THE PHO



Wilderness Trail Bikes® **PHOENIX**

The PHOENIX frame has risen from the collaborative design and frame building efforts of Charlie Cunningham, Steve Potts, and Mark Slate. Decades of collective experience with progressive frame-geometry has resulted in this perfectly balanced technical trail bike.

Hand-constructed by Steve Potts with Ritchey Logic Prestige tubing, the PHOENIX comes with a head and down tube configuration to accommodate front suspension and is also available with a modified configuration for conventional length one-piece Type II forks.

The PHOENIX comes with Cantilever Brake mounts.

E N I X

PHOENIX Special Edition

The PHOENIX SE has the same PHOENIX geometry but comes with seat-stay mounted roller cam brake mounts to accommodate the new SpeedMaster Toggle Cam™ Brake. (Read more about this "side pull" cam in the Wilderness Trail Bikes *Guide to Better Braking).*

WTB will also offer a limited number of PHOENIX SE frames with chain-stay mounted roller cam brake mounts. For those concerned with chain suck, the seat-stay mounted brakes offer the best in low-maintainance riding. For those who are looking for the ultimate in brake performance, chain-stay mounted SpeedMaster Roller Cam Brakes are the best.



G R E A S E





GREASE GUARD®

GREASE GUARD® Bearing Components

The revolutionary GREASE GUARD Bearing Lubrication System developed and patented (with additional patents pending) by WTB virtually eliminates the problem of grit and moisture contamination in bearing components. The GREASE GUARD System, incorporated into all WTB Hubs, Headsets and Bottom Brackets, allows **instant** purging and relubrication of **individual** bearings, and is the **only** purgeable grease system with super-low grease shear friction and uniform 360° flow. Only Certified GREASE GUARD Grease should be injected into GREASE GUARD System components. This will **visibly** purge all contaminants, and relubricate your bearings with fresh grease, from the inside out. Whether riding in dry, wet, or any extreme conditions, timely lubrication will dramatically extend the life and performance of all GREASE GUARD System components. Certified GREASE GUARD Grease is only available from WTB or Finish Line Technologies.

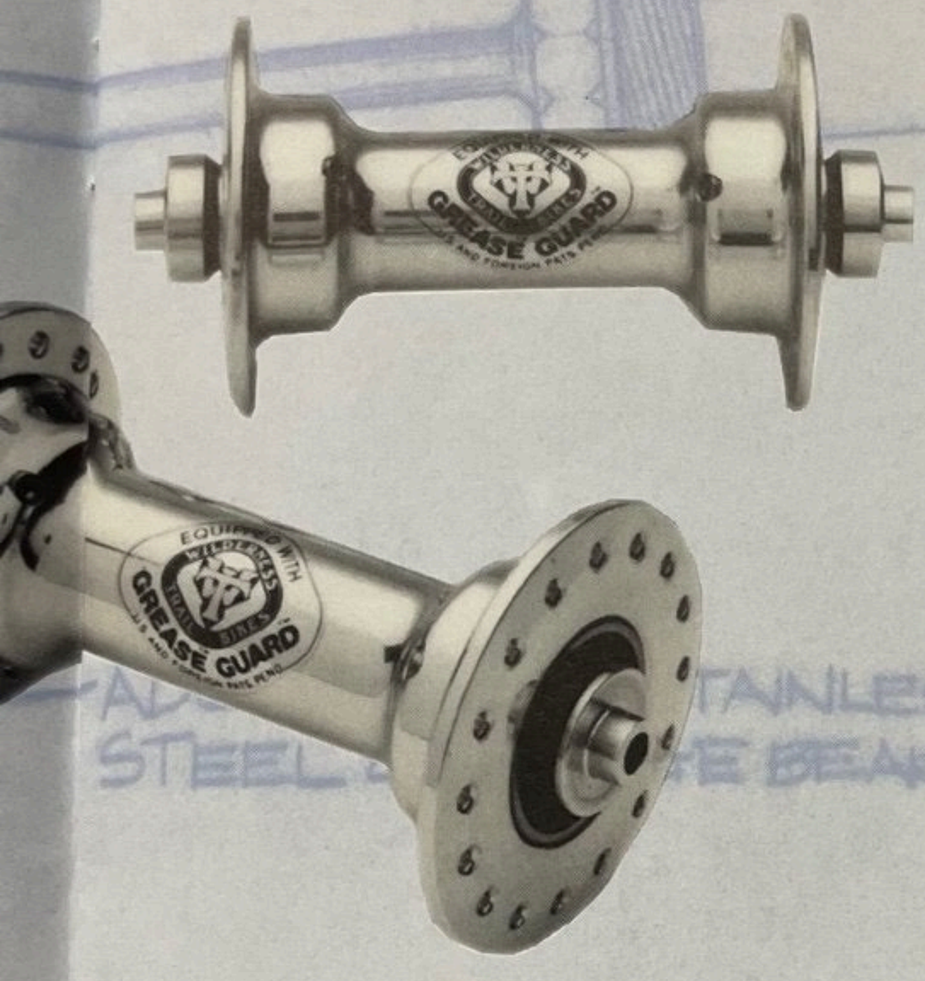
*GREASE GUARD Goose Grease***

Non-toxic GREASE GUARD Goose Grease has been formulated specifically for use with all GREASE GUARD System components. Other non-certified greases can cause the low friction delicate contact lip to swell, damaging the GREASE GUARD seals, and significantly compromising component performance. Goose Grease contains Teflon which actually bonds to the surface of bearing steel to a depth of .0002" providing the ultimate in corrosion prevention and friction reduction. The clean, opaque white appearance provides instant assurance of purging action when used with GREASE GUARD System components. Goose Grease is also ideal for cables, pivots, and other areas requiring lasting lubrication.

*GREASE GUARD Grease Gun***

The proprietary long-tipped GREASE GUARD Grease Gun comes with one 4 oz. tube of Goose Grease, and is specifically developed for use on all GREASE GUARD System components as well as other, hard-to reach places. The needle tip of the specially designed GREASE GUARD Grease Gun is easily fitted to the grease port. The carefully engineered primer requires minimum force to pump grease into the bearing nipple, and flow ceases immediately upon completion. The grease tube rolls easily as grease is dispensed, and can be quickly replaced without a mess.

GUARD®



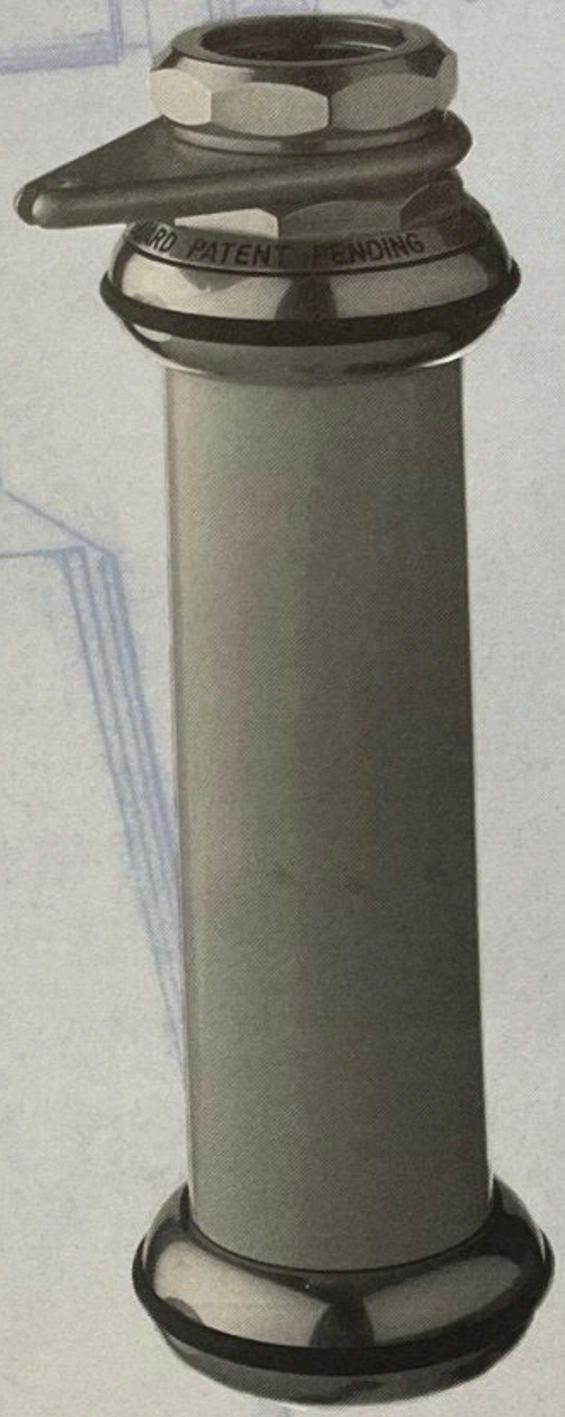
GREASE GUARD Hubs*

These bullet-proof offroad bicycle hubs are the finest and most functional in the world. GREASE GUARD Hubs are precision machined from 2024-T3 aluminum alloy billet and incorporate the patented GREASE GUARD angular contact, adjustable cartridge bearings, and special shims that allow the user to eliminate bearing "play" and obtain phenomenal bearing life. Hub flanges are widely spaced to facilitate an optimum spoke bracing angle, and specially contoured spoke holes effectively reduce spoke stress. Be sure you look for the ***trademark*** grease ports on the inner flange of every GREASE GUARD Hub. Front hubs weigh in at 156 gr., rear at 227 gr. Rear Tandem hubs, 274 gr.



GREASE GUARD
Threaded Bottom Bracket

The GREASE GUARD Bottom Bracket is the best insurance against costly bottom bracket damage from contamination and load. The GREASE GUARD Bottom Bracket provides super-precise tolerances and extremely high load capacity. Featuring toughness and durability unmatched by traditional cup/cone bearing arrangements, our bottom bracket also utilizes the proprietary GREASE GUARD System for high critical maintainance under extreme riding conditions. 195 gr. w/ titanium spindle, or 263 gr. w/ Cr-Mo spindle. Available early 1994.



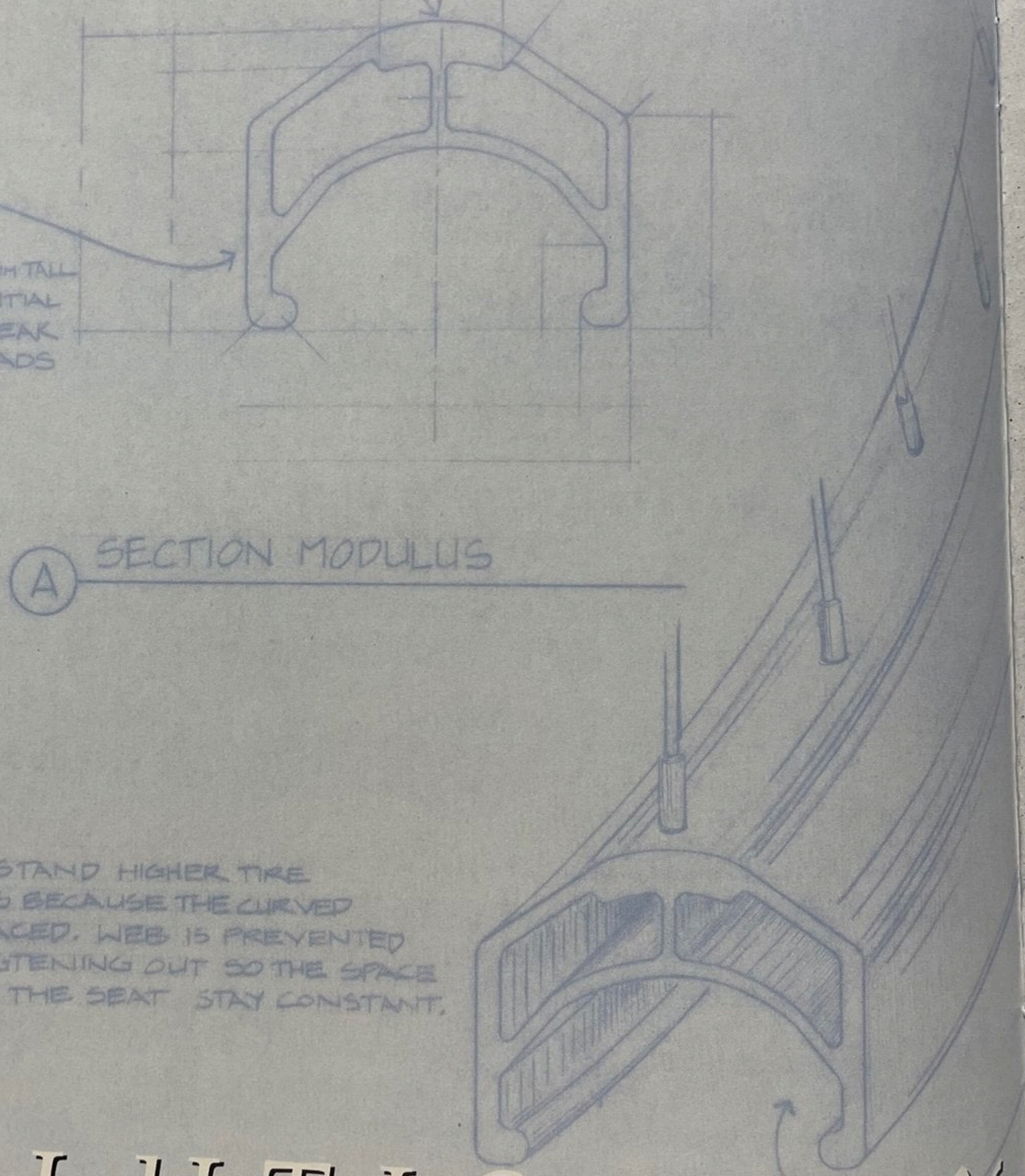
GREASE GUARD Headset

Wilderness Trail Bikes and Chris King team up to produce an unrivaled off-road headset. Combined with race-proven, thrust-tolerant sealed bearings, the GREASE GUARD Headset will provide years of trouble-free service in the harshest conditions of exposure to grit and water contamination during riding and roof-top transportation. Note: The WTB/King GREASE GUARD Headset requires the steerer tube to be 1.6 inches (40 mm) longer than the head tube. Add the thickness of a cable hanger if one is being used. 125 gr.

WTB PowerBeam Rim

The WTB PowerBeam Rim is a revolutionary patent pending rim design that is exceptionally light, strong, and stiff. The WTB PowerBeam Rim is made of heat-treated 6061 aluminum, and is reinforced with a centrally located vertical beam that uniformly distributes spoke load for maximum strength, impact resistance and longer wear. The overall geometry requires less raw material, uses it more efficiently and has a lighter net weight. WTB and UKAI Rim Company of Japan have pioneered new manufacturing methods to create the technically challenging WTB PowerBeam Rim. This partnership has produced a new standard in rim design and performance that enthusiasts will appreciate. The WTB PowerBeam Rim is currently offered in 21.5mm, with a net weight of approximately 395 grams (or less), and is available with 28, 32 or 36 hole drilling. The WTB PowerBeam Rim is designed with a perfectly parallel and tall (12mm) braking surface. A broad braking surface is essential for superior brake performance, especially as brake pads wear. If the rim wall is narrow or angled, grit and moisture that cause rapid brake pad wear will hasten the need for brake adjustment. A broader braking surface is also more tolerant of vertical run out (when the rim does not revolve evenly around the hub). In most conventional rims the inner web (spanning from side to side) is unsupported. Tire pressure causes the rim to flex and emit high-frequency vibrations in response to brake pad compression, which is heard as an irritating SQUEAL.

The WTB PowerBeam Rim firmly braces the web at the center of its span, helping to eliminate brake squeal. Torsional rigidity, vertical and horizontal flex resistance, lighter weight and longer lasting wheels are all advantages of the WTB PowerBeam Rim.

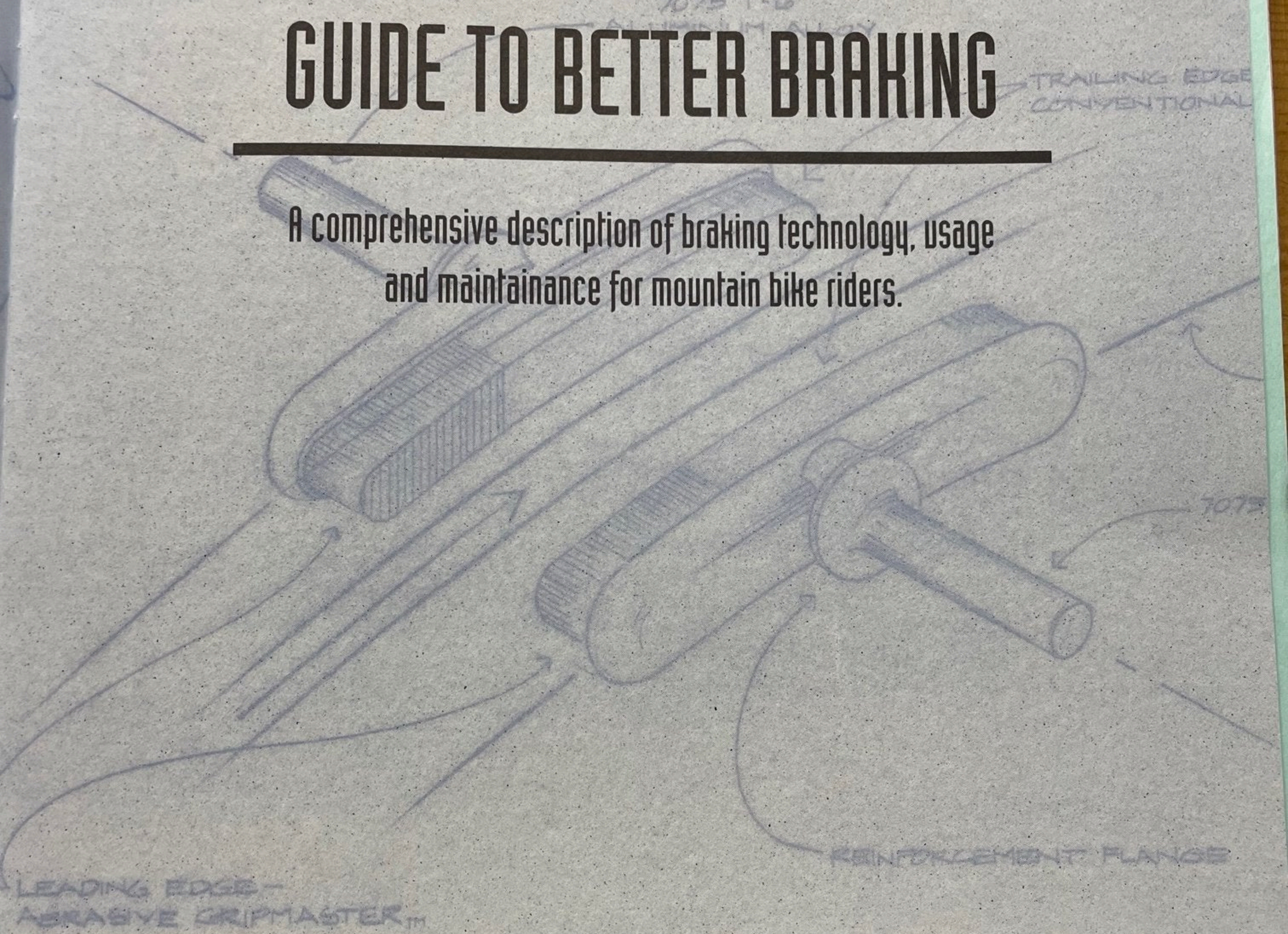


REVOLUTIONARY

Wilderness Trail Bikes

GUIDE TO BETTER BRAKING

A comprehensive description of braking technology, usage and maintainance for mountain bike riders.



Between the extremes of motion and stillness, there exists an infinite range of speeds . . .

1

PIVOTAL FACTS ON BRAKING

Mountain bike brakes have evolved at a rapid pace in response to the harsh conditions and high performance standards demanded by serious riders. This *Guide to Better Braking* will give you a thorough understanding of how to select, mount, use and maintain your brakes for optimum function and performance.

Although new drum and disc brake technology offers exciting possibilities for the future, rim brakes currently define the leading edge in brake design. Rim brakes, in which the brake pads press directly against the wheel rim for stopping force, include Cantilever brakes, U-brakes (also called Center Pulls) and Roller Cam brakes. (Strictly speaking, rim brakes are giant disc brakes with the wheel spokes forming the inner part of the disc and the rim forming the outer part.

Cantilever Brakes

The Cantilever brake is so named because the caliper pivot bearing is "cantilevered," or supported away from the mounting surface. It is designed to allow brake pads to swing clear of the mounting surface (a fork blade or seatstay) allowing the wheel to be easily removed from the bike. Even though the "Cantilever" is the most common brake found on today's mountain bikes, with mounting posts of a markedly different design and position from those used for Roller Cams and U-Brakes (See Diagram 1), it is less than ideal for the best braking qualities.

This diagram shows the difference in mounting post positions between Roller Cam Brakes and Cantilever Brakes. The Cantilever post is mounted farther back from the supported end of the fork blade or seatstay. In the case of the seatstays, the Roller Cam mounting post is closer to the seatstay bridge. In the case of the front fork, the Roller Cam post is closer to the point where the blades connect to the crown or steerer. Both situations result in less flex and give the Roller Cam superior braking power and response. Diagram 1 also shows the sturdier design of the Roller Cam brake post. Standard Cantilever brake posts are 7.9mm while the Roller Cam posts are 9.0mm.

Note also how much closer the bearing surface of the Roller Cam post is to the seatstay. This greatly improves braking characteristics.

Maximum brake performance requires that brake calipers (brake arms) themselves be as flex-free as possible. Flex wastes the limited amount of cable travel available to operate the brake. If cable motion is used flexing parts of the brake system, there is less force available to stop the bike, and brake application will be less precise. Flex also contributes to brake squeal, when brake parts flex at high frequency. (Ironically, the traditional cure for squeal is to toe-in brake pads which **increases** flex, further reducing brake power and accuracy.)

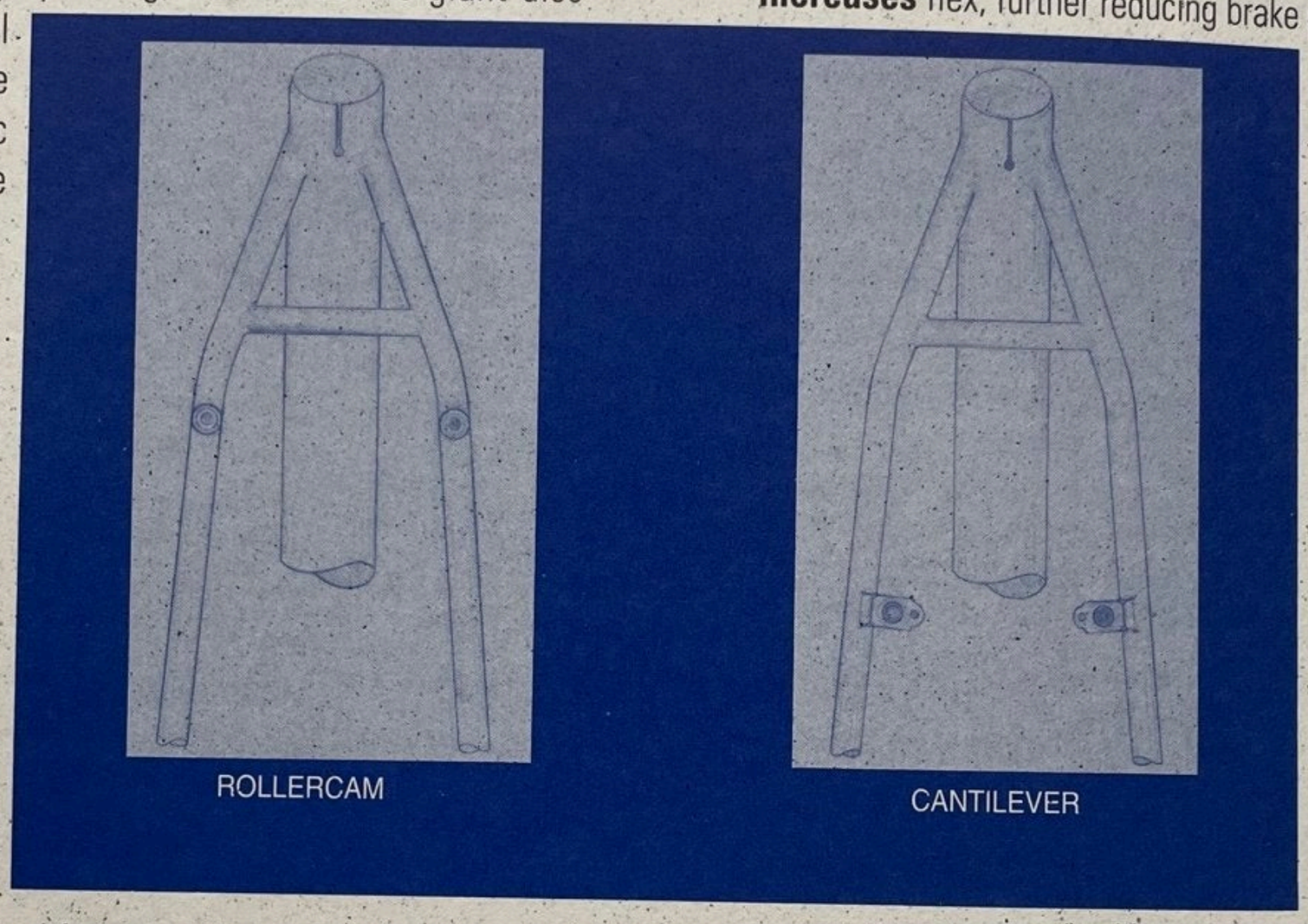


DIAGRAM 1: MOUNTING POST POSITIONS.

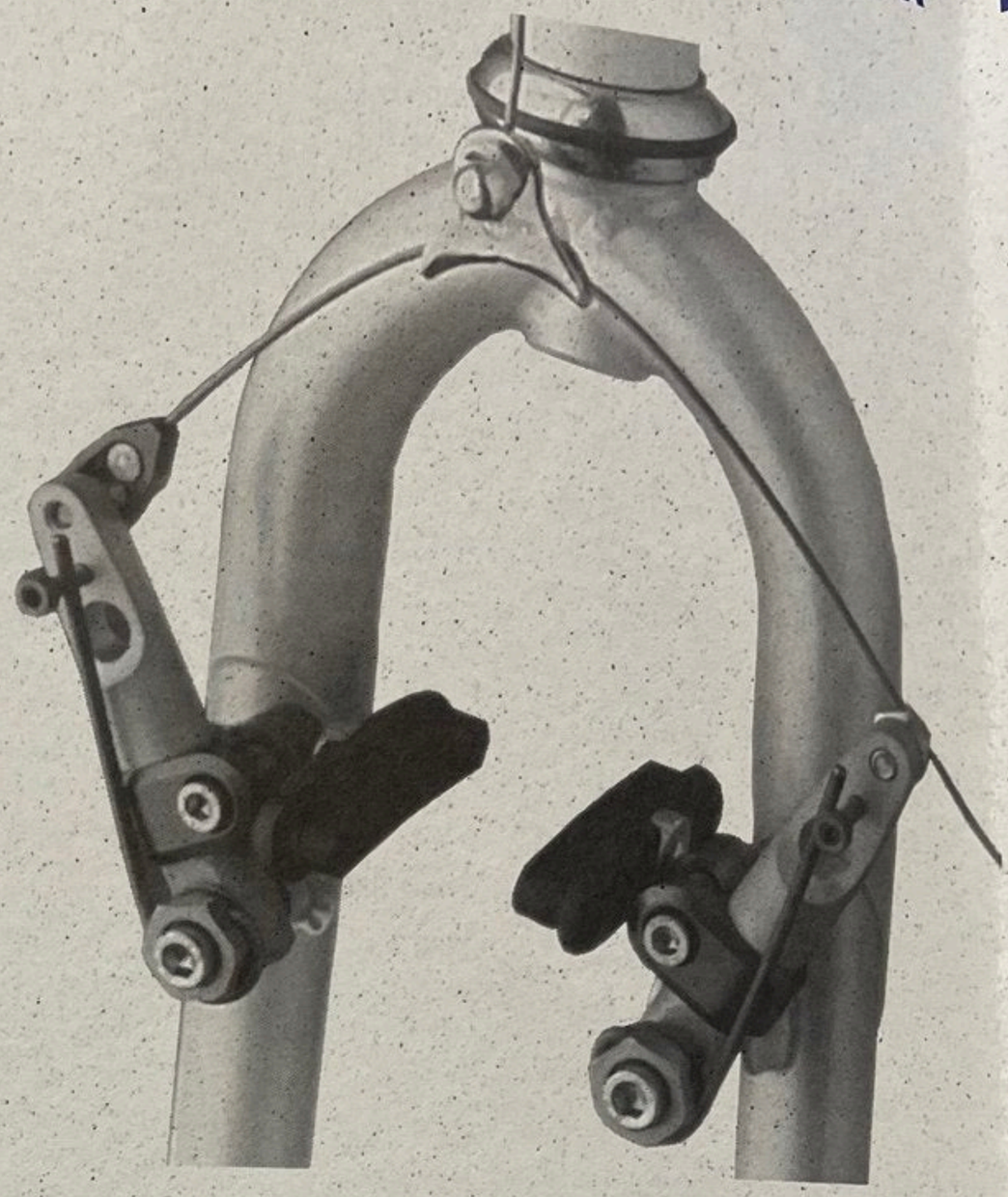
To accommodate bicycles with standard cantilever mounting posts, Wilderness Trail Bikes has devised SpeedMaster Cantilever Brakes, available as original equipment and as upgrade replacements. By moving brake pads closer to the mounting surface, the SpeedMaster Cantilever significantly reduces torque load (twisting), improving braking power and accuracy, and dampening brake squeal. The SpeedMaster Cantilever is easy to adjust for optimum pad to rim contact. Another key element of SpeedMaster Cantilever Brakes are the WTB patented **Linear Return Springs**™. These fully adjustable, straight springs have major advantages over the conventional coil springs used on other cantilever brakes. The high spring rate generates a strong pad-centering effect, significantly reducing brake-pad drag on rims. This remedies inordinate brake drag caused by frame or fork flex during power transmission because the rim is centered between the brake pads.

Different riders require different amounts of brake lever return tension. With SpeedMaster Cantilever Brakes, an exact, individualized adjustment is simple to achieve. Precision braking is literally at your fingertips.

PRODUCTS FOR B

Toggle Cam Brake

The SpeedMaster Toggle Cam Brake allows seatstay placement of a brake by allowing the routing of the brake cable around the seattube. (Roller Cam Brakes require center cable pull action which limits their placement to chainstays on small frames. The SpeedMaster Toggle Cam Brake comes in two versions: Spicy and Mild. Spicy has an adjustment feature for maximum modulation control. Mild is not adjustable and has slightly less modulation control. The Mild version is recommend for riders who are not as technically demanding.





*SpeedMaster Roller-Cam Brake**

The revolution began with the SpeedMaster Roller-Cam Brake. This original, patented, roller-cam brake set the standard for all serious off-road bicyclists. Unparalleled braking performance. Superior braking power. Precise modulation that standard cantilever brakes simply cannot duplicate. The SpeedMaster Roller-Cam Brake is recognized as the ultimate mountain bike brake. Constructed from 7075-T6 aluminum, with replaceable main pivot bushings and lubrication ports, SpeedMaster Roller Cam Brakes also have independently adjustable linear tension springs and sealed bearing pulleys. Compact versions of the SpeedMaster are available for short chainstays and smaller frames with seatstay mounted brakes. A special version is available for 700C wheels. Standard: 243 gr.; Compact: 235 gr.; 700C: 160 gr.



BETTER BRAKING

*SpeedMaster Cantilever Brake**

The SpeedMaster Cantilever Brake sets a new standard for cantilever brake performance. To maximize braking control, the SpeedMaster Cantilever incorporates a versatile modular design which allows simple adjustments for a wide range of brake stud and brake pad toe-in positions. The brake pads post is positioned between the caliper arm and seat stay, or between the caliper arm and the fork blade for superior braking feel and power. Linear springs return the brake arms precisely to center position with minimal tension. Low-profile tubular brake arms provide light weight and torsional rigidity for predictable braking. The innovative brake pad placement, adjustable brake pad positioning, and straight spring tension are unsurpassed in the industry.



*GripMaster Brake Pads***

Wilderness Trail Bikes currently offers three brake pad compounds to match your riding needs:

1. The Abrasive GripMaster Brake Pad eliminates brake squeal, smoothes rim irregularities, removes surface slickness, and has been competition-proven advantage for wet weather riding.

2. The Conventional GripMaster Brake Pad for those without squeal problems who want a pad that offers positive response and long wear characteristics.

3. Patent-pending, Dual-Compound GripMaster Brake Pads for the best of both worlds. The Abrasive compound on the leading edge of the pad and the Conventional compound on the trailing edge provides responsive braking, and cuts through moisture for improved wet weather performance. In addition, the abrasive leading edge wears slightly faster than the trailing edge, causing a natural toe-in which effectively quells squeal. All WTB pads can be replaced in the original holders when worn out. 51 gr./pair



Roller-Cam Brake Bridge

WTB's classic open truss design is structurally elegant and deceptively strong. Milled aluminum Roller-Cam Brake Bridges improve braking power and modulation for Roller-Cam and U-Brakes. This is accomplished by bracing the brake bosses against the tendency to flex outward from braking forces. 36 gr.

WILDERNESS TRAIL® BIKES

Roller Cam Brakes

The patented **SpeedMaster Roller Cam Brake** was designed specifically to meet the special demands of high intensity mountain biking. With heavier tires and great centrifugal wheel momentum, mountain bikes place huge demands on braking systems. SpeedMaster Roller Cam Brakes are designed to out-perform all brake competition, especially in extreme conditions.

As discussed above, any flex in brake mountings is lost motion that reduces mechanical advantage and causes squeal. To address this, SpeedMaster Roller Cam Brakes are mounted on 9mm diameter Roller Cam brake posts, (larger than the standard 7.9mm posts). This brings the bearing surface much closer to the mounting surface, adding critical stiffness where it is most needed. Mounting stiffness is further improved by the post being mounted closer to the end of the seatstay or fork blade, increasing the mounting rigidity and therefore, braking performance.



The SpeedMaster Roller Cam Brakes will <u>not</u> fit bikes with cantilever mounting posts. Only by removing existing cantilever posts and brazing Roller Cam posts will Roller Cam Brakes fit a bike set up for Cantilevers. When you buy a new custom bike, you can request Roller Cam brake posts so you can have the best braking available. If you are a manufacturer, you can offer a line with this superb brake system.

Peak Mechanical Advantage. The unique shape of the WTB Cam uses a bulge that minimizes cable travel as it moves the pads into contact with the rim. The "ramp" of the WTB Cam then takes over using the remaining cable travel to provide great mechanical advantage squeezing the brake pads against the rim. The result is superior braking control and feel, and prevents cramped hands during long or technically challenging descents.

Feedback and Response. Effective braking requires instant 'feedback' (information from brake to rider). The more accurate this information, the more integrated the riding experience. Inaccuracies in feedback due to flexing parts or friction in bearings and control linkages, misinforms split-second braking decisions. Roller Cam Brakes are simply unparalleled for accurate feedback, with caliper arms that are light, compact and stiff, minimal internal friction, and return springs for positive and accurate control.

Easy Maintenance. The SpeedMaster Roller Cam has sealed roller pulleys that require no maintenance. The main pivot bearings are bronze and stainless steel with a grease port that allows instant greasing without disassembly.

SpeedMaster Toggle Cam Brake

This unique cable linkage fits all SpeedMaster Roller Cam Brakes, and features a new cable pulling from either side. The side pull set-up makes the Toggle Cam Brake ideal for full suspension bikes, and also for small frames. *Most importantly, the Toggle Cam allows seatstay placement of a Cam Brake* by allowing the routing of the brake cable around the seattube. Two versions of the Toggle Cam are available: 'Spicy' and 'Mild'. The Spicy version offers the most powerful and precise braking, with maximum modulation control, and is easy to adjust for longest pad wear. The Mild version is best for more progressive braking, with slightly less modulation control, and is less expensive. Both linkages retrofit easily onto SpeedMaster Roller Cam Brakes. As well, the Toggle Cam can be used on any bike set up with Roller Cam brake posts on the seatstays or chainstays. The combination Toggle Cam/Roller Cam Braking system yields the **<u>ultimate</u>** experience of control and confidence. The Toggle Cam is patented and has patents pending.

U-Brakes

The U-Brake is really a reintroduction of the traditional "Center-Pull" brake that has been around for many decades. Shimano, Dia-Compe and some other manufacturers beefed up the Center-Pull design, made it fit the SunTour Power Cam mounting post and called it a U-Brake. If you have an older bike with U-brake or SunTour Power Cam mounts, the new SpeedMaster Toggle Cams may fit on your bike because Roller Cam pad adjustment slots can accommodate a variation in post location.

Shimano U-Brakes are on the heavy side because the long caliper arms had to be made bulky to reduce flex. Dia-Compe's version is lighter but is accordingly more flexible. Both work relatively well but each is far from being the ideal mountain bike brake.

FAST BRAKING TIPS ON USING YOUR EQUIPMENT

Whatever brakes you have, these set-up and maintenance tips will help bring out their best performance. Ignoring these seemingly little details can cause even the best brakes to malfunction. Conversely, keeping your brakes in top shape, will give you an optimum riding experience.

Post Alignment

Brake posts should be parallel. This is the first thing to check if you are having brake problems. If you suspect non-parallel posts check them by taking the brakes off and putting one edge of an accurate 90 degree square against one post. The other edge should line up with the shoulder of the other post. (see diagram, point 2) To check the horizontal plane, lay the side of some flat object (a piece of glass or steel straight edge) against both brake posts. Both should contact fully. If posts seem out of parallel, carefully bend them into perfect position with (soft-padded) heavy-duty pliers, or have your bike repair shop do it.

Cables

Cable position and movement is extremely important. Cable housing and core should be free of kinks, which sometimes occurs at cable stops on the frame or fork. A kink at this transition point can cause friction and poor brake response. Cables should be rust-free and always well lubricated. Some systems claim to work best dry, however, experience proves that a light grease is critical to prevent rusting.

Dia Compe BRS cables are recommended because of low-friction manufacturing technology and pre-stretching. Avoid long lengths of cable housing. Cable stops and guides are standard on better bike frames to reduce the amount of housing needed, and this significantly reduces lost motion from cable housing compression. If your bike does not have cable stops and guides, consider having a frame builder put some on. It will improve your braking power and accuracy.

Lubrication

Keep all moving parts of your brake well lubricated, and keep oil and grease off brake pads and rim! A good rule is: anything that moves against something else when you apply the brake needs oil or grease. (Rims and pads excepted!) Put a drop of oil on contacting motion-surfaces. If necessary, take the brake apart to keep the main caliper pivot bearings well greased. Sticky bearings will result in inferior brake functioning. WTB Roller Cams have a port included allowing you to thoroughly grease the main pivots without taking the brake off the posts.

Tires

Tire pressure and tread type obviously have a lot to do with how effective your braking is. Excessively low tire pressure can cause loss of side wall integrity (sometimes known as squirreling). Pinch flats are also more likely with low tire pressure. Too much pressure will not allow the tire to conform to the terrain and it will bounce and clatter reducing braking effectiveness.

RIDING EFFECTIVELY WITH BRAKES

- Performance braking requires great attention to visual and audio cues.
- Locked wheels don't stop as quickly as wheels that are kept rolling because tire traction is better when you're not riding a "wave" of dirt
- Front wheel braking force is more effective for deceleration because of weight transfer that creates better traction in front and less traction in the rear. Front brake should be used sparingly or not at all when turning.
- Steering the bike with heavy rear wheel braking in a corner can be beneficial for picking the ideal line.
- Rugged technical terrain can stop the front wheel causing you to endo. Inertia is the key. Keep the bike rolling through this terrain by getting on and off the brakes at the right time.
- Rapid deceleration from high speed should be done before you bend the bike into a corner. Every road surface, corner and set of obstacles is different. Grab as much braking as you can while traveling in a straight line before starting your arc, let off and feather your brakes (more rear) until you feel brakes are a detriment to speed and control. You are now either tracking well (no problem) or you are in trouble. Responses when in trouble vary from pushing a bike into a slide, without brakes, (to scrub speed and change direction) to going upright for the best spot at the side of the road with both brakes grabbing as much traction as possible.
- Technical trails can be ridden with almost no impact. Locking the rear brake and slinging the bike around a tight bend may be the fastest way around but the corner may suffer from your passing. (Some corners can, however, be improved by this method.) Staying out of ruts allows you more control of both steering and braking. If a trail has a deep V cut, try riding the high outside edges and abruptly swap sides when necessary. Avoid locking your wheels. Stay high on the edge and drop speed where the trail allows.
- Ledges and shelves found in Red Rock country require a roll and drop technique. Again inertia is the key. Feather those brakes and leave no black marks on that beautiful red rock.
- Soft, powdery terrain requires the greatest variance of on and off braking. Lots of front brake going into a corner will be needed when it is a tight one. The rear brake can be continued into the apex if necessary. More gradual bends at higher speeds can be better negotiated with lighter front braking or none at all.
- When preparing to brake for a turn, carefully choose the best line avoiding rocks, roots, ruts and areas with poor traction. Listen to the contact patches where your tires meet the ground. They transmit different sounds as traction limits are approached. Learn to recognize what the contact patches sound like while rolling free, as they approach the traction limit and when the traction limit is exceeded (a slide). These are signals that will serve you well in all kinds of riding. For more information, please contact:

Wilderness Trail Bikes, Inc.
Phone: (415) 924-9632
Fax: (415) 924-9640

Team WTB

Wilderness Trail Bikes was formally founded in 1982 by Mark Slate, Charlie Cunningham and Steve Potts. As consummate designers and engineers, these three have been drafted into the Mountain Bike Hall of Fame for their technical contributions to mountain biking. Patrick Seidler joined Wilderness Trail Bikes in the late eighties with a background in bicycle product development and business. Today, this team of four, supported by a dedicated and knowledgeable staff and the best technical riders a company could hope for, responds to the needs and desires of riders from around the globe, with information and wisdom on mountain biking.



Above:The principals of Wilderness Trail Bikes. From left, Mark Slate, Steve Potts, Charlie Cunningham, Patrick Seidler.

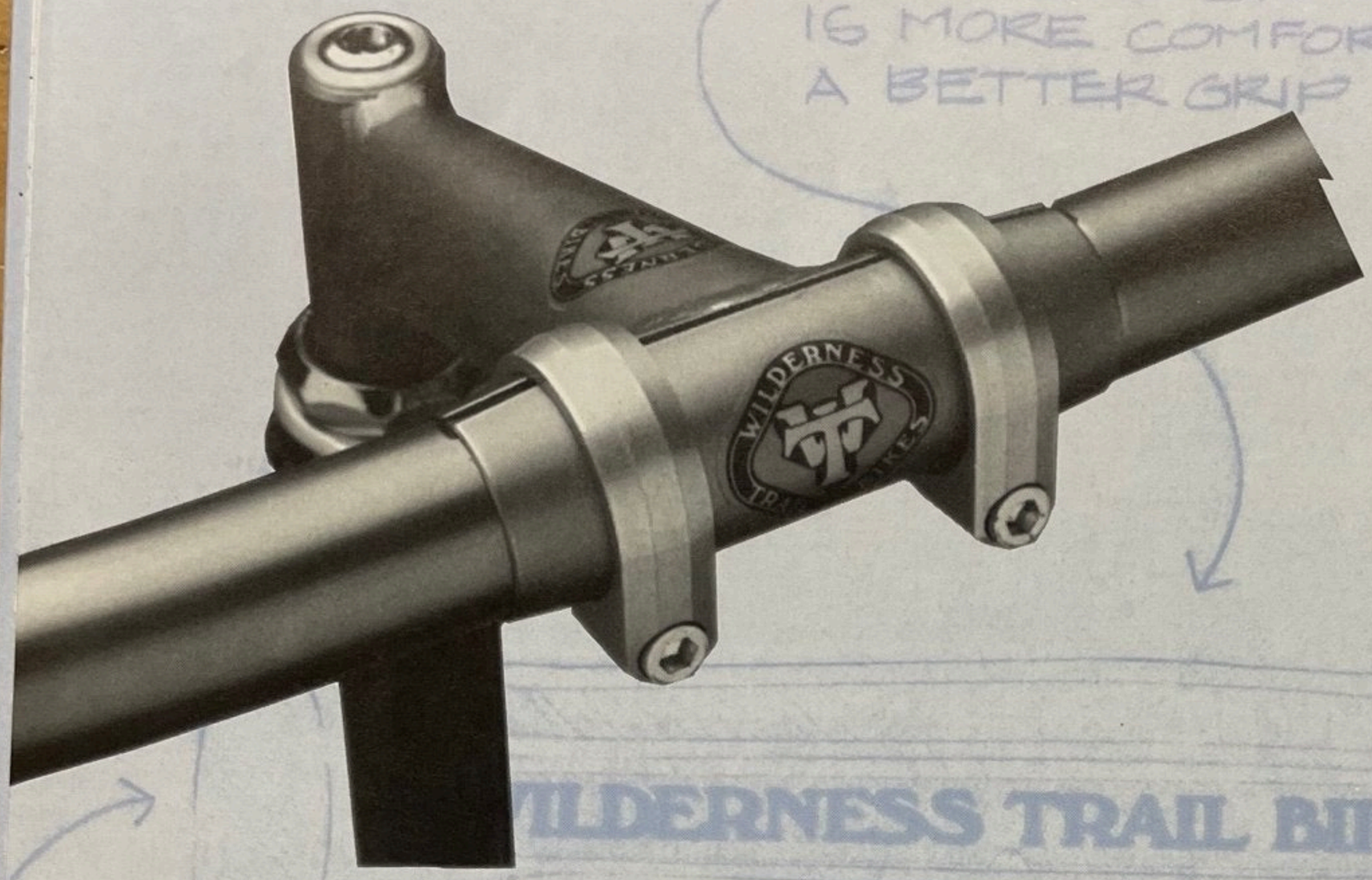
Below:Team WTB on the Annual Derby Bowl Ride, September 1993.



Pride in our Products

What began over a decade ago as a personal adventure in designing and building parts for our own bikes is now WTB technology that supports millions of riders in search of the ultimate riding experience. The evolution of Wilderness Trail Bikes components occurs over many years, with constant testing, reviewing, and refining. From revolutionary braking systems to a classic fork design, from the best-selling tires in the industry, to the market-defining GREASE GUARD Headsets, Hubs, Bottom Brackets, Pedals and lubricants, WTB strives for simplicity, reliability and performance in every gram of our products.

STEERING



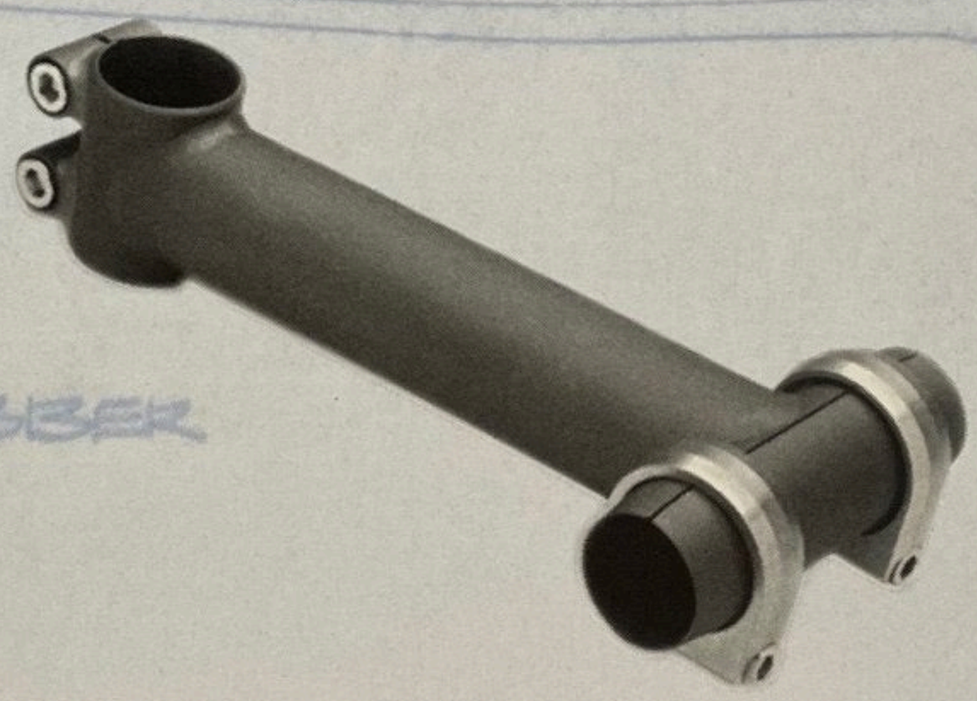
WTB PowerBand Stem™

The patent pending WTB PowerBand Stem features Cro-Molly construction and a low profile, lightweight design with exclusive bands, to effectively lock the handlebar with less weight. **The removable stem cap facilitates quick change of the stem** when different rise or reach is desired. Tapered edges diffuse stress at the handlebar contact area to minimize bar strain and potential breakage. Available in 12, 13.5, and 15cm sizes with 5° and 20° angles. 260 gr.

WTB PowerBand AheadSet® Stem

The PowerBand Ahead Set Stem offers the advantage of dimensional choice for threadless steerers in the popular headset. The stem clamps firmly to hold the headset adjustment. 246.4 gr.

AheadSet is a registered trademark of Dia-Compe USA





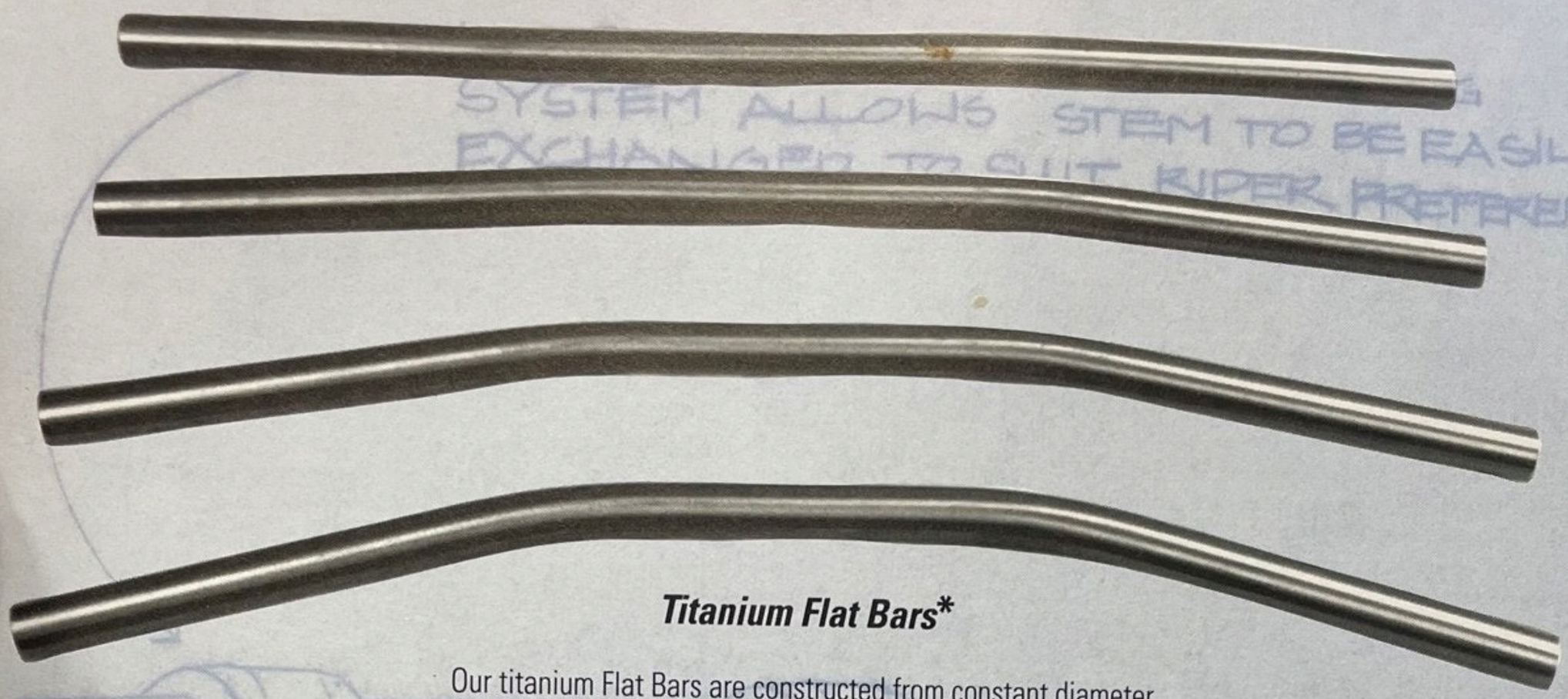
TrailGrips™

Made of durable craton rubber, off-road competitors choose TrailGrips because of their smaller diameter, octagonally faceted ergonomic design, and extra thickness at the ends to prevent tearing and punch-outs. 93 gr.

Type II Fork

The Type II Fork is a classic, receiving praise from industry leaders and riders alike for over 12 years. This highly refined, design delivers precise and responsive steering and excellent shock dampening which allows you, rather than your fork, to pick the line. The Type II design features a 1.125" tubular fork crown, and 1" diameter butted blades to produce an exceptionally lightweight fork with remarkable shock-absorbing qualities. **Steve Potts personally makes every Type II by hand in his Marin County machine shop**. Steve and other top riders believe the Type II experience of 'terrain-grip' beats any suspension ride, hands down. 1.8 lbs. (672 gr.)

G E A R



*Titanium Flat Bars**

Our titanium Flat Bars are constructed from constant diameter 3AL 2.5V titanium tubing, combining shock-absorbing flex characteristics with light weight and super strength. The Titanium Flat Bars come with unique long-taper shims which diffuse the acute stress that can cause handlebars to break at the stem junction. Custom cutting and bending to your specifications is available for a small upcharge. 21", 160 gr.





Off-Road Drop Bar

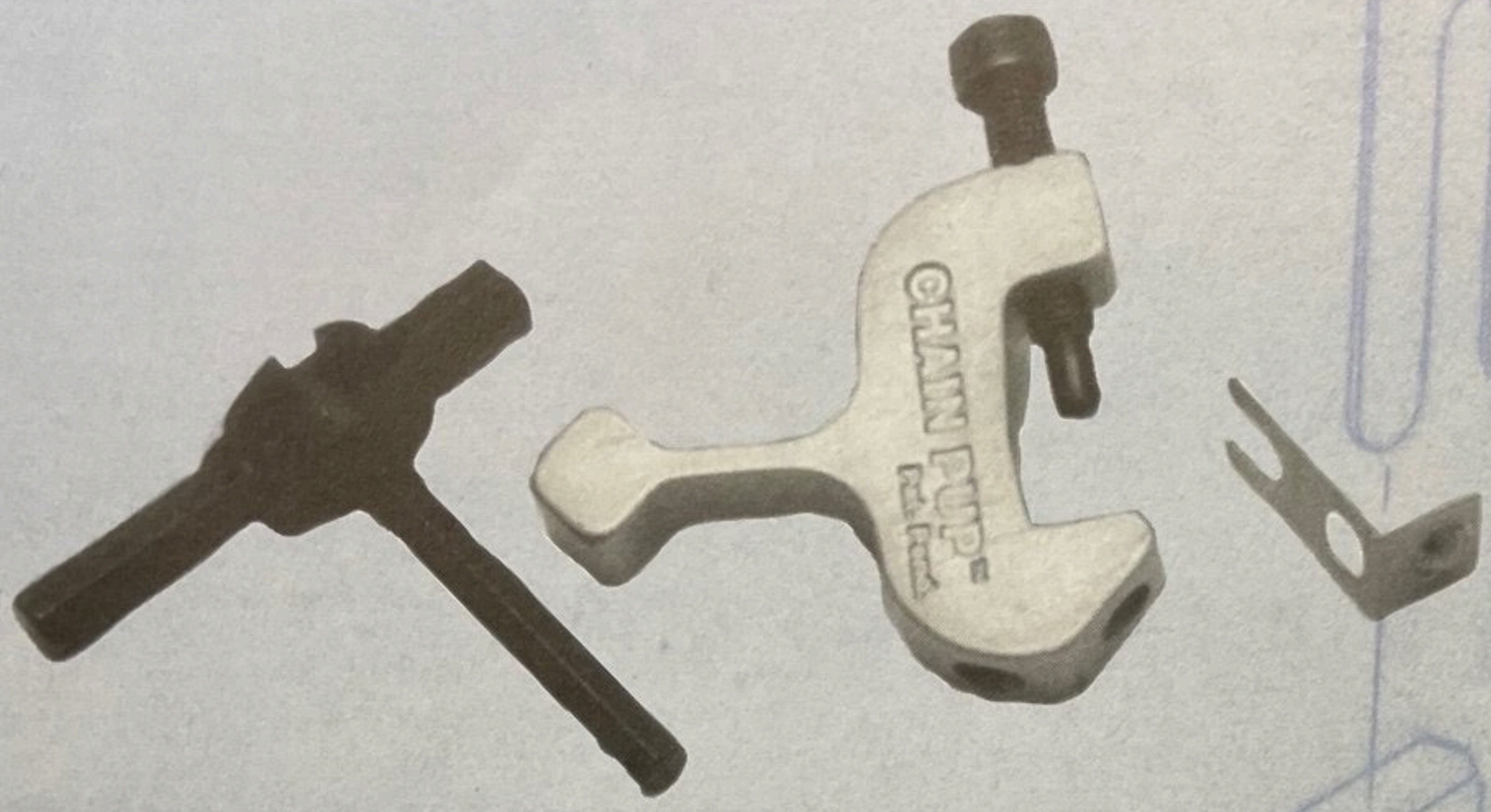
5" drop, a 3" reach, a radical 25° flare on each side, and an overall width of just under 24". Stronger and more durable than standard designs, this off-road drop bar has less drop and reach for better anatomical alignment and handling in the power and braking positions. Built to withstand even the most severe off-road abuse. 337 gr.



Drop Bar Mounts for Thumb Shifters

The WTB Drop Bar Mounts mount the shifters in the ideal location for shifting when riding conditions are challenging. The mount attaches to the drop bar just above the brake lever and positions the shifter inside your grip where it may be actuated without moving your hand from the bar. The Drop Bar Mounts for Thumb Shifters are the perfect combination for touring and technical riding. 148 gr.

FINE



Chain Pup™ Chain Tool**

The WTB/Finish Line Chain Pup Chain Tool is the first, and best, super lightweight, compact and convenient chain tool available. The patent pending Chain Pup ensures perfect inner/outer link clearance for optimum index shifting performance, and eliminates the possibility of the chain pin being inadvertently pushed out of the link. It comes with a 4, 5 and 6 millimeter hex wrench with two spoke wrench slots called the "T Pup." The Chain Pup and T Pup together weigh far less than other chain tools at a feathery 32 grams, and it even fits in a patch kit! Don't leave home without it.

Cable Hangers

The precision machined aluminum Cable Hanger provides a solid stop for the front cable housing and a better feel for the front brake. Clamps between the headset lock nut and adjuster nut, eliminates the need to undo brake cables to change stems. 11 gr.



Chainstay Protectors

Extra absorbent Chainstay Protectors silence chainslap, and will protect your bicycle frame better than any chainstay protector in the market. Every rider will notice the subtle improvement to their ride. 6 gr.

TUNING



Toe Flips

Introduced by WTB, our original design Toe Flips have been copied by most pedal manufacturers without an understanding of the functional subtleties. Plated spring steel is specially shaped for a quick flip of the pedal, allowing instant and effortless toe clip entry. If you have clips, get Toe Flips. 43 gr.



Midnight Oil**

Non-toxic Midnight Oil is the premier off-road chain oil on the market today. Containing colloidally suspended graphite for super long-lasting lubrication of chains (as well as cables, pivots, and threads). Midnight Oil penetrates quickly and has incredible staying power, providing smoother shifting and longer chain life even when subjected to intense moisture, dust and grit. Apply with care as Midnight Oil will stain any fabric it touches, an indication of why it stays on the chain so well.

ACCESSORIES



WTB Water Bottles**

Join the team of international riders who use official WTB water bottles. Printed on translucent polyethylene plastic with the classic WTB logo. Large (28 oz.) or small (21 oz.).

WTB/Blackburn B-52 Bomber Waterbottle Cage**

The patent-pending WTB/Blackburn B-52 Water Bottle Cage, developed by Wilderness Trail Bikes, is the solution to the two prevailing problems with the traditional waterbottle/cage arrangement: limited water carrying capacity, and chemical-tainted water from traditional polyethylene water bottles. The B-52 efficiently carries 1.5 liters of water in standard store-purchased bottles of spring or mineral water (Crystal Geyser, Evian, etc.) These bottles will not impart plastic taste, even on hot days. One WTB/Blackburn B-52 Water Bottle Cage and bottle carries as much water as two standard cages and water bottles with approximately three ounces less net weight, and is positioned lower on the bike for better handling. It is also less expensive.

WILDERNESS TRAIL BIKES, INC.
134 REDWOOD AVENUE
CORTE MADERA
CALIFORNIA
94925
TEL: 415.924.9632
FAX:415.924.9640

I E S

Team WTB

Riders include: Todd "Magic Wheels" Franklin (pictured left) Jacquie Phelan, Matt Hebberd, Joey Peterson, Roy Rivers, Carmen Carrouché, Roland Mays, Brian Gross, Joan Slate, John and Cory DeNegris, Nicola Cramer, Ted O'Connel, Peter Stach, Joe Shirado, Dirk Denny, Peter Kahl, Craig Johnson, Tom Gallagher, Jeff Blain, John, Turo, Brad Buchanan, Bill Majoué, Roger Jacobsen, Matt Hansen, George Newman, Erik Beneken, Steve Hulbert, and Victor Hanson, Josh Josephson, Joan Slate, Natalie Slate, Ariel Riboli, Joe Riboli, Daniel Potts.

WTB Staff: Fred Falk, Lori Donahue, Doug Canning, Bert Sawicki, Mike Basso, Mark Rhodes, Suzie Miller, Ginger Piccirillo, and Susie Weaver.

Concept & Design: Zen Player Photography: Tom Del Brase, Production: Susie Weaver, Jason Seeber, Illustration: Dan Grieb, Print Management: Mike Magruder & Staff, Printing: Paris Printing

WTB T-Shirts and Sweatshirts

WTB vets know you're not totally awesome unless you own a collection of Wilderness Trail Bikes T-Shirts and Sweat Shirts. Styles include: white T-shirts with rainbow WTB logo on front & back; grey T-shirts with small WTB logo on front and wolf image on back; white & ash T-shirts with 'STOP YOUR SQUEALING' logo in purple & turquoise; black hooded sweat shirt with with small WTB logo on front and large rainbow WTB logo on back. Other styles and color combos for T-shirts available throughout the year.

WTB Stickers

Official WTB logo self-adhesive stickers will immediately improve your public biking image. Available in three sizes: (1", 3" & 5"). Great for your bike, car, boat, lawn mower, home furnishings or forehead.

STOP YOUR SQUEALING℠

With the revolutionary SpeedMaster™ Cantilever, Roller Cam, and Toggle Cam brakes, and Dual-Compound Brake Pads from Wilderness Trail Bikes.

More responsive braking than you've ever experienced . . . in wet, dry or extreme terrain.

In a recent survey of brake products, SpeedMaster™ Roller cam Brakes and GripMaster Brake Pads were rated the BEST in total stopping power.

National bicycling magazines agree that Wilderness Trail Bikes makes "The best pads on the market"

WILDERNESS TRAIL BIKES

BELIEVE WHAT YOU RIDE, NOT WHAT YOU READ℠

SUGGESTED RETAIL PRICELIST 1994

THE PHOENIX:	Rigid or Suspension (pearl white or midnight blue)	$1149.95
	American Classic Seatpost (31.8mm, 425mm)	66.95
	Type II Fork (with frame only)	399.95
GREASE GUARD BEARING COMPONENTS:	Headsets (English thread)	189.95
	Front Hub (28/32/36 hole)	139.95
	Threaded Rear Hub (28/32/36 hole; tandem 36/40/48 +$15)	149.95
	Cassette Rear Hub (32/36 hole)	224.95
	Threaded Hubset	279.95
	Cassette Hubset	354.95
	Steel Bottom Bracket (35mm cartridge, press-in)	99.95
	Titanium Bottom Bracket (35mm cartridge, press-in)	169.95
BRAKING SYSTEMS:	Speedmaster™ Roller-Cam (standard, compact or mini)	164.95
	Speedmaster Toggle-Cam	199.95
	Speedmaster Cantilever	114.95
	Toggle-Cam upgrade kit (spicy or mild)	39.95
	Brake Bridge (wide or narrow, Roller-Cam or U-brake)	39.95
	Gripmaster™ Standard Pads (anodized colors available)	29.95
	Gripmaster Dual Compound Pads	33.95
	Gripmaster Abrasive Pads	33.95
STEERING GEAR:	Titanium Flat Bar (custom cut and bent)	99.95
	Stress Diffusing Shim (25.4 or 26.2)	12.45
	Off Road Drop Bar (26.0 clamp diameter)	64.95
	Shifter Conversion Kit (Deore or Deore XT shifters only)	
	Cable Hanger (one inch only)	12.95
	Trailgrips™	6.95
LUBRICANTS:	Goose Grease™ (4 oz. squeeze tube)	5.95
	Gooser™ (long-tip gun head with tube of grease and adaptor)	19.95
	Adaptor (adapts Goose Grease to smaller diameter grease gun heads)	95
	Midnight Oil™ (2 oz. bottle)	3.95
ACCESSORIES:	"Bomber" Cage (large water bottle cage)	19.95
	Chain Pup chain tool	16.95
	Chainstay Protectors	3.25
	Internal Pump	19.99
	Toe Flips™	11.95
	Small Water Bottle (21 oz., clear)	3.95
	Large Water Bottle (28 oz., clear)	4.95
	Large WTB Logo Sticker	1.50
	Medium WTB Logo Sticker	1.00
	Small WTB Logo Sticker	50
CLOTHING:	WTB Logo Short Sleeve T-shirt (100% cotton Hanes Beefy T)	18.95
	WTB Logo Long Sleeve T-shirt (100% cotton Hanes Beefy T)	24.95
	WTB Logo Sweatshirt	34.95

Prices subject to change without notice

Wilderness Trail Bikes
134 Redwood Ave.
Corte Madera, CA 94925
415-924-9632
415-924-9640 fax

PHOENIX
SPECIFICATIONS

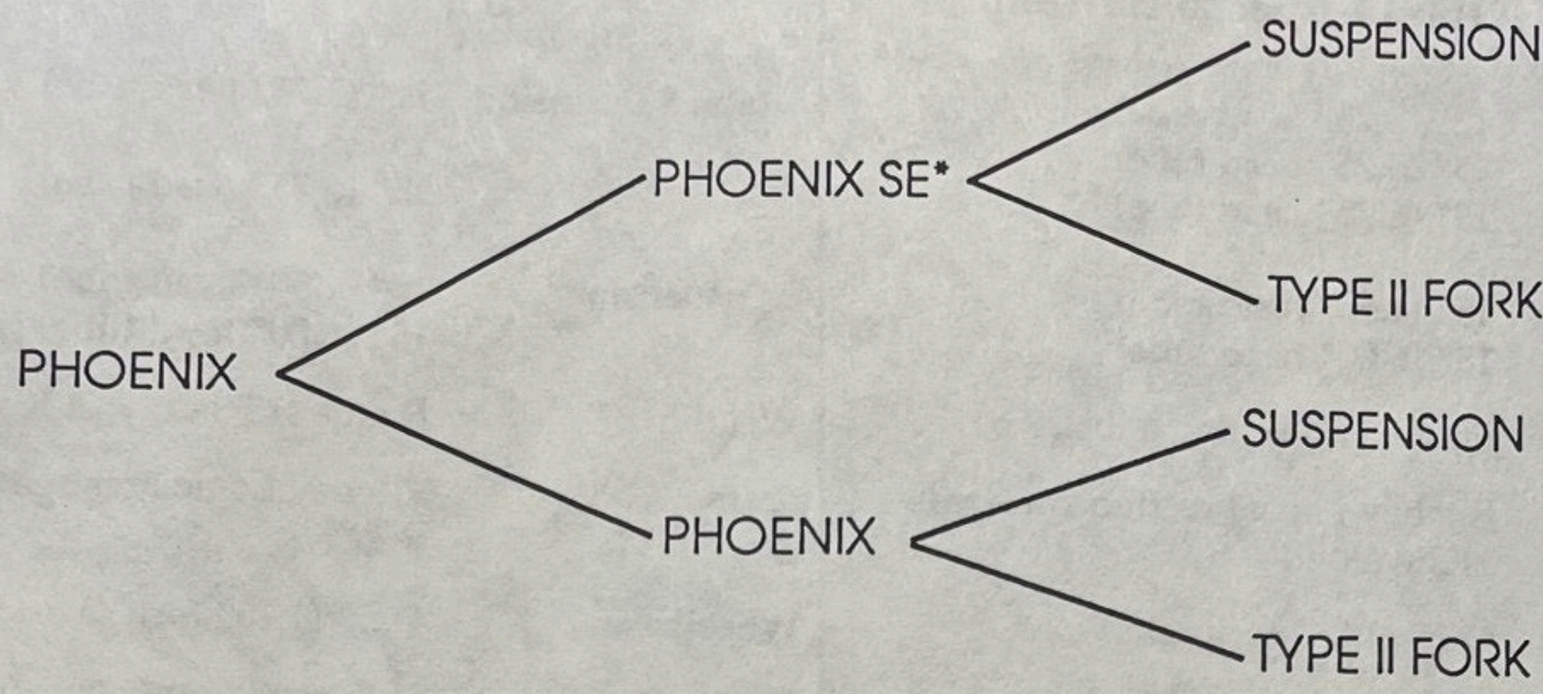
PHOENIX Special Edition		PHOENIX	
Sizes Available:		Sizes Available:	
Non Suspension	12″ (3.75″ head tube) 15″ (5.25″ head tube) 18″ (6.75″ head tube)	Non Suspension	12″ (3.75″ head tube) 15″ (5.25″ head tube) 18″ (6.75″ head tube)
Suspension	15″ (4.50″ head tube) 18″ (6.00″ head tube)	Suspension	15″ (4.50″ head tube) 18″ (6.00″ head tube)
Weight:	Frame (15″) only: 4 lbs., 3 oz.	Weight:	Frame (15″) only: 4 lbs., 3 oz.
Frame:	Ritchey Logic Prestige (oversized), TIG welded	Frame:	Ritchey Logic Prestige (oversized), TIG welded
Wheelbase:	41.5″ (1.75″ fork rake)	Wheelbase:	41.5″ (1.75″ fork rake)
Seat post:	31.8 mm diameter	Seat post:	31.8 mm diameter
Top tube:	22.25″ (effective-12″); 22.75″ (effective-15″); 23.5″ (effective-18″)	Top tube:	22.25″ (effective-12″); 22.75″ (effective-15″); 23.5″ (effective-18″)
Head angle:	71°	Head angle:	71°
Seat angle:	72°	Seat angle:	72°
Chainstay:	16.9″	Chainstay:	16.9″
Bottom bracket ht:	11.7″ (1.95 tires)	Bottom bracket ht:	11.7″ (1.95 tires)
Type II fork rake:	1.75″ (options available for Type II fork)	Type II fork rake:	1.75″ (options available for Type II fork)
Suspension fork rake	Popular suspension fork rakes are 1.5″ and 1.625″ (Note: wheelbase will change by the same amount as the fork rake.)	Suspension fork rake	Popular suspension fork rakes are 1.5″ and 1.625″ (Note: wheelbase will change by the same amount as the fork rake.)
Color:	Pearl White or Midnight Blue	Color:	Pearl White or Midnight Blue
Brake studs:	Seatstay Toggle-Cam	Brake studs:	Cantilever
Cable routing:	Down tube derailleur cable routing Top tube brake cable routing	Cable routing:	Down tube derailleur cable routing Top tube brake cable routing
BB shell:	Threaded	BB shell:	Threaded

Frame Size	Standover Height	Inseam Length
12″	27 1/2″	27-31″
15″	29 3/4″	30-34″
18″	32″	33-37″

Wilderness Trail Bikes, Inc.
134 Redwood Avenue
Corte Madera, CA 94925
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Fax: (415) 924-9640

AVAILABLE AT FINER BIKE DEALERS

PHOENIX FRAME OPTIONS



* The PHOENIX SE comes with Roller Cam Brake bosses mounted on the seatstays.

PHOENIX Frame Features

1. The only frame with design and production collaboration of three members of the Mountain Bike Hall of Fame in Crested Butte.
2. Steve Potts, Charlie Cunningham, and Mark Slate have each established a dedicated following as custom framebuilders. Collectively, the three have designed and producedwhat they believed to be the highest performance technical trail bike available in this price range today.
3. Race-proven geometry from years of performance riding, racer affiliation and sponsorship.
4. The dramatically sloping top tube of the Phoenix provides significant clearance for technical riding and generous standover height. The frame design, which features frame tubes of reduced length and weight and a correspondingly extended seat post, promotes vertical forgiveness while providing additional lateral and torsional stiffness contributing to greater power transmission. The frame has greater shock-absorbing "give" without side to side flex and twisting that causes imprecise tracking and power loss in standard frames.
5. All Phoenix framesets are currently being hand built by Steve Potts using the most advanced frame building techniques and know-how. The steel tubing, Oversized Ritchey Logic Prestige Tubing, is the best available. The cutting-edge metallurgy, butting and cold working in this tubeset extract incredible performance from this reliable material.
6. Super value: customers will be buying a handmade, essentially "custom," mountain bike. Sizing is accurately accomplished using the power band stem.
7. Wilderness Trail Bikes provides full technical support to sell and maintain the Phoenix and all WTB components.

WILDERNESS TRAIL BIKES®

WILDERNESS TRAIL BIKES DESIGNED

SPECIALIZED TIRE AND TUBE PRICES

OFF-ROAD PERFORMANCE TIRES 26"	PRICE
PRO CONTROL 1.95	14.75
PRO CONTROL/S 1.95	19.50
PRO CONTROL/S 1.95 GRAY	20.25
SHOCKMASTER 1.95	14.75
SHOCKMASTER/S 1.95 GRAY	20.50
GROUND CONTROL 1.95	10.00
GROUND CONTROL/S 1.95	17.25
GROUND CONTROL/S 1.95 GRAY	20.25
MORE EXTREME 1.95	14.00
MORE EXTREME/S 1.95	19.50
MORE EXTREME/S 1.95 GRAY	20.50
MORE EXTREME/S 2.5 GRAY	22.25
STORM CONTROL 1.8	13.25
CANNIBAL 1.8	13.00
CANNIBAL/S 1.95 GRAY	20.50
CANNIBAL 2.2	14.25

ON/OFF-ROAD TIRES 26"	
ROCKCOMBO 1.95	9.00
CROSSROADS II 1.95	9.00

ROAD TIRES 26"	
FAT BOY 1.25	10.00
NIMBUS 1.4	9.00
TURBO/S ATB 1.0	11.25
TURBO/S ATB 1.0 GRAY	14.50

ROAD TIRES 700C	
TURBO/C 20c	14.00
TURBO/C 23c	14.00
TURBO/C 20c GRAY	16.00
TURBO/C 23c GRAY	16.00

TUBES 26"	
SHRDR 26 X 1.0/1.15	2.05
PRESTA 26 X 1.0/1.15	2.45
SHRDR 26 X 1.25/1.5	2.15
PRESTA 26 X 1.25/1.5	2.45
SHRDR 26 X 1.5/2.2	2.05
PRESTA 26 X 1.5/2.2	2.45
SHRDR 26 X 1.95/2.5	2.60
PRESTA 26 X 1.95/2.5	2.80

TUBES 700C	
PRESTA 700 X 20/28	2.25
PRESTA 700 X 28/38	2.35
PRESTA 700 X 41/45	2.40

****Prices subject to change without notice****

Wilderness Trail Bikes, Inc. • 134 Redwood Avenue • Corte Madera • California • 94925

WHOLESALE PRICELIST 1994

THE PHOENIX:		Unit	2+	5+
	Rigid or Suspension (pearl white or midnight blue)	$759.00	749.00	739.00
	American Classic Seatpost(31.8mm, 425mm)	39.95		
	Type II Fork (with frame only)	275.00		
GREASE GUARD BEARING COMPONENTS:	Headsets (English thread)	125.00		
	Front Hub (28/32/36 hole)	85.00		
	Threaded Rear Hub (28/32/36 hole; Tandem 36/40/48 +$10)	90.00		
	Cassette Rear Hub (32/36)	135.00		
	Threaded Hubset	169.00		
	Cassette Hubset	215.00		
	Steel Bottom Bracket (35mm cartridge, press-in)	60.00		
	Titanium Bottom Bracket (35mm cartridge, press-in)	101.00		
BRAKING SYSTEMS:		Unit	5+	10+
	Speedmaster™ Roller-Cam (standard or compact)	99.00	97.00	95.00
	Speedmaster Toggle-Cam (standard or compact)	119.00	117.00	115.00
	Speedmaster Cantilever (Kool-Stop pads)	69.00	67.00	65.00
	Toggle-Cam upgrade kit (spicy or mild)	22.00	21.00	20.00
	Brake Bridge (wide or narrow, Roller-Cam or U-brake)	22.50	21.50	20.50
	Gripmaster™ Standard Pads (anodized colors available)	14.95	14.45	13.95
	Gripmaster Dual Compound Pads	16.95	16.45	15.95
	Gripmaster Abrasive Pads	16.95	16.45	15.95
STEERING GEAR:	Titanium Flat Bar (custom bent)	65.00	60.00	55.00
	Stress Diffusing Shim (25.4 or 26.2)	7.50	7.25	7.00
	Off Road Drop Bar (26.0 clamp diameter)	38.00	36.00	34.00
	Shifter Conversion Kit			
	Cable Hanger (one inch only)	6.50	6.25	6.00
	Trailgrips™	3.50	3.25	3.00
	Fitfinder (1 1/8", 1 1/4" steerer adaptors available)	225.00		
LUBRICANTS:		Unit	12+	36+
	Goose Grease™ (4 oz. squeeze tube)	2.99	2.79	2.49
	Gooser™ (long-tip gun head with tube of grease and adaptor)	11.99	11.49	10.99
	Adaptor (adapts Goose Grease to smaller diameter grease gun heads)	.50	.45	.40
	Midnight Oil™ (2 oz. bottle)	1.99	1.89	1.79
ACCESSORIES:	"Bomber" Cage (large water bottle cage)	9.95	9.45	
	Chain Pup chain tool	8.50	8.25	8.00
	Chainstay Protectors (packaged for resale)	1.59	1.49	1.39
	Chainstay Protectors (bulk packaged)		1.19	
		Unit	5+	10+
	Internal Pump	10.99	10.49	9.99
	Toe Flips™	5.99	5.49	4.99
		Unit	25+	50+
	Small Water Bottle (21 oz., clear)	1.99	1.89	1.79
	Large Water Bottle (28 oz., clear)	2.49	2.39	2.29
	WTB Logo Sticker (Small, Medium, Large)	25	.50	.75
CLOTHING:		Unit	12+	36+
	WTB Short Sleeve T-shirt (100% cotton Hanes Beefy T)	9.50	9.25	9.00
	WTB Long Sleeve T-shirt (100% cotton Hanes Beefy T)	12.45	12.25	11.95
	WTB Logo Sweatshirt	19.50	19.25	18.95

Prices subject to change without notice

Wilderness Trail Bikes
134 Redwood Ave.
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June 15, 1993

Your letter about the price of bike frames touched on a subject of interest to all bike enthusiasts. The owners of WTB would like to share some insights gleaned from many years in the bike business. We, like many of you, are hopeless bike nuts ourselves. Actually, that comes first for us. Making a living doing what we love most is just icing on the cake... bitter-sweet icing sometimes! Also like you, we are just people trying to follow our dreams. We are glad to share anything we have learned along the way.

Your analysis of the cost of building a bike frame looks pretty good at first glance, but if you actually do it you will find it is more involved and the costs are higher than you thought.

For a bike business to be around for more than a few years things have to be done thoroughly, correctly, and realistically from a business standpoint. The product has to consistently be very good and back up service does too.

To develop and make good bikes frames we have had to invest in research and development, expensive machinery and skilled, dedicated employees, as well as a place to do the work and the business infrastructure to support it all. We have done our best over the years to create top quality bicycle equipment that is maintainable and really works. If you look at the history of WTB and some of the other small U.S. companies that have been around a while, you will notice that this is where much of the design innovation has come from. Many of the bike frame and component designs that are now industry standards came from the hearts and souls of dedicated people working in garages and riding constantly to refine and perfect their ideas.

For example, WTB pioneered the unusual PHOENIX frame design. We believe it gives the rider a lighter frame with better shock absorption in the vertical plane while being torsionally stiffer. It also gives better crotch clearance for technical riding. Will mass produced look-alikes soon appear? It wouldn't be surprising. Small U.S. designer/builder companies often see their designs adopted by bigger mass producers.

There are obviously lots of brilliant, dedicated people involved in "cutting edge" design work today and there will continue to be. Hopefully, newcomers to the mountain biking scene realize that it is easier to copy a good design than to develop a good design. This is partly why mass produced frames from Taiwan can be a pretty good value for the buyer. These frames often don't carry the cost of developing the designs, just that of making them. Also, these frames are often built by workers that are underpaid by our standards and work in unhealthy conditions that would be totally unacceptable to Americans. These are real human and environmental costs that are paid by someone, but easily overlooked when we buy that inexpensive overseas bike. At WTB, we try to give our employees a secure, healthy work environment where creativity can flourish.

WILDERNESS TRAIL BIKES LICENSING, INC. • 700 LARKSPUR LANDING CIRCLE, STE. 200 • LARKSPUR, CA 94939
TEL: 415-925-9050 FAX: 415-925-9411

Here in the USA there are plenty of people trying to start careers as frame builders. It is possible to build frames on a shoestring budget with minimal equipment and help. In fact, that is how we got started. Now we make more than $20 per hour, but not much more. It has been a long, hard road (almost always uphill with a strong headwind). When a builder has no track record, he or she often charges less than fair market value for his or her work to get established. It can involve years of personal sacrifice while learning the art and acquiring the equipment and business infrastructure to build bicycles efficiently. This is why so many frame builders burn out and disappear, leaving no one to service their product. A good reputation is harder to build than a good frame!

There are plenty of mountain bikes that are relatively inexpensive and work well and are enjoyable to use. Why pay more? One reason might be to get better materials and easily maintainable components - both cost more but make a bike last longer. The guys at WTB admit to getting a certain inexplicable satisfaction from riding a bike that is an expression of our values... mechanical and aesthetic included. We all have wheels, headsets, and bottom brackets that are over five years old and are very serviceable. We appreciate suspension. We have designed suspension principles into the PHOENIX frame and also offer a suspension fork version of the PHOENIX.

Each of the four owners of WTB paid more than $700 for their own PHOENIX frames. We pay for our own products because doing business costs money. We aren't getting rich but we really love what we are doing. We hope that eventually if we run our business right, we will make more money. When that money comes, it won't just be spent on making our own lives more comfortable, but will also be used to help spread more wellbeing to others with bicycles and right living.

We can assure you that none of us feels that our customers are stupid. In fact, we respect them as well informed peers.

Hopefully these thoughts shed light on some of the less visible aspects of making bicycles. We invite more dialogue on this subject and wish you good luck in your racing and riding.

Best regards,

Charlie Cunningham

Steve Potts

Mark Slate

Patrick Seidler