, so its lighter and stronger than the 2001. It also incorporates the new internal headset design, giving it a sleek look. Like the 2001, the 2002 version uses the new oversize steering system ($1^{1/8}$"), and so do the WSD frames.

The 2002 model 2300 also got a style update; round oversized down tube and traditional fastback seat stays. While we like the traditional look, we're even more excited about the increase in frame rigidity and overall weight reduction.

Geometry

The ZR9000 road geometry is basically the same as our Alph SLR frameset except that the head tube is taller to accomodate the internal bearing system.

Ride

These frames are full race, providing excellent frame rigidity and handling. However, they are not overly harsh. Our engineers designed the frame materials, tubing diameters, and wall thicknesses to ride like a classic race bike, and to avoid the teeth rattling that some aluminum frame create.

Frame details

ZR9000 frames are aluminum, but different than anything else on the market.

ZR9000 frames provide 2 water bottle mounts, except the 43 and 47cm WSD frames which have seat tubes which are too short.

ZR9000 frame cable routing uses shift pegs on the down tube for easy on-the-fly adjustment of the indexed shift systems. They use an open brake cable under the top tube, leaving a clean look. These frames are true racing frames, so they do not have eyelets for racks or fenders.

Alpha SLR Road

	Frame sizes	50	52	54	56	58	60	63
	Head angle	72.0	72.5	73.0	73.8	73.8	74.0	74.0
	Seat angle	75.0	75.0	74.0	73.0	73.0	73.0	72.5
MILLIMETERS	Standover	743	757	772	792	810	829	858
	Seat tube	500	520	540	560	580	600	630
	Head tube	116	116	125	141	161	180	210
	Eff top tube	521	526	544	560	571	580	601
	Chainstays	417	417	417	417	417	417	417
	BB height	266	266	266	268	268	268	270
	Offset	47.0	47.0	47.0	43.0	43.0	43.0	43
	Trail	61	58	55	54	54	53	53
	Wheelbase	988	989	993	994	999	1006	1021
INCHES	Standover	29.2	29.8	30.4	31.2	31.9	32.6	33.8
	Seat tube	19.7	20.5	21.3	22.0	22.8	23.6	24.8
	Head tube	4.6	4.6	4.9	5.6	6.3	7.1	8.3
	Eff top tube	20.5	20.7	21.4	22.1	22.5	22.8	23.7
	Chainstays	16.4	16.4	16.4	16.4	16.4	16.4	16.4
	BB height	10.5	10.5	10.5	10.5	10.5	10.5	10.6
	Offset	1.9	1.9	1.9	1.7	1.7	1.7	1.7
	Trail	2.4	2.3	2.1	2.1	2.1	2.1	2.1
	Wheelbase	38.9	38.9	39.1	39.1	39.3	39.6	40.2

Alpha SLR Road WSD

	Frame sizes	43	47	52	54
	Head angle	73.0	72.5	72.5	72.5
	Seat angle	76.0	75.0	74.0	74.0
MILLIMETERS	Standover	682	711	742	772
	Seat tube	430	470	520	533
	Head tube	116	125	141	125
	Eff top tube	488	499	504	525
	Chainstays	412	412	412	417
	BB height	262	264	264	266
	Offset	38.1	38.1	38.1	47.0
	Trail	55	58	58	58
	Wheelbase	950	956	954	978
INCHES	Standover	26.8	28.0	29.2	30.4
	Seat tube	16.9	18.5	20.5	21.0
	Head tube	4.6	4.9	5.6	4.9
	Eff top tube	19.2	19.6	19.8	20.7
	Chainstays	16.2	16.2	16.2	16.4
	BB height	10.3	10.4	10.4	10.5
	Offset	1.5	1.5	1.5	1.9
	Trail	2.2	2.3	2.3	2.3
	Wheelbase	37.4	37.6	37.6	38.5

2300

FRAMESET

MAIN TUBES	ZR9000
STAYS	ZR9000
FORK	Air Rail
Axle-crown length, mm	*370*
HEADSET	Cane Creek Internal
Size	*25.4/34.0/30.0*
Stack height, mm	*8.6*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*26.0*
STEM	Bontrager Race
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Ultegra STI, Flite Deck compatible
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Ultegra
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Ultegra
CRANKSET	Shimano Ultegra 53/39
Bolt hole circle, mm	*130*
BB	Shimano Ultegra
Shell x axle, mm	*68 x 109.5, Splined, Shimano*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano Ultegra 12-25, 9spd

WHEELSET

FRONT WHEEL	Bontrager Race Lite Road, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race Lite, folding
Tire size	*700 x 23c*
REAR WHEEL	Bontrager Race Lite Road, 24°
E.R.D., mm	*595*
Rim strip	Velox 16mm
REAR TIRE	Bontrager R*ace Lite, folding*
*Ti*re size	700 x 23c
SPOKES	DT Ae*ro, alloy nipples*
Front, mm	*278, Radial*
Rear, mm	291/291, 2x
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPO*ST*	*Bontrager Race*
Outer diameter, mm	27.2
SADDLE	SSM Era, CrMo/leather
BRAKES	Shimano Ultegra
PEDA*LS*	*-not supplied-*
*Ax*le diameter	9/16"
SEAT BINDER	Allo*y w/integral bolt*
Inner diameter, mm	31.9
ADDITIONALS	2 water bott*le mounts*

COLORS

Pearl White • Silver/Black decals
Starry Night • Blue/White decals

GEARING

	39	53
12	86	117
13	79	108
14	74	100
15	69	93
17	61	82
19	54	74
21	49	67
23	45	61
25	41	56

BIKE WEIGHT

18.1 lb.
8.22 kg.

Key features:

Rider: Racer

Frameset

Alpha SLR aluminum- butted for low weight, high strength

Similar geometry to 5900, 5500

New $1^{1/8}$" headset- low weight, precise steering

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (Ultegra)- Pro performance at a more affordable price(also available in a triple)

2300 T

DRIVETRAIN

FT DERAILLEUR	Shimano Ultegra T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Ultegra GS
CRANKSET	Shimano Ultegra 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano Ultegra
Shell x axle, mm	*68 x 118, Splined, Shimano*

GEARING

	30	42	52
12	66	93	115
13	61	85	106
14	57	79	98
15	53	74	92
17	47	65	81
19	42	58	72
21	38	53	66
23	35	48	60
25	32	44	55

BIKE WEIGHT

18.4 lb.
8.35 kg.

FIT

Frame	Size	50	52	54	56	58	60	63
Rider height	Inches	65	66	68	70	72	74	76
	Cm	165	168	173	178	182	188	194
Handlebar	Width, mm	380	400	400	420	440	440	440
Stem	Length, mm	70	80	90	100	110	120	130
	Angle	7	7	7	7	7	7	7
Crank	Length, mm	170	170	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250	250
Steerer	Length, mm	203.0	203.0	212.0	228.0	248.0	267.0	297.0

2300 WSD T

FRAMESET

MAIN TUBES ZR9000
STAYS ZR9000
FORK ..... Carbon Aero
Axle-crown length, mm *345.0345.0345.0370.0*
HEADSET ..... Cane Creek Internal
Size *25.4/34.0/30.0*
Stack height, mm *8.0*

CONTROLS

HANDLEBAR ..... Bontrager Race
Clamp diameter, mm *26.0*
STEM ..... Bontrager Race
Steerer clamp height, mm *40.041.041.041.0*
SHIFT LEVERS ..... Shimano Ultegra STI, Flite Deck compatible
BRAKE LEVERS ..... Integrated brake/shift
GRIPS ..... Powercork

DRIVETRAIN

FT DERAILLEUR .... Shimano Ultegra T
Cable routing *Down pull*
Attachment *Braze-on type w/34.9mm clamp*
RR DERAILLEUR .... Shimano Ultegra GS
CRANKSET ..... Shimano Ultegra 52/42/30
Bolt hole circle, mm *74/130*
BB ..... Shimano Ultegra
Shell x axle, mm *68 x 118, Splined, Shimano*
CHAIN ..... Shimano HG-72
Chain type *9 speed*
Chain length (links) *108*
CASSETTE ..... Shimano Ultegra 12-25, 9spd

WHEELSET

FRONT WHEEL ..... Bontrager Race Lite Road, 20°
E.R.D., mm *543*
Rim strip *Velox 16mm*
FRONT TIRE ..... Bontrager Race Lite, folding
Tire size *650 x 23c*
REAR WHEEL ..... Bontrager Race Lite Road, 24°
E.R.D., mm *546*
Rim strip *Velox 16mm*
REAR TIRE ..... Bontrager Race Lite, folding
Tire size *650 x 23c*
SPOKES ..... DT Aero, alloy nipples
Front, mm *251, Radial*
Rear, mm *266/266, 2x*
INNER TUBES ..... Presta valve, 48mm stem

OTHER

SEATPOST ..... Bontrager Race
Outer diameter, mm *27.2*
SADDLE ..... Bontrager FS 2000 WSD, CrMo/leather/Gel
BRAKES ..... Shimano Ultegra
PEDALS ..... -not supplied-
Axle diameter
SEAT BINDER ..... Alloy w/integral bolt
Inner diameter, mm *31.9*
ADDITIONALS ..... See Men's for wheel info on 54cm
2 water bottle mounts (1 on 43, 47cm)

COLORS

Georgia Blue • Black/Silver decals

GEARING

	30	42	52
12	61	86	106
13	57	79	98
14	52	73	91
15	49	69	85
17	43	60	75
19	39	54	67
21	35	49	61
23	32	45	55
25	29	41	51

BIKE WEIGHT

17.6 lb.
7.99 kg.

Key features:

Rider: Woman Racer

Frameset

ZR9000 aluminum- butted for low weight, high strength

WSD geometry- fit and performance for a woman

Carbon aero fork- more shock absorptive

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (Ultegra)- Pro performance at a more affordable price

WSD fork, bars, saddle, crank length- fit and performance for a woman

FIT

Frame	Size	43	47	51	54
Rider height	Inches	62	64	66	67
	Cm	157	162	168	171
Handlebar	Width, mm	380	380	380	380
Stem	Length, mm	60	80	100	100
	Angle	10	7	7	7
Crank	Length, mm	165	165	170	170
Seatpost	Length, mm	250	250	250	250
Steerer	Length, mm	198.0	207.0	223.0	207.0

New for 2002

The 2002 Alpha SL frame platform got a style update; round oversized down tube and traditional fastback seat stays. While we like the traditional look, we're even more excited about the increase in frame rigidity and overall weight reduction.

Geometry

The geometry of the Alpha SL frame stays as it was in 2001, a great all-round road racing feel, but the update to the tubeset shape increases its performance.

The Alpha SL geometry is very similar to our OCLV frames. The major difference is that the Alpha SL frames share the same chainstay length, while the OCLV road bikes vary by several millimeters. In other words, there are full race design bikes.

The WSD models are adapted to fit and perform better for women.

Ride

These frames are full race, providing excellent frame rigidity and handling. However, they are not overly harsh. Our engineers designed the frame materials, tubing diameters, and wall thicknesses to ride like a classic race bike, and to avoid the teeth rattling that some aluminum frame create.

Frame details

Alpha SL frames are 6061 T6 aluminum.

Alpha SL frames provide 2 water bottle mounts, except the 43 and 47cm WSD frames which have seat tubes which are too short.

Alpha SL cable routing uses downtube shift bosses for compatibility with Shimano STI shifting. They use an open brake cable under the top tube, leaving a clean look. Although these frames are at home on the race course, they are also great for more recreational riding. We've added eyelets on the rear dropouts to provide mounting points for a rack or fenders. This way, the Alpha SL frames can be used for commuting or light touring.

Alpha SL Road

	Frame sizes	50	52	54	56	58	60	63
	Head angle	72.0	72.5	73.0	73.8	73.8	74.0	74.0
	Seat angle	75.0	75.0	74.0	73.0	73.0	73.0	72.5
MILLIMETERS	Standover	740	754	768	788	806	825	854
	Seat tube	500	520	540	560	580	600	630
	Head tube	97	97	105	123	140	159	189
	Eff top tube	521	526	544	560	571	580	601
	Chainstays	417	417	417	417	417	417	417
	BB height	266	266	266	268	268	268	270
	Offset	47.0	47.0	47.0	43.0	43.0	43.0	43
	Trail	61	58	55	54	54	53	53
	Wheelbase	988	989	993	994	999	1006	1021
INCHES	Standover	29.1	29.7	30.2	31.0	31.7	32.5	33.6
	Seat tube	19.7	20.5	21.3	22.0	22.8	23.6	24.8
	Head tube	3.8	3.8	4.1	4.8	5.5	6.2	7.4
	Eff top tube	20.5	20.7	21.4	22.1	22.5	22.8	23.7
	Chainstays	16.4	16.4	16.4	16.4	16.4	16.4	16.4
	BB height	10.5	10.5	10.5	10.5	10.5	10.5	10.6
	Offset	1.9	1.9	1.9	1.7	1.7	1.7	1.7
	Trail	2.4	2.3	2.1	2.1	2.1	2.1	2.1
	Wheelbase	38.9	38.9	39.1	39.1	39.3	39.6	40.2

Alpha SL Road WSD

	Frame sizes	43	47	52	54
	Head angle	73.0	72.5	72.5	72.5
	Seat angle	76.0	75.0	74.0	74.0
MILLIMETERS	Standover	683	708	751	763
	Seat tube	430	470	520	533
	Head tube	97	97	133	97
	Eff top tube	488	499	504	525
	Chainstays	412	412	412	417
	BB height	262	264	264	266
	Offset	38.1	38.1	38.1	47.0
	Trail	55	58	58	58
	Wheelbase	950	956	954	978
INCHES	Standover	26.9	27.9	29.6	30.0
	Seat tube	16.9	18.5	20.5	21.0
	Head tube	3.8	3.8	5.2	3.8
	Eff top tube	19.2	19.6	19.8	20.7
	Chainstays	16.2	16.2	16.2	16.4
	BB height	10.3	10.4	10.4	10.5
	Offset	1.5	1.5	1.5	1.9
	Trail	2.2	2.3	2.3	2.3
	Wheelbase	37.4	37.6	37.6	38.5

2200

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	Air Rail
Axle-crown length, mm	*370*
HEADSET	Cane Creek C-1 Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*26.7*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*26.0*
STEM	Bontrager Race
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Ultegra STI, Flite Deck compatible
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano 105
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Ultegra
CRANKSET	Shimano Ultegra 53/39
Bolt hole circle, mm	*130*
BB	Shimano 105
Shell x axle, mm	*68 x 109.5, Splined, Shimano*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano HG70 12-25, 9spd

WHEELSET

FRONT WHEEL	Bontrager Select Road, 20°
E.R.D., mm	*592*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race Lite, folding
Tire size	*700 x 23c*
REAR WHEEL	Bontrager Select Road, 24°
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Race Lite, folding
Tire size	*700 x 23c*
SPOKES	DT 14/15G butted stainless
Front, mm	*278, Radial*
Rear, mm	*293/294, 2x*
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPOST	Bontrager Race
Outer diameter, mm	*27.2*
SADDLE	SSM New Millenium, CrMo rails
BRAKES	Shimano 105
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts, rack mounts

COLORS

Metal Flake Yellow • Blue/Black decals • Metal Flake Yellow fork

BIKE WEIGHT

20.0 lb.
9.08 kg.

GEARING

	39	53
12	86	117
13	79	108
14	74	100
15	69	93
17	61	82
19	54	74
21	49	67
23	45	61
25	41	56

Key features:

Rider: Racer or Fast century rider

Frameset

Alpha SL aluminum- butted for low weight, high strength

Similar geometry to 5900, 5500

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (105)- Race performance at a more affordable price(also available in a triple)

2200 T

DRIVETRAIN

FT DERAILLEUR	Shimano 105 T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Ultegra GS
CRANKSET	Shimano Ultegra 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano 105
Shell x axle, mm	*68 x 118, Splined, Shimano*

GEARING

	30	42	52
12	66	93	115
13	61	85	106
14	57	79	98
15	53	74	92
17	47	65	81
19	42	58	72
21	38	53	66
23	35	48	60
25	32	44	55

BIKE WEIGHT

20.3 lb.
9.22 kg.

FIT

Frame	Size	50	52	54	56	58	60
Rider height	Inches	65	66	68	70	72	74
	Cm	164	168	172	178	182	187
Handlebar	Width, mm	380	400	400	420	440	440
Stem	Length, mm	70	80	90	100	110	120
	Angle	10	10	10	10	10	10
Crank	Length, mm	170	170	172.5	172.5	175	175
Seatpost	Length, mm	250	250	250	250	250	250
Steerer	Length, mm	201.7	201.7	209.7	227.7	245.2	263.7

2200 WSD T

FRAMESET

MAIN TUBES	Alpha SL aluminum	
STAYS	Alpha SL aluminum	
FORK	Carbon Classic 650	
	Axle-crown length, mm	*345.0345.0345.0370.0*
HEADSET	STR Aheadset	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Bontrager Race	
	Clamp diameter, mm	*26.0*
STEM	Bontrager Race	
	Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Ultegra STI, Flite Deck compatible	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Powercork	

DRIVETRAIN

FT DERAILLEUR	Shimano 105 T	
	Cable routing	*Down pull*
	Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Ultegra GS	
CRANKSET	Shimano Ultegra 52/42/30	
	Bolt hole circle, mm	*74/130*
BB	Shimano 105	
	Shell x axle, mm	*68 x 118, Splined, Shimano*
CHAIN	Shimano HG-72	
	Chain type	*9 speed*
	Chain length (links)	*108*
CASSETTE	Shimano HG70 12-25, 9spd	

WHEELSET

FRONT WHEEL	Bontrager Select Road, 20°	
	E.R.D., mm	*539*
	Rim strip	*Velox 16mm*
FRONT TIRE	IRC Triathalon	
	Tire size	*650 x 25c*
REAR WHEEL	Bontrager Select Road, 24°	
	E.R.D., mm	*548*
	Rim strip	*Velox 16mm*
REAR TIRE	IRC Triathalon	
	Tire size	*650 x 25c*
SPOKES	DT 14/15G butted stainless	
	Front, mm	*252, Radial*
	Rear, mm	*268/268, 2x*
INNER TUBES	Presta valve, 48mm stem	

OTHER

SEATPOST	Bontrager Race	
	Outer diameter, mm	*27.2*
SADDLE	Bontrager FS 2000 WSD, CrMo	
BRAKES	Shimano 105	
PEDALS	Shimano SPD M515, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*31.9*
ADDITIONALS	2 bottle mounts (1 on 43)	

Headset shim from 1" for to 11/8" head tube
See Men's for wheel info on 54cm

COLORS

Candy Red • Gold/Silver decals

GEARING

	30	42	52
12	61	86	106
13	57	79	98
14	52	73	91
15	49	69	85
17	43	60	75
19	39	54	67
21	35	49	61
23	32	45	55
25	29	41	51

BIKE WEIGHT

19.1 lb.
8.67 kg.

Key features:

Rider: Woman Racer or Fast century rider

Frameset

Alpha SL aluminum- butted for low weight, high strength

WSD geometry- fit and performance for a woman

Carbon Classic fork- more shock absorptive

Wheelset

Bontrager Paired Spoke Technology- light, aero

Components

Race level (105)- Race performance at a more affordable price

WSD fork, bars, saddle, crank length- fit and performance for a woman

FIT

Frame	Size	43	47	51	54
Rider height	Inches	62	64	66	67
	Cm	156	162	167	170
Handlebar	Width, mm	380	380	380	380
Stem	Length, mm	60	80	100	100
	Angle	10	7	7	7
Crank	Length, mm	165	165	170	170
Seatpost	Length, mm	250	250	250	250
Steerer	Length, mm	198.2	206.2	224.2	206.2

2000

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	Carbon Classic
Axle-crown length, mm	*370*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Alloy Ergo
Clamp diameter, mm	*26.0*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano 105 STI, Flite Deck compatible
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Tiagra T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano 105 GS
CRANKSET	Shimano 105 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano 105
Shell x axle, mm	*68 x 118, Splined, Shimano*
CHAIN	Shimano HG-72
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano HG50 12-25, 9spd

WHEELSET

FRONT WHEEL	Shimano Tiagra hub, 32°, Aurora rim
E.R.D., mm	*610*
Rim strip	*Velox 16mm*
FRONT TIRE	IRC Red Storm
Tire size	*700 x 25c*
REAR WHEEL	Shimano Tiagra hub, 32°, Aurora RDR rim
E.R.D., mm	*603*
Rim strip	
REAR TIRE	IRC Red Storm
Tire size	*700 x 25c*
SPOKES	DT 14G stainless
Front, mm	*299, 3x*
Rear, mm	*293/294, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*27.2*
SADDLE	SSM New Millenium
BRAKES	Alloy dual pivot
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts
Adapter for 1" steerer and 1 1/8" head tube	

COLORS

Candy Red • Black/Gold decals

GEARING

	30	42	52
12	66	93	115
13	61	85	106
14	57	79	98
15	53	74	92
17	47	65	81
19	42	58	72
21	38	53	66
23	35	48	60
25	32	44	55

BIKE WEIGHT

21.2 lb.
9.62 kg.

Key features:

Rider: Enthusiast or Century rider

Frameset

Alpha SL aluminum- butted for low weight, high strength

Similar geometry to 5900, 5500

Wheelset

Aurora rim- seamless braking, lightweight acceleration

Components

Enthusiast level (Tiagra)- 9 speed gearing on a triple, low weight

FIT

Frame	Size	52	54	56	58	60	63
Rider height	Inches	66	67	70	71	74	75
	Cm	168	170	177	182	187	191
Handlebar	Width, mm	400	400	420	440	440	440
Stem	Length, mm	85	85	100	110	120	120
	Angle	5	5	5	5	5	5
Crank	Length, mm	170	170	170	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250
Steerer	Length, mm	195.7	203.7	221.7	239.2	257.7	283.2

2000 WSD T

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	Carbon Classic
Axle-crown length, mm	*345.0345.0345.0370.0*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.2*

CONTROLS

HANDLEBAR	Alloy Road
Clamp diameter, mm	*26.0*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano 105 STI, Flite Deck compatible
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Tiagra T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano 105 GS
CRANKSET	Shimano 105 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano 105
Shell x axle, mm	*68 x 118, Splined, Shimano*
CHAIN	SRAM PC-59 Power
Chain type	*9 speed*
Chain length (links)	*106*
CASSETTE	Shimano HG50 12-25, 9spd

WHEELSET

FRONT WHEEL	Shimano Tiagra hub, 32°, Aurora rim
E.R.D., mm	*555*
Rim strip	*Velox 16mm*
FRONT TIRE	IRC Triathalon
Tire size	*650 x 25c*
REAR WHEEL	Shimano Tiagra hub, 32°, Aurora RDR rim
E.R.D., mm	*549*
Rim strip	*Velox 16mm*
REAR TIRE	IRC Triathalon
Tire size	*650 x 25c*
SPOKES	DT 14G stainless
Front, mm	*273, 3x*
Rear, mm	*268/268, 3x*
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*27.2*
SADDLE	Bontrager FS 2000 WSD
BRAKES	Alloy dual pivot
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.9*
ADDITIONALS	2 bottle mounts (1 on 43)

Headset shim from 1" for to 11/8" head tube
See Men's for wheel info on 54cm

COLORS

Frost • Blue/Dark Blue decals

GEARING

	30	42	52
12	61	86	106
13	57	79	98
14	52	73	91
15	49	69	85
17	43	60	75
19	39	54	67
21	35	49	61
23	32	45	55
25	29	41	51

BIKE WEIGHT

20.5 lb.
9.31 kg.

Key features:

Rider: Woman enthusiast or Century rider

Frameset

Alpha SL aluminum- butted for low weight, high strength

WSD geometry- fit and performance for a woman

Carbon classic fork- more shock absorptive

Wheelset

Aurora rim- seamless braking, lightweight acceleration

Components

Enthusiast level (Tiagra)- 9 speed gearing on a triple, low weight

WSD fork, bars, saddle, crank length- fit and performance for a woman

FIT

Frame	Size	43	47	51	54
Rider height	Inches	64	65	65	67
	Cm	162	164	166	169
Handlebar	Width, mm	380	380	380	380
Stem	Length, mm	85	90	100	100
	Angle	17	17	17	17
Crank	Length, mm	165	165	170	170
Seatpost	Length, mm	250	250	250	250
Steerer	Length, mm	195.7	203.7	221.7	203.7

1200

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	Trek aluminum, bonded
Axle-crown length, mm	*370*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Alloy Road
Clamp diameter, mm	*26.0*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Tiagra STI Dual Control
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Tiagra T
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
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	Shimano HG-53
Chain type	*9 speed*
Chain length (links)	*108*
CASSETTE	Shimano HG50 12-25, 9spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Aurora rim
E.R.D., mm	*610*
Rim strip	*Velox 16mm*
FRONT TIRE	IRC Red Storm
Tire size	*700 x 25c*
REAR WHEEL	Alloy, QR hub, 32°, Aurora RDR rim
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	IRC Red Storm
Tire size	*700 x 25c*
SPOKES	DT 14G stainless
Front, mm	*299, 3x*
Rear, mm	*293/294, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*27.2*
SADDLE	SSM New Millenium
BRAKES	Alloy dual pivot
PEDALS	Alloy w/clips and straps
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.9*
ADDITIONALS	2 water bottle mounts, rack mounts

Stem shim from 1 to 1 1/8"

COLORS

Starry Night • Silver/Dark Silver decals

GEARING

	30	42	52
12	66	93	115
13	61	85	106
14	57	79	98
15	53	74	92
17	47	65	81
19	42	58	72
21	38	53	66
23	35	48	60
25	32	44	55

Key features:

Rider: Enthusiast or Century rider

Frameset

Alpha - low weight, high strength

Wheelset

Aurora rims- seamless braking, lightweight acceleration

Components

Enthusiast level (Sora)- 9 speed gearing on a triple, low weight

BIKE WEIGHT

20.3 lb.
9.22 kg.

FIT

Frame	Size	50	52	54	56	58	60
Rider height	Inches	66	66	68	70	71	73
	Cm	167	168	173	178	181	187
Handlebar	Width, mm	380	400	400	420	440	440
Stem	Length, mm	85	85	95	100	110	120
	Angle	17	17	17	17	17	17
Crank	Length, mm	170	170	170	170	175	175
Seatpost	Length, mm	250	250	250	250	250	250
Steerer	Length, mm	195.7	195.7	203.7	221.7	239.2	257.7

For 2002

The 2002 Alpha frame platform got a style update; round oversized down tube and traditional fastback seat stays. While we like the traditional look, we're even more excited about the increase in frame rigidity and overall weight reduction.

Geometry

The Alpha geometry is a more forgiving road geometry, but still very close to what the racers ride. By forgiving, we mean it's stable, and has more of a tendency to ride in a straight line. It's less reactive to weight changes that would make a race bike turn, so you can relax more. And if you move around on the bike to sightsee, the bike won't react as readily.

Ride

The forgiving geometry of the Alpha Road frame makes it a great bike for a beginning racer, or an experienced day tourer.

These frames provide excellent frame rigidity and good road sensitivity. However, they are not overly harsh. Our engineers designed the frame materials, tubing diameters, and wall thicknesses to ride smoothly, and to avoid the teeth rattling that some aluminum frame create.

Frame details

Alpha frames are aluminum.

Alpha frames provide 2 water bottle mounts, except the 43cm frames which have seat tubes which are too short.

Alpha cable routing uses shift pegs on the down tube for use of Shimano cable stops, for easy on-the-fly adjustment of the indexed shift systems. They use an open brake cable under the top tube, leaving a clean look. Although these frames are at home on the race course, they are also great for more recreational riding. We've added eyelets on the rear dropouts to provide mounting points for a rack or fenders. This way, the Alpha frames can be used for commuting or light touring.

Alpha Road

	Frame sizes	43	50	52	54	56	58	60	62
	Head angle	71.5	71.5	71.5	72.0	72.5	72.5	72.5	72.5
	Seat angle	75.0	75.0	75.0	74.0	73.5	73.0	73.0	73.0
MILLIMETERS	Standover			740	754	768	788	806	825
	Seat tube	430	500	520	540	560	580	600	620
	Head tube	100	100	100	100	115	135	150	170
	Eff top tube	530	530	530	544	555	575	580	585
	Chainstays	415	415	415	415	415	415	415	415
	BB height	266	266	266	266	268	268	268	268
	Offset	47.0	47	47	47	45.0	45.0	45.0	45.0
	Trail	64	64	64	61	60	60	60	60
	Wheelbase	1000	1000	1000	1000	1001	1016	1021	1026
INCHES	Standover		29.1	29.7	30.2	31.0	31.7	32.5	
	Seat tube	16.9	19.7	20.5	21.3	22.0	22.8	23.6	24.4
	Head tube	3.9	3.9	3.9	3.9	4.5	5.3	5.9	6.7
	Eff top tube	20.9	20.9	20.9	21.4	21.9	22.6	22.8	23.0
	Chainstays	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
	BB height	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
	Offset	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8
	Trail	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4
	Wheelbase	39.4	39.4	39.4	39.4	39.4	40.0	40.2	40.4

1000 T

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	Aluminum
Axle-crown length, mm	*370*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*24*

CONTROLS

HANDLEBAR	Alloy Ergo
Clamp diameter, mm	*25.4*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*37.8*
SHIFT LEVERS	Shimano Sora STI Dual Control
BRAKE LEVERS	Integrated brake/shift
GRIPS	Cork

DRIVETRAIN

FT DERAILLEUR	Shimano Sora T
Cable routing	*Down pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Sora GS
CRANKSET	SR Superbe 52/42/30
Bolt hole circle, mm	*74/130*
BB	Cartridge
Shell x axle, mm	*68 x 116, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	Sun Race 11-28, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Vuelta Typhoon rim
E.R.D., mm	*610*
Rim strip	*Cloth*
FRONT TIRE	IRC Red Storm
Tire size	*700 x 25c*
REAR WHEEL	Alloy, QR hub, 32°, Vuelta Typhoon rim
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	IRC Red Storm
Tire size	*700 x 25c*
SPOKES	15G stainless
Front, mm	*293, 3x*
Rear, mm	*290/292, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*27.2*
SADDLE	Trek Race
BRAKES	Alloy dual pivot
PEDALS	Nylon/alloy cage w/clips and straps
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*31.8*
ADDITIONALS	2 water bottle mounts, rack mounts

COLORS

Pearl White • Blue/White decals

GEARING

	30	42	52
11	72	101	125
12	66	93	115
14	57	79	98
16	50	69	86
18	44	62	76
21	38	53	66
24	33	46	57
28	28	40	49

Key features:

Rider: Enthusiast or Century rider

Frameset

Alpha - low weight, high strength

Wheelset

Aurora rims- seamless braking, lightweight acceleration

Components

Enthusiast level (Sora)- 9 speed gearing on a triple, low weight

BIKE WEIGHT

22.5 lb.
10.22 kg.

FIT

Frame	Size	43	50	52	54	56	58	60	62
Rider height	Inches	64	66	66	67	69	72	73	75
	Cm	163	168	168	171	175	182	185	190
Handlebar	Width, mm	380	380	400	400	400	420	420	440
Stem	Length, mm	60	80	80	90	100	110	120	130
	Angle	10	10	10	10	10	10	10	10
Crank	Length, mm	170	170	170	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250	250	250	250
Steerer	Length, mm	194	194	194	202	220	237	256	286

New for 2002

The 2002 version of the XO-1 is all new. New tubeset with round oversized downtube, new fastback-style seatstays, new sizes with wider size range and new geometry.

Geometry

The XO-1 is a true cyclocross frame, and the new 2002 version is more racing oriented than in the past. It has quicker steering response for technical terrain, with a lower bottom bracket for easier mounts and a lower center of gravity. Compared to a regular road bike, it has a longer wheelbase, more relaxed head angle, and higher bottom bracket.

We used a traditional, high seat cluster design, and moved the cables to the top of the top tube (although there is cable routing for a down-pull front derailleur if so desired). This design leaves lots of room to shoulder the XO-1 on run-ups.

In addition to the centerline geometry, we've also looked from the other perspective. This frame has tons of tire clearance.

Ride

The steering geometry and wheelbase provide a stable ride off pavement. The higher bottom bracket (relative to a regular road bike) means more pedaling clearance in ruts or on sidehills. Increased tire clearance means less speed-robbing mud clogs. A 'Cross racer knows all this means better placing in races. It also makes the XO-1 a great all-round road bike capable of accepting both large tires and fenders for winter training, commuting, or touring.

Frame details

The XO-1 uses Trek's proprietary Alpha SL frame tubing. An oversize down tube creates a rigid structure between the bottom bracket and head tube, for frame stiffness and strength when you've left the pavement. 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 fittings, like dropouts and seatstay yoke, on the XO-1 are forged aluminum. Forging provides the highest structural integrity, while the low density of the aluminum keeps the bike light.

Although we chose to route the front derailleur on the top tube, we thoughtfully included a cable guide for traditional down tube cable routing. This allows you to choose from either a mountain bike front derailleur with top pull cabling, or a road bike derailleur which are only available with down-pull styling. Why the difference? Front derailleurs are designed to be used with specific chainring tooth quantities. A road front derailleur won't work it's best with smaller rings, and vice versa.

The XO-1 provides 2 water bottle mounts on all frame sizes.

	Frame sizes	50	52	54	56	58
	Head angle	71.0	71.0	71.5	72.0	72.5
	Seat angle	74.5	74.0	73.5	73.0	73.0
MILLIMETERS	Standover	763	775	791	805	824
	Seat tube	500	520	540	560	580
	Head tube	97	97	105	105	123
	Eff top tube	515	525	540	555	565
	Chainstays	430	430	430	430	430
	BB height	281	281	281	281	283
	Offset	45.0	45.0	45.0	45.0	45.0
	Trail	74	74	71	68	64
	Wheelbase					
INCHES	Standover	30.0	30.5	31.1	31.7	32.5
	Seat tube	19.7	20.5	21.3	22.0	22.8
	Head tube	3.8	3.8	4.1	4.1	4.8
	Eff top tube	20.3	20.7	21.3	21.9	22.2
	Chainstays	16.9	16.9	16.9	16.9	16.9
	BB height	11.1	11.1	11.1	11.1	11.1
	Offset	1.8	1.8	1.8	1.8	1.8
	Trail	2.9	2.9	2.8	2.7	2.5
	Wheelbase					

XO-1

FRAMESET

MAIN TUBES	Alpha SL aluminum
STAYS	Alpha SL aluminum
FORK	X-Lite aluminum
Axle-crown length, mm	*403.0*
HEADSET	STR Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*23.0*

CONTROLS

HANDLEBAR	Bontrager Race
Clamp diameter, mm	*26.0*
STEM	Bontrager Sport
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Sora STI Dual Control
BRAKE LEVERS	Integrated brake/shift
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano Sora
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano Sora
CRANKSET	Shimano Sora 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano BB-UN40
Shell x axle, mm	*68 x 113, Square*
CHAIN	HG-50
Chain type	*3/32"*
Chain length (links)	*108*
CASSETTE	Shimano HG50 13-26, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Aurora rim
E.R.D., mm	*610*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Jones CX, 127tpi
Tire size	*700 x 32c*
REAR WHEEL	Alloy, QR hub, 32°, Aurora RDR rim
E.R.D., mm	*603*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Jones CX, 127tpi
Tire size	*700 x 32c*
SPOKES	DT 14G stainless
Front, mm	*299, 3x*
Rear, mm	*293/294, 3x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Sport
Outer diameter, mm	*27.2*
SADDLE	Bontrager Sport
BRAKES	Avid Shorty 4
PEDALS	Shimano SPD M515, clipless
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral cable stop and bolt
Inner diameter, mm	*31.9*
ADDITIONALS	A73 linkwires

COLORS

Starry Night • Blue/White decals

GEARING

	30	42	52
13	64	89	111
14	59	83	103
15	55	77	96
17	49	68	85
19	44	61	76
21	39	55	68
23	36	50	62
26	32	45	55

BIKE WEIGHT

23.5 lb.
10.67 kg.

Key features:

Rider: Cyclo-cross racer

Frameset

Alpha SL butted aluminum- light, strong, and efficient

Cyclo-cross geometry- stabile handling off pavement

Wheelset

Aurora rims- seamless braking performance, lightweight acceleration

Bontrager Jones CX tires- traction and handling

Components

Cross group (Custom Sora)- Off road gearing with bar end shifters, canti brakes

Ahead type steering system- easy adjustment, low weight, high strength

FIT

Frame	Size	50	52	54	56	58
Rider height	Inches	66	68	69	69	72
	Cm	167	172	174	176	183
Handlebar	Width, mm	420	420	440	440	440
Stem	Length, mm	90	105	105	105	120
	Angle	15	15	15	15	15
Crank	Length, mm	175	175	175	175	175
Seatpost	Length, mm	300	300	300	300	300
Steerer	Length, mm	196.7	196.7	204.7	204.7	222.7

New for 2001 (not)

The 520 is a Trek classic. We've been making this frame for quite a few years, and wouldn't dare change it. In the world of bike touring, this is a very refined design.

Geometry

The 520 has true long distance, self-supported touring geometry. It is very stable, with relaxed steering that feels just right when the bike is fully loaded. It has a low bottom bracket to keep the center of gravity low, and also to make it easier to mount the bike. Very long chainstays provide lots of room for a rack and panniers, without compromising heel clearance.

Ride

Thanks to the true long-distance design of the 520, it's very comfortable and stable. While it fits the classic touring mold, we use slightly larger diameter frame tubes than the bikes we built in the 70's. This makes the 520 more stable when fully loaded, when some bikes get 'whippy'.

Frame details

The 520 has all the amenities of a true tourer. It has full braze-ons for 3 water bottles, front and rear racks, and even fenders. Cantilever posts allow the use of more powerful brakes, which provide a very comforting feeling if you are sitting on a fully loaded bike at the top of a long hill.

	Frame sizes	17	19	21	23	25
	Head angle	71.0	71.0	71.0	72.0	72.5
	Seat angle	74.0	74.0	73.5	73.0	72.0
MILLIMETERS	Standover	697	727	764	806	852
	Seat tube	432	483	533	584	635
	Head tube	90	90	90	120	165
	Eff top tube	540	545	555	566	590
	Chainstays	450	450	450	450	450
	BB height	268	268	268	268	268
	Offset	52.0	52.0	52.0	52.0	52
	Trail	64	64	64	58	55
	Wheelbase	1044	1046	1054	1052	1062
INCHES	Standover	27.4	28.6	30.1	31.7	33.5
	Seat tube	17.0	19.0	21.0	23.0	25.0
	Head tube	3.5	3.5	3.5	4.7	6.5
	Eff top tube	21.3	21.5	21.9	22.3	23.2
	Chainstays	17.7	17.7	17.7	17.7	17.7
	BB height	10.6	10.6	10.6	10.6	10.6
	Offset	2.0	2.0	2.0	2.0	2.0
	Trail	2.5	2.5	2.5	2.3	2.1
	Wheelbase	41.1	41.2	41.5	41.4	41.8

520

FRAMESET

MAIN TUBES	Trek double butted Cro-Moly	
STAYS	Cro-Moly steel	
FORK	Cro-Moly Touring	
	Axle-crown length, mm	*390*
HEADSET	Cane Creek C-1 Aheadset	
	Size	*22.2/30.2/26.4*
	Stack height, mm	*26.5*

CONTROLS

HANDLEBAR	Bontrager Select	
	Clamp diameter, mm	*26.0*
STEM	Bontrager Race	
	Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Dura-Ace, bar ends	
BRAKE LEVERS	Dia-Compe 287 Aero	
GRIPS	Powercork	

DRIVETRAIN

FT DERAILLEUR	Shimano 105 T	
	Cable routing	*Down pull*
	Attachment	*31.8 mm/ 1 1/4"*
RR DERAILLEUR	Shimano Deore LX SGS	
CRANKSET	Shimano 105 52/42/30	
	Bolt hole circle, mm	*74/130*
BB	Shimano 105	
	Shell x axle, mm	*68 x 118, Splined, Shimano*
CHAIN	Shimano HG-72	
	Chain type	*9 speed*
	Chain length (links)	*114*
CASSETTE	Shimano HG50 11-32, 9spd	

WHEELSET

FRONT WHEEL	Shimano LX hub, 36°, Bontrager Fairlane rim	
	E.R.D., mm	*604*
	Rim strip	*Velox 19mm*
FRONT TIRE	IRC Duro Tour	
	Tire size	*700 x 35c*
REAR WHEEL	Shimano LX hub, 36°, Btrg Fairlane OSB rim	
	E.R.D., mm	*604*
	Rim strip	*Velox 22mm*
REAR TIRE	IRC Duro Tour	
	Tire size	*700 x 35c*
SPOKES	DT 14G stainless	
	Front, mm	*295, 3x*
	Rear, mm	*292/293, 3x*
INNER TUBES	Presta valve	

OTHER

SEATPOST	Bontrager Sport	
	Outer diameter, mm	*27.2*
SADDLE	SSM New Millenium, CrMo rails	
BRAKES	Avid Single Digit 5, linear pull	
PEDALS	Shimano SPD M515, clipless	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*31.9*
ADDITIONALS	3 water bottle mounts, front & rear rack mounts, rear rack	

Stem shim from 1" to 1 1/8"

COLORS

Rainforest •Gold/White decals

GEARING

	30	42	52
11	74	103	128
12	68	95	117
14	58	81	100
16	51	71	88
18	45	63	78
21	39	54	67
24	34	47	59
28	29	41	50
32	25	35	44

BIKE WEIGHT

26.0 lb.
11.80 kg.

Key features:

Rider: Long distance, self-supported tourer

Frameset

Oversize Cro-Moly- avoids unwanted frame flex with full panniers

Touring geometry- stable, comfortable, and lots of room for heel clearance with panniers, tire clearance with fenders

Wheelset

36 spoke wheels- extra durability because a loaded bike is heavy and less maneuverable, so road obstacles can be hard to avoid

Components

Touring- 36 spoke wheels for durability, wide range gearing for hills, powerful brakes, comfortable saddle, clipless pedals with mini-platform, rear rack included

FIT

Frame	Size	17	19	21	23	25
Rider height	Inches	65	68	69	70	74
	Cm	166	172	175	178	187
Handlebar	Width, mm	400	420	420	440	440
Stem	Length, mm	70	90	100	100	120
	Angle	7	7	7	7	7
Crank	Length, mm	170	170	170	175	175
Seatpost	Length, mm	250	250	250	250	250
Steerer	Length, mm	192.5	192.5	192.5	222.5	267.5

Geometry

Introduced for the 2000 model year, the Hilo is a full-fledged Tri-bike, not a redressed road racer. It has good steering feel when you're on the aero bars, even with the lighter 650c wheels. The very steep seat tube allows you to open the angle between your thighs and torso, so you can comfortably stay aero for long stretches. A good aero tuck is worth a couple MPHs!

Ride

Our engineering staff includes some good triathletes, and they know how important it is to come off the bike refreshed and ready to run. So the Hilo is comfortable. Still, it has excellent efficiency thanks the the Alpha SLR frame tubing, so it's very fast.

Frame details

The Hilo has a large, wing shaped down tube and a thin mono-stay to help cheat the wind. We even went the extra mile to run the cables inside the frame. Coupled to a wing-shaped carbon fork, the Hilo really slices the air.

Although they may not be aerodynamic, the Hilo has 2 water bottle mounts. You can't go fast if you're dehydrated.

The Hilo uses Trek's proprietary Alpha SLR frame tubing.

	Frame sizes	50	54	56	58	60
	Head angle	72.5	72.5	72.5	72.5	72.5
	Seat angle	78.0	78.0	78.0	78.0	78.0
MILLIMETERS	Standover	740	768	788	806	825
	Seat tube	515	554	573	591	618
	Head tube	104	121	140	159	186
	Eff top tube	512	532	542	554	569
	Chainstays	380	380	380	380	380
	BB height	266	266	266	266	266
	Offset	38.0	38.0	38.0	38.0	38.0
	Trail	67	67	67	67	67
	Wheelbase	988	993	994	999	1006
INCHES	Standover	29.1	30.2	31.0	31.7	32.5
	Seat tube	20.3	21.8	22.5	23.3	24.3
	Head tube	4.1	4.8	5.5	6.3	7.3
	Eff top tube	20.1	20.9	21.3	21.8	22.4
	Chainstays	15.0	15.0	15.0	15.0	15.0
	BB height	10.5	10.5	10.5	10.5	10.5
	Offset	1.5	1.5	1.5	1.5	1.5
	Trail	2.6	2.6	2.6	2.6	2.6
	Wheelbase	38.9	39.1	39.1	39.3	39.6

Hilo 2000

FRAMESET

MAIN TUBES	Alpha SLR aluminum
STAYS	Alpha SLR aluminum
Frame weight	*2.9 lb (1.32 gm)*
FORK	Carbon Aero 650c
Axle-crown length, mm	*343*
HEADSET	Cane Creek S-6 Aheadset, alloy
Size	*22.2/30.2/26.4*
Stack height, mm	*27.1*

CONTROLS

HANDLEBAR	Bontrager Race, bullhorn w/Syntace Streamliner *clipons*
Clamp diameter, mm	26.0
STEM	Bontrager Race
Steerer clamp height, mm	40.0
SHIFT LEVERS	Shimano Dura-Ace bar ends
BRAKE LEVERS	Dia-Compe BL188 Aero
GRIPS	Powercork

DRIVETRAIN

FT DERAILLEUR	Shimano *Ultegra*
Cable routing	*Down pull*
Attachment	*Braze-on type w/34.9*mm clamp
RR DERAILLEUR	Shimano Ultegra
CRANKSET	TruVativ Elita *55/42*
Bolt hole circle, mm	130
BB	TruVativ *Isis*
Shell x axle, mm	*68 x 108, Splined,* ISIS
CHAIN	Shimano *HG-92*
Chain type	*9 speed*
Chain length (links)	106
CASSETTE	Shimano Ultegra 11-21, 9spd

WHEELSET

FRONT WHEEL	Bontrager X-Lite, 20°
E.R.D., mm	*538*
Rim strip	*Velox 16mm*
FRONT TIRE	Bontrager Race X-Lite, folding
Tire size	*650 x 23c*
REAR WHEEL	Bontrager X-Lite, 24°
E.R.D., mm	*544*
Rim strip	*Velox 16mm*
REAR TIRE	Bontrager Race X-Lite, folding
Tire size	*650 x 23c*
SPOKES	DT Aero, alloy nipples
Front, mm	*253, Radial*
Rear, mm	*265/265, 2x*
INNER TUBES	Presta valve, 48mm stem

OTHER

SEATPOST	Thomson Elite
Outer diameter, mm	*27.2*
SADDLE	SSM Era, Ti/leather
BRAKES	Shimano Ultegra
PEDALS	-not supplied-
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts, rack mounts

Stem shim from 1" to 1 1/8"

COLORS

Starry Night • Silver/Dark Silver decals • Carbon fork

GEARING

	42	55
11	94	123
12	86	113
13	79	104
14	74	96
15	69	90
16	64	84
17	61	79
19	54	71
21	49	64

BIKE WEIGHT

19.0 lb.
8.63 kg.

Key features:

Rider: Triathlete, time trial, or flatland speed merchant

Frameset

Alpha SLR butted aluminum- light, strong, and efficient

True Tri-bike geometry- good handling in aero position

Wheelset

Bontrager Paired Spoke Technology- very aero

Components

Race group (Ultegra)- Pro performance at an affordable price

Aero bars- comfortable position while cheating the wind

FIT

Frame	Size	50	54	56	58	60
Rider height	Inches	64	67	70	72	74
	Cm	163	169	177	183	188
Handlebar	Width, mm	420	420	420	420	420
Stem	Length, mm	70	80	100	110	110
	Angle	7	7	7	7	7
Crank	Length, mm	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250
Steerer	Length, mm	207.2	224.0	242.8	261.9	289.5

Hilo 1000

FRAMESET

MAIN TUBES	Alpha SLR aluminum	
STAYS	Alpha SLR aluminum	
	Frame weight	*2.9 lb (1.32 gm)*
FORK	Carbon Aero 650c	
	Axle-crown length, mm	*343*
HEADSET	Cane Creek C-1 Aheadset	
	Size	*22.2/30.2/26.4*
	Stack height, mm	*26.5*

CONTROLS

HANDLEBAR	Bontrager Race, bullhorn w/Syntace Streamliner clipons	
	Clamp diameter, mm	*26.0*
STEM	Bontrager Race	
	Steerer clamp height, mm	*40.0*
SHIFT LEVERS	Shimano Dura-Ace bar ends	
BRAKE LEVERS	Dia-Compe BL188 Aero	
GRIPS	Powercork	

DRIVETRAIN

FT DERAILLEUR	Shimano 105	
	Cable routing	*Down pull*
	Attachment	*Braze-on type w/34.9mm clamp*
RR DERAILLEUR	Shimano 105	
CRANKSET	TruVativ Elita 55/42	
	Bolt hole circle, mm	*130*
BB	TruVativ Isis	
	Shell x axle, mm	*68 x 108, Splined, ISIS*
CHAIN	Shimano HG-53	
	Chain type	*9 speed*
	Chain length (links)	*106*
CASSETTE	Shimano Ultegra 12-23, 9spd	

WHEELSET

FRONT WHEEL	Bontrager Select Road, 20°	
	E.R.D., mm	*539*
	Rim strip	*Velox 16mm*
FRONT TIRE	IRC Triathalon, 127tpi	
	Tire size	*650 x 25c*
REAR WHEEL	Bontrager Select Road, 24°	
	E.R.D., mm	*549*
	Rim strip	*Velox 16mm*
REAR TIRE	IRC Triathalon, 127tpi	
	Tire size	*650 x 25c*
SPOKES	DT 14/15G butted stainless	
	Front, mm	*252, Radial*
	Rear, mm	*268/268, 2x*
INNER TUBES	Presta valve, 40mm stem	

OTHER

SEATPOST	Bontrager Select	
	Outer diameter, mm	*27.2*
SADDLE	Selle San Marco New Millenium, CrMo/leather	
BRAKES	Shimano 105	
PEDALS	-not supplied-	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*35.0*
ADDITIONALS	2 water bottle mounts, rack mounts Stem shim from 1" to 1 1/8"	

COLORS

Dusk • White/Black decals • Dusk-to-Carbon fade fork

GEARING

	42	55
12	86	113
13	79	104
14	74	96
15	69	90
16	64	84
17	61	79
19	54	71
21	49	64
23	45	59

BIKE WEIGHT

20.1 lb.
9.13 kg.

Key features:

Rider: Triathlete, time trial, or flatland speed merchant

Frameset

Alpha SLR butted aluminum- light, strong, and efficient

True Tri-bike geometry- good handling in aero position

Wheelset

Bontrager Paired Spoke Technology- very aero

Components

Race group (105)- Race performance at an affordable price

Aero bars- comfortable position while cheating the wind

FIT

Frame	Size	50	54	56	58	60
Rider height	Inches	63	67	70	72	74
	Cm	161	169	177	183	188
Handlebar	Width, mm	420	420	420	420	420
Stem	Length, mm	60	80	100	110	110
	Angle	7	7	7	7	7
Crank	Length, mm	172.5	172.5	175	175	175
Seatpost	Length, mm	250	250	250	250	250
Steerer	Length, mm	206.6	223.4	242.2	261.3	288.9

Tandem

New for 2002

Trek is re-entering the tandem market. This is an entirely new frameset which meets the needs of the performance tandem enthusiast in fit and function.

Geometry

Using what we know about bike fit, garnered over years of making lots of great bikes, the tandem was designed to replicate the fit from those bikes. Essentially what we did was make the captain's sizing mimic the positions of those found on riders from 5'7" to 6'2". Then we made the stoker's position as adjustable as possible, fitting from just under 5' to about 5'11".

Ride

The main performance issue with a tandem is frame rigidity and handling. We used FEA (Finite element Analysis), a powerful computer-aided design program, to find which tube shapes and sections would best address the needs to the riders. Our unique boom-tube shape is an obvious visual example. What you cana't see under the paint is the unique wall shapes that make this tue about the stiffenst in the market for its intended use.

So what does all this mean? Pound for pound, we think you'll find our Trek tandem is the best riding tandem on the market, regardless of cost.

Frame details

Our tandems are designed to be as versatile as possible. As such, they have brake mounts for road calipers, cantilever or direct pull brakes, discs, or drums.

We know that some tandem riders like to do a lot of miles, so we put 4 water bottle mounts on every size.

We chose a headset size of 1 1/8" to allow the owner as much choice in components as possible. With modern technology, This systems is plenty strong and durable, plus there are lots of forks, headsets, and stems to choose from at your local dealer. The lack of custom parts means a user-friendly experience over the life of the bike.

	Frame sizes	S		M		L	
	Head angle	72.5		73.0		73.0	
	Seat angle	73.5	73.0	73.0	73.0	72.5	73.0
MILLIMETERS	Standover	758	689	779	700	797	771
	Seat tube	520	440	540	450	560	460
	Head tube	113		120		145	
	Eff top tube	550		565		575	
	Chainstays		440		440		440
	BB height	273	273	273	273	273	273
	Offset	55.0		55.0		55.0	
	Trail	51		48		48	
	Wheelbase		1744		1754		1782
INCHES	Standover	29.8	27.1	30.6	27.6	31.4	30.4
	Seat tube	20.5	17.3	21.3	17.7	22.0	18.1
	Head tube	4.4		4.7		5.7	
	Eff top tube	21.7		22.2		22.6	
	Chainstays		17.3		17.3		17.3
	BB height	10.7	10.7	10.7	10.7	10.7	10.7
	Offset	2.2		2.2		2.2	
	Trail	2.0		1.9		1.9	
	Wheelbase		68.7		69.1		70.1

For the mechanic

Stoker stem adjustment

Tighten seatpost clamp bolts to 100-120 lb•in (11.3-13.6 Nm).

Tighten stem extension clamp bolts to 120-140 lb•in (13.6-15.8 Nm).

Timing chain

The timing chain connects and synchronizes the two pedal cranks on the tandem. The tension of this chain is adjustable and must be correct for safety and to extend the life ot the drivetrain parts. When grasped in the middle of the chain run between the front and rear sprockets, there should be a total of 1/2 to 1 inch (12-25 mm) total vertical movement.

To adjust the timing chain tension, identify the expander bolt on the captain's bottom bracket eccentric. Loosen this bolt several turns. Hold the eccentric with an allen wrench and rotate the eccentric until the desired chain tension is achieved. Retighten the expander bolt to 75-100 lb•in (8.5-11.3 Nm).

T2000

FRAMESET

MAIN TUBES	ZR9000 aluminum	
STAYS	ZR9000 aluminum	
FORK	Tandem Cro-Moly	
	Axle-crown length, mm	*400.0*
HEADSET	Cane Creek S-6 Aheadset	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*27.1*

CONTROLS

HANDLEBAR	Bontrager Race Lite/ Bontrager Race CX	
	Clamp diameter, mm	*26.0*
STEM	Bontrager Race / Alloy adjustable	
	Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano Ultegra STI, Flite Deck compatible	
BRAKE LEVERS	Integrated brake/shift	
GRIPS	Powercork	

DRIVETRAIN

FT DERAILLEUR	Shimano Ultegra T	
	Cable routing	*Down pull*
	Attachment	*Braze-on w/34.9 mm clamp*
RR DERAILLEUR	Shimano XTR SGS	
CRANKSET	Shimano Ultegra 53/42/30	
	Bolt hole circle, mm	*74/130*
BB	Shimano Ultegra	
	Shell x axle, mm	*68 x 118, Square*
CHAIN	Shimano HG-93 / PC59	
	Chain type	*9 speed*
	Chain length (links)	*114 / 156*
CASSETTE	Shimano C900 11-34, 9spd	

WHEELSET

FRONT WHEEL	Bontrager Race Tandem, 24°	
	E.R.D., mm	*592*
	Rim strip	*Velox 16mm*
FRONT TIRE	Continental Gator	
	Tire size	*700 x 28c*
REAR WHEEL	Bontrager Race Tandem, 24°	
	E.R.D., mm	*595*
	Rim strip	*Velox 16mm*
REAR TIRE	Continental Gator	
	Tire size	*700 x 28c*
SPOKES	DT Aero stainless	
	Front, mm	*280, 3x*
	Rear, mm	*280/280, 3x*
INNER TUBES	Presta valve	

OTHER

SEATPOST	Bontrager Race / alloy suspension	
	Outer diameter, mm	*27.2*
SADDLE	Bontrager FS 2000 / 2000 WSD	
BRAKES	Avid Shorty 6 cantilevers	
PEDALS	-not supplied-	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*35.0*
ADDITIONALS	4 water bottles	

COLORS

Rainforest • White/Gold decals

GEARING

	30	42	53
11	74	103	130
13	62	87	110
15	54	76	95
17	48	67	84
20	41	57	72
23	35	49	62
26	31	44	55
30	27	38	48
34	24	33	42

Key features:

Riders: A pair; tourists, century riders, or even racers

Frameset

ZR9000 butted aluminum- light, strong, and efficient

Geometry for fit- sized to the captain with maximum stoker adjustability

Wheelset

Bontrager tandem wheelset- engineered durability

Components

Tandem designed- extra strong wheels, special tandem cranks (and gearing)

Designed for fit- adjustable stoker stem and 350mm seatpost

FIT

Frame	Size	54/44		56/45		58/46	
Rider height	Inches	70		72		74	
	Cm	178		182		187	
Handlebar	Width, mm	440	460	440	460	460	460
Stem	Length, mm	100		110		120	
	Angle	7		7		7	
Crank	Length, mm						
Seatpost	Length, mm	350	350	350	350	350	350
Steerer	Length, mm	232		239		264	

T1000

FRAMESET

MAIN TUBES	ZR9000 aluminum
STAYS	ZR9000 aluminum
FORK	Tandem Cro-Moly
Axle-crown length, mm	*400.0*
HEADSET	SAS Aheadset, alloy
Size	*25.4/34.0/30.0*
Stack height, mm	*27.2*

CONTROLS

HANDLEBAR	Bontrager Select
Clamp diameter, mm	
STEM	Bontrager Sport / Alloy adjustable
Steerer clamp height, mm	*41.0*
SHIFT LEVERS	Shimano R400 STI
BRAKE LEVERS	Alloy, direct pull
GRIPS	Oasis, dual density

DRIVETRAIN

FT DERAILLEUR	Shimano Tiagra T
Cable routing	*Down pull*
Attachment	*Braze-on w/34.9 mm clamp*
RR DERAILLEUR	Shimano Deore XT SGS
CRANKSET	Shimano 105 52/42/30
Bolt hole circle, mm	*74/130*
BB	Shimano BB-UN52
Shell x axle, mm	*68 x 118, Square*
CHAIN	Shimano HG-72 / PC59
Chain type	*9 speed*
Chain length (links)	*114 / 156*
CASSETTE	Shimano C900 11-34, 9spd

WHEELSET

FRONT WHEEL	Shimano XT Tandem hub, 48°, Btrg Clyde rim
E.R.D., mm	*604*
Rim strip	*Velox 22mm*
FRONT TIRE	Bontrager Invert
Tire size	*700 x 38c*
REAR WHEEL	Shimano XT Tandem hub, 48°, Btrg Clyde rim
E.R.D., mm	*604*
Rim strip	*Velox 22mm*
REAR TIRE	Bontrager Invert
Tire size	*700 x 38c*
SPOKES	DT 14G stainless
Front, mm	*289, 4x*
Rear, mm	*289/289, 4x*
INNER TUBES	Presta valve

OTHER

SEATPOST	Bontrager Select / alloy suspension
Outer diameter, mm	*27.2*
SADDLE	Bontrager FS 2000 / 2000 WSD
BRAKES	Avid Single Digit 5, linear pull
PEDALS	Alloy platform
Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt
Inner diameter, mm	*35.0*
ADDITIONALS	4 water bottles

COLORS

Rainforest • White/Gold decals

GEARING

	30	42	52
11	74	103	128
13	62	87	108
15	54	76	94
17	48	67	83
20	41	57	70
23	35	49	61
26	31	44	54
30	27	38	47
34	24	33	41

Key features:

Riders: A pair; tourists, century riders, or just for fun

Frameset

ZR9000 butted aluminum- light, strong, and efficient

Geometry for fit- sized to the captain with maximum stoker adjustability

Wheelset

Bontrager tandem wheelset- engineered durability

Components

Tandem designed- extra strong wheels, special tandem cranks (and gearing)

Designed for fit- adjustable stoker stem and 350mm seatpost

FIT

Frame	Size	54/44		56/45		58/46	
Rider height	Inches	67		69		72	
	Cm	170		175		183	
Handlebar	Width, mm	580	580	580	580	580	580
Stem	Length, mm	110		110		135	
	Angle	25		25		15	
Crank	Length, mm						
Seatpost	Length, mm	350	350	350	350	350	350
Steerer	Length, mm	202		210		234	

Intermediate Bikes

New for 2002

Intermediate bikes are for those who need a size between youth and full-size. For 2002, we've added a road bike to this range of bikes.

Geometry

These frames use geometries which deliver performance for a smaller rider. Standover is maximized to allow a younger rider to get on early, and ride it for a longer period of time as they grow.

On the mountain bikes, the head angles are slightly slackened to allow good off-road stability for a rider with less upper body strength.

Ride

These are real 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

The Mt. Track 240 and 1000KDR use Alpha aluminum frame technology.

The other bikes use hi-tensile steel with a Cro-Moly seat tube. 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.

1000KDR

	Frame sizes	40
	Head angle	70.5
	Seat angle	76.0
MILLIMETERS	Standover	655
	Seat tube	406
	Head tube	100
	Eff top tube	481
	Chainstays	410
	BB height	265
	Offset	45.0
	Trail	63
	Wheelbase	969
INCHES	Standover	25.8
	Seat tube	16.0
	Head tube	3.9
	Eff top tube	18.9
	Chainstays	16.1
	BB height	10.4
	Offset	1.8
	Trail	2.5
	Wheelbase	38.1

Y 24

	Frame sizes	S
	Head angle	70.0
	Seat angle	71.5
MILLIMETERS	Standover	
	Seat tube	380
	Head tube	100
	Eff top tube	529
	Chainstays	400
	BB height	306
	Offset	45.0
	Trail	62
	Wheelbase	993
INCHES	Standover	
	Seat tube	15.0
	Head tube	3.9
	Eff top tube	20.8
	Chainstays	15.7
	BB height	12.0
	Offset	1.8
	Trail	2.5
	Wheelbase	39.1

Mt. Track

	Frame sizes	13B	13G
	Head angle	70.0	70.0
	Seat angle	72.0	72.0
MILLIMETERS	Standover	606	550
	Seat tube	335	335
	Head tube	90	90
	Eff top tube	524	524
	Chainstays	405	405
	BB height	272	272
	Offset	45.0	45.0
	Trail	62	62
	Wheelbase	983	983
INCHES	Standover	23.9	21.7
	Seat tube	13.2	13.2
	Head tube	3.5	3.5
	Eff top tube	20.6	20.6
	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

Y 24

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Hi Tensile steel
FORK	RST
Travel, mm	*60*
Axle-crown length, mm	*428*
REAR SHOCK	Aintec AB-7000
Stroke	*30mm*
Length	*165mm*
Width	*24mm*
Eyes	*6mm*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*34.5*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Quick change, quill
Steerer clamp height, mm	
SHIFT LEVERS	SRAM Centera Halfpipe
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 TY-40 GS
CRANKSET	SunRace TK-1 42/34/24
Bolt hole circle, mm	*Riveted*
BB	Three-piece type
Shell x axle, mm	*73 x 121, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*104*
CASSETTE	HG72 13-28, 7spd

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Al alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
FRONT TIRE	Innova MTB
Tire size	*24 x 2.1*
REAR WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Al alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
REAR TIRE	Innova MTB
Tire size	*24 x 2.1*
SPOKES	14G UCP
Front, mm	*242, 4x*
Rear, mm	*240/241, 4x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy
Outer diameter, mm	*30.4*
SADDLE	Trek padded
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Quick release, 47mm
Inner diameter, mm	*31.8*
ADDITIONALS	Chainring guard

COLORS

Bright Silver/Candy Blue • Whiter/Red decals • Bright Silver fork

GEARING

	24	34	42
13	44	62	76
15	38	54	66
17	33	47	58
19	30	42	52
22	26	37	45
25	23	32	40
28	20	29	35

Key features:

Rider: Rough riding kid or athletic new rider

Frameset

Y design- Our most popular suspension design ever

URT- great overall performance

Wheelset

Alloy rims- light, with better stoping

Bontrager tires- all-round treads

Components

Recreational level- coil spring suspension, 21 speeds make mountain biking easy, more comfortable

Direct Pull brakes- excellent stopping

FIT

Frame	Size	15"
Rider height	Inches	60
	Cm	153
Handlebar	Width, mm	560
Stem	Length, mm	70
	Angle	40
Crank	Length, mm	162
Seatpost	Length, mm	300
Steerer	Length, mm	146

Mt. Track 240

FRAMESET

MAIN TUBES	Alpha aluminum
STAYS	Alpha aluminum
FORK	RST
Travel, mm	*63*
Axle-crown length, mm	*388*
HEADSET	Aheadset
Size	*25.4/34.0/30.0*
Stack height, mm	*30.0*

CONTROLS

HANDLEBAR	Bontrager Crowbar Sport
Clamp diameter, mm	*25.4*
STEM	Alloy quick change, direct connect
Steerer clamp height, mm	*30.0*
SHIFT LEVERS	SRAM Centera Halfpipe
BRAKE LEVERS	Alloy, direct pull
GRIPS	Kraton

DRIVETRAIN

FT DERAILLEUR	Shimano Acera-X
Cable routing	*Down pull*
Attachment	*34.9 mm/ 1 3/8"*
RR DERAILLEUR	Shimano Deore SGS
CRANKSET	SunRace TK-1 42/34/24
Bolt hole circle, mm	*Riveted*
BB	Three-piece type
Shell x axle, mm	*73 x 121, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*104*
CASSETTE	Sun Race 11-28, 8spd

WHEELSET

FRONT WHEEL	Alloy, QR hub, 32°, Aluminum alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
FRONT TIRE	Innova MTB
Tire size	*24 x 2.1*
REAR WHEEL	Alloy, QR hub, 32°, Aluminum alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
REAR TIRE	Innova MTB
Tire size	*24 x 2.1*
SPOKES	14G UCP
Front, mm	*242, 4x*
Rear, mm	*240/241, 4x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy micro-adjust
Outer diameter, mm	*27.2*
SADDLE	Trek padded
BRAKES	Alloy direct pull
PEDALS	Alloy platform
Axle diameter	*9/16"*
SEAT BINDER	Quick release
Inner diameter, mm	*31.8*
ADDITIONALS	

COLORS

Gloss Black/Bright silver • White/Red decals • Gloss Black fork

GEARING

	24	34	42
11	52	73	90
13	44	62	76
15	38	54	66
17	33	47	58
20	28	40	50
23	25	35	43
26	22	31	38
30	19	27	33

Key features:

Rider: Young racer or athletic new rider

Frameset

Alpha aluminum- strong and light

Wheelset

Alloy rims- light, with better stoping

Bontrager tires- all-round treads

Components

Kids' sport level- 24 speeds for any terrain

Direct Pull brakes- excellent stopping

FIT

Frame	Size	13
Rider height	Inches	60
	Cm	152
Handlebar	Width, mm	56
Stem	Length, mm	70
	Angle	40
Crank	Length, mm	162
Seatpost	Length, mm	300
Steerer	Length, mm	175

Mt. Track 230

FRAMESET

MAIN TUBES	Hi Tensile steel
STAYS	Hi Tensile steel
FORK	RST
Travel, mm	*60*
Axle-crown length, mm	*403*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*34.5*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Quick change, quill
Steerer clamp height, mm	
SHIFT LEVERS	SRAM Centera Halfpipe
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
Shell x axle, mm	*70 x 3L, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*106*
CASSETTE	HG72 13-28, 7spd

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Aluminum alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
FRONT TIRE	Innova MTB
Tire size	*24 x 2.1*
REAR WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Aluminum alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
REAR TIRE	Innova MTB
Tire size	*24 x 2.1*
SPOKES	14G UCP
Front, mm	*242, 4x*
Rear, mm	*240/241, 4x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy
Outer diameter, mm	*29.2*
SADDLE	Trek padded
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Quick release
Inner diameter, mm	*31.8*
ADDITIONALS	Chainring guard, kickstand

COLORS

Candy Blue/Silver • Red/Black decals • Candy Blue fork

GEARING

	24	34	42
13	44	62	76
15	38	54	66
17	33	47	58
19	30	42	52
22	26	37	45
25	23	32	40
28	20	29	35

Key features:

Rider: Aggressive young singletracker or athletic new rider

Frameset

Steel strong and durable

Wheelset

Alloy rims- light, with better stoping

Bontrager tires- all-round treads

Components

Kids' recreational level- Suspension fork for comfort and control, 21 speeds for the hills

FIT

Frame	Size	13B	13G
Rider height	Inches	60	60
	Cm	152	152
Handlebar	Width, mm	560	560
Stem	Length, mm	70	70
	Angle	40	40
Crank	Length, mm	162	162
Seatpost	Length, mm	300	300
Steerer	Length, mm	126	126

Mt. Track 220

FRAMESET

MAIN TUBES	Hi Tensile steel
STAYS	Hi Tensile steel
FORK	Hi Tensile steel
Axle-crown length, mm	*361*
HEADSET	Steel
Size	*25.4/34.0/30.0*
Stack height, mm	*34.5*

CONTROLS

HANDLEBAR	Steel
Clamp diameter, mm	*25.4*
STEM	Quick change, quill
Steerer clamp height, mm	
SHIFT LEVERS	SRAM Centera Halfpipe
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
Shell x axle, mm	*70 x 3L, Square*
CHAIN	KMC Z-51
Chain type	*3/32"*
Chain length (links)	*106*
CASSETTE	HG72 13-28, 7spd

WHEELSET

FRONT WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Al alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
FRONT TIRE	Innova MTB
Tire size	*24 x 2.1*
REAR WHEEL	Alloy, nutted hub, 32°, 3/8 axle, Al alloy rim
E.R.D., mm	*499*
Rim strip	*Rubber*
REAR TIRE	Innova MTB
Tire size	*24 x 2.1*
SPOKES	14G UCP
Front, mm	*242, 4x*
Rear, mm	*240/241, 4x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Alloy
Outer diameter, mm	*29.2*
SADDLE	Trek padded
BRAKES	Alloy direct pull
PEDALS	Platform
Axle diameter	*9/16"*
SEAT BINDER	Quick release
Inner diameter, mm	*31.8*
ADDITIONALS	Rear derailleur guard, kickstand

COLORS

Green/Black (boys)
Black/Silver (boys)
Purple/White (girls)
Light blue (girls)

GEARING

	24	34	42
13	44	62	76
15	38	54	66
17	33	47	58
19	30	42	52
22	26	37	45
25	23	32	40
28	20	29	35

BIKE WEIGHT

30.0 lb.
13.62 kg.

Key features:

Rider: Aggressive young singletracker or athletic new rider

Frameset

Steel strong and durable

Wheelset

Alloy rims- light, with better stoping

Bontrager tires- all-round treads

Components

Kids' recreational level- 21 speeds

Direct Pull brakes- excellent stopping

FIT

Frame	Size	13B	13G
Rider height	Inches	59	59
	Cm	149	149
Handlebar	Width, mm	560	560
Stem	Length, mm	70	70
	Angle	40	40
Crank	Length, mm	162	162
Seatpost	Length, mm	300	300
Steerer	Length, mm	126	126

1000 KDR

FRAMESET

MAIN TUBES ..... Alpha aluminum
STAYS ..... Alpha aluminum
FORK ..... Aero Cro-Moly
Axle-crown length, mm *352.0*
HEADSET ..... Aheadset
Size *25.4/34.0/30.0*
Stack height, mm *36*

CONTROLS

HANDLEBAR ..... Alloy
Clamp diameter, mm
STEM ..... Alloy quick change, quill
Steerer clamp height, mm
SHIFT LEVERS ..... Shimano Sora STI Dual Control
BRAKE LEVERS ..... Integrated brake/shift
GRIPS ..... Cork

DRIVETRAIN

FT DERAILLEUR .... Shimano Sora
Cable routing *Down pull*
Attachment
RR DERAILLEUR .... Shimano Sora
CRANKSET ..... Cyclone 50/42/30
Bolt hole circle, mm
BB ..... Cartridge
Shell x axle, mm *, Square*
CHAIN ..... KMC Z-51
Chain type *3/32"*
Chain length (links)
CASSETTE ..... Sun Race 11-28, 8spd

WHEELSET

FRONT WHEEL ..... Alloy, QR hub, °, Aluminum alloy rim
E.R.D., mm
Rim strip
FRONT TIRE ..... Kenda K191
Tire size *650 x 23c*
REAR WHEEL ..... Alloy, QR hub, °, Aluminum alloy rim
E.R.D., mm
Rim strip
REAR TIRE ..... Kenda K191
Tire size *650 x 23c*
SPOKES ..... 15G stainless
Front, mm *, x*
Rear, mm *, x*
INNER TUBES ..... Presta valve

OTHER

SEATPOST ..... Alloy micro-adjust
Outer diameter, mm
SADDLE ..... Trek padded
BRAKES ..... Alloy dual pivot
PEDALS ..... Alloy w/clips and straps
Axle diameter
SEAT BINDER .....
Inner diameter, mm
ADDITIONALS .....

COLORS

Candy Blue

GEARING

	30	42	30
11	67	93	67
12	61	85	61
14	52	73	52
16	46	64	46
18	41	57	41
21	35	49	35
24	31	43	31
28	26	37	26

Key features:

Rider: Aggressive young singletracker or athletic new rider

Frameset

Steel strong and durable

Wheelset

Alloy rims- light, with better stoping

Bontrager tires- all-round treads

Components

Kids' recreational level- 21 speeds

Direct Pull brakes- excellent stopping

FIT

Frame	Size	40
Rider height	Inches	63
	Cm	161
Handlebar	Width, mm	380
Stem	Length, mm	90
	Angle	0
Crank	Length, mm	165
Seatpost	Length, mm	
Steerer	Length, mm	144

BMX

New for 2002

BMX continues to evolve, and so do our frames. Mostly we apply small tweaks and details, but to stay on top it has to be kept current.

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 Trek 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 Trek BMX bike hits the market.

Our Jumping bikes, the TR series, 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 frame (T.I.) is aluminum for lower weight, but we still built it beefy for competition. The downtube is slightly smaller in diameter to allow a slight flex for excellent handling on the berms, but it's still stiff enough to land smoothly after jumping a double.

Our Vert series features 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.

T.I. 1 / Wade Bootes

FRAMESET

MAIN TUBES	Alpha aluminum	
STAYS	Alpha aluminum	
FORK	Trek Race Cro-Moly, 1 3/8" tapered	
	Axle-crown length, mm	*322.0*
HEADSET	Tioga threadless	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*25.5*

CONTROLS

HANDLEBAR	Trek BMX Cro-Moly	
	Clamp diameter, mm	*22.2*
STEM	Trek Jaws BMX, direct connect	
	Steerer clamp height, mm	*31.7*
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager BMX	

DRIVETRAIN

CRANKSET	Trek 3-piece forged Cro-Moly, 44T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*90*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Trek, alloy hub, 36°, 3/8" axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
FRONT TIRE	Knobby, square style	
	Tire size	*20 x 2.1*
REAR WHEEL	Trek, alloy hub, 36°, 3/8" axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
REAR TIRE	Knobby, square style	
	Tire size	*20 x 1.75*
SPOKES	14G UCP	
	Front, mm	*188, 3x*
	Rear, mm	*186/186, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Alloy	
	Outer diameter, mm	*27.2*
SADDLE	Bontrager FS10 BMX	
BRAKES	Alloy direct pull	
PEDALS	Alloy BMX	
	Axle diameter	*1/2"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*35.25*
ADDITIONALS		

COLORS

Bright Silver/Candy Blue • White/Black decals • Gloss Black fork

GEARING

44
16 55

FIT

Frame	Size	Pro XL
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	163

Vert 1

FRAMESET

MAIN TUBES	Hi Tensile steel	
STAYS	Hi Tensile steel	
FORK	1 3/8" tapered	
	Axle-crown length, mm	*322.0*
HEADSET	Tioga threadless	
	Size	*21.2/32.5/26.4*
	Stack height, mm	*40.5*

CONTROLS

HANDLEBAR	Trek Freestyle	
	Clamp diameter, mm	*22.2*
STEM	Trek Jaws BMX	
	Steerer clamp height, mm	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager dual density	

DRIVETRAIN

CRANKSET	One-piece type, 44T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*88*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Steel hub, 48°, 3/8" axle, Aluminum alloy rim	
	E.R.D., mm	*422*
	Rim strip	*Rubber*
FRONT TIRE	Trek Freestyle	
	Tire size	*20 x 2.0*
REAR WHEEL	Steel hub, 48°, 3/8" axle, Aluminum alloy rim	
	E.R.D., mm	*422*
	Rim strip	*Rubber*
REAR TIRE	Trek Freestyle	
	Tire size	*20 x 2.0*
SPOKES	14G UCP	
	Front, mm	*186, 3x*
	Rear, mm	*185/185, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Steel	
	Outer diameter, mm	*25.4*
SADDLE	Trek Freestyle	
BRAKES	Alloy direct pull	
PEDALS	Alloy platform	
	Axle diameter	*1/2"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*28.6*
ADDITIONALS	SST Oryg rotor, Trek pegs (2 pr.)	

COLORS

Bright Silver • Blue/black decals • Blue fork
Matte Pea Green • Blue/Black decals • Gloss Black fork

GEARING

44
16 55

FIT

Frame	Size	All-around
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	175
Seatpost	Length, mm	350
Steerer	Length, mm	174

Vert 2

FRAMESET

MAIN TUBES	Cro-Moly steel top and down tube	
STAYS	Hi Tensile steel	
FORK	Cro-Moly 1 3/8" tapered	
	Axle-crown length, mm	*322.0*
HEADSET	Steel	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*25.5*

CONTROLS

HANDLEBAR	Trek Freestyle	
	Clamp diameter, mm	*22.2*
STEM	Trek Jaws BMX, direct connect	
	Steerer clamp height, mm	*31.7*
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager dual density	

DRIVETRAIN

CRANKSET	Trek 3-pc. steel	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*88*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Trek, alloy hub, 48°, 14mm axle, Al alloy rim	
	E.R.D., mm	*422*
	Rim strip	*Rubber*
FRONT TIRE	Trek Freestyle	
	Tire size	*20 x 2.0*
REAR WHEEL	Trek, alloy hub, 48°, 14mm axle, Al alloy rim	
	E.R.D., mm	*422*
	Rim strip	*Rubber*
REAR TIRE	Trek Freestyle	
	Tire size	*20 x 2.0*
SPOKES	14G UCP	
	Front, mm	*182, 3x*
	Rear, mm	*180/180, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Steel	
	Outer diameter, mm	*25.4*
SADDLE	Trek Freestyle	
BRAKES	Alloy direct pull	
PEDALS	Alloy BMX	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*28.6*
ADDITIONALS	SST Oryg rotor, Trek pegs (2 pr.)	

COLORS

Candy Blue • Blue/Black decals • Black for

GEARING

	44
16	55

FIT

Frame	Size	All-around
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	184

TR30

FRAMESET

MAIN TUBES	Cro-Moly steel	
STAYS	Cro-Moly steel	
FORK	Trek Dirt Cro-Moly, 1 3/8" tapered	
	Axle-crown length, mm	*322.0*
HEADSET	Tioga threadless	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*25.5*

CONTROLS

HANDLEBAR	Trek Cro-Moly	
	Clamp diameter, mm	*22.2*
STEM	Trek Jaws BMX, direct connect	
	Steerer clamp height, mm	*31.7*
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager BMX	

DRIVETRAIN

CRANKSET	Trek 3-piece forged steel, 44T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*88*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Trek, alloy hub, 48°, 14mm axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
FRONT TIRE	Maxxis Holy Roller	
	Tire size	*20 x 2.1*
REAR WHEEL	Trek, alloy hub, 48°, 14mm axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
REAR TIRE	Maxxis Holy Roller	
	Tire size	*20 x 1.95*
SPOKES	14G UCP	
	Front, mm	*188, 3x*
	Rear, mm	*188/186, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Steel	
	Outer diameter, mm	*25.4*
SADDLE	Trek Dirt Jumper	
BRAKES	Alloy direct pull	
PEDALS	Alloy BMX	
	Axle diameter	*9/16"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*28.6*
ADDITIONALS	Pegs (1 pr.), SST Oryg rotor	

COLORS

Matte White • Green/Black decals • Gloss Black fork

GEARING

	44
16	55

FIT

Frame	Size	Pro XL
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	184

TR20

FRAMESET

MAIN TUBES	Hi Tensile steel w/CroMoly top and down tube	
STAYS	Hi Tensile steel	
FORK	Trek Dirt, 1 3/8" tapered Cro-Moly blades	
	Axle-crown length, mm	*322.0*
HEADSET	Tioga threadless	
	Size	*25.4/34.0/30.0*
	Stack height, mm	*25.5*

CONTROLS

HANDLEBAR	Trek	
	Clamp diameter, mm	*22.2*
STEM	Trek Jaws BMX, direct connect	
	Steerer clamp height, mm	*31.7*
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager BMX	

DRIVETRAIN

CRANKSET	Trek 3-piece forged steel, 44T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*88*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Trek, alloy hub, 48°, 1/2" axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
FRONT TIRE	Knobby, square style	
	Tire size	*20 x 2.1*
REAR WHEEL	Trek, alloy hub, 48°, 1/2" axle, Al alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
REAR TIRE	Knobby, square style	
	Tire size	*20 x 2.1*
SPOKES	14G UCP	
	Front, mm	*187, 3x*
	Rear, mm	*186/186, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Steel	
	Outer diameter, mm	*25.4*
SADDLE	Bontrager FS10 BMX	
BRAKES	Alloy direct pullt	
PEDALS	Platform	
	Axle diameter	*1/2"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*28.6*
ADDITIONALS	Pegs (1 pr.), SST Oryg rotor	

COLORS

Matte Black • Blue/Black decals • Black fork

GEARING

	44
16	55

FIT

Frame	Size	Pro
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	174

TR10

FRAMESET

MAIN TUBES	High tensile steel	
STAYS	Hi Tensile steel	
FORK	Trek Dirt, 1 3/8" tapered	
	Axle-crown length, mm	*322.0*
HEADSET	Tioga threadless	
	Size	*21.2/32.5/26.4*
	Stack height, mm	*40.5*

CONTROLS

HANDLEBAR	Trek	
	Clamp diameter, mm	*25.4*
STEM	Trek Jaws BMX	
	Steerer clamp height, mm	
BRAKE LEVERS	Alloy, direct pull	
GRIPS	Bontrager BMX	

DRIVETRAIN

CRANKSET	Trek forged steel, 44T	
	Bolt hole circle, mm	*1 piece*
BB	One-piece type	
	Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410	
	Chain type	*1/8"*
	Chain length (links)	*88*
CASSETTE	ACS Claw, 16T	

WHEELSET

FRONT WHEEL	Steel hub, 36°, 3/8" axle, Aluminum alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
FRONT TIRE	Knobby, square style	
	Tire size	*20 x 1.95*
REAR WHEEL	Steel hub, 36°, 3/8" axle, Aluminum alloy rim	
	E.R.D., mm	*406*
	Rim strip	*Rubber*
REAR TIRE	Knobby, square style	
	Tire size	*20 x 1.95*
SPOKES	14G UCP	
	Front, mm	*188, 3x*
	Rear, mm	*186/186, 3x*
INNER TUBES	Schraeder valve	

OTHER

SEATPOST	Steel	
	Outer diameter, mm	*25.4*
SADDLE	Bontrager FS10 BMX	
BRAKES	Alloy direct pull	
PEDALS	Platform	
	Axle diameter	*1/2"*
SEAT BINDER	Alloy w/integral bolt	
	Inner diameter, mm	*28.6*
ADDITIONALS	Pegs (1 pr.), SST Oryg rotor	

COLORS

Candy blue/Gloss Black • White/Red decals • Black fork

GEARING

	44
16	55

FIT

Frame	Size	Pro
Handlebar	Width, mm	635
Stem	Length, mm	55
	Angle	0
Crank	Length, mm	180
Seatpost	Length, mm	350
Steerer	Length, mm	163

Kids'

For 2002

These 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, Trek kids bikes are bikes 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 Trek 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 Trek kids' bikes; they use parts you'd expect on other Trek 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. We use 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 Trek bike.

Mt. Lion 60

FRAMESET

MAIN TUBES ..... Hi Tensile steel
STAYS ..... Hi Tensile steel
FORK ..... Hi Tensile steel
Axle-crown length, mm *284*
HEADSET ..... Steel
Size *25.4/34.0/30.0*
Stack height, mm *34.5*

CONTROLS

HANDLEBAR ..... Steel
Clamp diameter, mm *25.4*
STEM ..... Quick change, quill
Steerer clamp height, mm
SHIFT LEVERS ..... SRAM MRX, right only
BRAKE LEVERS ..... Alloy, direct pull
GRIPS ..... Kraton

DRIVETRAIN

RR DERAILLEUR .... Shimano Tourney TY22
CRANKSET ..... One-piece type
Bolt hole circle, mm *Riveted*
BB ..... One-piece type
Shell x axle, mm *68,*
CHAIN ..... KMC Z-51
Chain type *3/32"*
Chain length (links) *100*
CASSETTE HG60 14-28, 6spd

WHEELSET

FRONT WHEEL ..... Alloy, nutted hub, 32°, Aluminum alloy rim
E.R.D., mm *395*
Rim strip *PVC*
FRONT TIRE ..... Innova MTB
Tire size *20 x 2.1*
REAR WHEEL ..... Alloy, nutted hub, 32°, Aluminum alloy rim
E.R.D., mm *395*
Rim strip *PVC*
REAR TIRE ..... Innova MTB
Tire size *20 x 2.1*
SPOKES ..... 14G UCP
Front, mm *192, 3x*
Rear, mm *189/191, 3x*
INNER TUBES ..... Schraeder valve

OTHER

SEATPOST ..... Alloy
Outer diameter, mm *27.2*
SADDLE ..... Trek padded
BRAKES ..... Alloy direct pull
PEDALS ..... Platform
Axle diameter *9/16"*
SEAT BINDER ..... Quick release, 47mm
Inner diameter, mm
ADDITIONALS ..... Rear derailleur guard, double chainring guards, kickstand

COLORS

Blue
Purple/Blue

FIT

Frame	Size	12B	12G
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	124.5	124.5

GEARING

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

Mt. Lion 30

FRAMESET

MAIN TUBES ..... Hi Tensile steel
STAYS ..... Hi Tensile steel
FORK ..... Hi Tensile steel
Axle-crown length, mm *284*
HEADSET ..... Steel
Size *22.2/30.0/27.0*
Stack height, mm *35.0*

CONTROLS

HANDLEBAR ..... BMX
Clamp diameter, mm *22.2*
STEM ..... 4 bolt BMX, alloy top
Steerer clamp height, mm
BRAKE LEVERS ..... Alloy, direct pull, right only
GRIPS ..... Trek Paw Print

DRIVETRAIN

CRANKSET ..... One-piece type, 36T
Bolt hole circle, mm *1 piece*
BB ..... One-piece type
Shell x axle, mm *,*
CHAIN ..... KMC 410
Chain type *1/8"*
Chain length (links) *86*
CASSETTE 19

WHEELSET

FRONT WHEEL ..... Steel hub, 36°, Aluminum alloy rim
E.R.D., mm *422*
Rim strip *PVC*
FRONT TIRE ..... Trek Paw
Tire size *20 x 2.0*
REAR WHEEL ..... Coaster brake hub, 36°, Aluminum alloy rim
E.R.D., mm *422*
Rim strip *PVC*
REAR TIRE ..... Trek Paw
Tire size *20 x 2.0*
SPOKES ..... 14G UCP
Front, mm *189, 3x*
Rear, mm *185, 3x*
INNER TUBES ..... Schraeder valve

OTHER

SEATPOST ..... Steel
Outer diameter, mm *22.2*
SADDLE ..... Trek Paw design
BRAKES ..... Coaster type
PEDALS ..... Platform
Axle diameter *1/2"*
SEAT BINDER ..... Alloy w/integral bolt
Inner diameter, mm *25.4*
ADDITIONALS ..... Rear derailleur guard, double chainring guards, kickstand

COLORS

Red/Silver
Blue

GEARING

	36
19	38

FIT

Frame	Size	9.5B	9.5G
Handlebar	Width, mm	550	550
Stem	Length, mm	50	50
	Angle	0	0
Crank	Length, mm	140	140
Seatpost	Length, mm	300	300
Steerer	Length, mm	123	123

Mt. Cub 16

FRAMESET

MAIN TUBES	Hi Tensile steel
STAYS	Hi Tensile steel
FORK	Hi Tensile steel
Axle-crown length, mm	*234*
HEADSET	Steel
Size	*22.2/30.0/27.0*
Stack height, mm	*35.0*

CONTROLS

HANDLEBAR	Steel BMX, 130mm rise
Clamp diameter, mm	*22.2*
STEM	4 bolt BMX, alloy top
Steerer clamp height, mm	
GRIPS	Trek Paw design

DRIVETRAIN

CRANKSET	One-piece type, 32T
Bolt hole circle, mm	*1 piece*
BB	One-piece type
Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410
Chain type	*1/8"*
Chain length (links)	*74*
CASSETTE	19

WHEELSET

FRONT WHEEL	Steel hub, 28°, Steel rim
E.R.D., mm	*321*
Rim strip	*PVC*
FRONT TIRE	Trek Paw
Tire size	*16 x 2.125*
REAR WHEEL	Coaster brake hub, 28°, Steel rim
E.R.D., mm	*321*
Rim strip	*PVC*
REAR TIRE	Trek Paw
Tire size	*16 x 2.125*
SPOKES	14G UCP
Front, mm	*138, 3x*
Rear, mm	*133, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Steel
Outer diameter, mm	*22.2*
SADDLE	Trek Paw design
BRAKES	Coaster type
PEDALS	Platform
Axle diameter	*1/2"*
SEAT BINDER	Bolt, M6 x 30
Inner diameter, mm	
ADDITIONALS	Training wheels, chainguard, and pads

COLORS

Blue/Black (boys)
Red (boys)
Purple/White (girls)
Pink (girls)

GEARING

	32
19	26

FIT

Frame	Size	9B	9G
Handlebar	Width, mm	510	510
Stem	Length, mm	50	50
	Angle	0	0
Crank	Length, mm	114	114
Seatpost	Length, mm	250	250
Steerer	Length, mm	128	128

Mt. Cub 12

FRAMESET

MAIN TUBES	Hi Tensile steel
STAYS	Hi Tensile steel
FORK	Hi Tensile steel
Axle-crown length, mm	*185*
HEADSET	Steel
Size	*22.2/30.0/27.0*
Stack height, mm	*35.0*

CONTROLS

HANDLEBAR	BMX
Clamp diameter, mm	*22.2*
STEM	4 bolt BMX
Steerer clamp height, mm	
GRIPS	Trek Paw design

DRIVETRAIN

CRANKSET	One-piece type, 28T
Bolt hole circle, mm	*1 piece*
BB	One-piece type
Shell x axle, mm	*24 TPI,*
CHAIN	KMC 410
Chain type	*1/8"*
Chain length (links)	*60*
CASSETTE	19

WHEELSET

FRONT WHEEL	Steel hub, 20°, Steel rim
E.R.D., mm	*220*
Rim strip	*PVC*
FRONT TIRE	Trek Paw
Tire size	*12 x 2.5*
REAR WHEEL	Coaster brake hub, 20°, Steel rim
E.R.D., mm	*220*
Rim strip	*PVC*
REAR TIRE	Trek Paw
Tire size	*12 x 2.5*
SPOKES	14G UCP
Front, mm	*75, 3x*
Rear, mm	*86, 3x*
INNER TUBES	Schraeder valve

OTHER

SEATPOST	Steel
Outer diameter, mm	*22.2*
SADDLE	Padded
BRAKES	Coaster type
PEDALS	Platform
Axle diameter	*1/2"*
SEAT BINDER	Bolt, M6 x 30
Inner diameter, mm	
ADDITIONALS	Training wheels, chainguard, fenders, and pads

COLORS

Blue (boys)
Pink (girls)

GEARING

	28
19	17

FIT

Frame	Size	8	8G
Handlebar	Width, mm	480	480
Stem	Length, mm	50	50
	Angle	0	0
Crank	Length, mm	89	89
Seatpost	Length, mm	255	255
Steerer	Length, mm	123	123

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.

Item	LB•IN	Nm
Handlebars		
Handlebar clamp bolt, forged stem	150-180	17-20.3
Handlebar clamp bolt, welded stem		
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
Bar end attaching bolts	85-125	9.8-14.1
Tandem adjustable stoker stem		
Length adjustment bolts	120-140	13.6-15.8
Seatpost clamp bolts	100-120	11.3-13.6
Seats		
Single seat attaching bolt w/6mm allen	150-250	17-28.3
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 bolt	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 nut	70-80	7.9-9
Brake cable clamping bolt	50-70	5.7-7.9
Int'national disc brake adapter, outer bolt	95-115	10.7-13
Int'national disc brake adapter, inner bolt	50-75	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
Fuel		
Shock mount bolts	133-164	15-18.5
Main pivot bolt	95-115	10.7-13
Rocker and swingarm pivot bolts	50-75	5.7-8.5
Rocker bridge bolts	50-85	5.7-9.6
STP		
Shock mount bolts	133-164	15-18.5
Lower shock pinch 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 bikes, and components on those bikes. Here's a partial list, and the recommended Loctite product:

Crown pinch bolts	242 Blue
Brake arch bolts	242 Blue
Cantilever studs	242 Blue
Pivot axle bolt, left	290 Green
Pivot axle bolt, right	242 Blue
Pivot bushings, frame/swingarm	290 Green
Shock mount bolts	242 Blue
Airhead bearings (OCLV Superlight)	RC-680

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.
- 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 OCLV bikes, 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.

Fuel Pivot Service

Prepare the bike

1. Clamp the frame upright in a workstand by its seatpost with the head tube vertical.

Removing the rear swingarm

1. Remove the rear wheel and right crankarm. Disconnect the rear brake and rear derailleur cable.

2. If possible, open the front derailleur cage and remove the chain. Otherwise, remove the rear derailleur.



Fig. 32

3. Identify the seat stay pivot bolt (Fig. 32). The bolt has a high polish, while the axle is anodized aluminum. While holding the axle with a 5mm allen wrench, use another 5mm allen wrench to loosen the bolt 4 to 5 turns. Tap the bolt head to partially drive the axle out of the assembly. Once loose, you can probably pull the axle (Fig. 33) out with your fingers. As you remove the axle, be careful not to let the swingarm swing down and hit the frame.

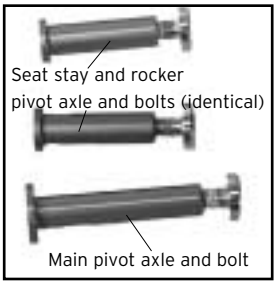


Fig. 33

4. Remove the main pivot bolt and axle, using the same technique as with the seat stay pivot axle.

5. Ease the swingarm out of the rocker bushings and off the main pivot bushings. While pulling the swingarm rearward, it may help to wiggle the swingarm slightly from side to side.

Removing the shock

1. If the swingarm is attached, support the swingarm (especially if the rear wheel is in the frame) so that it doesn't hit the frame while removing the shock.

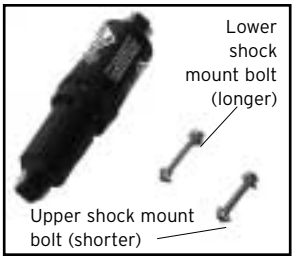


Fig. 34

2. Hold the upper shock bolt with a 5mm allen wrench while loosening the nut with a 10mm end wrench. Remove the nut, and slide the bolt out. If the bolt has been loose, its possible that it has cut threads in the aluminum swingarm shock mount. In this case, you may need to "unthread" the bolt from the frame.

3. Hold the lower shock bolt with a 5mm allen wrench while loosening the nut with a 10mm end wrench. Remove the nut, and slide the bolt out. Be careful not to drop the shock as you remove the bolt.

Removing the main pivot bushings

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. 35). A socket on an extension makes a good drift punch. The socket should contact the metal portion of the bushing, barely fitting inside the swingarm and pivot lug.



Fig. 35

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

2. Remove the main pivot bushing "top hats" (Fig. 36) 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.



Fig. 36

Removing the rocker

1. Loosen the rocker pivot axle, but don't remove it yet.

2. Loosen each of the six rocker bridge bolts holding together the side plates of the rocker (Fig. 37). To allow the rocker to freely pass around the seat tube, loosen each bolt 4 to 5 turns.



Fig. 37

3. Remove the pivot axle, and careful slide the rocker off the frame.

4. Remove the rocker bridge bolts and bridges (Fig. 38).



Fig. 38

Inspecting the parts

1. Inspect the pivot bushings in the upper end of the swingarm as well as the rocker pivot lug (Fig. 39). If they are in good shape, they will be a light color (Fig. 40) with no deformation, cracks, or chips.

If the bushings are damaged or worn, remove them. These bushings are installed dry, so you should be able to simply push them out. Do not use a screwdriver or other sharp tool, instead try something blunt like an allen wrench. If you use a sharp tool, you may cut or gouge the bearing surface, and this damage would require replacement of the bushing.


Fig. 40

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 main pivot 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 not to get Kleen n Prime on the paint or bushing material. It will remove paint, and also remove the lubrication in the bushings.

2. To clean the rocker pivot bushings and upper swingarm pivot bushings, simply wipe clean of dust or other debris.

3. Do not lubricate any bushings.

4. Clean the pivot axle bolts, shock mount bolts, and rocker bridge 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. Avoid scarring of the pivot surfaces as you slide the parts together.

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 rocker bushings

1. The bushings in the rocker pivot lug and the upper swingarm are all installed dry. Simply press them into place, being careful to keep them aligned during insertion.

Install the rocker and pivot axle.

1. Apply Loktite 290 to the threads of the rocker bridge bolts.

2. Loosely assembly the back of the rocker, but do not attach the small cylindrical spacer yet. Leave the bolts 4-5 turns unthreaded.

3. Slide the rocker around the seat tube. Install the cylindrical spacer and remaining rocker bridge bolts.

4. Insert the rocker axle from the right side of the bike.

5. Apply Loktite 290 to the threads of the rocker pivot bolt, and install the bolt from the left side of the bike. Tighten to 50-75 lb•in (5.7-8.5 Nm).

6. Tighten the rocker bridge bolts to 50-85 lb•in (5.7-9.6 Nm).

Install the rocker and pivot axle.

1. This axle goes through the swingarm, and rocker. Apply Loktite 290 to the threads of the pivot bolt, and install the axle from the right side of the bike. Tighten the axle bolt to 50-85 lb•in (5.7-9.6 Nm).

Install the shock mount bolt.

1. Make sure the shock orientation is how you would like it. Insert the upper shock mount bolt from the right side of the bike.

2. Insert the lower shock mount bolt from the right side of the bike.

2. Apply Loktite 290 to the threads of the bolts. Install the nuts and tighten to 133-164 lb•in (15-18.5 Nm).

Allow to Dry

Loktite normally requires 24 hours to completely 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.

Tubeless Compatible Installation and Troubleshooting

Tubeless Compatible technology allows the owner to choose between a conventional tire and inner tube, or a tubeless tire, including all current tubeless-type tires.

Complete bicycles sold with Tubeless Compatible wheels normally have inner tubes installed in the tubeless tires. Tubeless tires 'bleed' air faster than an inner tube, which over time may allow air loss. To keep the tires inflated longer, these bikes are equipped with tubes to protect their rims in shipping, and allow easy display. To convert these wheels to tubeless, see item #3.

The key to the Tubeless Compatible system is a special rim and its mated rim strip. This rim strip is made of a thermoplastic rubber material, so its impervious to air. Installed correctly in the special mated rim, it seals tightly to prevent air escaping through the spoke holes.

There are additional surfaces which must seal tightly for the tubeless system to hold air. 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.

A properly mounted tubeless tire will 'bleed' air, up to 4 PSI (0.25 ATM) per day. If a tubeless tire loses air faster than 4 PSI (0.25 ATM) make sure the valve nut is tight, check for punctures, and make sure all sealing surfaces are clean. The sealing surfaces include the tire to rim contact, the tire to rim strip contact, and the rim strip to rim contact. Dirt, sand or other grime on any of these surfaces may allow extra air to escape.

To inflate a newly installed tubeless tire, the tire must make full contact with the rim at the bottom of the rim well. To achieve this contact a tubeless tire has to fit on the rim more tightly than a similarly sized conventional tire.

With a snug fitting tubeless tire, barehanded installation may be difficult. If you use tire levers for installation or removal, do not damage the rim or abrade the tire beads. If either surface is damaged, the roughened surface may allow a greater rate of air to bleed from the mounted tire.

With the tire beads contacting the bottom of the rim well, air pressure is used to push the beads into their seated, sealed position against the rim hooks. A compressor is not required to seat the tire beads. A good floor pump or an air cartridge work, and a hand pump may work if nothing else is available.

In the case of a punctured tubeless tire, you can patch a small (less than 3mm) hole from the inside of the tire. A sticky glueless patch is recommended. It the puncture is greater than 3mm, or the tire casing is damaged instead of merely punctured, with any broken threads, replace the tire. If the air leaks rapidly and the source is not immediately obvious, it may be difficult to inflate the tire enough to locate the puncture. However, its easy to convert from tubeless to the use of a standard inner tube.

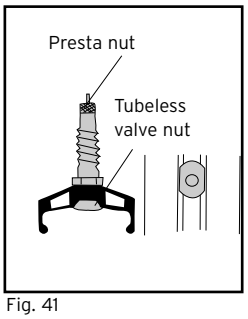


Fig. 41

1. INSTALLING AND INFLATING A TUBELESS TIRE

Install the valve stem.

1. Center the special rim strip in the rim. Make sure it fully covers all spoke holes.
2. Align the base of the special tubeless valve with the rim (Fig. 41). Press the valve stem through the rim strip and rim until its seated firmly against the bottom of the rim well.
3. Install the tubeless valve nut (Fig. 41) onto the the valve, and tighten firmly. There should be no gap between the valve and the rim strip.
4. Inspect the rim strip. Make sure the rim strip lies centered in the rim well, with no wrinkles or unevenness.

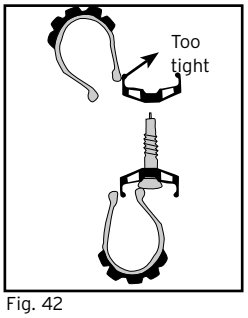


Fig. 42

WARNING

Make sure the rim strip covers all of the spoke holes or spoke heads. If they are exposed they may allow air loss, or puncture the inner tube, and may cause loss of control resulting in personal

Install the tubeless tire.

5. Lay one tire bead into the center of the rim well. Start opposite the valve to give the tire beads the maximum slack. If you start at the valve, the bead will lie on top of the valve. With the bead on top of the valve, some slack will be taken up which is needed to lift the tire bead over the rim shoulder (Fig. 42). Before proceeding to #6, move this first bead out of the rim well to make room for the second bead.

If desired, the tire bead can be lubed with soapy water to aid in tire installation and seating of the bead.

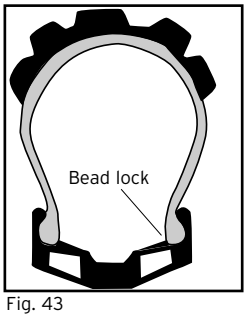


Fig. 43

6.

WARNING

Do not attempt to use a standard tire without an inner tube. Such use may cause a rapid deflation of the tire resulting in loss of control resulting in personal injury. If you are unsure if a tire is a compatible tubeless design, consult your dealer.

Again start opposite the valve and install the second tire bead. Move all the way around the rim until the second bead is completely in the rim well.

Note: If you choose to use tools to mount the tire, be careful not to mar the rim or abrade the tire as this could reduce the required ability of the rim to seal to the special beads of a tubeless tire.

Inflate the tubeless tire

1. Begin to inflate the tire. The tubeless valve stem works just like a standard presta valve. Unlock the presta nut (Fig. 41), and use a pump with a presta fitting. Initially, its best to inflate the tubeless tire as rapidly as possible. This forces the beads out to the rim hook where they will seal (Fig. 43).

WARNING

Failure to maintain a minimum tire inflation of 30PSI (2ATM) may result in rapid deflation causing a loss of control resulting in personal injury.

2. With the tire beads sealed to the rim hook, inflate the tire to about 60PSI (4 ATM) until the tire beads lock into the rim well (Fig. 43).
3. Visually check that the beads are seated correctly in their locked position(Fig. 43). Most tires have lines or marks running around the casing, just above the bead. When correctly installed, these lines are at an even distance from the rim. When the beads are correctly seated all around the rim, inflate (or deflate) to the desired pressure.


Fig. 44



Fig. 45

2. ADDING AN INNER TUBE

Remove the tubeless tire

1. Let all the air out of the tire (Fig. 44).
2. To remove the tire with bare hands, one bead must be fully at the bottom of the rim well. On tubeless compatible rims, the well is too narrow for both beads to rest fully against the bottom of the well at the same time, so the tire must be placed to get one bead down. With the wheel facing you (Fig. 45), roll the tire up and away from the rim with your thumbs while you use your fingers to tuck the opposite bead into the rim well Fig. 46).
At the valve, pull the lower, slacker bead of the tire up, out, and away from the rim (Fig. 47).
3. Pull the loosened bead up and out of the rim, rolling and pushing the tire toward the hub (Fig. 48) until the first bead is completely off the rim. Repeat to remove the other bead.

Note: If you choose to use tools to remove the tire, be careful not to mar the rim as this could reduce its ability to seal to the special beads of a tubeless tire.

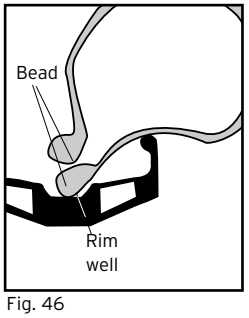
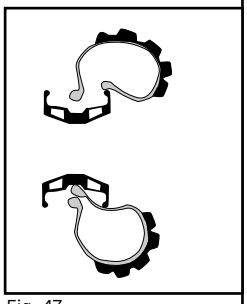


Fig. 46


Fig. 47

Remove the valve stem

4. Remove the tubeless valve nut. Thread the presta nut into the valve stem, and push the stem out of the rim.

Install the tire and tube

5. Make sure the rim strip is centered in the rim well and fully covers all spoke holes. Install the tire and tube in the normal manner. With an inner tube, either a conventional or tubeless tire can be used.

3. CHANGING TO A TUBELESS TIRE

Remove the tire and inner tube.

1. Remove the tire by following item #2 Adding an Inner Tube, except start removing the tire opposite the valve.
2. Refer to item #1, Installing and Inflating a Tubeless Tire.


Fig. 48

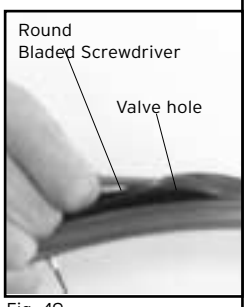


Fig. 49

4. REMOVAL AND INSTALLATION OF A RIM STRIP

Remove the rim strip

1. After removing the tire (and tube, or tubeless valve stem) insert a round-bladed screwdriver (or similar tool) through the valve hole, and between the rim and rim strip (Fig 49). If the rim strip is to be used again, be careful not to tear or stretch the hole.
3. Lift the rim strip and place a tire lever underneath. Use the tire lever to lift and then roll the rim strip over the opposite rim hook (Fig. 50). Be careful not to mar or damage the rim, or rim strip, with the tire lever.
4. Continue to roll the rim strip up and out of the rim as you work your way fully around the rim.

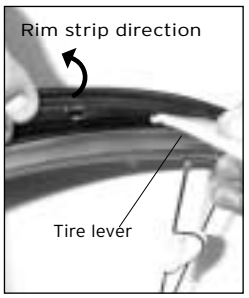
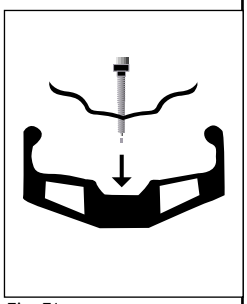


Fig. 50


Fig. 51

Install the rim strip

1. Make sure the rim strip is in good condition, with no tears, holes, or deformed areas near the valve hole or along its edges.
2. Align the rim valve hole and rim strip valve hole. Place the special tubeless valve (or a similar item) through the rim strip valve hole, and then the rim. The 'U' shape of the rim strip should face the same direction as the 'U' shape of the rim well (Fig. 51).
3. Work the rim strip into the rim, moving away from the valve stem in both directions. With six to ten inches (15 to 25 cm) rim strip remaining outside the rim, manually lift and slightly stretch the rim strip so that it can be laid flat in the rim well.
4. Follow the appropriate installation procedures to install a tire.

OCLV 110 Superlight Headset Service Instructions

IMPORTANT NOTE BEFORE YOU BEGIN:

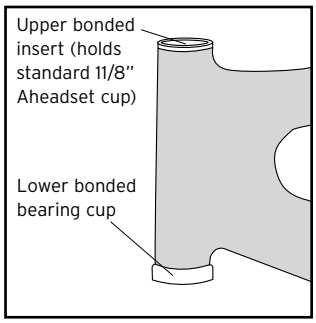
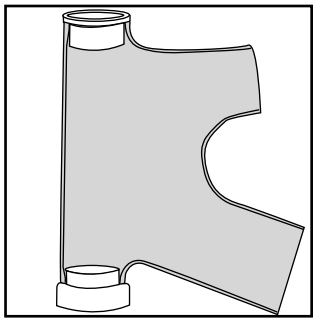


Fig. 23


Fig. 24

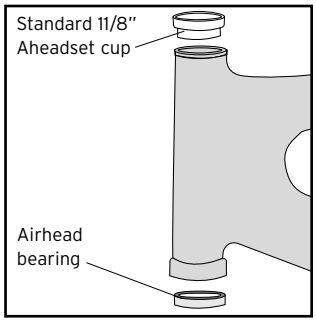


Fig. 25

There are two separate head tube inserts in an OCLV 110 frame (Fig. 23), the upper bonded insert and the lower bonded bearing cup. These two inserts act together like a conventional, cylindrical head tube, but at a reduced weight.

The two inserts are not joined by a tube. When using a headset removal tool to remove an Aheadset cup from the upper insert, make sure the tool is inside the insert, pressing directly on the cup. It is possible to place the tool outside the insert in the space between the insert and the headlug (Fig. 24), where it will instead be pressing on the carbon fiber of the head lug. Applying force to the head lug in this way will damage the frame, and is not covered by warranty.

The upper cup insert, which holds a standard $1^{1/8}$" Aheadset cup, and the lower bearing cup, which holds the Airhead bearing (Fig. 25), are part of the frame. Do not attempt to remove the inserts, or you may damage the frame. Such damage is not covered by warranty.

Introduction

For the 2001 model year we have introduced a new OCLV road frameset, the OCLV 110 Superlight. For the 2001 model year, Trek 5900s and 5700s use this new frame.

The OCLV 110 frame, fork, and lower headset bearing use a proprietary system. At this time, only the supplied parts are compatible with this system. No other frame, fork, or lower headset system can be substituted for parts in this system as supplied. The upper bearing uses a standard 1 1/8" Aheadset system, from which many substitutions are available as aftermarket parts.

Tools and equipment required

Headset cup removal tool

Headset press

5900 Headset tool kit (or Klein AirHeadset™ tool kit)

Star-fangled nut tool

Metal-faced hammer

Loktite RC680

Loktite Kleen 'n Prime

FORK REMOVAL INSTRUCTIONS

Removing the fork from the frame

1. Place bike upright in a workstand, clamped by the seatpost.

2. Remove the Aheadset top cap.

3. Remove stem and spacers from the steerer tube.

4. Remove compression washer, cone, and bearings from upper Aheadset leaving only the upper bearing cup in the upper head tube.

5. Thread the star-fangled nut insertion tool into the star-fangled nut already installed in the fork steerer tube (Fig. 26).

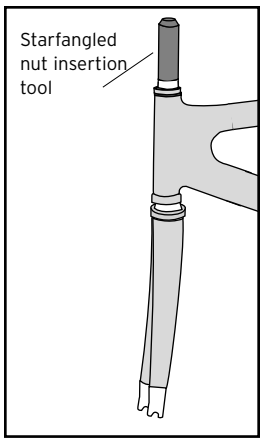


Fig. 26

6. We recommend this step be done by two people. The first person should support the fork, so that it does not fall. The other person should firmly support the frame near the head tube with one hand, while hammering straight down on the star-fangled nut insertion tool. The fork is bonded in with Loktite, so it may take repeated blows to break loose the fork and bearing.

7. After the fork loosens, remove the star-fangled nut insertion tool, and slide the fork from the frame.

Removing the fork bearing

1. Clamp the steel channel in a vise allowing enough room for the fork to be inserted from either direction.

2. Thread the star-fangled nut insertion tool into the star fangled nut already in the fork.

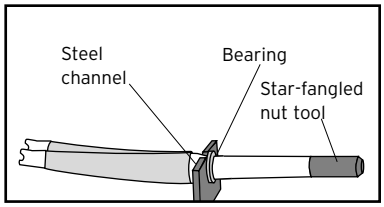


Fig. 27

3. Carefully position the steerer in the steel channel so that the steerer rests on the channel with the bearing on the side nearest the star-fangled tool (Fig. 27). Hold the fork so it cannot fall.

4. Strike the star-fangled nut insertion tool with a hammer until the bottom bearing slides off the steerer.

5. Remove the fork from the steel channel.

Removing upper headset cup

1. With the fork removed from the head tube, the top Aheadset cup should be the only thing left in the head tube (besides the permanent bonded inserts, which are part of the frame).

2. Use a headset cup removal tool to tap the top Aheadset cup out of the upper bonded insert. Make sure the tool is engaging the Aheadset cup inside the bonded insert. If the tool is outside the bonded insert, frame damage will result.

3. Do not attempt to remove the lower bearing cup which holds the lower bearing. It is permanently bonded to the frame and cannot be removed.

FORK INSTALLATION INSTRUCTIONS

Top Aheadset cup installation

1. Using a standard headset press install the top bearing into the frame. Make sure the press engages the lower bonded insert such that no damage or deformation occurs to the bonded insert.

Fork bearing installation- Cleaning the parts

1. To properly install the bottom bearing on the steerer and into the frame, all surfaces must be clean of dirt, oil, grease, or other residue. The best cleaning agent is Loktite Kleen 'n Prime, which not only cleans the surfaces but will speed the curing of the bonding agent. As an alternative you can also use acetone, trichlorethylene, or similar compounds. Do not use paint thinner, gasoline, or similar compounds which will leave an oily film and prevent bonding of the Loktite.

2. Clean the contact bearing areas of the steerer, the lower bearing cup, and both the inside and outside surfaces of the lower bearing. Once the surfaces are clean, avoid any contact with your hands, since they have oil on them.

IMPORTANT- be very careful to avoid any contact of the cleaning agent with the painted finish of the frame. These cleaning agents remove paint. Also avoid getting cleaning agents on the bearing seals, which may destroy the bearing grease.

Fork bearing installation

1. Place the steel channel in a vise. Place the Fork dropout rod in the fork dropouts (Fig. 28) and snug up the attachment bolts.

Apply a thin layer of Loktite RC680 on both the steerer and inside surface of the bearing.

2. Slide the bearing on the steerer.

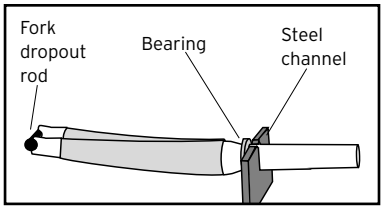


Fig. 28

3. Slide the bearing and steerer, with bearing above the channel, into the slot of the steel channel which best fits the steerer.

4. Place the fork dropout rod in the fork dropouts and secure it by tightening down the hex head bolts and washers located on both ends of the rod.

5. With the hammer, tap the fork dropout rod until the bottom bearing is pressed into place, flush against the shoulder of the steerer.

Fork (with bearing) installation into frame

1. If needed, install the upper Aheadset cup as in "Top Aheadset Cup Installation" (see above).

2. With the frame upside down (the bottom bracket upward), secure the frame in a workstand by the seatpost.

3. Place the fork dropout rod into the fork dropouts and snug up the attachment bolts.

4. Apply a thin layer of Loktite RC680 to the inside of the lower bearing cup and outside of the headset bearing.

5. Slide the fork into the head tube.

6. We recommend this step be done with two people. One person supports the frame near the head tube. The other person, while centering the steerer in the upper Aheadset cup , lightly taps the fork dropout rod with a hammer to drive the bearing into the lower cup. While keeping the fork centered and aligned in the frame, carefully drive the bearing fully into the bearing cup in head tube.

7. Install the upper Aheadset parts; bearings, cone and compression wedge, spacers, stem, and top cap.

8. The frame may be moved, but should not be ridden yet. Allow 24 hours for the Loktite to fully cure before riding.