BONTRAGER

When the exotic material, full suspension craze burns itself out, world favor will return to steel hardtails and reliable, well thought out parts. Those that have invested in Bontrager products over the years will then be worshiped for their forsight. Until that time, only the bold and wise will proclaim that the the Emperor is not only naked, he's fat, dumb and ugly too.

STRONG

LIGHT

CHEAP

pick two

That about sums it up. Whatever kind of bike people buy or ride, these three variables need to be weighed, prioritized and balanced one way or another. Bontrager Cycles has built its reputation on building the strongest and lightest steel bikes available anywhere, from anyone. And correspondingly, the bikes have not been cheap, in any sense of the word. They will perform and be durable. They're strong first, light second, price is third -the ways bikes should be.

It is also the way parts should be. Clothing too. Everyone at Bontrager has worked long and hard to create a reputation of products that will not disappoint. While all the cycling world is abuzz with longer travel this, mystery metal that, we have consciously stayed the course and concentrated on what we do best: soulful bikes, parts and clothing.

Tires

JONES

Jones XC Tires

Jones tires are lightweight high performance XC racing, training and technical tires, adapted to specific terrain and rider types. We spent a lot of time talking with riders and racers, riding every tire we could get, measuring and analyzing them all. This led us to the current designs and the thrash paid off.

As off road tire development progresses, there are more and more tires that are developed for specific applications and terrain. In some cases this is marketing hype, business as usual I guess, but it isn't always. If you can afford it, and have the time and skill to do it, you should experiment with different tires throughout the year and in the variety of places you ride. You'll be surprised, and you'll probably develop your riding skills in the process.

This isn't cheap though, and not everyone wants to add this kind of complexity to their pastime or sport. If you can only afford one set of tires, or you just want to keep it simple, go for the Jones 49/53 (or 47/51) and the Jones 46/50 rear tire. They'll work best in a large variety of situations with few shortcomings.

Jones 52/55 front

XC and Technical tire for use on the front wheel
26 x 2.2
52mm casing diameter
55mm maximum tread width
127 TPI casing
Kevlar bead
730-745 grams

A wide, heavy duty front tire for technical and technical XC riding. The overall design emphasis is on traction in all conditions. The knobs are tall, irregularly arranged, and widely spaced with extra gripping for wet conditions.

Jones 49/53 front

XC racing and training tire for use on the front wheel
26 x 2.1
49mm casing diameter
53mm maximum tread width
127 TPI casing
Kevlar bead
600-615 grams

A fast rolling XC racing tire with good technical riding characteristics. Long center knobs for good rolling characteristics. Wide claws on the leading edge increase braking shear edge length. Stiff, well proportioned edge and transition knobs make the tire a singletrack cornering ace and also last longer in hard conditions. The knob pattern is open laterally to provide a route for mud evacuation.

Jones 47/51 front

Lightweight XC racing and training tire for use on the front wheel
26 x 2.0
47mm casing diameter
51mm maximum tread width
127 TPI casing
Kevlar bead
570-585 grams

The same tire as the 49/53 but scaled for smaller riders and those who like a narrower, lighter front tire.

Tires

Jones 46/50 rear

Lightweight XC racing and training tire for use on the rear wheel
26 x 1.95
46mm casing diameter
50mm maximum tread width
127 TPI casing
Kevlar bead
595 - 610 grams

A light, fast XC racing tire. The knob pattern is designed to roll smoothly, with good continuity between knob groups. This is accomplished with a smaller effective gap between the diagonal center knobs, and it means less buzz, less knob bounce as the tire rolls, and decent mud clearance. The diagonal knobs have large shear areas for traction and the central paddles are well supported to reduce squirm and excessive wear when the tire is under a load on hard packed terrain. The edge knobs are stiff to provide good off camber handling characteristics.

Jones 49/51 rear

XC racing, technical, and training tire for use on the rear wheel
26 x 2.0
49mm casing diameter
51mm maximum tread width
127 TPI casing
Kevlar bead
640-655 grams

A wide, heavy duty rear tire for technical and technical XC riding. Especially good for larger riders and in sand and some types of mud. The overall design emphasis is on traction in all conditions. The knobs are all tall. The central paddle knobs are widely spaced and well supported. The transition and edge knobs are stiff and arranged to grip in wet off camber situations. This is the fastest tire in very rough or wet technical conditions and on loose terrain.

The application tables are rough guides to how we recommend using these tires. This kind of advice is not a simple thing to give and you should keep this in mind. Regional issues, such as weather and the specific mix of terrain types you ride on, your personal preferences and goals, and your riding style all affect the way you think about tires.

Here's how to read the tables. Three Xs and we think it's a real good idea. Two is pretty good. One gets you by. No X means you better have a pretty good idea of what you want to do and why because the tire's not going to be great without something specific or unusual in mind. Or it may mean that you just have to use some caution, like when you ride a knobby tire on pavement - it's not great but we all do it.

The tables are broken into three sections - terrain, rider type, and application. You have to think about all three to get the tires that are right for you. Experience is the best guide here. The more you ride and the more different tires you ride on the better you will be at determining which tires are best for you. My personal advice, especially for recreational riders: when in doubt, go fatter.

There are a few maxims to go by. Big riders need more tire to get around rough corners and over rocks fast. Small riders can get by on smaller, lighter tires in these situations. If you are racing, go as narrow and as light as you can. If you are riding technical terrain and you want to ride everything that comes along, go with fatter tires. Beginners and riders who want to take on very severe technical terrain will do better in rough stuff with fatter tires - it slows things down and gives them a little more traction and control in rocks and roots. Stay away from the smaller tires in these situations. If you really want to optimize your bike setup to ride everything, buy a few sets of tires and change them for the conditions. There is no one set that is optimal for everything. On the other hand, anything will get by with the right attitude - after all, you're riding right?

Jones XC Tires- Application Table

	49/53	47/51	46/50	52/55	49/51
Hard Pack	XXX	XXX	XXX	XX	XX
Rock/Shale	XXX	XXX	XXX	XXX	XXX
Slick Rock	XX	XX	XX	X	X
Gravel	XX	XX	XX	XXX	XX
Sand	XXX	XX	XX	XXX	XXX
Pavement	X	X	X	X	X
Mud	XXX	XXX	XXX	XXX	XXX
Small Riders	XXX	XXX	XXX	XX	X
Clydesdales	XXX	X	XX	XXX	XXX
Beginners	XXX	XX	XXX	XXX	XXX
XC Race & Train	XXX	XXX	XXX	XX	XX
Technical XC	XX	XX	XX	XXX	XXX

Tires

REVOLT SS

Revolt XC Racing tires

Zap was visiting us here in the People's Republic of Santa Cruz a while back looking for some new dirt to throw on the new harvest of sleazy corporate types. He saw that we were working on tire designs and hassled us with,

"Does the world really need another tire?"

It does, at least as much as it needs another full suspension bike shoot out. Probably more.
He had a point though. Current off road tires work pretty well. They're light, they go around corners, they hook up. But they're not perfect, and development has been kind of stuck for a few years. The best designs have come from small refinements of shapes and sizes that have been around for a while. You either work to raise the standard a bit (see our Jones tire designs), or you change the rules. That's what we're up to.

Our new Bontrager Revolt tires change the rules. Revolt tires make a bigger difference in a mountain bike's ride than any of the new things that have come along for years. They're fast - real fast. They hook up, especially in fast singletrack. They make riding more fun. Keep in mind, I'm tight with this kind of claim. Despite my fraternization with marketing, I don't say it unless I mean it.

Revolt tires roll faster - Short knobs and truncated diamond tread make substantially less 4wd tire buzz as you ride. They waste less of your power; you go faster. You may not realize it, but you are bouncing along and heating the tire as you ride. This makes the weird buzzing noise, but it also saps pedaling power and slows you down.

REVOLT ST

Revolt tires feel fast - How many other accessories actually make a bike feel faster? The difference between these tires and traditional knobbies is like the difference between chunky 1 x 27 inch touring tires and light weight clinchers on a road bike. A gear everywhere.

Revolt tires weigh less - The new designs save as much as 100 grams per wheel when you compare them to conventional knobbies of the same size and type. This kind of weight reduction is not trivial. Try to trim a pound off of a good bike these days. It costs you strength, reliability, or lots and lots of gold; probably all three.

Revolt tires corner - The short, stiff knobs are less flexible than traditional designs. Combined with a wide, well laid out cross section, these tires corner fast and hard. They rail in singletrack.

Revolt tires climb - Climbing traction on most difficult surfaces is as good or better than what you get with a conventional knobby. It doesn't seem like it, but it's true. They hook up.

Revolt tires will last - This is another surprise, but the short knobs and truncated diamond tread patterns will give a very good service life - maybe better than many popular conventional tires from a performance point of view.

Revolt tires are designed with full width casings and sections, so they float over small irregularities as well as, or better than skinny versions of traditional tires. Revolt tires ride smooth, quiet, precise, and fast. Bottom line, the Revolt is going to change the rules, if not the world.

Tires

Revolt SS 49/53 front
Fast rolling XC racing tire for use on the front wheel
26 x 2.1
49mm casing diameter
53mm maximum tread width
127 TPI casing
Kevlar bead
530-545 grams

The SS tire uses a semi-slick knob pattern to roll smoothly, no buzz, no knob bounce as the tire rolls. The short transition knobs of the 49/53 SS are well supported to reduce squirm and excessive wear when the tire is under cornering loads on hard packed terrain. The edge knobs are stiff to provide good off camber handling characteristics.

Revolt SS 46/50 rear
Fast rolling XC racing tire for use on the rear wheel
26 x 1.95
46mm casing diameter
50mm maximum tread width
127 TPI casing
Kevlar bead
510-525 grams

The SS 46/50 is the rear tire that goes along with the SS 49/53. It has the same semi-slick center tread design, and short, stiff transition and edge knobs for climbing, cornering and technical riding, and a thicker layer of rubber down the center for durability.

Revolt ST 49/53 front
Fast rolling XC racing tire for use on the front wheel
26 x 2.1
49mm casing diameter
53mm maximum tread width
127 TPI casing
Kevlar bead
540-555 grams

The ST tires are an intermediate step between the Jones and Revolt SS tire. The ST 49/53 tire has center knobs that are short enough to roll as fast as the semi-slick tire in loose dirt, and it hooks up a bit better in some of the situations the SS won't. The edge knobs and transition knobs are laid out like the SS tire, and are stiff and solid in the corners.

Revolt ST 46/50 rear
Fast rolling XC racing tire for use on the rear wheel
26 x 1.95
46mm casing diameter
50mm maximum tread width
127 TPI casing
Kevlar bead
520-535 grams

The ST 46/50 is the rear tire that goes along with the ST 49/53 though it will work with others (see the discussion of recommended combinations). It has short center knobs, along with stiff transition and edge knobs for climbing, cornering and technical riding. It also has a slightly thicker layer of rubber down the center for durability.

Revolt XC Tires- Application Table

	49/53	46/50	ST49/53	ST46/50
Hard Pack	XXX	XXX	XXX	XXX
Rock/Shale	XXX	XXX	XXX	XXX
Slick Rock	XXX	XXX	XX	XX
Gravel	X	X	X	X
Sand	XX	XX	XX	XX
Pavement	XXX	XXX	XX	XX
Mud	XX	XX	XX	XX
Small Riders	XXX	XXX	XXX	XXX
Clydesdales	XX	XX	XX	XX
Beginners	X	X	X	X
XC Race & Train	XXX	XXX	XXX	XXX
Technical XC	XX	XX	XX	XX

Tires

REVOLT ST 2

Revolt ST2 Racing tires

The Revolt ST2 tires are another gradation between the Revolt ST tire and the Jones. A wee bit taller knobs make this a nice compromise - it's faster on firm ground than our Jones and grips a bit better in the loose stuff than the SS. If the facts of life, currency fluctuations and the state of the global economy dictates that you can spare enough for only one set of tires, our Revolt ST2 finds the middle ground.

Revolt ST2 49/53 front

Lightweight XC racing and training tire for use on the front wheel
26 x 2.1
49mm casing diameter
53mm maximum tread width
127 TPI casing
Kevlar bead
570-585 g

Revolt ST2 46/50 rear

Lightweight XC racing and training tire for use on the rear wheel
26 x 1.95
46mm casing diameter
50mm maximum tread width
127 TPI casing
Kevlar bead
550-565 g

All new 49/53 front and 46/50 rear tire set. 3mm tread block height for better traction than Revolt SS and ST- for those who spend time in loose stuff but still want to feel the benefits of the Revolts. Center truncated diamond pattern adds puncture resistance. Tread design is specially laid out to minimize rolling resistance. These tires are fast.

Rims

A Not So Brief (and possibly slightly distorted) History of KB, Hoops and the Bontrager Rim Product Line

KB played basketball in high school, and he was 6 feet 3 inches and a dominant player back then. But he later got into the bike business and this made him short, slow and eventually more interested in survival than stardom, so there's not much more to say than that. But, in spite of his grave frustration at not playing ball anymore, KB did manage to start the lightweight rim thing for MTBs, a long time ago.

Before he did, we were all riding around on oversized BMX junk, rims that were made out of lawn chair aluminum and that weighed almost 2 pounds each (do the math). So it's probably a good thing he did it, eh? It certainly was for him. In an inspired moment (the chemical causes of which were not recorded for history) KB cut 4 spoke holes out of some old Super Champion rims his friend scrounged out of the dumpster at Specialized. KB had to pay for these ($1 each) so this was risky. Good rims were dear. He bent these clipped rims a little at each spoke hole, in a vise, closing down the gap at the cut ends until the rim was more or less round again. He cobbled the seam back together on the thing and built it up. Unfortunately, it was not the right size, so the tires were a mean stretch to get on and didn't seat properly. But he persevered, and the new rim worked. Just shows that it pays to look around in dumpsters.

After destroying rims with motorcycle tire irons getting tires on and off, Keith eventually learned a thing or two about rims and tires, discovering that he could cut 700c x 40 hole rims down to 26" MTB rims with 36 holes and 27"x 36 hole rims down to 26" rims with 32 holes. He's slow I guess.

Hundreds of rims later, after KB and company got tired of fooling around with these extremely spendy, hand made units, he talked to Art Wester at Mavic, and convinced him that the MA40s really could be used off road, and that Mavic should make them at their factory. Weird as it seemed at the time, Art went for it. Art's a cool guy.

So the weird, scrounged out of a dumpster, hand made rims started us all off down the trail on the hoops we ride today. Some of these prehistoric units are still proudly (wisely?) in service. The folks at the MTB Hall of Fame even thought it was worth a spot on the roster for KB at one point. MBA called them one of the ten best MTB parts ever. Ever! KB attributes it all to chemistry and his dumpster diving habit. Some focus on luck. No one will ever know for sure.

Bontrager rim designs have been evolving ever since. After the Mavic boyz went off on their own way (a smart move it would seem) Weinmann and Bontrager hooked up. The initial creations were a new style of single wall rim, the BCX 1,2, and 3. These lightweight rims were designed to be more economical, easier to set up, and stronger than the run of the mill singlewall rims of the time. They were tricked out to compete with the double wall rims back then, which was possible because these weren't all that good.

But the introduction of 8 and 9 speed wheels forced everybody in the lightweight rim business to take a new design approach. The increased dish that the 8 speed wheels required was a problems for the rims.They were short on lateral strength with the increased dish. This led to the new multi-cavity Red and Blue label rims to up the lateral strength. The only problem with the rims was due to some incendiary infrastructure problems down at Weinmann, no body could get them. They've worked those bugs out now, and the Red and Blue label rims still are the lightest race worthy rims available.

Rims

Red and Blue Label Rims

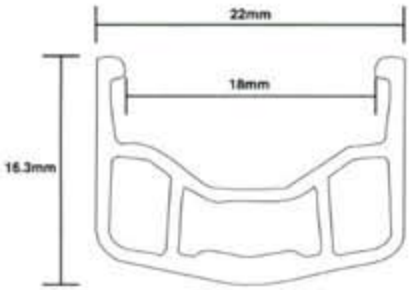
We recommend that the Red label rim be used on the front of the bike, and the Blue label rim on the rear. You can switch this around if you like of course, and Blue label rims work great on the front of a larger rider's bike. But you have to be careful with the Red label rim on the back of a bike. It's plenty strong, but the brake walls are thin, and winter use will wear through these in less time than many people's budget will allow.

Red Label Rims

Multi-cavity design
6061 T6 Aluminum
28, 32 or 36 Hole Pattern
13 mm Braking Surface
22 mm width
Brushed Finish
stainless steel eyelets
Weight 370 gm

Blue Label Rims

6061 T6 Aluminum
32 or 36 Hole Pattern
13 mm Braking Surface
22 mm width
Brushed Finish
stainless steel eyelets
Weight 410 gm



Since then, Keith has become intimately affiliated with another US rim plant out in Marshall, Wisconsin. This one is one of the few that can match the French folks' manufacturing power, with very advanced welding and machining capabilities. With a little design tweaking he modified the Red and Blue label rim cross sections to adapt them to a welded and machined rim design. The new rims are a bit stronger and the sidewalls are machined after welding for the ultimate braking surface. They also are designed to use single eyelets to satisfy picky wheel builders using aluminum nipples. These new rims come in three basic flavors: Mustang, Mavericks, Valiants, and the heavy duty Clydesdale MTB and Mack BMX rims.

Valiant

The latest design from Herr Bontrager. A derivative of the sweet race ready Mustang design, the Valiant is a taller profile, lighter weight rim intended to be the thinking rider's alternative to the recent rash of pre-built wheel systems. The taller profile adds considerable strength and stiffness, so we could go a bit lighter with the extrusion. These are the top of the line rims, intended for fast recreational riding and off road racing. Built up with quality components, these lightweight designs can exceed the strength and performance of any rims out there, including the new composite wheels and the Mavic CrossMax. If you are tempted by the latest round of fashion statements, think it over before you drop all that coin. Rims are consumable if you ride hard all year long. There's no way around it. Mud will grind them down. Somehow, somewhere, there's a sharp edged rock just waiting for you, and it has no fashion sense or economic sympathy at all. Rims will need to be replaced every now and then. Quality wheels built up carefully with our rims are clearly the best solution for hard off road use. Don't be a lemming. Save the money you are tempted to spend on weird new wheels for tires, chains, and beer.

Multi-cavity section
6061 T6 Aluminum
28, 32 Hole drilling
13 mm Braking Surface
22 mm width
Brushed or anodized finish
375 gram front
400 gram ASYM rear

Rims

Mustangs

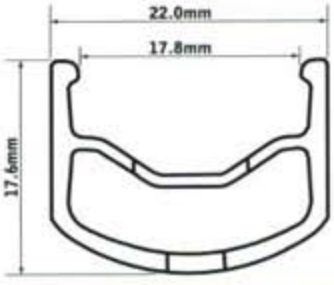
The Mustang rims are KB's lightweight, racing rim designs, which have come out of the development we did with Weinmann on the Red and Blue label rims. The basic multi cavity shape is modified to increase lateral strength (especially on 8 speed rear wheels) and allow the rim sections to be welded and machined. The rim profiles are pushed through the complex multi-cavity dies at a precision extruder, one of the few who can do it. The inner walls that run along the spoke nipple seats help the highly stressed spoke bed survive in severe service. We do this instead of using double eyelets because it works better. These rims have been in development for a while now, and are bulletproof in severe XC racing applications. They are made of premium 6061 T6 aluminum, and are available anodized or brushed in a variety of drillings.

front

Multi-cavity section
6061 T6 Aluminum
28, 32 Hole drilling
13 mm Braking Surface
22 mm width
Brushed or anodized
Weight 400 gm

rear

Multi-cavity section
6061 T6 Aluminum
28, 32 Hole drilling
13 mm Braking Surface
22 mm width
Brushed or anodized
Weight 430 gm



Mavericks

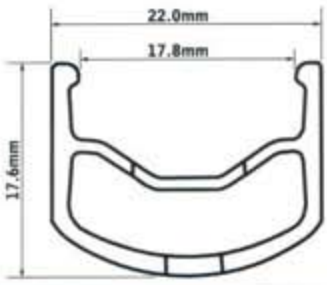
Our Maverick rims are basic box section designs, which are inherently strong, light, and less expensive to produce than the multiple cavity rim. The trick to building these right is to develop a wall profile that supports the spoke bed properly, without resorting to double eyelets, which add big $$. The Maverick's profile is dialed in with the front rim weighing 450 grams and the rear rim weighing 480 grams because the brake walls of the latter are pumped up for longer wear. Both are available with eyelets or without, anodized or brushed, in a variety of drillings. If you whacked a stock rim and are looking for a light-weight, durable replacement at a reasonable price, this is the rim for you.

front

Deep box section design
6061 T6 Aluminum
28, 32 Hole drilling
13 mm Braking Surface
22 mm width
Brushed or anodized finish
With or without eyelets
Weight 450 gm

rear

Deep box section design
6061 T6 Aluminum
32 Hole drilling
13 mm Braking Surface
22 mm width
Brushed or anodized finish
With or without eyelets
Weight 480 gm



THE GLORIOUS FUTURE

There are a full line of Bontrager ASYM rims coming - road and cross/hybrid/touring/trekking rims are in the works. Some very light (but expensive) mystery metal rims too. I don't know how much further we will be able to take MTB rims after this.

Dedicated wheelsets like the CrossMax are interesting, but do they really think there is some kind of performance optimum at 26 holes or are the marketing folks taking the wheel ??? You can do as well putting together a wheel from good parts right now, and spend less in the process, though you won't get the nifty bag to carry them in.

There are a few fundamentals in the way of lighter/stronger/cheaper wheels (pick any 2). Tweaks here and there will make them better, but not by a huge amount. I don't like the new composite wheels much.

They're stylish but heavy, and not very practical. Who wants to send a wheel away for weeks to have a rim replaced? I think they'll pass soon. Lot's of skinny little metal spokes are where it's at in the dirt.

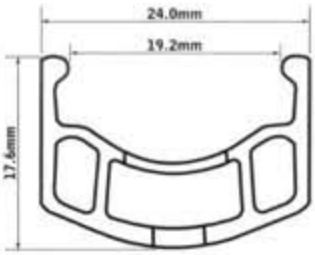
Rims

Clydesdales

The Clydesdale's intended for the big boyz and going fast downhill, but it will work in a lot of situations where strength matters. We recommend it for tandems (26" and 700c), fully loaded touring and trekking bikes and gravity assisted applications like Downhill and Dual Slalom events where a stiff rim helps to haul through corners hard. The 26" Clydesdale rim weighs a bit over 500 grams, incorporates all the trick features noted of the other rims above, and is stronger than anything out there.

Clydesdale front and rear

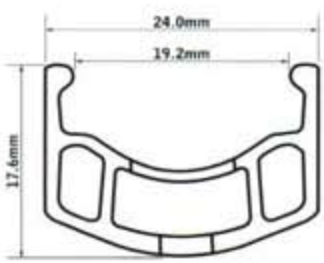
Multi-cavity box section design
6061 T6 Aluminum
32, 36, and 48 hole drilling
13 mm Braking Surface
24 mm width
Brushed or anodized finish
stainless steel eyelets
26" - Weight 510 gm



Mack

The Clyde section also gets rolled into 20" and 24" models for general thrashing, and we call it a Mack when it's made up for the derailleurless (BMX if you weren't sure) folks. We had to change the load cylinders in the test machine to a larger size because we couldn't break these built up on a 20" rear wheel. They are over twice as strong as a very strong MTB wheel. A welded and machined multiple cavity rim with eyelets raises the bar for BMX rims so much higher than the current MTB pork cast offs they use, it's going to be a while before it's appreciated.

6061 T6 Aluminum
36 and 48 Hole drilling
13 mm Braking Surface
24 mm width
stainless steel eyelets
Brushed or anodized finish
Weight: 20" - 370 gm,
24" - 470 gm



Bontrager ASYMS

The latest tweak in rims from KB is an asymmetrical version of the Mustang and Maverick cross section design. An asymmetrical rim looks like a drunken mistake, and we admit that this can happen sometimes. But it rarely gets this far before we spot it, so trust us that there's a real good reason for the strange appearance. The offset spoke bed strengthens heavily dished back wheels (and dished front wheels with disks) with almost no drawbacks.

There is a significant loss of strength in a dished rear wheel, especially when it's dished to 7, 8 or 9 speed spacing. The spokes that are on the drive side on the hub, shoved in toward the center to make room for the freewheel, are at the wrong angle to brace the wheel against lateral loads. This shortcoming weakens the wheel laterally and substantially. The spoke tension is way up on one side, and way down on the other. These disadvantages lead to more dead wheels than any other. Brake wear and rock dings are next but both are a kind of regional and riding style thing; the problems with a dished wheel are universal.

There are a few things you can do to address this problem too. Spread the dropouts and make the frame fit on a 140mm hub, but then everyone retools their jigs, whines a lot and the chain line gets lousy. Or you can add material and weight to the rim. This is even less popular in some circles. Better yet, you can make the rim asymmetrical, so the spokes attach off to the side, away from the freewheel and the spoke bracing angle is improved. 2.5mm of offset makes a rim that has spoke angles about like those of a 6 speed wheel. Much better strength, no additional weight. Spokes tension up evenly, and the length of the spokes will often be the same from side to side, a millimeter different at the worst.

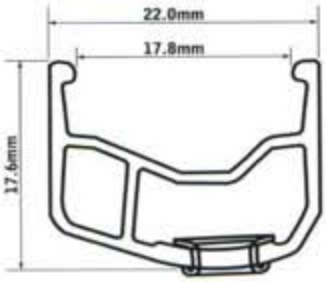
Disadvantages: structurally - none. The only thing that needs added attention is when applying the rim tape. Use good, wide adhesive tape and make sure it covers the off-center holes, and you're good to go.

Rims

Mustang Asym

The Mustang ASYM weighs about 430 grams. It has all of the features and advantages of the Mustang Rear rim, with a 5% to 10% increase in lateral strength. Available in a bunch of colors, drillings, and with ceramic coatings on the braking surfaces.

The original asymmetric rim.
Offset spoke bed reduces wheel dish on rear wheels and front wheels with disk brakes.
Better bracing angle and tension equity means ASYM wheels are laterally stronger.
Dual cavity cross section.
Welded joint.
Machined sidewalls.
Stainless steel eyelets.



Maverick Asym

KB worked out a Maverick ASYM design too. This is a very good solution to the 8 speed rear wheel dilemmas riders on LX and STX-RC bikes face. The rim is a simple box section with the spoke bed offset 2.5mm. It weighs about 480 grams. The design results in a large increase in lateral strength with no real downside.

ASYM design means offset spoke bed for serious reduction of dish on rear wheels and front wheels with disk brakes.

Extra tall 13mm machined sidewalls for easy brake pad set-up and better radial strength.
Single cavity cross section.
Welded joint.
Stainless steel eyelets.

Design considerations

More reasons why You should Buy Our Rims.
We've already hit on the problems that increased dishing of the rear wheels creates. In addition to asymmetrical rims, there are other ways that help make a durable rear wheel by strengthening the rim. This is hard to do without adding weight though. The best way is to increase the size of the rim's box section. A bigger cross section and thinner walls make a stiff structure that is also light. The theory works a little like the large tubes on an aluminum frame, a story that brother Gary tells so well I won't go into it here.

But we use each approach wisely, and push each as far as we can and still have tough hoops and stay away from the failures around the spoke holes and brake walls. The brake walls on our rims taper, thicker above the inner web than below, since this wall of the rim is not supported well by the rest of the section. This strengthens the brake walls during rock impacts, when the load is slightly eccentric. Most of the abrasive wear due to the brakes occurs in the center of the rim wall, and the tapered walls let our rim live a little longer since they are thicker where the wear rates are highest.

There are other tricks to make the brake walls last when the rims are abraded every time you put on the brakes. You can either spray a very hard coating on them (often referred to as a ceramic, but it isn't always) and this costs $$$. But it's necessary in Europe and Chehalis and other places where it rains a lot from what I hear. Or you can put a few extra grams of aluminum in the wall. The latter method works well, doesn't cost a mint, and keeps the rims turning for a good long time. We take the $$$ route with Mustangs and the other approach with the Maverick rims.

There are more brake wall details to point out. The curl we design into the top of the brake wall, the "hook" that helps retain the tire, has a flat directly over the wall itself. Many rims curl in gradually here. The flat portion makes the wall stronger if you smack a rock hard. The impact puts a compressive load on the wall we design, rather than the bending load on the gradually curved hook.

Welding and machining makes straight, round, flat rims that build up better. It makes a good braking surface, but all (non ceramic coated) rims are pretty equal in this respect after a few rides. Machined side walls makes ceramic brake wall coatings possible. The folks who build our rims out in Marshall weld the rims right. They are better at this than anybody - though this is not widely distributed news at this point. They know their stuff. The welds they make are strong, reliable, and finished well. Then they machine the rim's brake walls flat and true. Some of them are anodized, and some of them are coated with ceramic. There are none done better, no matter where they come from.

And we even put eyelets on most everything now so the picky wheel builders (like Tom at Sullivan's Bike Shop across the street) and gram geeks like us using aluminum nipples will settle down.

There are more design details to think about, but this is enough to give you an idea about how we think and why we do what we do.

Handlebars

You can count the number of people in the world who really know how to design handlebars on one hand, and maybe even not have to use all your fingers. We've worked hard at this for years. We understand handlebar design. A durable, lightweight bar is dialed in five critical characteristics:

Fit and function: It has to fit the bike and rider. Good tolerances and a variety of bends take care of this.

Impact strength: The bars have to survive big hits safely. They have to be strong enough to endure any and all (reasonable) loads they encounter on a ride. And, if you do something crazy enough to bend them, it has to fail in a safe, ductile way. That is, if the bar is subjected to an unreasonable load, it shouldn't shatter or fracture. Bend maybe (in the worst case), but in one piece.

Fatigue strength: In addition to occasional big hits, a handlebar sustains a lot of smaller loads, so it has to have good fatigue strength. This is a bit trickier, and it's the most significant thing you can design into a bar to make it safe.

Weight: By popular demand, a bar has to do all of the above and weigh as little as possible. It would be easy to make a bar that weighs 400 grams meet the strength requirements, but there's no challenge to it. Ours are as light as we can make them and still be confident in their durability.

Economics: The ugly science. We could build bars that only royalty could afford, but it wouldn't do most of us much good. We do our best to make high performance and durable parts that are also affordable. But we're the first to admit - performance is never cheap. You have to pay to ride, and you have to pay a bit more if you plan to ride hard.

Each of these is a relatively complicated property of the bar, and it takes a lot of work to sort it all out. But you have to - each is essential if you want to make a good bar. We won't offer bars that are not up to hard riding.. We ride with them too.

Race Ti Bar

After a year off, it looks like we are in the ti bar business again. I won't go into the details for the holiday here.

The new bars are 0.9mm straight gauge design with a constant 22.2mm OD.We supply a plastic sleeve (made of a material that grips the bar a bit better than the older design so the bars don't slip when you yank on the bar ends) to adapt them to the stem. The sleeve lets the bar flex a bit more, and it improves the fatigue strength of the bar. The ti tubing is shot peened to keep it in one piece. The bar is heavy enough at the ends to survive all but the most brutal impacts on the bar ends without reinforcements.

A comment about ti handlebars: 3/2.5 Ti is a wonderful material. It has excellent mechanical properties. But, a Race ti bar is not for everyone. If you have bent bars before, from jumping or riding bumps like an animal, go for an aluminum bar. If someone tells you to get a ti bar because ti is bullet proof, and they know because it says so in the magazines, smack him on the head and set him straight. The race ti bar is an excellent choice for experienced cross country riders and racers looking for a smooth riding bar with good fatigue strength.

straight gauge 3V/2.5AL titanium
560 mm length
5 degree bend
25.4 mm center OD (with shim)
Weight: 150 gm
Natural Ti finish

Race Lite Bar

The ultimate aluminum bar, formed from the strongest aluminum at the world's pre-eminent bar maker - Easton. The material is EA70, the strongest aluminum we can find (especially after they get through with it). The surface finish is the best there is. There is no other lightweight bar that will out perform or out last this bar in severe service. Not one! We set the bars up with BERTS so the stress put on them by bar end clamps in a crash won't crush them at the thin ends. We know you're not likely to crash, being the sane type of expert rider that you are, but we do it just in case something really strange were to happen. The BERTS add some weight, but we figure that the bars will save you some money over the long haul, so you can work a little less. That means you can ride more. The extra miles you ride will make you stronger. You'll probably be strong enough that you will be much faster than you would if you geeked out and bought some scary light things that fell apart. It's simple really.

EA70 aluminum
560 mm length
5 or 9 degree bend
25.4 mm center OD
Weight: 140 gm. (165 gm with BERTS)
Anodized finish - Silver, Black or Ti

Handlebars

Race Lite and Race Ti Bar

Race Bars

Most cross country racers and recreational thrashers don't take the big risks, which says a lot about their common sense. So they don't need the exceptional impact strength of the Race lite bar. But this kind of rider often puts on a lot of punishing off road miles. They need good impact strength and better than average fatigue strength. That's what the Race bar is designed to do.

The Race bar design has a much more sophisticated wall profile than any other bar at this price. The wall tapers from a maximum of 2mm in the center to 1 mm at the ends. This is hard to do, and only possible because we hooked up with the most sophisticated and quality conscious handlebar manufacturer in Taiwan. They draw the 2014 aluminum tubing to our specifications and then heat treat it carefully. Of course, the bar is shot peened and anodized so it lasts. It looks good, and works great, for a long, long time..

Handlebar material specifications are important. The 2014 alloy we use for this bar is a little less expensive than the premium 7000 series alloys (7050 or 7075), and a little easier to work. But it is spendier than 6061 and tougher to form. It has a bit less impact strength than the 7000 series alloys, but it is much stronger than 6061. Our Race bar has enough impact strength to survive very rigorous cross country riding and racing easily (really... you have to land from a very big jump in very bad shape to sag them) and its fatigue strength is almost identical to that of our Race lite bars. That's why we specify it.

The complex butting of the Race bars means that they are too thin at the ends to survive a big crash on bar ends without reinforcements. So we include Bar End Reinforcement Things to add strength in this area. The BERTS add some weight, but we don't see this as optional; it doesn't make sense to risk expensive handlebars in a crash. There is no better performance bar available for the money. It's the truth.

2014 aluminum
560 mm length
5 or 9 degree bend
25.4 mm center OD
Weight: 145 g
Anodized finish - Silver, Black or Ti

Race Bar

Comp Bar

Our Comp aluminum handlebars are our basic off road bar, but they are still suited for severe off road use. They cost less, but they work.

The bars are not rubber stamped import bars; we don't do it that way. The Comp bar is perfectly suited for a hard rider who doesn't have the cash for a premium bar.

This isn't easy to do. The taper location and outer shape is very carefully designed - small changes here are important, but you won't know unless you spend a lot of time on stress analysis and testing. The bar is strong enough in the middle to hold up in vigorous off road use, and it is just thick enough at the ends to resist most damage from crashing on bar ends (unless you really blow it).

There are a lot of basic off road bars. How does ours differ? They're light, strong, and reliable. That's as good as it gets.

This bar performs similar, at a lower weight, to the current Race bar in all of our testing. The main benefits are that you do not need BERTS (this is especially helpful in-house with assembly issues) and that these are wide bars.

The Comp Bars are constructed from 2014 T6 aluminum and feature a constant wall thickness. BERTS (Bar End Reinforcement Things) aren't required because these things are burley from center to ends.

Our high value, high performance aluminum bar - great for poverty stricken riders!

2014 aluminum
560 mm length
5 degree bend
25.4 mm center OD
Weight: 180 g
Anodized finish - Silver, Black or Ti

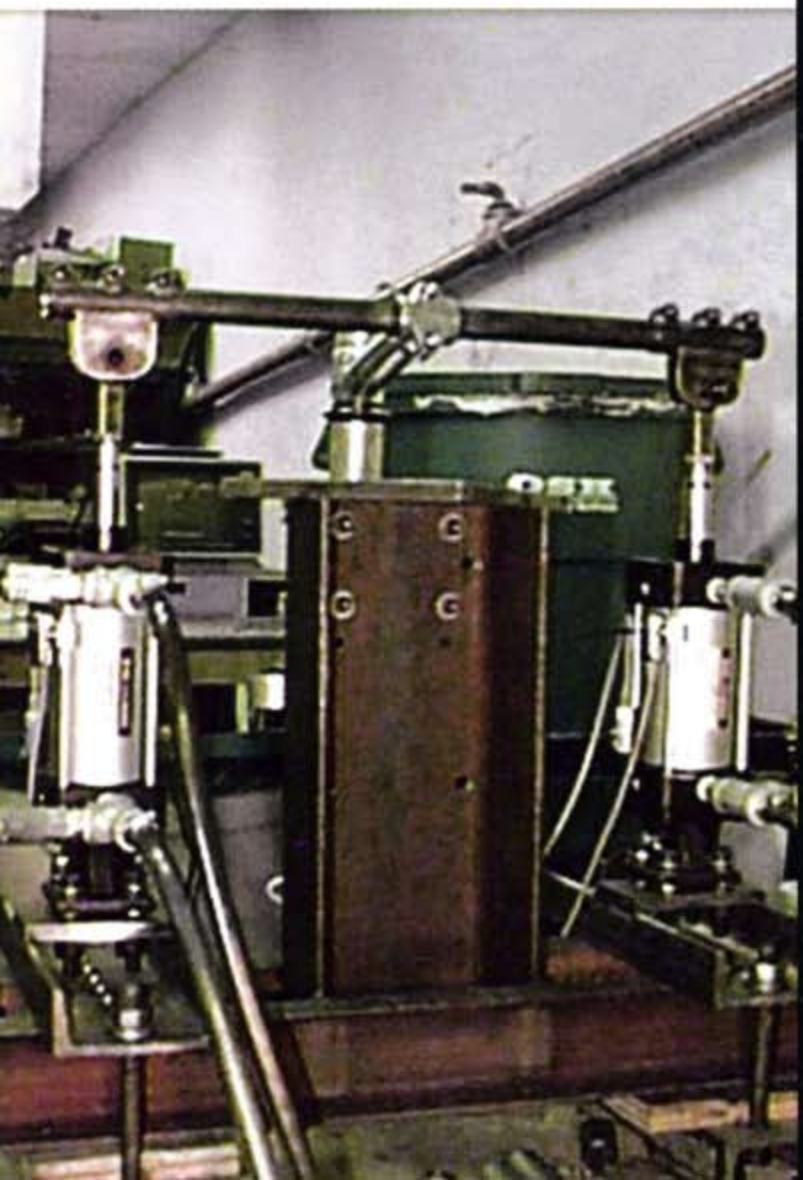
Handlebars

Comp 2 Bar

Comp II's are just under an inch wider than most of our flat bars providing more leverage in turns. Constructed from 2014 aluminum, these bars have a variable wall thickness with reinforced ends for use with bar ends. They are shot peened and anodized in black or silver.

2014 aluminum
580 mm length
5 degree bend
25.4 mm center OD
Weight: 150 g
Anodized finish - Black or Silver

Comp 2 Bar



Hi- Rise bars

Hi-Rise, or double bend bars pose an interesting dilemma for us. You're reading this right now probably because you have heard at least enough good things about Bontrager stuff to spend your time reading more about it. That reputation is the result of a whole lot of years of making parts and bikes that just make good riding and engineering sense. So on to the dilemma. Opposed to a regular flat bar with a higher angled stem, hi-rise bars have an extra bend on both sides. This is not a good thing. In fact, they're lame. That double bend will make them heavier, weaker and more expensive no matter how you make them. Hi-rise stems, not bars make much more sense.

But there's a huge problem with this, not a technical problem, something far worse. Wide flat bars with hi rise stems will not work because no one will like the way a high rise stem looks. A wide flat bar and hi-rise stem are not cool. Fashion uber alles.

So we'll play along and we'll make them better than anyone else, because wider bars do make sense for a lot of people, simply from anatomical arguments. Just look at what the roadies know. The width of a bar should be proportioned to the rider's shoulders. Bigger (wider?) rider, wider bar. And maybe wider bars are better in some circumstances for riders of more typical stature. That is, maybe we've all been riding on bars that were designed by folks who win the climbs in pro races, and then just float down to get ready for the next climb. I think the wider bars are showing riders another way to fit on a bike, and letting them do some things on the bike in an easier way. The extra height and width can make it easier to hang on when the going gets real rough. You are braced better for big hits when your hands are spread wider and it adds confidence when you get into the sketchy stuff. Maybe this even fits with full suspension and the way rider's habits and preferences are changing.

So count us in- we've even gone so far as specing our double bend bars on our '98 Privateers. Bontrager Crowbars will give you all the leverage you'll ever need. And they look cool too.

Bar Ends

Crow Bar Comp

The Crow Bar Comp is constructed from 4130 steel and has a one of a kind welded crossbar. Its 40mm of rise helps you maneuver through technical sections with ease.

4130 steel
620 mm length
9 and 13 degree bend
40mm rise
Weight: 380 g
Black powder coat

Crow Bar Comp

Crow Bar Race

The Crow Bar Race is fabricated from 2014 T6 aluminum. Its double bend features 40mm of rise and it is offered in a 9 or 13 degree bend. This bar is best suited for technical cross country riding.

2014 Aluminum
620 mm length
9 and 13 degree bend
40mm rise
Weight: 280 g
Anodized finish - Black

Crow Bar Race Lite Ti

The Crow Bar Race Lite Ti is constructed from 3V/2.5AL titanium and has a one of a kind welded crossbar. Like the Crow Bar Comp, the 40mm of rise helps you maneuver through technical sections with ease.

3V/2.5AL titanium
620 mm length
9 degree bend
40mm rise
Weight: 320 g
Natural Ti finish

Race

The dialed in bar end shapes at basic prices - for hard core riders who aren't rich, or who are and know better. We started with our proven bonded bar end design from the old days, improved the clamp, and took it to a company that produces multi axis forgings (very trick machines!). The design was not changed a bit and it worked. We ended up with a lightweight, less expensive one piece aluminum bar end that works. It has all the critical features of our elite units, forged from 6061 aluminum, a textured surface to give it some grip, fasteners that are tucked away so that they don't dent your knees, 3 bend options...the whole thing. And, it's only a bit (about 15 grams - but don't quote us - things change) heavier than the Race Lite parts. You can't get it exactly the same for less $ - life doesn't work that way. We did our part; the rest is up to you.

6061 Aluminum
Short, Ski, and Long sizes
115 gram/pair short
Black or Silver

Race Lite

Our lightest bar ends - all the performance and durability you could ever reasonably want unless you work for a magazine.

We designed forged aluminum clamps (not a rubber stamp job), specified magnesium extensions (often imitated now - we're flattered), covered them with a textured powder coating (the plastic stuff has little rocks in it that make it rough) and then stick it all together with a little bit of glue (well.. adhesive). The clamps leave room for your hands and hold the bar tight. The texture makes them easy to hang on to. The durability designed in lets you ride more. They are available in three bends for your riding pleasure.

6061 Aluminum clamp w/ Magnesium extensions
Short, Ski, and Long sizes
100 gram/pair short
Black

Race Lite - short

Race Lite - ski

Race Lite - long

Grips

Grips, like underwear require that you respect a few basics in design; the rest is a matter of individual taste.

Many riders, especially novices, believe that a grip should be big and soft, like a pillow, so the cushion it provides makes rough riding easier on your hands. I don't think it works this way. Thick, mushy grips tire out a rider's hands and forearms because they act like hand exercisers. Holding onto a grip like this is like squeezing a tennis ball and your hands will fatigue rapidly or cramp up. This is not a good thing.

A skilled rider does not normally use a death grip on the bars when he or she rides, but occasionally they have to hang on tight. And people with small hands (especially women and kids) need a small grip to be able to hold on and operate the brakes effectively at the same time.

We design grips with all this in mind. I think simple, relatively small diameter shapes are best for most riders. The surface of the grip should have good traction with your gloves, so it isn't slippery and you can use your arms and upper body to control your bike in technical sections and in the air. Our grips are made of Kraton rubber or foam, materials that are soft enough to take some of the sting out of bumps, but firm enough to not tire your hands and arms out in the rough stuff. We offer a number of different overall shapes and textures so you can pick the one you like and the one that fits you the best.

We ride with gloves and you should too (gloves are a good idea when you bail), so our grips are designed to be used with gloves. Keep this in mind when you check them out in the shop.

We designed these grips to work with or without barrel type (Grip Shift) shifters. Some are supplied in the right length for this application and others need to be trimmed down a little (we make a groove for you to do this), if you don't want to add length to the grip area.

Race Lite Grip

A very light, simple foam grip. Facets for control and enough give to take the edge off bumps. The Race Lite grips are ground out of a light, dense foam. They are faceted along their length to give your forearms some leverage on the bars, and they're grippy enough to ride comfortably in the rain.

Only 6 grams/pair - the ultimate lightweight grip.
Hi-density foam for comfort and control.
Bar end plugs included.

Race Grip 1

A very small diameter textured Kraton grip. The solution for control of the brakes with small hands. Their minimal diameter leaves smaller riders with plenty of finger wrap to grab brakes and still hold onto the bars. They are designed to be used with gloves (a sensible thing to do, we all crash sooner or later). It could happen.

Super thin design for ultimate control.
Super thin wall design allows more finger wrap, better access to controls.
Excellent for racers and riders with small hands.
Bar end plugs included.

Race Grip 2

Our original thin Kraton grip design. It features a soft rubber compound for comfort and simple, lateral ribs provide traction. They have a small diameter and the rearward facing half of the gripping surface is smooth. There are small lateral ribs that are under your fingers, and these provide you with traction. They leave you with plenty of finger wrap to grab brakes and move your hands around on the bars. Designed to be used with gloves.

Bar end plugs included.

Stems

Dual Compound Grip

The thinnest dual compound racing grip available. Our dual compound grips are thin to minimize the "hand exerciser effect" (like squeezing tennis ball while you ride) but they're still soft enough to keep your hands comfy, or at least enough to keep them from from getting bruised.

Hard inner compound material resists rotation against handlebar.
Soft outer compound for comfort and control.

Comp Grip

A slightly thicker, soft Kraton grip with pronounced lateral and radial ribs for traction. A very good grip for technical riding. Our Comp Kraton grip has deep lateral and radial ribs, and diamond knurling between them all to provide traction in the worst of conditions. The grip is a little thicker than our other Kraton grips and is molded in a soft rubber for a bit of cushion in the rough stuff.

We dialed in our heat treated steel stems just about the same time that everyone decided that threadless headsets were a trend worth following. Bummer.

So, given all that, and our historical position of tremendous power and influence in the industry, we are facing the death of the quill stems we have so dialed in, powerless to point out that the Emperor is naked, ugly, fat, and dumb too.

So being ones to joust windmills until only slightly after the point of looking ridiculous, we pointed our engineering horsepower to develop an improved stem for threadless systems too.

Race Quill Stem

The long time standard, a welded steel quill stem. Heat treated tough with a range of sizes. We've been refining our steel stem design through rigorous testing and development for years. The current stems are the result of our understanding of the requirements for a durable, lightweight design, and very capable manufacturing, a combined effort. They are made from fully heat treated 4130 steel, feature a (very) butted quill, a full length wedge draw bolt, a wide bar clamp, and a rigid forged binder boss. Stronger, lighter, better...

Tig-welded 4130 heat treated steel.
1" and 1 1/8"
90, 105, 120, 135, 150 mm lengths
10° rise
90 mm - 260 grams
Black

Road Quill Stem

We've been refining stem designs for years. The road stem is a result of our technology and overseas manufacturing capability combined. It features a butted, heat treated design with a revised stem bolt for ease of tightening.

Tig-welded 4130 heat treated steel.
1" - 90, 100, 110, 120, 130 mm lengths
0° rise
90 mm - 260 grams
Black

Race AHS Stem

Our forged aluminum stem for Ahead Set systems has a dual binder clamp with the bolts turned to the side so you are less likely to bang your knee's on them. The clamp is designed to hold, and it does. The design also has a dual binder handlebar clamp to make stem changes quicker and easier.

Forged 6061 T6 Aluminum.
1" - 90, 105, 120, 135 mm lengths
1 1/8" - 60, 90, 105, 120, 135, 150 mm lengths
7° rise
90 mm - 185 grams
1" comes in Silver finish
1 1/8 comes in Silver or Black finish

Seat Posts

Seat posts are simple, and all any reasonable rider wants is a post that holds the saddle up, under any condition, weighs about as much as a cup of coffee, and costs about as much too. That's not too much to ask for is it?

Sorry, it is too much. The last one is the killer. But we get as close as we can, and it's not simple. Under normal circumstances, there's not much to worry about. Almost anything will support your weight and connect the saddle to the bike. That's what a lot of bikes come with as standard equipment. The trouble starts with the abnormal (read your manual owners manual for a list of abnormal use - it's comical), unpleasant things you do to the post when you ride.

Out on the trail or race course you hit bumps. Hard. Maybe you're sitting on the front or back of the saddle, so the loads on the post go way up. And when (not if) you crash, that saddle hanging out in the breeze takes part of it every now and then, and the post absorbs part of the hit. Badly designed seat binder clamps on frames don't help. All this and more makes seat post design complicated fast.

We've worked through all of this brutality though. Our seat posts are light, easy to set up, and do their job reliably in the most extreme conditions.

Last year we designed a new aluminum forging for the clamp from scratch. Forging is the way to go for this kind of part. The new clamp is easy on the saddle rails and lets tilt to any angle in a large range so you can dial in your saddle position. The 6mm screws that clamp the saddle in place are easy to get to so the post is simple to adjust. And, once you've set it, it stays in place. The new 6061 clamp forging is trimmed, tumbled, and anodized; we don't polish them. Shiny parts are a waste of money, and hard core riders know better than to think that a polished part is better - form follows function, right?

Race Lite Post

This is our trickest post. There's no post out there that is stronger. There are a few that are a little bit lighter, but remember, you have to finish the race to win. Racer or not, riding without a saddle sucks!
The Race Lite quill is drawn and butted out of EA70 aluminum by Easton. We finish the part with a pad print and thick anodized coating so it's got a durable finish. Then the quill is bonded to the clamp with fancy glue. The result is a light, strong part that holds your saddle on. That's about all you can want from a post, right? If you're big, ride hard, or want one of the trickest seat posts around, this is the one for you

The strongest, lightest post we make. A few bucks more . . . but you've got to pay to ride.

Butted EA 70 Aluminum.
26.8 mm dia. - 250, 350, 390 mm lengths
27.0 mm dia. - 390 mm length
27.2 mm dia. - 250, 350, 390 mm lengths
250 mm - 211 grams
390mm comes in Silver or Black finish
250mm & 350mm come in Silver

Comp Post

We use a straight gauge quill made of 2014 T6 aluminum for the Comp post. It's strong and light, and we make it to exceedingly tight tolerances so it will fit your frame correctly.

A straight gauge quill works pretty well on a seat post like this, since the loads at the top are pretty big. As is the case with our Race bars, properly heat treated, this material has very good strength, both fatigue and in impact. It is also relatively predictable and straight forward to process on the draw bench which makes it less expensive than 7075 or EA70 aluminum. The 2014 quills are strong enough for all but the most brutal, heaviest riders.

The Comp seatpost is a high performance seatpost design that costs a bit less than the Race light post and weighs a bit more; a good choice for the economy minded. I hope you've caught on and have some respect for the amount of work we put into this kind of part. The same goes for this post. We want to get close to the same performance as the elite level stuff, as close as we can, but at a lower price. We're happy with the result.

2014 T6 Aluminum.
26.8 mm dia. - 250, 300, 350 mm lengths
27.0 mm dia. - 250, 300, 350 mm lengths
27.2 mm dia. - 250, 300, 350 mm lengths
31.6 mm dia. - 350 mm length
250 mm - 260 grams
350mm comes in Silver or Black finish
All other lengths come in Silver finish

Saddles

Its not always smart to base your purchase decisions and opinion on what the best riders in the world use, but for something so prone to rider comfort and maneuverability as a saddle, it may be of note. After all the Olympic posters came out last year we noticed two things. Both Gold medal winners were on Bontrager SSM saddles. Sure, on some posters of Bart our logo has been electronically removed (moral here- don't believe everything that you see), but we know that it's one of ours. It is just a good design that has been well received.

The patented part of the Bontrager saddle design is pretty simple. After a few years of watching how riders use their saddles, Keith noticed that no one really uses the 'wings' or way back sides of the saddle, and they got in the way when you wanted slide your weight back. We experimented by chopping this part off of some old saddles, gave them another try and didn't miss the part that was now on the shop floor. This had two beneficial effects. First, you could slide your butt off the back of the saddle much easier and second, less saddle, less weight. It's pretty simple.

This basic design comes in a couple of widths, with '+10' denoting the wider versions. Labeling this the women's version would make the focus a bit more narrow than it needs to be. Try both sizes and ride the one that fits better- a narrow saddle won't make you go faster. But a saddle that is uncomfortable will prevent you from having fun. We offer it in a few different covers and with steel (the Comp), hollow cro-moly (Race) or titanium rails (Race Lite) rails.

Fancier models of Bontrager Saddles from Selle San Marco (SSM) include the Furtado and Pezzo signature versions of the Race Day saddle. Both have a small gel bowl half way up the nose of the saddle where women tend to uncomfortably bear more weight. A few of the guys around tried it and liked it, so we made a men's version as well.

The latest development for Bontrager saddles is a version we're calling the 'FS'. Obviously we've also spent countless copywriting dollars making up the name. It stands for 'Front Suspension'. Think about climbing a really steep hill- where you have to keep your weight on the saddle to maintain some traction. But you also have to shift your weight forward to keep the front end on the ground. So as a result, you end up sitting right on the tip of the saddle, in a far more intimate position than most of us find comfortable. So what we've done is made the tip of the saddle slightly wider- a little more surface area to sit on. We also gave the front end a bit of suspension by adding an elastomer style nose. Try it- it actually works. Available in the usual covers, colors and rail versions.

Bontrager Comp+10

Vinyl cover
Steel rails
320g
Black

Bontrager Race

The original Bontrager saddle design, with clipped corners for easy exit/re-entry during technical maneuvers.

Leather cover
Cro-moly rails
240g
Black

Bontrager Race +10

For riders wanting a slightly wider saddle, we've added an extra 10mm width at center and rear.

Vinyl or Leather cover
Cro-moly rails
280g
Black

Saddles

Bontrager Race Lite

For riders wanting a slightly wider saddle, we've added an extra 10mm width at center and rear.

Leather, Perforated Leather or Kevlar cover
Titanium rails
215g
Black

Bontrager FS - Race

The shell features flatter surfaces for increased comfort and support. The wider nose is sculpted with a drop for easy forward entry/exit. The patent pending suspension design is easy on the butt on long steep climbs.

Leather cover w/Kevlar corners. With or w/o embroidered B-dot.
Cro-Moly rails
270g
Black/Red

Bontrager FS - Race Lite

Leather cover w/Kevlar corners. With or w/o embroidered B-dot.

Titanium rails
245g
Black/Red

Bontrager FS+10 - Race

Same FS, but features a wider shell for added support and comfort.

Leather cover w/Kevlar corners. With or w/o embroidered B-dot.
Cro-Moly rails
310g
Black/Red

Bontrager FS+10 - Race Lite

Leather cover w/Kevlar corners. With or w/o embroidered B-dot.
Titanium rails
285g
Black/Red

SSM/Bontrager

The classic Bontrager saddle designed for on/off road sport riding and racing. Made in Italy by Selle San Marco.

Available with leather cover, leather w/kevlar corners, perforated leather, kevlar cover, and embroidered b-dot.
225g - Cro-Moly rails
200g - Titanium rails
Black, Gray, Black & Gray, or "Dizzy Izzy" pattern.

SSM/Bontrager Race Day

The classic Bontrager saddle with special filled soft tissue "relief zone". Made in Italy by Selle San Marco.

Men's or Woman's
Leather cover w/kevlar corners.
285g - Cro-Moly rails
260g - Titanium rails
Black/Yellow/Gray or Blue/Yellow

Clothing

Musette Bag

The Bontrager musette bag is styled after the traditional European bags but made from a durable cotton canvas that is meant to last. If they used these in the tour the roadies would toss the lunch and keep the bag.

One Size

Cycling Cap

Traditional, 100% cotton cycling cap. The Bontrager logo is silkscreened on the sides of the cap and onto the underside of the visor.

One Size

Stocking Cap

Acrylic beenie with the Bontrager logo on the front. Won't fit under a helmet and wasn't meant to. Still good for keeping your noggin warm.

One size
Black

Team Jersey

Team issue jersey for the Bontrager Cycles Mountain Bike Racing Team. Ultra-Tec™ fabric wicks moisture away from the body keeping the rider comfortable, while an 18" zipper allows for venting on hot days. The raglan sleeve design fits a wide variety of sizes. Three deep pockets hold your goods.

Long Sleeve S, M, L, XL
Short Sleeve S, M, L, XL, XXL

Clothing

Team Short

The team issue short of the Bontrager Cycles Mountain Bike Racing Team is made from heavy, 8 oz. Lycra® and cut in an 8-panel construction for a contoured fit. The anti-bacterial, Classic Ultra Pad chamois is sewn with flat seams for comfort and utilizes a baseball cut that is comfortable for both men and women. Sublimated Bontrager® logo.

S, M, L, XL

Team Sock

Socks are the T-shirts of the nineties- don't be left barefoot. Made by DeFeet™, this uniquely designed "Air E Ator™" sock is highly durable, comfortable and designed to wick moisture away from the body and keep feet dry. Bontrager B-Dot logo knit shamelessly into the cuff.

Grey S, M, L, XL
White S, M, L, XL

Hooded Sweatshirt

Hooded pullover sweatshirt in a cotton/polyester blend. Thick, warm and as you would expect, bloody stinkin heavy. The Bontrager B-Dot logo proudly screened on the back and front left chest.

Black L, XL
Green L, XL

Logo T-Shirts-Short Sleeve

100% cotton short sleeved T-shirt with the Bontrager B-Dot logo silkscreened on the front and the back. You'll love it when it's full of holes and by a unique proprietary Bontrager exclusive design, turns into the best bike rag ever.

Smoke L, XL, XXL

Clothing

Spandex Free Long Shorts

These long legged, baggy shorts are designed to be worn over traditional cycling specific shorts. The nylon fabric dries quickly, so the short is also great for water sports or anything sweaty. Nylon front and Cordura® butt are extremely durable, so these shorts will hold up well on the climbing wall as well as against a bike saddle. The gusseted construction also allows for easier movement.

Graphite w/Black S, M, L, XL
Khaki w/Black S, M, L, XL

Skull Cap

This piece sports Polartec 200™ fleece against ears, back of neck and forehead as well as Thermatec™ fabric on the top of the head. It fits snuggly under a helmet and will soon be seen on the fashion runways of Paris. Really.

Cranberry w/Black One Size
Graphite w/Black One Size

Santa Cruz Fog Jacket

This jacket fits like a mechanics jacket but has a mud flap that folds down to keep your butt dry. Made from a durable, wind and water repellent nylon, it is ideal for casual riding, general wear or light snowfall.

Brown S, M, L, XL
Graphite S, M, L, XL

Technical Jersey

This traditional cycling jersey is made from a high performance polyester fabric. Traditional, 3-pocket design with elastic at the top of each pocket. Subtle colors, and Bontrager B-Dot logo embroidered on the left chest.

Long Sleeve

Blood Red S, M, L, XL
Graphite S, M, L, XL

Short Sleeve

Blood Red S, M, L, XL
Graphite S, M, L, XL

Clothing

Wool Jersey

Completely washable, this 100% Merino wool jersey acts as an excellent insulator even when wet. A traditional 3 rear pocket design with elastic at the top of the pocket. Made in the USA.

These jerseys should be hand or machine washed in cool water and laid flat to dry. They'll still shrink a bit, so we've cut them a size large. Allow for about 3" of shrinkage in the length and 5" of shrinkage around the body.

Long Sleeve
Cranberry S, M, L, XL
Black S, M, L, XL

Short Sleeve
Burnt Orange S, M, L, XL
Cranberry S, M, L, XL

Full Zip Knit Vest

Wool/acrylic blend knit vest is thick, warm and functional. Roomy, zippered front and rear pockets plus a full zippered front. Hats off to the inventor of the zipper.

Black S, M, L, XL
Burnt Orange S, M, L, XL

Full Zip Sweater

Just like the vest, but this version has sleeves and a stripe in the middle.

Black w/Olive Stripe S, M, L, XL
Olive w/Burnt Orange Stripe S, M, L, XL

What makes a Bontrager a Bontrager?

The Key to Great Handling

Bontrager frame design has been considered atypical by many a rider, but the 71° head and 74° seat angle was settled on a number of years ago. Since then, we've tested tighter, steeper and shorter frames in a number of combinations and they all worked well in one way or another. But none worked as well as the current design in the wide variety of conditions that a serious off road rider encounters.

Think about it. Midway through a long hard ride when a riders reactions have slowed due to fatigue, a twitchy, nervous handling bike will only slow you down. By requiring more attention and concentration a poorly designed bike will slow you down and cause you to make mistakes. The less a bike demands of you, the faster you can go.

Here's how it works: Bontrager builds bikes with a 1.25" rake, the shortest in the industry, to increase the trail (notice the black steering tube crowns- this denotes the unique offset). Its pretty well know that the greater the trail, the more stable a bike. (Particularly at high speeds). This also shifts the center of gravity of the bike and rider forward to increase front end traction. Most bikes start to drift in the front before the rear in hard cornering. Our geometry helps keep you upright and allows greater cornering force as traction in the front is higher, closer to even with the rear. This is the main reason our frames consistently get rave reviews on handling.

Top Tube Cable Guides

Built with investment cast steel for tig welding, these preserve the strength of the light gauge tubing by reducing the size of the heat affected zone, locating it around the sides of the tube where the stresses are smaller. Stock on all Bontrager frames.

Chainstay Gussets

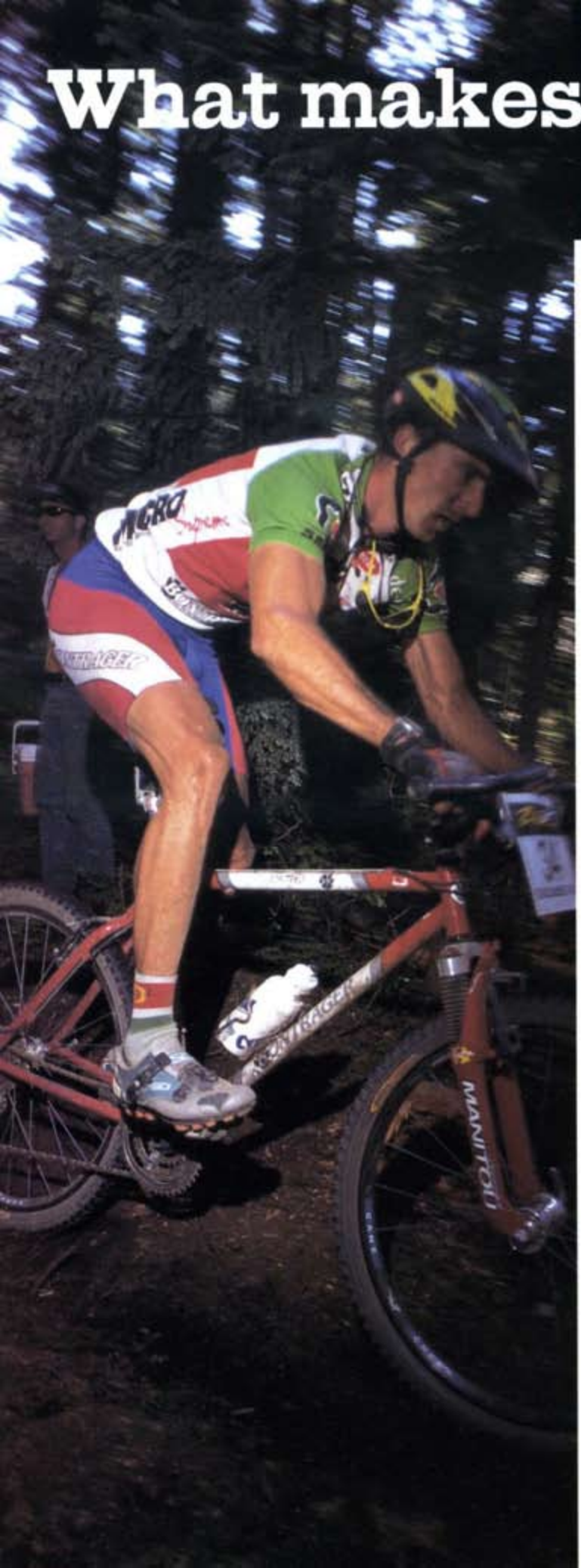
As you ride through mud, the rear tire throws gooey stuff all over the back of the frame. Some parts of the frame tend to collect large quantities of the spray. The triangle of tubes made up by the chainstays and the chainstay bridge are a perfect shelf to collect a couple of pounds of slop.

The Bontrager design substitutes a pair of gussets like those on the front of the main triangle for a chainstay ridge. This eliminates the mud shelf, strengthens the stays and protects the stay from the chain as well. Traditional frames fail behind the bridge so frequently that the increased strength is not only welcome, we feel it's necessary. Stock on our Race and Race Lite frames.

Headtube Joints

The downtube intersects the headtube higher up the headtube than on traditional frames. The lower headtube, where the headset cup is pressed into, is affected less by the heat of the joint because of this. A hard rider can stretch some headtubes out of round by landing hard, while the high strength maintained in the Bontrager headtube prevents this from happening. Stock on all Bontrager frames.

What makes a Bontrager a



Gussets

Bontrager is famous for gussets. No one does them better, no one understands the reasons behind them as well. Steel tubing is not strong in the region of the welded or brazed joint. Period! It doesn't matter how it is heat treated before the frame is assembled- after the joint is heated and cooled during any of the traditional jointing processes, it has only a fraction of its original strength.

The unique Bontrager gusset design distributes the loads so that the portion of the tube that feels the highest stress is left in the same heat treated condition it had when the tubing manufacturer finished with it. This increases the strength of the joint by 30% to 60% depending on the tubing and the assembly method that you compare it to. No matter what sort of celebrity status the person holding the torch has acquired, or how many yen the robot cost, the advantages of premium tubing are lost in the critical areas of the frame unless in is assembled with gussets like ours.

In addition, our gusset design removes the stress concentration that occurs at the bottom of the tubes where they meet the headtube. This accounts for another substantial increase in strength. The gusset on our frames is shaped differently that the few others out there, though some builders have figured out how it works and have copied it. The finest form of flattery. No other gusset design works as well. The key is the attachment. The sides of the tube are not highly stressed and can withstand the tig welding attachment of the gusset without problems. The end of the gusset is then left open because the centerline of the gusset is

Bontrager?

the area of highest stress. If you weld across this area, it reduces the strength of the tubing by about one half, yet a whole lot of gussets do just that. The Bontrager gusset finishes in two points to direct the stress in the tube gradually.

If you crash your bike by hitting an obstacle head on, the front end of your Bontrager is 2 to 3 times stronger and more likely to survive than a frame assembled by traditional methods. Stock on all Bontrager frames.

Rear Wishbone

The problem with traditional seat stays designs only show up on off road bicycles with powerful braking systems and with today's V-brakes, they are everywhere. The force of the brakes put on the brake boss forces the stays to bow out. This makes the brakes feel mushy and can severely affect the performance of the brake when wet.

Wishbone rear ends shorten the load path between the bosses around the tire and make this brake post area stiffer. The Bontrager wishbone uses a very stiff loop from the brake post around the tire and then uses the lightest tubes possible from the loop to the dropout and seat cluster. This means the rear brakes on our bikes don't have the characteristic mushiness that other steel frames have. The feel is better so you can be more precise when braking. Stock on all Bontrager frames.

Rear Dropouts

Dropouts are a common failure point on traditional frames. Bontrager solved this problem by using 4130 steel plate cut to our own shape rather than using a soft steel forging. Stock on Race and Race Lite frames.

Heat Treated Stays

On the Race and Race Lite, our use of Aus Tempered heat treated tubing includes the seatstays and the chainstays. They're heat treated for strength and impact resistance. This is not common in our industry, but it makes a better bike. The chainstay, where chain slap after chain slap smacks the tube, needs it. Plus, the greater strength allows for lighter tubing.

Cro-Moly Headtube and B/B Shell

The bottom bracket and the headtube are cro-moly. Spec charts never say it, but almost everyone else uses simple high tensile steel in these areas. We could cut the corners and not heat treat the stays and make the head tube and B/B shell out of hi-ten like everyone else and no one would notice. Except for maybe a rider five years down the road with a broken bike or maybe one of our NORBA pros on the last lap in the heat. Or maybe it's just us. We know how to build bikes a bunch a ways, but we only sell the ones that we would want to ride ourselves. So we build them as best we know how and sleep well at night. Stock on all Bontrager frames.

What makes a Bontrager a Bontrager?

Why are Bontrager Bikes more expensive?

1) Bontrager Gussets.

No one does them better, or uses them more effectively and liberally than Bontrager. If you crash your bike by hitting an obstacle head on, the front end of your Bontrager is 2 to 3 times stronger and more likely to survive than a frame assembled by traditional methods. Gussets are time consuming and expensive but they make a bike stronger, and lighter, since we can use lighter weight tubing.

2) Cro-Moly Bottom Bracket and Headtube

The bottom bracket and the headtube are cro-moly. Spec charts never say it, but almost everyone else uses simple high tensile steel in these areas. Hi-ten is appropriate for cheap department store bikes, while Cro-Moly weighs less, costs more.

3) Frame Details

The weld-ons are investment cast and the rear dropouts are cut from steel plate. This is considerably more expensive but doing it this way is substantially stronger. Broken dropouts and weld-ons are the forgotten Achilles heel of frame design. A broken cable guide, brake boss or dropout will put the kibosh on a good ride as quickly as a broken downtube.

Ok, it's a great frame, but will anyone notice the subtle, expensive differences?

Only if you ride it. Long, fast and hard. Its design has dialed it to rail in singletrack and inspire confidence everywhere else. It will perform day after day, year after year. The challenge is that you may not notice all the differences until five or more years down the road when the frame is still strong, straight and worry free.

Privateer

FRAME SIZE	S	M	L	XL
HANDLEBAR WIDTH	620	620	620	620
STEM LENGTH	105	120	120	135
CRANK ARM LENGTH	170	175	175	175
SEATPOST LENGTH	350	350	350	350
STEERER LENGTH	184	184	184	184

FRAMESET

Colors	Dark Red/ Tulsa Yellow/ Black fork
Size	S, M, L, XL
Main tubes	True Temper OXII heat treated double butted Cro-Moly
Stays	True Temper Cro-Moly
Fork	Rock Shox Indy XC, 63mm travel
Headset	Dia-Compe ST Aheadset, 25.4/34.0/30.0, 25.0mm stack

DRIVE TRAIN

Crankset	Sugino Mighty 350 42/32/20 58/104 mm bolt hole circle
B.B.	Shimano BB-UN52, 73 x 110
Front Der	Shimano STX Top Swing, Top pull, 28.6 mm/ 1 1/8"
Rear Der	Shimano Deore LX SGS
Shifters	Shimano STX-RC RapidFire+
Cassette	Shimano HG60-I 11-30, 8sp
Chain	Sachs PC-21, 104 length

WHEELS

Front Hub	System 1, suspension axle
Rear Hub	Shimano STX-RC HyperGlide Compact cassette, 8 speed, 135 mm O.L.D.
Spokes	DT 14G stainless,Front 32° Radial 254, Rear 32° 3x 264/266 (D/ND)
Front Rim	Bontrager Maverick 542 E.R.D, Velox 22mm rim strip
Rear Rim	Bontrager Maverick ASYM 541 E.R.D.
Front Tire	Bontrager Jones, folding 49/53
Rear Tire	Bontrager Jones, folding 46/50

OTHER COMPONENTS

Brakes	Avid Single Digit 10 direct pull
Brake Levers	Avid AD-1.0 L long pull
Handlebars	Bontrager Crow Bar Comp, 9° bend, 40mm rise, 25.4mm clamp
Stem	Bontrager forged alloy direct connect, 41.0mm steerer clamp height
Grips	Bontrager Dual Density
Seatpost	Bontrager Comp, 27.0mm diameter
Seat Binder	Alloy w/integral bolt, 29.8 clamp diameter
Saddle	Bontrager FS+10 Comp
Pedals	ICON Clipless 9/16 in. axle

Privateer S

FRAME SIZE	S	M	L	XL
HANDLEBAR WIDTH	625	625	625	625
STEM LENGTH	105	120	120	135
CRANK ARM LENGTH	170	175	175	175
SEATPOST LENGTH	350	350	350	350
STEERER LENGTH	184	184	184	184

FRAMESET

Colors	Orange/Aspen Green/ Cream fork
Size	S, M, L, XL
Main tubes	True Temper OXII heat treated double butted Cro-Moly
Stays	True Temper Cro-Moly
Fork	Rock Shox Judy T2, alloy steerer 63mm travel
Headset	Dia-Compe SA Aheadset, alloy 25.4/34.0/30.0, 27.0mm stack

DRIVE TRAIN

Crankset	Sugino Mighty 700 42/32/20, hard anodized rings 58/104 mm bolt hole circle
B.B.	Shimano BB-UN52, 73 x 110
Front Der	Shimano Deore LX Top Swing Top pull, 28.6 mm/ 1 1/8"
Rear Der	Shimano Deore XT SGS
Shifters	Shimano STX-RC RapidFire+
Cassette	Shimano HG60-I 11-30, 8spd
Chain	Sachs PC-41, 104 length

WHEELS

Front Hub	Shimano STX-RC
Rear Hub	Shimano STX-RC HyperGlide Compact cassette, 8 speed, 135 mm O.L.D.
Spokes	DT 14G stainless, Front 32° Radial 264, Rear 32° 3x 264/265 (D/ND)
Front Rim	Bontrager Mustang 542 E.R.D, Velox 22mm rim strip
Rear Rim	Bontrager Mustang ASYM 541 E.R.D.
Front Tire	Bontrager Jones, folding 49/53
Rear Tire	Bontrager Jones, folding 46/50

OTHER COMPONENTS

Brakes	Avid Single Digit 20 direct pull
Brake Levers	Avid Speed Dial-1.9 L long pull
Handlebars	Bontrager Crow Bar Comp, 9° bend, 40mm rise, 25.4mm clamp diameter
Stem	Bontrager forged alloy direct connect, 44.5mm steerer clamp height
Grips	Bontrager Dual Density
Seatpost	Bontrager Comp 27.0 mm diameter
Seat Binder	Alloy w/integral bolt, 29.8 clamp diameter
Saddle	Bontrager FS Comp
Pedals	ICON clipless, 9/16" axle

Privateer Comp

FRAME SIZE	S	M	L	XL
HANDLEBAR WIDTH	625	625	625	625
STEM LENGTH	105	120	120	135
CRANK ARM LENGTH	170	175	175	175
SEATPOST LENGTH	350	350	350	350
STEERER LENGTH	184	184	184	184

FRAMESET

Colors	Red/Green/Black fork
Size	S, M, L, XL
Main tubes	True Temper OXII heat treated double butted Cro-Moly
Stays	True Temper heat treated Cro-Moly
Fork	Rock Shox Judy XC, alloy 63mm travel
Headset	Dia-Compe SA Aheadset, alloy 25.4/34.0/30.0, 27.0mm stack

DRIVE TRAIN

Crankset	Shimano Deore LX 4 arm 42/32/22, 104/64 mm bolt hole circle
B.B.	Shimano BB-UN52, 73 x 110
Front Der	Shimano Deore LX Top Swing Top pull, 28.6 mm/ 1 1/8"
Rear Der	Shimano XTR
Shifters	Shimano Deore XT RapidFire SL
Cassette	Shimano HG70-I 11-30, 8spd
Chain	Sachs PC-41, 104 length

WHEELS

Front Hub	Shimano Deore LX
Rear Hub	Shimano Deore LX HyperGlide Compact cassette, 8 speed, 135 mm O.L.D.
Spokes	DT 14G stainless, Front 32° Radial 254, Rear 32° 3x 264/265 (D/ND)
Front Rim	Bontrager Mustang, 542 E.R.D., Velox 22mm rim strip
Rear Rim	Bontrager Mustang ASYM, 541 E.R.D.
Front Tire	Bontrager Revolt ST2, folding 49/53
Rear Tire	Bontrager Revolt ST2, folding 46/50

OTHER COMPONENTS

Brakes	Avid Single Digit 20 direct pull
Brake Levers	Avid Speed Dial-1.9 L long pull
Handlebars	Bontrager Crow Bar Race, 9° bend, 40mm rise, 25.4mm clamp diameter
Stem	Bontrager forged alloy direct connect, 44.5mm steerer clamp height
Grips	Bontrager Dual Density
Seatpost	Bontrager Comp 27.0 mm diameter
Seat Binder	Alloy w/integral bolt, 29.8 clamp diameter
Saddle	Bontrager FS Race, Cro-Moly/leather
Pedals	Time ATAC Clipless

Race Lite

For those that can afford to be obsessed with weight, yet are still smart enough to like the orthodontia that their parents paid for a while back. The Race Lite starts with our original Race model and then removes as much weight as possible without sacrificing strength. Recommended for lighter weight riders or true racers where every gram counts (at least mentally).

FRAME SIZE	S	M	L	XL
HANDLEBAR WIDTH	560	560	560	560
STEM LENGTH	105	120	120	135
CRANK ARM LENGTH	170	175	175	175
SEATPOST LENGTH	350	350	350	350
STEERER LENGTH	184	184	184	184

FRAMESET

Colors	Red with White decal
Size	S, M, L, XL
Tubes	True Temper OXIII heat treated, double butted cro-moly main tubes and stays.
Fork	Rock Shox Judy XC 63mm travel
Headset	Deore LX sealed

DRIVE TRAIN

Crankset	XT 4-arm 42/32/22
B.B.	UN72 68/110
Front Der	XT top swing, top pull, 28.6mm, 1 1/8 in.
Rear Der	XT SGS
Shifters	XT RapidFire SL STI
Cogs	XT 11-30 8-speed
Chain	IG90

WHEELS

Front Hub	XT suspension type 32 hole
Rear Hub	XT Freehub 32 hole
Front Spoke	DT 14/15ga butted stainless
Rear Spoke	DT 14ga stainless
Front Rim	Bontrager Mustang front , triple cavity 400g
Rear Rim	Bontrager Mustang rear, triple cavity 430g
Front Tire	Bontrager Jones Front , 2.1"(49/53mm) foldable
Rear Tire	Bontrager Jones Rear , 1.95"(46/50mm) foldable

OTHER COMPONENTS

Brakes	XT V-Brakes
Brake Levers	XT STI V-Brake
Handlebars	Bontrager Race Lite EA70 Aluminum
Bar Ends	Bontrager Race ski bend
Stem	Bontrager Race cro-moly
Grips	Bontrager Comp
Seatpost	Bontrager Race Lite 26.8mm
Seat Binder	Forged alloy
Saddle	Bontrager SSM leather w/Cro-Moly rails
Pedals	Shimano SPD M535 Clipless

Ti Lite

FRAME SIZE	S	M	L	XL
HANDLEBAR WIDTH	560	560	560	560
STEM LENGTH	105	120	120	135
CRANK ARM LENGTH	170	175	175	175
SEATPOST LENGTH	350	350	350	350
STEERER LENGTH	184	184	184	184

Litespeed Schmitespeed. What really could be better than a Bontrager Titanium? Just think about it. Bontrager strength, geometry and handling with titanium's weight and durability. Built up with Shimano XT and a non-Yellow Judy- just about as good of stuff as anyone will ever need. Guaranteed to not go out of style.

FRAMESET

Colors	Natural Ti w/Black decals
Size	S, M, L, XL
Main tubes	Sandvik 3AL/2.5V
Stays	Titanium
Fork	Rock Shox Judy XC 63mm travel
Headset	Deore LX sealed

DRIVE TRAIN

Crankset	XT 4-arm 42/32/22
B.B.	UN72 68/110
Front Der	XT top swing, top pull, 34.9mm, 1 3/8 in.
Rear Der	XT SGS
Shifters	XT RapidFire SL STI
Cogs	XT 11-30 8-speed
Chain	IG90

WHEELS

Front Hub	XT suspension type 32 hole
Rear Hub	XT Freehub 32 hole
Front Spoke	DT 14/15ga butted stainless
Rear Spoke	DT 14ga stainless
Front Rim	Bontrager Mustang front , triple cavity 400g
Rear Rim	Bontrager Mustang rear, triple cavity 430g
Front Tire	Bontrager Jones Front , 2.1"(49/53mm) foldable
Rear Tire	Bontrager Jones Rear , 1.95"(46/50mm) foldable

OTHER COMPONENTS

Brakes	XT V-Brakes
Brake Levers	XT STI V-Brake
Handlebars	Bontrager Race Lite EA70 Aluminum
Bar Ends	Bontrager Race ski bend
Stem	Bontrager Race cro-moly
Grips	Bontrager Comp
Seatpost	Bontrager Comp 27.0mm
Seat Binder	Forged alloy
Saddle	Bontrager SSM leather w/Cro-Moly rails
Pedals	Shimano SPD M535 Clipless

Race Lite- frame

FRAME

Colors	Red, Black, Purple, Silver, Green, Orange, Blue
Size	S, M, L, XL
Tubes	True Temper OXIII heat treated, double butted cro-moly main tubes and stays.
Headset Size	1 in.
Seatpost Size	26.8 mm
B.B. Shell	68 mm

Race- frame

FRAME

Colors	Red, Black, Purple, Silver, Green, Orange, Blue
Size	S, M, L, XL
Tubes	True Temper OXIII heat treated, double butted cro-moly main tubes and stays.
Headset Size	1 in.
Seatpost Size	26.8 mm
B.B. Shell	68 mm

Perhaps the most soulful of all Bontrager models, or perhaps just the bike closest to our roots. No more frills than we find necessary to be bombproof, yet everything that a educated rider could want. More gussets than Hollywood has implants, more attention to detail than a nearsighted accountant. A true Bontrager original, hand built in Santa Cruz USA with True Temper OXII Aus tempered tubing and stays.

Road Lite- frameset

FRAMESET

Colors	Vegas Gold
Size	S, M, L, XL
Tubes	True Temper OXIII heat treated, double butted cro-moly main tubes and stays.
Fork	Tange Silhouette aero cro-moly
Headset Size	1 in.
Seatpost Size	26.8 mm
B.B. Shell	68 mm

Ask the best mountain bike racers in the world- chances are that at least half of their rides are on the road. But if you still can't see yourself on a neon colored, skinny tired overly decaled mystery material machine- the Bonti Road Lite may be the answer to your quest. A road bike with roots on the trail. Using traditional euro road geometry and all the construction techniques that have made Bontrager worthy of your attention, every Road Lite has been crafted in Santa Cruz, California with 4130 Aus tempered OXIII cro-moly.

Cross- frameset

FRAMESET

Colors	Black Chrome
Size	S, M, L
Tubes	True Temper OXIII heat treated, double butted cro-moly main tubes and stays.
Fork	Bontrager custom 700c w/ canti bosses
Headset Size	1 in.
Seatpost Size	26.8 mm
B.B. Shell	68 mm

The frameset of the US Cyclocross team competing throughout Europe during the '97-'98 season. After dozens of championships, this truly is the frame of choice for the all-knowing cross rider. 4130 heat treated cro-moly with a custom designed Bontrager fork. Handles like a Bontrager, lasts like a Bontrager. Have fun.

Here's the deal.

We've all broken a bike. More than likely, several.

And, as you discard frames like most people recycle aluminum cans, you probably thought about how cool it would be to make your own bike. One that would last. One that would be around a long time.

You've gotta ride to design a bike right, but then again if everyone with a bit of riding skill could make a good bike, they would. Plenty of them have proven that making lame bikes is simple. It takes years of schooling and more than just a little experience. Engineers suffer in school for years to learn about materials and the process of joining them. Most of these guys know what's up with metal, but don't know the first thing about busting big air. They've never peeled open a down tube or tweaked both rear drops. Luckily for you, we have. We've grown with the sport from the days of the Schwinn Stingray with coaster brakes, a ten-speed seat and a set of Tuff wheels. We also went to school, because face it, riding won't last forever. We learned what they said, read all their books, and spent hours in the garage trying to make it work. When it did, we were stoked. When something broke, we tore it apart and tried to figure out why. Because face

BMX

it, that's the only way to really develop a bike. Not by giving it to some pro. Those guys gotta make a living, and there's nothing wrong with that, but they will (and can) ride anything, and they don't have to buy a new one every time it falls apart. We'd rather give bikes to the local thrashers. Someone we can watch as they try like hell to bust our stuff and throw it right back in our face until we get it right. Why? Because they want to have a bike that lasts, and so do we. They'd rather help us build the ultimate bike. One they can put together and really ride. One they know will hold up to the day to day abuse. So do we, because it sucks when they show up with broken bikes.

That's what we did, and we've come up with some damn good bikes. The **B1**, **B52**, and the **B29** are built for what you do. Ride, as much street as you can imagine, and all the bails that come with it. Racing? Yep, everything from the gate to locking elbows to the corner store. Freestyle? Sure, but we don't go overboard to the point where you might as well be riding a scooter. Remember, it's still supposed to be a bike. And trails? Oh yeah, cause in the end, we all go back to the dirt. Serious about racing? You can carbo-load all you want, and blow all your cash on those stupid self-improvement tapes. Go ahead. But all that will get you is broke. The only way to win races is to ride, and riding two different bikes is ridiculous. "I can't jump, I'm riding my race bike." Idiot. You need a bike that can handle the jumps and is still light enough to win motos. That's why we made the **Diesel**. Race engineered out of durable steel. Metal made for riding. Screw aluminum, steel is the answer, life doesn't always start at the gate. Some days it doesn't even make it there. Spend all your time dirt jumping at the trails, but tired of trying to lug around a bike that feels like a refrigerator? Sure, it may not break, but how do you break a bike you can't even bunny hop? Jumping bikes don't need to be made of lead, and we know it. That's why we made the **Warthog**. We make heat treated steel bikes that work. We add more engineering, not more metal. Sometimes school pays off. Crack open a book and you'll find out. Heat treated steel rules.

B1

FRAMESET

Colors	Silver
Size	Expert, Pro, Pro XL
Main tubes	True Temper Cro-Moly
Stays	True Temper Cro-Moly
Fork	Oversized Cro-Moly
Headset	Dia Compe SX1 Aheadset, 25.4/34.0/30.0, 33mm stack

DRIVE TRAIN

Crankset	Cro-Moly, 1 pc, 44T, 110 mm bolt hole circle, 175 mm arms (expert), 180 mm (pro, pro xl)
B.B.	One-piece type, 24 TPI
Chain	Taya EA400

WHEELS

Front Hub	Formula alloy
Rear Hub	Formula alloy Threaded, 1 speed, Nutted front & rear, 110 mm O.L.D.
Spokes	14G Front 36° 3x, Rear 36° 3x 188 185 (D/ND)
Front Rim	Bontrager Mack 20", 36 hole
Rear Rim	Bontrager Mack 20", 36 hole
Front Tire	Comp III Type, 20 x 2.125
Rear Tire	Comp III Type, 20 x 1.75

OTHER COMPONENTS

Brakes	Tektro direct-pull, rear
Brake Levers	Tektro, right only
Handlebars	BMX Cro-Moly, 25.4 mm clamp diameter
Stem	Bontrager Alloy Ahead, 31.7mm steerer clamp height, 50 mm length
Grips	Bontrager Kraton
Seatpost	Bontrager Comp, 27.0 mm diameter, 350 mm length
Seat Binder	Alloy w/integral bolt
Saddle	Bontrager Comp C20
Pedals	Platform, 1/2" axle

B52

FRAMESET

Colors	Black/ chrome fork
Size	Pro, Pro XL
Main tubes	True Temper Cro-Moly
Stays	True Temper Cro-Moly
Fork	Oversized Cro-Moly
Headset	Dia Compe SX1 Aheadset, 25.4/34.0/30.0, 33mm stack

DRIVE TRAIN

Crankset	Boss 3-pc. CroMoly, 2 pc. spider/ring, 44T 110 mm bolt hole circle, 180 mm.
B.B.	3-piece type, sealed 24 TPI
Chain	Taya RA400

WHEELS

Front Hub	Formula alloy, sealed
Rear Hub	Formula alloy, sealed, Threaded, 1 speed, Nutted front & rear, 110 mm O.L.D., 16T freewheel.
Spokes	14G Front 36° 3x, Rear 36° 3x 188 185 (D/ND)
Front Rim	Bontrager Mack 20", 36 hole
Rear Rim	Bontrager Mack 20", 36 hole
Front Tire	Comp III type, 20 x 2.125
Rear Tire	Comp III type, 20 x 1.75

OTHER COMPONENTS

Brakes	Tektro direct pull, rear
Brake Levers	Tektro right only
Handlebars	BMX CroMoly 25.4mm clamp diameter
Stem	Bontrager alloy Ahead, 31.7mm steerer clamp height
Grips	Bontrager Kraton
Seatpost	Bontrager Comp 27.0 mm diameter, 350 mm length
Seat Binder	Alloy w/integral bolt
Saddle	Bontrager Comp C20
Pedals	One sided clipless platform, 9/16" axle

B29

FRAMESET

Colors	Black/ chrome fork
Size	Pro, XL
Main tubes	True Temper Cro-Moly
Stays	True Temper Cro-Moly
Fork	Oversized Cro-Moly
Headset	Dia Compe SX1 Aheadset, 25.4/34.0/30.0, 33mm stack

DRIVE TRAIN

Crankset	1 pc.Cro-Moly 180 mm arms, 2 pc. Aluminum 44 T spider/ ring,110 mm bolt hole circle.
B.B.	One-piece type, 24 TPI
Chain	Taya EA400 length

WHEELS

Front Hub	Formula alloy
Rear Hub	Formula, alloy, Threaded, 1 speed, Nutted front & rear, 110 mm O.L.D., 16T freewheel.
Spokes	14G, Front 36° 3x, Rear 36° 3x
Front Rim	Bontrager Mack 24"
Rear Rim	Bontrager Mack 24"
Front Tire	Comp III type 24 x 2.125
Rear Tire	Comp III type 24 x 1.75

OTHER COMPONENTS

Brakes	Tektro direct-pull, rear
Brake Levers	Tektro, right only
Handlebars	BMX CroMoly 25.4mm clamp diameter
Stem	Bontrager Alloy Ahead, 31.7mm steerer clamp height
Grips	Bontrager Kraton
Seatpost	Bontrager Comp, 27.0 mm diameter, 350 mm length
Seat Binder	Alloy w/integral bolt
Saddle	Bontrager Comp C20
Pedals	Platform, 1/2" axle

Diesel- frame

FRAMESET

Colors	Red
Size	XL
Main tubes	True Temper OXIII, Cro-Moly
Stays	True Temper OXIII, Cro-Moly
Headset Size	1 1/8 in.
Seatpost Size	27.0 mm diameter

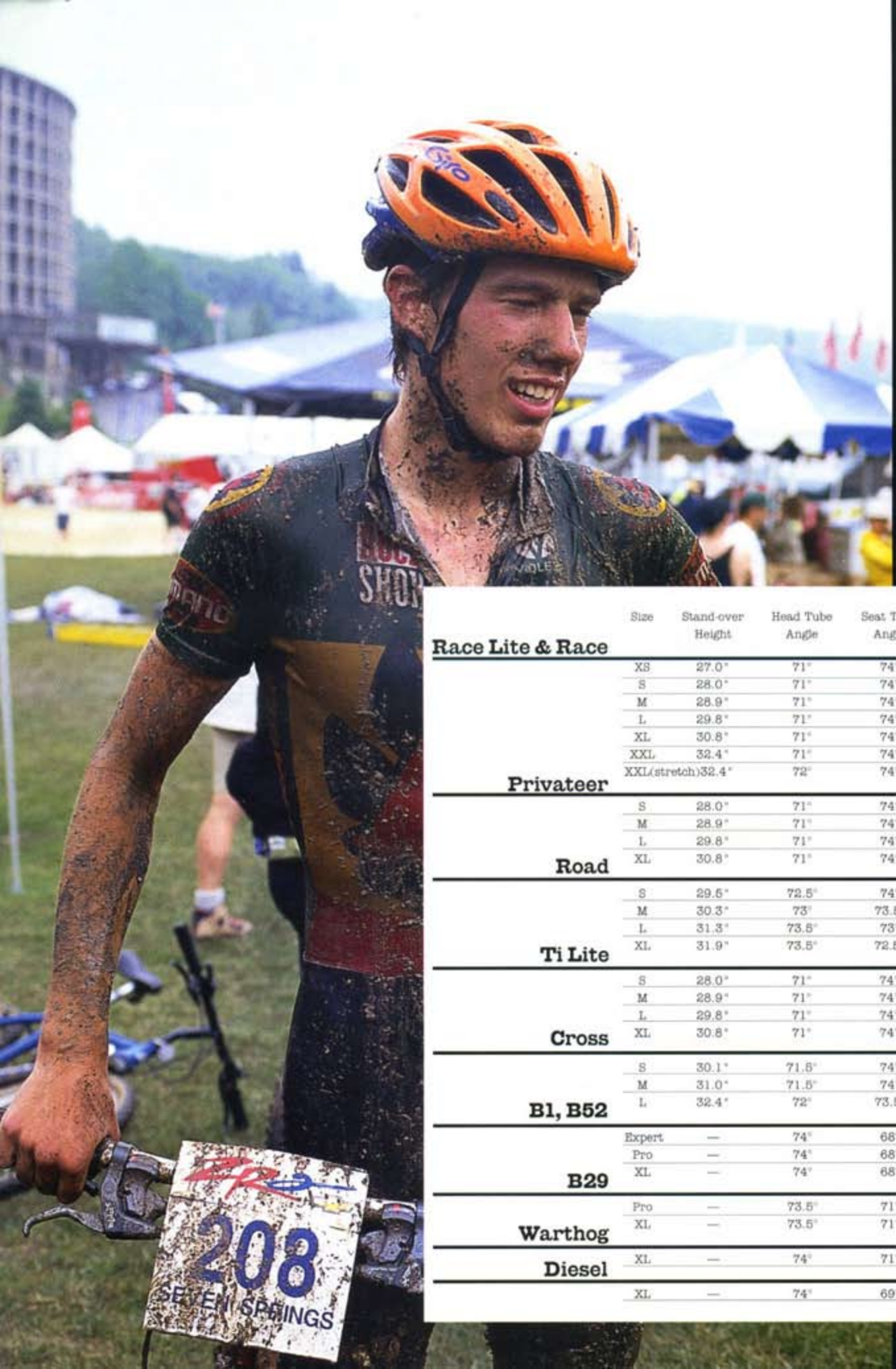
Engineered by Keith Bontrager and built in the US with True Temper 4130 OXIII tubes, with gussets on the top tube, down tube and chainstays and 4130 heat treated cro-moly plate dropouts. A very exotic BMX racing frame made to be as light as possible (4.0lbs) while having incredible durability.

Warthog- frame

FRAMESET

Colors	Norman Blue
Size	XL
Main tubes	True Temper OXIII, Cro-Moly
Stays	True Temper OXIII, Cro-Moly
Headset Size	BMX standard 1inch
Seatpost Size	27.0 mm diameter

Similar in construction to the Diesel, but designed with beefier dropouts, a steeper seat tube angle and longer wheelbase for freestyle.



	Size	Stand-over Height	Head Tube Angle	Seat Tube Angle	Top Tube Length
Race Lite & Race					
	XS	27.0"	71°	74°	21.8"
	S	28.0"	71°	74°	22.2"
	M	28.9"	71°	74°	22.6"
	L	29.8"	71°	74°	23.0"
	XL	30.8"	71°	74°	23.4"
	XXL	32.4"	71°	74°	23.8"
Privateer	XXL(stretch)	32.4"	72°	74°	25.0"
	S	28.0"	71°	74°	22.2"
	M	28.9"	71°	74°	22.6"
	L	29.8"	71°	74°	23.0"
Road	XL	30.8"	71°	74°	23.4"
	S	29.5"	72.5°	74°	54.8cm
	M	30.3"	73°	73.5°	56.0cm
	L	31.3"	73.5°	73°	57.5cm
Ti Lite	XL	31.9"	73.5°	72.5°	59.0cm
	S	28.0"	71°	74°	22.2"
	M	28.9"	71°	74°	22.6"
	L	29.8"	71°	74°	23.0"
Cross	XL	30.8"	71°	74°	23.4"
	S	30.1"	71.5°	74°	55.8cm
	M	31.0"	71.5°	74°	57.2cm
B1, B52	L	32.4"	72°	73.5°	58.1cm
	Expert	—	74°	68°	19.25"
	Pro	—	74°	68°	20.25"
B29	XL	—	74°	68°	21.25"
	Pro	—	73.5°	71°	21.27"
Warthog	XL	—	73.5°	71°	22.32"
Diesel	XL	—	74°	71°	21.25"
	XL	—	74°	69°	21.25"

Geometry

Seat Tube Length	Front Derailleur Clamp	Seat Post Diameter	Head Tube Length	Fork Rake	Chainstay Length	Bottom Bracket Height	Wheelbase	Rider Height Range
11"	1 1/8"	26.8	107mm	1.25"	16.74"	11.75"	39.9"	4'9"-5'4"
13"	1 1/8"	26.8	107mm	1.25"	16.74"	11.75"	40.4"	5'3"-5'7"
15"	1 1/8"	26.8	107mm	1.25"	16.74"	11.75"	40.9"	5'6"-5'10"
17"	1 1/8"	26.8	107mm	1.25"	16.74"	11.75"	41.5"	5'9"-6'1"
19"	1 1/8"	26.8	107mm	1.25"	16.74"	11.75"	42.0"	6'0"-6'4"
21"	1 1/8"	26.8	131mm	1.25"	16.74"	11.75"	42.5"	6'3"-6'5"
21"	1 1/8"	26.8	131mm	1.25"	16.74"	11.75"	43.3"	6'5"-6'8"
13"	1 1/8"	27.0	107mm	1.25"	16.74"	11.75"	40.4"	5'3"-5'7"
15"	1 1/8"	27.0	107mm	1.25"	16.74"	11.75"	40.9"	5'6"-5'10"
17"	1 1/8"	27.0	107mm	1.25"	16.74"	11.75"	41.5"	5'9"-6'1"
19"	1 1/8"	27.0	107mm	1.25"	16.74"	11.75"	42.0"	6'0"-6'4"
45.4cm	1 1/8"	26.8	126mm	45mm	411mm	10.5"	38.8"	—
47.4cm	1 1/8"	26.8	142mm	40mm	411mm	10.5"	39.0"	—
49.4cm	1 1/8"	26.8	159mm	40mm	411mm	10.5"	39.3"	—
51.4cm	1 1/8"	26.8	177mm	40mm	411mm	10.5"	39.6"	—
13"	1 3/8"	27.0	117mm	1.25"	16.74"	11.75"	40.4"	5'3"-5'7"
15"	1 3/8"	27.0	117mm	1.25"	16.74"	11.75"	40.9"	5'6"-5'10"
17"	1 3/8"	27.0	117mm	1.25"	16.74"	11.75"	41.5"	5'9"-6'1"
19"	1 3/8"	27.0	117mm	1.25"	16.74"	11.75"	42.0"	6'0"-6'4"
46m	1 1/8"	26.8	107mm	38mm	418mm	11.2"	40.00"	—
49.5cm	1 1/8"	26.8	107mm	32mm	418mm	11.2"	40.30"	—
54cm	1 1/8"	26.8	131mm	32mm	418mm	11.2"	40.30"	—
9.63"	—	27.0	4"	—	14.9"	11.63"	34.68"	—
9.63"	—	27.0	4"	—	14.9"	11.63"	35.68"	—
9.63"	—	27.0	4"	—	14.9"	11.63"	36.70"	—
10.89"	—	27.0	4"	—	16.78"	12.01"	38.70"	—
10.89"	—	27.0	4"	—	16.78"	12.01"	39.81"	—
9.86"	—	27.0	4"	—	14.9"	11.63"	37.17"	—
9.63"	—	27.0	4"	—	14.9"	11.63"	36.70"	—

The Benefits of Light Weight Parts

If you haven't heard (you must have been living on Mars to have missed it) reducing the weight of your bike by spending most of your paycheck on trick little bits every now and then is a raging trend. Manufacturers were quick to spot this, and, clever folks that they are, started making parts lighter and lighter(and even lighter yet in some cases). Whether or not this was a good thing to do depends on a delicate balance between how much faster you can go after you put the trick parts on, how long the trick parts last, the costs in medical bills if the trick parts snap off rudely dumping you on your nose, and how much credibility and envy you get from your cycling mates for merely owning the things. The question remains, how much good is taking weight off your bike likely to do for you out on the trail?

I've figured out what should happen when you shave weight off of your bike. There are quite a few ways reducing the weight of a bike can actually help you, though most are tediously small contributions. The big potential advantage of weight reduction is its effect when you are climbing hills. When you climb you increase your potential energy. The amount of work you do against gravity depends on how high you climb and how much you weigh. The rate at which you do this work is the power you put out. The more time it takes to climb the hill, all else being equal, the less power you put out. It's useful to predict the changes in your performance at a constant power output. Saving weight doesn't make the motor put out more horsepower! This means that the comparison we want to make involves a given rider, climbing a hill at a constant effort, and riding two identical bikes except one is heavier than the other. What differences would we expect in speed up the hill, the time saved due to the weight reduction, or the distance gap the lighter bike and rider would have if they were racing each other.

It may surprise you to learn that anyone as involved in the technical side of cycling as I am would bother with this. After all, everyone knows that it works right? My tendency is not to buy into this sort of common knowledge easily. I need to prove it, even if I spend hours and hours pondering the obvious for no apparent benefit. True science is like that.

I am deeply indebted to R&D machinist, Jensen, for pointing out an error in an early calculation that would have completely changed the conclusion of this article and made me look pretty foolish. Again, true science is like that.

So I will make a simple prediction of the benefits of the weight saving efforts that are driving much of the innovation in the sport today. This effort is humble in its scope, so I'd prefer to not be reminded too many times of all the things I'm sweeping under the rug. For example, I know, and everyone else that has taken an interest in elementary physics knows, that it is the mass of the thing we are really reducing. Grams are a unit of mass; pounds are a unit of weight and the whole thing is a jumbled up mess. But "low mass" hasn't the marketing ring to it that "light weight" has, and I get tired of getting blank stares when I talk about mass, so I'll contribute to the extension of the confusion.

First of all I'd like to go on record as saying - shaving off weight is not much good really. You knew I was going to say that though, didn't you? Think about it. If you aren't trying to make a living at racing, the benefits are fairly intangible, just for fun, and frequently only for your ego. Set aside everything but the actual, measurable performance advantages of light weight parts which I might get to if I don't run out of space lecturing. If you're able to (choose one):

1) hammer your cycling mates at will
2) keep up easily with your cycling mates
3) barely keep up with your cycling mates
4) barely keep sight of your cycling mates
5) none of the above (you don't have any mates)

by going faster up hills, it's not doing you that much good (like food, water, warmth, shelter, and beer do for you). It actually may be contributing to making you a snob! (If you selected #5 above you might want to consider spending the money on more directly social activities).

Secondly, if you are serious, I mean really serious, about all of this you'll rid yourself of excess weight first. Then, and only then (unless you are as old and desperate as I am) will you shell out for the trick parts (I have it all over you here - I test them - it's my job). Everybody knows deep down that there is much more personal benefit in doing this than in laying out the cash for the new parts. Well, maybe the magazines haven't figured it out yet, at least they're holding back if they have.

Now let's get on with the prediction. You want to rip past the folks you ride with even though you are hopelessly off the back on the climbs now. You don't have the time or the patience for any more training than the hour a week you already put in. How much do you have to spend on light weight parts to make this happen?

But here's the good news. Let's say that you are lucky enough to only weigh 150 pounds, and that you are wealthy enough to own a 25 pound bike. You're doing okay really; you sure you want to mess around with the lightweight stuff? We'll also assume that you are staring at a steep 1 mile climb from the back of the group. Suppose you are capable of making enough power to propel yourself up this hill at 5mph. It will take you 12 minutes to make it to the top.

Now, let's say you went out and got some light weight parts, enough to shave off 795 grams. This saves you a whopping 1% of the combined mass of you and your bike and costs enough to buy a lot of premium beer. Assume you are at that familiar position in the back of the group again, hoping for the best. After the investment you will be able to make the climb at 5.05 mph, expending the same power as before. It will take you 11.88 minutes to finish the effort, and you'll have stayed over 52 feet closer to your mates at the top! 52 feet! It may not put you out of sight off the front, but it is a lot. And how much did it cost? Well, taking 795 grams off of a 25 pound bike is not easy or cheap. Think of 8 parts you can shave down 100 grams, starting with decent stuff in the first place. Now think of how much that sort of thing can cost! Maybe the extra training isn't such a bad idea. 795 grams is a little less than 2 pounds. Who doesn't have this much to spare somewhere other than their quads, heart, and lungs?

excerpt from "the professor"
at www.bontrager.com

KB in his early years

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