



Specialized Bicycle Components Limited Warranty

Specialized Bicycle Components ("Specialized") makes the following Limited Warranty:

ONE YEAR LIMITED WARRANTY ON COMPLETE BICYCLE

Specialized warrants to the original owner that this new Specialized bicycle shall be free of defective materials and workmanship for a period of one year from the date of its original purchase provided the bicycle is purchased in the United States and operated under normal conditions and use. During this one year warranty period, Specialized shall repair or replace, at its sole option, all parts that are found by Specialized to be defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of all parts.

LIFETIME LIMITED WARRANTY ON BICYCLE FRAME

Specialized further warrants to the original owner that the frame of this new Specialized bicycle shall be free of defective materials or workmanship during the lifetime of the original owner. During this lifetime warranty period, Specialized shall repair or replace, at its sole option, the bicycle frame if Specialized determines the frame is defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of the bicycle frame.

GENERAL PROVISIONS

This Limited Warranty is made only to the original owner of this new Specialized bicycle, and it shall remain in force only as long as the original owner retains ownership of the

Specialized bicycle. This Limited Warranty is not transferable.

In order to obtain service under this Limited Warranty, the original owner must deliver the Specialized bicycle to an authorized Specialized dealer, together with the Specialized warranty card and the bill of sale or other dated proof of purchase document identifying the Specialized bicycle by frame number.

This Limited Warranty does not apply to normal wear or tear, nor to defects, malfunctions or failures that result from the abuse, neglect, improper maintenance, alteration, modification, accident, or misuse (including, without limitation, bicycle racing, bicycle freestyle, stunt bicycling or similar activities) of the Specialized bicycle.

THIS LIMITED WARRANTY IS THE SOLE EXPRESS WRITTEN WARRANTY MADE BY SPECIALIZED TO ITS U.S. BUYERS. NO OTHER WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE, SHALL BE LIMITED BY THIS LIMITED WARRANTY. SPECIALIZED'S WARRANTY POLICY IS AVAILABLE AT WWW.SPECIALIZED.COM. SPECIALIZED'S WARRANTY POLICY IS AVAILABLE IN MANY FORMS. THE POLICY MAY BE PRINTED BY THE BUYER AND THE BUYER MAY LEND IT TO ALL OTHER POTENTIAL BUYERS.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, LEGAL OR FACT, SHALL BE LIMITED BY THIS LIMITED WARRANTY. SPECIALIZED'S WARRANTY POLICY IS AVAILABLE AT WWW.SPECIALIZED.COM. SPECIALIZED'S WARRANTY POLICY IS AVAILABLE IN MANY FORMS. THE POLICY MAY BE PRINTED BY THE BUYER AND THE BUYER MAY LEND IT TO ALL OTHER POTENTIAL BUYERS.

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Photo: Peter Lindbergh/Photography

SPECIALIZED BICYCLES



1989

You saw it here first.

Specialized has certainly earned that distinction from nine years of ground-breaking bike manufacture. This year is no different. Unlike other bike companies, it's not the same old line hidden under a new paint job. Our bikes are built after thousands of miles and years of experience rolled up by our own *Team Stumpjumper*, Olympic athletes like Bob Mionske, the invaluable field data compiled by the Specialized off-road Technical Support programs, and our highly regarded R&D department. The result is a family of road and off-road bicycles that achieves new levels of performance.

No Other Mountain Bikes Reach These Heights. It took nine years of designing, building, and racing mountain bikes to get to the point we are today. In fact, we started long before most companies even knew what mountain bikes were. A major reason why Specialized bikes are so far in front in terms of advanced technology. Our first bike—the legendary 1981 Stumpjumper—was the first production mountain bike anywhere. And it's easy to see why that machine was the spark which fueled a whole new sport—a sport that caught fire all over the world. We've come a long way since then. Anywhere you find people racing, you'll find Specialized. We sponsor some of the winningest riders on the off-road racing circuit—*Team Stumpjumper*. Led by captain Ned Overend who

captured the 1988 NORBA World Championship title, the *Team* consists of rising stars Paul Thomasberg, 1988 USCF Cyclocross Champ Lisa Muhich, and the latest addition to the ranks, Daryl Price, two time Junior National Cyclocross Champion. Our commitment to the sport is also reflected in our off-road Technical Support Program. They're the guys in the Specialized van at races who provide neutral support to all competitors. Acting like a rolling bike shop, they perform pit stop repairs and provide out-of-the-box Rockhoppers and Stumpjumper to pro racers with broken bikes.

Because of our riders and Tech Support team, Specialized has a vantage point in the sport that nobody else can claim. The best minds in the business either ride our mountain bikes or helped design them.

Our Road Crew. Our work with road bikes dates back nine years, too. Much like mountain biking, we were involved with road racing before it became fashionable. From local criteriums to the fledgling Race Across America (RAAM), We've gone down the road a good deal since then. Last year Specialized sponsored the Sunkyoung-SKC team, sending two riders—USCF 1988 Amateur of the



Photo © Bob Mionske



Photo © Bob Mionske

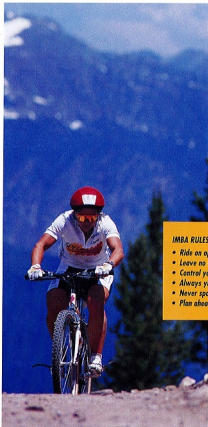


Photo © Bob Mionske

IMBA RULES OF THE TRAIL

- Ride as open trails only
- Leave no trace
- Control your bicycle
- Always yield trail
- Never spook animals
- Plan ahead

year Bob Mionske and sprinter Ken Carpenter—to the Olympics on Specialized equipment. This year we're a sponsor of the world-famous 7-Eleven Cycling Team. Here, too, we gain for greater insights about which designs work, and which don't. The benefits of this thinking can be easily appreciated by riding any of our 1989 bikes.

The Finish Line Isn't the Only Place We Win.

Specialized has won distinction with some other industry experts—cycling publications. *Bicycle Guide* cited the Stumpjumper as "Bike of the Decade"

for inspiring the growth of mountain biking. *Outside* named the Stumpjumper one of the "Ten Best Innovations of the Decade"—the only bike that made these ranks. *Mountain Bike Action* called our Rockhopper the best \$500 mountain bike. And *Bicycle*

Guide praised the Sirrus as the "Best Value of 1988." So if you want a mountain bike worthy of the hall of fame (our President Mike Strayd was elected to the Mountain Bike Hall of Fame) or if you want a road bike that made it the Olympics, we have a suggestion. Read on. And find out how we're going to make history this year.

RIDE RESPONSIBLY

Specialized supports the International Mountain Bike Association. When riding, we ask you follow their mountain bike code of ethics.

We have a stimulating way of doing research. It's called riding. Everyday at lunch time in Morgan Hill, California, you'll find packs of adults doing roadwork and off-roadwork. They're Specialized employees. First and foremost, they ride because they love cycling. And because they have a passion for improving the sport through technology. That includes everybody from the folks who work in the warehouse up to the president. All this should demonstrate that we're not some big, faceless company stamping out generic bikes. Instead, we're a bunch of fanatics who invent new ways for other fanatics to appreciate the sport.

Engineering That's on the Right Track The abundance of information and feedback we collect go into building better bicycles. Rider input is tirelessly compared with information compiled by our world-class athletes. The results are analyzed on a massive computer, forming the basis for designs that are honed and constantly refined. Then prototypes are built and thoroughly tested all over again. It's a painstaking process. But it's the only way to meet the standards of Specialized R&D team's Jim Merz and Mark DiNucci. With over 30 years of collective experience designing and building bikes, and over 2000 handbuilt frames between them, their mastery extends far past lugs, tubes, and components. That's precisely why you'll find innovations that really make a difference on Specialized bicycles. To others our zeal might seem extreme. But then again, that's why we're able to build our bikes and they

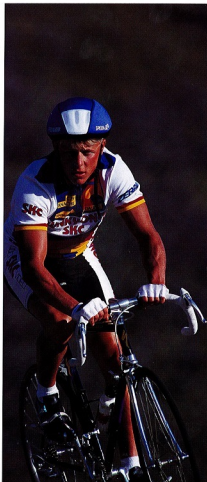
aren't. **Look Closely at our Mountain Bikes** One overriding truth we know about mountain bikes is this: Quality construction isn't something you can fake. The naked truth about performance quickly emerges after just one ride. That's why Specialized mountain bikes (except our limited production, top-of-the-line, carbon fiber Stumpjumper Epic, and the Hardrock which uses chromoly fork and main triangle) are assembled with an all chromoly frame, including fork blades and steerer. Anything less won't stand up. Our geometry is what industry insiders call "dialed in." Our chainstays position more weight over the rear axle for better climbing traction. Our head angles deliver quicker, more responsive handling. And our seat angles position

you directly over the cranks for maximum pedaling power. Every Specialized bike comes with the tires that dominate the off-road market. Our own. You won't be able to find a better line anywhere. Finally, we realize you'll have a lot more fun if your off-road bike is on the trail instead of in the shop. So we specify only the best quality sealed mechanism hubs, bottom brackets and headsets, and the finest index shifting.

Miles Ahead on the Open Road It's the same story with Specialized road bicycles. They're crafted with agonizing care using double butted tubing (except the exclusive carbon fiber Allez Epic), investment cast lugs, superior index shifting, and components proportionally sized to frames. For

correct bike fit and the greatest efficiency, we tailor not only stem and handlebars to frame size, but cranks as well. Creating the most well-balanced racing machine on the road. The result is a road bike line that's stiff, responsive, and lightning-quick. Here, too, geometries are a science. A tight wheelbase, aggressive angles, and proportional sizing provide a lively ride with better control over a wide range of road conditions. As for tires, you get a set of world-famous Specialized Turbos. The tires that revolutionized cycling. So you get a road-hugging contact patch, enabling you to corner like a Formula 1 and climb like an F-14. Low maintenance is assured here, too, by premium components. That way, you don't have to make any unscheduled stops at the bike shop.

How We Made a Lasting Impression In the following pages, you can share the experiences of NORBA Off-Road World Champion Ned Overend, Olympian Bob Miano, noted magazine editor John Schubert, NORBA National Champion Cindy Whitehead, Specialized Off-Road Technical Support Director Tom Hillard and other respected cyclists as they recount their impressions of this year's Specialized bicycles: *The Class of '89*. Still, the most important impression is your own. The best way to appreciate what you read is to take a ride. You'll discover a truly advanced bike can take you down the road much further. And deliver much more satisfaction along the way.



HARDROCK

By Linda DuPont

The 1989 Hardrock is an improvement on a trusty and proven design. With a few key refinements such as SunTour's new XCM 3040

derailleurs, better tires, investment cast seat collar, and double taper seatstays, the Hardrock's performance easily extends it into the high-quality realm while its price remains comfortably entry-level.

NIMBLE HANDLING

By design, the Hardrock is well suited for both off-road and street use. But, in my opinion, it really shines in the dirt. It's a surprisingly nimble climber, and much lighter-feeling than its reasonable price might suggest. This liveliness does not compromise the bike's stability, however. A 70 degree head tube angle keeps the front end controlled, while 18.9° chainstays (the same length used on all Specialized off-road models) are the optimum length for superior climbing ability and tire clearance. As a result, steep descents and tight switchback turns were always thrilling, yet never frightening.



I was impressed with its easy yet responsive ride. The Hardrock's chromoly main triangle and chromoly fork add up to a strong, durable frame that feels more expensive than it is. A noteworthy example of the thought which went into this bike is the investment cast seat collar. It helps prevent damage from seat post quick-release overlightening, effectively eliminating a trouble spot prone to failure on other mountain bikes.

The bike's flat bars and 40 degree rise stem put me in a very comfortable position on the bike; upright enough for casual rides around town, but not so high as to become inefficient.

Stepping is both smooth and sure. The brake levers have a positive feel and are a comfortable size without being bulky. They even have a reach adjustment to accommodate small hands. The Hardrock's Dia-Corpe cantilever brakes are light, stop well, and are simple to adjust. Combined with oversized cables and Specialized's new double taper seatstays, braking control is excellent.

SMOOTH SHIFTING SUNTOUR XCM

The smooth-running drivetrain is made up of SunTour XCM 3040 derailleurs and shifters, indexed of course. Spline crankset with oversized chainrings and a SunTour 6

speed freewheel. A rear derailleur's most difficult test comes when the rider shifts while standing on the pedals and grinding up a steep hill. This system handled that situation with ease.

Since the Hardrock is intended for both street and off-road use, its 28-38-48 front chainrings and 13-30 freewheel gearing provides an excellent all around range. For serious off-road riding, I have to admit it is nice to have a low "granny" gear, but I can think of very few instances where the Hardrock's gears would not be low enough. And believe me, you would think twice about riding up mountains that steep, no matter what the gearing.

NEIGHBORHOOD CRUISING

Dust off this bike and put a little more air in the tires and the Hardrock will let you play on the pavement as well. Even if you never take it into the dirt, this bike promises lots of fun neighborhood cruising. The tires are wider than those offered on most "city" bikes, and coupled with the bike's overall strength and stability, made me feel confident in traffic. The Specialized Crossroads II high-quality dual-purpose tire is paired with strong and light alloy rims. This tire has plenty of knobby tread for good traction in the dirt, but also adds a center section of interlocking knobs for a smooth entry ride on the pavement. With extra air in the tires, the ride becomes fast and smooth.

I like a good looking bike as much as the next person. With its drop, vibrant red finish and black components the Hardrock is pretty enough to inspire even the most fervent and workaholic to hose it off and admire it now and then.

Linda DuPont is a practicing off-road racer, and former bike shop service manager.



SPECIFICATIONS

FRAME	CrMo straight gauge tubing; Hidden chainstays and seatstays, STB seat tube reinforcement, investment cast seat collar, new double taper seatstays, forged dropouts with eyelets. Rear-axle two water-bottle bosses, rear rack mounts, brake bosses, all cable guides and stops
FOUR	Specialized Unimover, CrMo blades and spacer
DERAILLEURS	SunTour XCM 3040
SHIFTERS	SunTour XCM 3040 Index Control
CHAINS	Sugeno AC-115 black finish chainring, 28/38/48, 11.5mm lengths sized to frame
SEATPOST	CrMo spindles
SEATCLIP	MKS C4000
SEATPOST	SunTour 13 16-19-22-26-30
STEM	DI2, black
HANDLEBARS	Flat Barge bar, 9° bend, anodized finish
TIRES	Specialized TR3 CrMo, black, internal cable routing, sized to frame, 45° rise
HEADSET	Precision steel
WHEELS	Dia-Corpe 90S cantilevers*, oversize cables to limit flexing, (blades and 15° rise - Dia-Corpe 190 under chainstays)
SEATSTAYS	Specialized ATB Control
SEATPOST	300mm, anodized finish
WHEELS	Alloy, welded construction, 36 hole, Q8 front
RIMS	Arena 421, 36 hole, silver anodized
TUBES/TIRES	Specialized Crossroads II HL 36 x 1.75, Schwalbe tube
SEAT	15°/28.4°, 17°/29.3°, 18.5°/30.9°, 21.5°/32.8°, 22.5°/33.8°
COLOURS	Red or Nice Blue
WEIGHT	23.6 lbs.

A	Chainstay Length	16.5"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.8"
D	Head Tube Angle	70°
E	Fork Rake	1.75"



SunTour XCM 3040 derailleur

* Our latest research indicates that a 15-26mm offset will maximize performance of the rear-end model. 15° Brakes are used on these bikes.



115 stem with flat bar

Better braking

Return to cantilever brakes

With the first mountain bike, cantilevers were the only brakes able to clear their fat tires. Unfortunately, many of these early components were plagued by mediocre stopping ability, especially in the rear where seatstay flex contributed to the problem. Chateaux mounted brakes offered good stopping power, but



suffered from mud build-up, and were difficult to adjust. Present cantilevers offer excellent braking power and are cleaner running in mud than other types.

At Specialized, rather than simply bolting on rear cantilevers, we studied the problems which caused them to fall from grace. We approached the brakes as an entire system instead of individual components.

Double-taper seatstays Our relation began with double-taper seatstays. An exclusive Specialized design, they increase braking power by putting strength where it's needed at the cantilever end. These new stays and the problems of brake "sponge" by preventing the stay from bending and twisting. This stiffness improves both control and stopping power. Look at other bikes with rear cantilevers, and watch how the seatstays bow outward when you apply the brake.

Split cable housing was chosen to reduce housing compression and increase sensitivity. Oversized cables further improve brake efficiency. And while many manufacturers use short two-finger levers, we selected four-finger levers for their multiple hand positions. An advantage you'll appreciate during long descents.

HARDROCK COMP

By John Schabert

Sometimes, you can have champagne on a beer budget. How? You forgo the Waterford crystal and use something less expensive. The champagne tastes just as good. Specialized's 1989 Hardrock Comp is reminiscent of champagne served in an inexpensive glass. The important stuff is top-quality; the trimmings are cost-effective and get the job done.

FEELS MORE EXPENSIVE THAN IT IS

You could jump on this bike, ride it all day, and conclude that it's an \$800 steel. When Specialized set me loose on a mountain trail overlooking the Pacific, I thought the Hardrock Comp was a more expensive bike. Without benefit of my CH Notes to remind me which components appear in which price range, I came back overestimating the price by a hefty three-figure sum.

Why was I fooled? The Hardrock Comp has a great chromoly frame of proven geometry, durable components that work well, and good rims and tires. The stuff that has to be good, is great.

SanTour's XCE derailleurs, new for 1989, are close cousins of their fabulous sibling XCD 6000, sharing geometry and working parts. Yet they save money in the most scrutable way: they have a less costly (but attractive) finish. As the list goes on, so does good value: Dts Compe cantilever brakes, Specialized saddle, SanShiels welded hubs... it's all good stuff. Hopes to be not so expensive, that's all.

Most manufacturers equip mid-price bikes with dual-purpose street/dirt tires. Specialized gives you a real off-road tire; this model is equipped with 26 x 2.2" Hardpucks. I give them the nod for rugged use.

GORGEOUS FRAME

Normally when somebody starts talking about function and value, you brace yourself for ugly. Not here. The Hardrock Comp has a gorgeous frame: double tube seatstays, investment cast seat lug collar, clean TIG welds, a beefy new fork design, all the right braze-on bosses and lustrous paint job. The features make the frame look and function better, and yes, they do compare very favorably with \$800 bikes.

One of the best features in my eyes is the investment cast seat lug collar. Mountain bikers get their seat heights changed a lot, and repeated use of the quick release is hard on the

slotted portion of the seat tube. (After all, it's only 1.0 mm thick on most bikes.) The collar means that joint will last forever. Suddenly, the weakest part of the frame becomes the strongest.

DIRECT DRIVE MAGIC

Specialized's new Direct Drive fork works magic through good-old engineering: make a tube with a bigger diameter and thinner wall, and you add strength and stiffness while reducing weight. The added stiffness makes the fork track an uneven surface more accurately and bounce less. The surprising result: improved control.

It was a good thing the bike had that fork, because the trail was riddled with washboard sections. Every descent set the bike vibrating, and I knew a lesser machine would bounce out of control unless I slowed to walking pace. But the Hardrock Comp resolutely stayed controllable at high speed.

Going back up those slopes, where high speed was hardly my problem, I excavated another benefit: the short 16.9" chainstays enabled me to keep body weight over both wheels, so I had both front wheel weight and rear wheel traction. If you've been riding an old balkycom with 18" chainstays, try one of these: the difference will amaze you.

John Schabert is author of the *Bikebook* book, *Cycling for Fitness and Technical* author of *BikeReport*. He has road tested over 200 bikes in his extensive magazine writing career.



SPECIFICATIONS

FRAME:	CrMo straight gauge tubing, CrMo chainstays and seatstays, STR seat tube reinforcement, investment cast seat collar, double tube seatstays, forged dropouts with eyelets. Three one two water bottle bosses, rear rack mounts, brake bosses, all cable guides and steps CrMo blades.
FORK:	New Specialized Direct-Drive Uniflex, CrMo steerer and crown CrMo blades.
DERAILLEURS:	SanTour XCE 6000
SHIFTERS:	SanTour XCE 6000 Index Control
CHAINS:	Sugino AC-11C, black, basic chainrings, 26/36/48, track length 1/2 inch.
REAR BRAKE:	CrMo upside
FRONT BRAKE:	MKS (6000)
TIRES:	SanTour ES-26 19-22 56-30
CRANK:	DHD, black
HANDLEBAR:	Flat Blat bar, 9" bend, stainless steel
STEM:	Specialized TIG CrMo, black, external cable routing, sized to frame, 24" rise
HEADSET:	Precision steel
SEATPOST:	Dts Compe 185 chainstays, oversize cables in lined housing
SADDLE:	Specialized ATB
SEATCLAMP:	30mm, saddle fork
SPRINGS:	Saracis, welded mechanism, 30 hole QR foot
RIMS:	Araya MP40, 36 hole, silver anodized
WHEELS/TIRES:	Specialized Hardrock, 26" 56x2.2, Schrader tube
AXLES:	17/28.2", 18.5/30.9", 21.5/32.8"
SPACERS:	Burgundy or grey/Magnets
WEIGHT:	26.1 lbs.



A	Chainstay Length	16.9"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.4"
D	Head Tube Angle	76°
E	Fork Rate	1.75"



Direct Drive fork



TIG stem with flat bar

DirectDrive fork

New for 1989, the Specialized DirectDrive™ fork is the most advanced in the industry. Our exclusive design



improves handling, while reducing weight. Due to greater torsional stiffness, the DirectDrive provides more steering precision in the rough stuff than any previous fork. And through the careful selection of triple butted chromoly tubing, and our

thoughtfully engineered, gently curving rake, the DirectDrive fork offers excellent strength and superior ride comfort.

On any bicycle, the fork plays a crucial role. Watch the fork tips while riding over a bumpy section (carefully please), and observe the complex task it must perform. The blades vibrate, deflect, and twist, reacting to every rock and rut, all the while responding to your steering input and keeping on course.

More stiffness: Less weight Large diameter tubing with thinner walls was specified for the DirectDrive to add stiffness and decrease weight. Combined with new, stronger dropouts, they dramatically decrease fork blade twist. The larger diameter blades resist both torsional and lateral flex, allowing the fork to track the path you steer precisely and with more control. A lower fork, when met with resistance from rough terrain will twist, causing the wheel to lag behind steering input. This produces noticeable sluggishness and loss of momentum.

Three different wall thicknesses are employed along the blade length. The wall is ovalized and thickest in the crown/shoulder area, where all forks are subject to the

ROCKHOPPER

Also by John Schabert

It's time to wring out the 1989 Rockhopper, and the right way to do it is to hold a weekend mountain bike retreat. All the elements fall into place: a handy vacation cottage next to hundreds of miles of forest and logging roads, autumn foliage, a bright and sunny day, four willing companions, and the end of deer season.

My companions are formidable athletes; one guy picked up a bronze medal in the road nationals this year, and the others race and train with similar dedication.

A FIVE MILE CLIMB

Right on the door we face a five-mile climb (no, not a misprint, but I sure wished it had been) that probably averaged ten percent steepness. As its pitch varies, from switchback to level spot and back again, I make my first observation about the Rockhopper: Shimano's seven-speed HyperGlide indexing really works. The clicks are so quiet and gentle on the thumb that I barely notice them, but I get a perfect shift every time.

At the top, our host announces a geographic peculiarity: it's at the higher elevations where the trail gets muddy. And it does: aside deep mud, cut into tire-swallowing ruts by an occasional logging truck. The mud poses major challenges to the bikes' handling and to the HyperGlide index setup. The trail now hobs and weaves with frequent short climbs and descents, and the going is slow. Picking a line through the muddy ruts is an exacting task for a now-slightly-tired rider, and if the bike makes the task tougher, then it's hell to say.

The Rockhopper comes through. Its semi-steep 70.5-degree head angle and sure tracking Direct Drive fork make the job effortless. It doesn't want to oversteer on me, and it doesn't require me to muscle it to keep it on course. Where I want to go, I go.

CORRUPT ROAD

That is, until our leader takes us down the Berwick Turnpike, an ancient logging road made of lugs. They call it a corduroy road, and it's a quaint description indeed. Your tires v-v-v-b-r-r-r over the rain-slickened lugs, and sometimes they just insist on sliding sideways. No head tube angle can change that. This obstacle is the ride leader's fault.

More mud appears, and with it, a stream crossing every mile or so.

We need the stream

crossings to wash the mud off our chains. Still, HyperGlide indexing works! I was sure it would quit by now, but damn if it doesn't click into place with great reliability.

Streams mean ponds, and our leader even stops to let us admire the prettiest one. It covers several dozen acres, and has beautiful shores where the hearty can pitch a tent. The only way to get to these beautiful vistas is by mountain bike.

It's almost 3 p.m. and everyone's tired. It took these hours to get there; how can our now-tired group return in two? Ride leader redresses himself with a brilliant short cut. No corduroy Berwick Turnpike, no unnecessary climbing, few technical difficulties, and a five-mile descent welcoming us back home before dusk, with 38 honest miles logged that day.

ROCKHOPPER TAKE ME HOME

If I were going to have a mishap, it would be on that last descent. I'm tired, I'm cold, and the temptation is to go too fast to get home sooner. But the Rockhopper helps me stay upright. The steering geometry is kind, tracking over rocks at high speed with no misleading feedback or invitations to overcorrect, and Shimano's Mountain LX SLR brakes are especially welcome as they require less effort from, and give more control to, my semi-rash hands. The return ride is without incident.

The Rockhopper, brand new a few hours ago, is a battle-scarred veteran. It'll take a little clean up and loving care to restore it to like-new condition, but that's okay. This is one bike that's well worth the effort.

John Schabert is author of the *Bicycling* book, *Cycling for Fitness and Technical Skills*. He has road tested over 200 bikes in his extensive magazine writing career.



SPECIFICATIONS

FRAME:	CrMo triple-butted tubing, CrMo chainstays and seatstays, STB seat tube reinforcement, threaded seat collar, double lugs seatstays, forged dropouts with eyelets. Uses two 26-way bottle bosses, rear rack mounts, brake bosses, all cable guides and stops
FORK:	New Specialized Direct Drive Unimount, CrMo, steerer and oversize CrMo blades
DRIVE/REAR:	Shimano Mountain LX, S.L.S.
FRONT/REAR:	Shimano Mountain LX, S.L.S.
CRANKSET:	Shimano Mountain LX, black. Spacers: 110 chainrings 28x36mm, crank length 175mm to frame
SHIFTER/REAR:	Shimano Mountain LX, sealed mechanism
SHIFTER/FRONT:	MKS (S-1000) with Specialized MountainClips, straps and MKS toe clips
REAR/FRONT:	Shimano Mountain LX, HyperGlide cassette, 7 spd 13-15-17-20-23-26-30
CHAIN:	Shimano HyperGlide
WHEELS/REAR:	Flat badge 36, 91 bead, black
TIRES:	Specialized TG CrMo, black, internal cable routing, stand to frame, 24" rim
SEAT/REAR:	Tange SE II, sealed mechanism
SEAT/FRONT:	Shimano Mountain LX, casters, oversize cables in fixed housings, Mountain LX SLR levers
INDEX:	Specialized ATB
SHIFTER/FRONT:	Strong, play 200mm
INDEX:	Shimano Mountain LX, 26 tooth, 24 hole, sealed mechanism, QR foot, 1/2" foot
INDEX:	Araya MP-22, 26 hole, silver anodized
INDEX/REAR:	Specialized Crownmate 26x26 x 1.5, Schrader tube
INDEX/FRONT:	17 1/2" 29.4", 29.4" 30.5", 21.5" 32.4"
INDEX:	Gray or Ivory/11.8. 11.8
WEIGHT:	28.9 lbs.

A	Chainstay Length	15.6"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.6"
D	Head Tube Angle	70.5°
E	Fork Blade	1.65"



Double Topper Seatstays



Mountain LX levers

most stress. The brake boss area is equally strong to resist power-robbing flex and flexing when the brake is applied.

The mud then becomes thinner below the bias down to the dropouts where it thickens slightly to stiffen the head



Curved blade forks isolate shock better at the handlebars and outperform straight forks with more precise control.

applied when the fork is brazed together. In addition, the oval cross-section of the blades at the top provide better mud clearance.

Curved Blades
A key function of a fork is shock absorp-

tion. We considered using a straight blade fork like many other bike makers are doing for 1989, but after careful study concluded that these less expensive designs are very harsh riding, and transmit shock to the rider instead of absorbing it in the fork.

A major advantage of curved blades is that they distribute force evenly along the length of the blade. Over large radius rake also helps the fork resist frontal impact. Impact is deflected more easily than straight blades too, as they produce a more comfortable ride. Instead of transmitting shock straight up the blade to the fork crown, our gently curving Direct Drive fork reduces shock to your arms. (The Direct Drive fork is used on all Specialized mountain bikes except the Hardrock.)

ROCKHOPPER COMP

By Tom Illiard

In my line of work in Off-Road Technical Support for Specialized, I've seen just about every mountain bike there ever was. And after logging some heavy mileage on a 1989 Rockhopper Comp, I feel this bike is a standard. It's reasonably priced, well equipped for competition, and yet includes many amenities that make it an excellent choice for the weekend rider/racer. The bike has proven it holds up to the demands of competition too. We used Rockhopper Comp's during races as Tech Support loaner bikes all last season without a single mishap.

DROP-OFFS AND DOWNHILLS
I habitually ride down steep drop-offs. More likely than not, there is a nasty turn at the bottom. Having the Specialized Direct Drive fork to control the front wheel is a real relief. With most forks, as you hit bottom with your weight forward, you feel the wheel twisting out of line. With the Direct Drive fork, you feel in control.



All the top racers ride the Tech Support fork for Specialized Hardpack 2.2 tires when the race course includes fast bunny downs. It's a fat, comfy tire, and mounted on the Rockhopper Comp's lightweight 32 spoke X-26 rims, produces a shock absorbing, yet quick ride that can cope with even the worst rock strewn trail.

DO WE NEED SEVEN SPEEDS?

Coming from the old school, I believe mountain bikes should be simple. At first, I thought the '89 Comp's seven speed rear cluster was unnecessary. But after riding Shimano's new HyperGlide system on flat ground at speed, I found a real advantage with the closer ratios seven speeds provide. You can fine tune your spin much better with the additional gears.

Years ago when mountain bikes first appeared, cantilever brakes gave the best all around stopping performance in all conditions. I'm glad to see they're back on both wheels. Today's new designs stop better and feel more controllable. Here on the Rockhopper Comp, Shimano's smooth spring assisted SLR system really has a better feel.

MRS tie spurs make getting into the Specialized MountainClips a breeze—no more looking down. While riders all around you are struggling to get back into their pedals, you pole both feet into yours and take off like a pro.

The Specialized ATB saddle is the most comfortable I've ever ridden—no soreness after long rides. Plenty of racers have agreed with this opinion after a few rocky laps. Coupled with the flat team handlebars with their five degree bend, this set-up is the best combination I know of for comfort and performance.

COMPETITION ENGINEERING

The Rockhopper Comp is equipped with added features, the least of which is Specialized's many years of engineering and experience. These advantages include: A triple-butted chromoly frame with double lateral crossbars to improve cantilever brake performance. An investment cast seat collar to increase durability at this high stress area. The DirectDrive fork to provide more control. And the time tested Specialized off-road geometry.

Overall, the Rock Comp's "feel" is similar to more expensive bikes. The key difference is that the Rockhopper Comp is a bike that you can buy for a relatively modest investment, add a pump, waterbottle, and NOBIA license, and be competitive at any race.

Tom Illiard is Promotion Event Coordinator and directs Specialized's Off-Road Technical Support Program. As far as mountain bikes go, it's ever happened. Illiard has seen it. He also claims to have seen before his time: riding his first mountain bike in 1961.



SPECIFICATIONS

- FRAME:** CrMo triple butted tubing, CrMo chainstays and seatstays, SR seat tube reinforcement, investment cast seat collar, double taper seatstays, forged dropouts with eyelets. Base-ops: two waterbottle bosses, rear rack mounts, brake bosses, all cable guides and stops: CrMo blades.
- FORK:** New Specialized Direct Drive Unicom CrMo steerer and oversteer: CrMo blades.
- HEADSET:** Shimano Deore II, SLS.
- HANDLEBARS:** Shimano Deore II, Broyce HP chainrings 28/28/28, crank lengths same to frame.
- SHIFTERS:** Shimano Deore II, sealed mechanism.
- PEDALS:** MRS CR800 with Specialized MountainClips, straps and MRS toe spikes.
- POSTERIOR:** Shimano Deore II, HyperGlide cassette, 7 spd 13-15-17-20-23-26-30.
- CHAIN:** Shimano HyperGlide.
- REARLEVER:** Specialized Team Bar, 3° bend, black anodized.
- TIRES:** Specialized TIG CrMo's, black, internal cable routing, stard to frame, 26" size.
- MOUNTS:** Tange SLR, sealed mechanism.
- SEATPOST:** Shimano Deore II cantilever, ceramic rollers in headboard, Deore II SLR 4 finger levers.
- SADDLE:** Specialized ATB.
- SEATSPRINT:** Spring, alloy 300mm.
- WHEELS:** Shimano Deore II freehub, 32 hole, QR front/true.
- RIMS:** Specialized GX-9s, gray anodized, 32 hole. Widespread 14g spokes spokes.
- TRUST/TUBES:** Specialized Hardpack™ 26 x 2.2, Schrader tube.
- GEAR/SHIFTER:** 11°/24.4°, 17°/26.4°, 19.5°/28.5°, 21.5°/32.8°.
- CABLES:** Nylon, as heavy-duty Blue.
- WEIGHT:** 26.7 lbs.



A	Chainstay Length	16.9"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.8"
D	Head Tube Angle	70.5°
E	Fork Rake	1.85"



Shimano Broyce crank

*Due to manufacturing tolerances, 15 hole chainrings will require eyelets on the outside model. 15 Holes are used on these 15 hole.



Team Bar and TIG stem

Off-road geometry 101

Years of experience lead us to our dialed-in 1989 mountain bike geometry. Specialized designs each model for



controllable high performance. For example, the Hardback and Hardback Comp use a head tube angle of 70 degrees, while the Rockhopper through Shimajumper Comp use a slightly steeper (i.e. quicker) 70.5 degree angle. The

race bred Shimajumper Epic and Team use a 71 degree angle for absolute precision in the most demanding conditions. These head angles combined with a fork rake of 1.65" result in steering control that satisfies the enthusiast, yet can be mastered by the novice.

All Specialized off-road bikes share a 73 degree seat angle. This positions the rider's knees exactly over the pedals for maximum pedaling and climbing efficiency. Slacker seat tube angles can cause the front wheel to come off the ground when climbing, losing traction and control.

Short, but not too short 16.9" chainstays provide superior climbing traction and avoid the skittish handling traits and tire clearance problems of bikes with shorter chainstays. And our 11.8" bottom bracket height lets you clear obstacles, while maintaining a low center of gravity for maximum stability.

Moderately long top tubes provide better balance and weight distribution. This is another subtle detail learned from years of experience: a too short top tube can cause squirrely handling, and place you in a hunched over position that can actually hinder your breathing ability. A Specialized bike will put you in the best position for both comfort and efficiency.

STUMPJUMPER

By Ned Overend

My experience from six seasons of off-road racing has left me with a keen sense of what feels right. It's a hard to describe quality, but you know it immediately when you get on a bike that has it.

The first Stumpjumper I rode was one of the original models from 1981. These bikes (with slack 67 degree head angles and long 18.5 inch chainstays and stretch wheelbases) were noted for their terrific descending ability. That design is a bit long of tooth by today's standards. It was good in its time, but mountain bike technology has advanced tremendously since the early 80s.

IT'S FASTER

When I took the '89 Stumpjumper out for an initial get-to-know-it test ride, I was shocked. The '89 actually descends faster than the older Stumps. I couldn't turn those old bikes fast enough, but the new one responds immediately when I want it to.

Analyzing why, I think the slightly longer top tube and not-too-long, not-too-short wheelbase are the reasons. For example, a laid-back, real long bike is sluggish. And one with a short wheelbase, steep angles, and short top tube makes for a squirrely ride, which is no good for fast, high speed riding. The new Stumpjumper's slightly long wheelbase and front center combine to produce a bike with better balance, hence better handling that lets you go faster.

STABILITY MAKES THE DIFFERENCE

The most noticeable attribute is the 1989 bike's stability in rough, high-speed situations. The combination of the 11.6 inch bottom bracket height with the new, low profile Deore Comp pedals creates a very low center of gravity. This coupled with a 42 inch wheelbase enables the front wheel to float over rocks and ruts without pitching your weight forward.

Specialized chainstays have evolved to a reasonable length. Over the past few years, chainstays have gotten shorter and shorter. And many bike makers have gone too far in the short direction. If they are too short, they position too much weight underneath you, and the bike becomes very skittish. The Stumpjumper's chainstays are the ideal length for both mud clearance and handling

stability. And the Ground Control fuses are the same ones I use on the NORBA circuit.

TECHNICAL TRICKING

The bike is comfortable on steep downhill and rough, tricky sections because you don't have to be constantly hanging off the back of the seat to keep the front wheel light. When I tackled some technical greeny gear climbs, the Stumpjumper conquered the steep hills as I expected. The overall layout of angles, wheelbase and chainstay length are nearly identical to my team bikes. The 70.5 degree head tube angle let the bike steer quickly enough to wind my way through obstacles while still maintaining in the saddle track.

The new Direct Drive fork provides a noticeably more comfortable ride than other forks. Its oversize tubing reduces lateral fork flex, which helps prevent front end drift when cornering at high speeds.

Lighter wheels make riding more fun - you go faster without working harder. The 32 hole GX-32 rims give the bike more "snap" when you accelerate.

When you add it all up, the latest Stumpjumper has a great design for racing with confidence and stability or just tearing through technical trail sections for fun.

Ned Overend, Captain of Specialized's Team Stumpjumper Off-Road Racing Team, holds the titles of 1988 NORBA World Champion, 1987 NORBA World Champion, 1987 NORBA National Champion and 1988 NORBA National Champion, in addition to other honors too numerous to list.



SPECIFICATIONS

FRAME:	CrMo triple butted tubing, CrMo chainstays and seatstays, STE seat tube reinforcement, brazed-on cast seat collar, double taper seatstays, forged dropouts with eyelets. Team-one two waterbottle mounts, handle bars, all cable guides and stops
FORK:	New Specialized Direct Drive Unicom, CrMo steerer and oversize CrMo blades
DRIVEGROUP:	Shimano Deore II, SLS
SHIFTERS:	Shimano Deore II, SLS
CRANKSET:	Shimano Deore II HyperGlide HP chainrings, 34x34x4, crank knurls fixed to frame
PEDALS:	Shimano Deore II, sealed mechanism
SEAT:	Shimano Deore II with Specialized MountainClips and straps
SEATPOST:	Shimano Deore II HyperGlide cassette, 7 spd, 13-15-17-20-23-26-30
WHEELS:	Specialized Team Star, 3" head, black anodized
RIMS:	Specialized TIG, CrMo, black, internal cable routing/alloy to fuse, 34" rim
HUBS:	Specialized SV2, compact, sealed mechanism
SPACERS:	Shimano Deore II, cassette, oversize cables in lined housing, Deore II SLS 4 finger levers
SPACERS:	Self-Build Turbo, black leather
SPACERS:	Strong alloy, 100mm
SPACERS:	Shimano Deore II, 100mm, 32 hole, 32" front/rear
SPACERS:	Specialized GX-32, gray anodized, 32 hole, Wheelset with 14g stainless spokes
SPACERS:	Specialized Ground Control™, 26 x 1.5, Schrader tube
SPACERS:	17"/28.4", 19.5"/30.9", 20.5"/31.9", 21.5"/32.8", 22.5"/33.8"
SPACERS:	Magneta/Green or Navy/Burgundy
SPACERS:	27.5 lbs.



A	Chainstay length	18.5"
B	Seat tube angle	73°
C	Bottom bracket height	11.6"
D	Head tube angle	70.5°
E	Fork rake	1.65°



Deore II HyperGlide crank



Investment cast seat collar

Less is more

More performance that is. A case in point, the 32 spoke wheels used on our Rockhopper Comp through



Stumpjumper Team save over an ounce (31 grams) per wheel when compared to 36 spoke wheels. Reducing frame weight by an ounce would be unnoticeable, but in terms of rotating mass, weight is very

significant, and an extra ounce feels more like a half pound when you're moving. Having fewer spokes also spares the wheel unnecessary abuse. We've found 32 to be the winning number. A wheel with 32 spokes can flex and give slightly on the rough stuff. One with additional spokes is more likely to have its spokes broken by the shock, while one with fewer spokes will be too weak to begin with.

Our carefully engineered 465 gram GX-36 and 440 gram GX-32 rims allow us to build extremely strong wheels with 32 spokes. In fact, the Specialized GX-32 rims built with 32 spokes, and used 3x on the 1989 Stumpjumper, Stumpjumper Comp, Stumpjumper Team, and RockCombo are as light as 36 spoke wheel found 3x with popular cat down road rims. Until now this has been an unheard of weight on a production mountain bike. (32 Spoke wheels appear on Specialized mountain bikes beginning with the Rockhopper Comp, and are used on all road models.)

STUMPJUMPER COMP

By Cindy Whitcomb

It's always fun to get a new bike, and the day the new 1989 Specialized Stumpjumper Comp arrived at my house was no different. I knew I'd be getting a bike to test ride and evaluate, but I had no idea what to expect. To say the least, I was not disappointed. The Stumpjumper Comp is a gorgeous, racy black bicycle accented with purple and yellow decals. I was soon to find out that the Stumpjumper Comp has more to offer than good looks.

PALM SPRINGS TRAINING

First I took it off road up in the mountains above Palm Springs. This route is one of my favorite training rides because it is all singletrack and is very technical with lots of little climbs, descents, obstacles and switchbacks. This is where the Specialized Stumpjumper Comp shined. The combination of the 70.5 degree head angle and the proper 1.65 inch fork rake make this bike respond well in the turns, on climbs and during descents. With a top tube

a little longer than normal for better balance and weight distribution, and a 73 degree seat angle to position you for the most efficient pedaling, the '89 Comp makes all the right moves.

Since this particular trail is full of extremely sudden changes from descents to climbs, I was all the more critical of the responsiveness of the components, especially the derailleur and brakes. Both passed with flying colors. Specialized's choice of components is excellent. The Deore XT HyperGlide system just ticks into gear without hanger, while the SLR cantilevers can be easily feathered to control speed. I like the four finger brake levers too. On long rides, they provide more hand position and more leverage than the short levers.

GEARING A ROADIE CAN LOVE

Even better, with the Comp's 21 speeds, there are more precise gear intervals that should satisfy even the most perfection demanding athletes road racers for example. Roadies (Yes, I admit, I've been one) like close gearing, because it accommodates their legs to even the slightest changes in the terrain. Whether you choose to ride the Stumpjumper Comp off road or "off-dirt," you can enjoy crisp acceleration thanks to the component selection on this bike.

Another likable feature is the double-butted Tange chromoly frame. It's stiff and it accelerates well. And although the frame is stiff, it is not so rigid that it would spoil a good downhill. Combined with the oversized Direct Drive fork, this frame produces some of the most accurate tracking I've experienced. The terrain on my route is rough, but the Stump Comp took me through it in complete control.

A GOOD FRIEND

I continued to ride this and other trails, and on pavement. Like a good friend, my first impressions were favorable, but the more familiar I became with the Comp the more I grew to really like it. I was able to take it anywhere comfortably and confidently. I'd say Specialized has a winner in the 1989 Stumpjumper Comp with an outstanding combination of great performance and good looks.

Cindy Whitcomb, a member of Specialized's 1988 Team Stumpjumper Off-Road Racing Team, is the world's fastest woman. Among her numerous victories, Cindy holds the title of 1988 NORBA Women's World Downhill Champion, and 1988 Women's NORBA National Champion.



SPECIFICATIONS

- FRAME:** Tange CrMo double butted tubing, CrMo chainstays and seatstays, SLR seat tube reinforcement, double taper seatstays, vertical forged downrugs with spacers, linear cut two waterbottle mounts, brake bosses, all cable guides and stays.
- FORK:** New Specialized Direct Drive Unisizer or Tange O/S, CrMo steerer and oversized CrMo blades.
- DRIVE/SHIFTS:** Shimano Deore-XT II, SLS.
- SHIFTERS:** Shimano Deore-XT II, SLS.
- CRANKSET:** Shimano Deore-XT II Bayside HP chainrings, 28/36/48, crank lengths sized to frame.
- BOTTOM BRACKET:** Shimano Deore-XT II, sealed mechanism.
- REAR HUB:** Shimano Deore-XT II Comp, Specialized MountainGrip and wings.
- REAR WHEEL:** Shimano Deore-XT II HyperGlide cassette, 7-21, 13-15-17-20-23-25-30.
- CHAIN:** Shimano Deore-XT II HyperGlide.
- REAR DERAILLEUR:** Specialized Toura IIar, 5th bend, black nodular.
- STEM:** Specialized TII CrMo, black, internal cable routing, sized to frame, 10° rise.
- SEATPOST:** Specialized SP-8, compact, sealed mechanism.
- SEAT:** Shimano Deore-XT II cantilevers, oversize cables in lined housing, Deore-XT II SLR 4 finger levers.
- HANDLEBARS:** Selle Italia Turbo, black leather.
- SEATCLIP:** Strong, alloy, 300mm.
- RUBS:** Shimano Deore-XT II freewheel, 22 hole, QR, 1mm/1mm.
- SPACERS:** Specialized GS-25, grey anodized, 32 hole, Wipacraft 14g stainless spacers, Schrader tubes.
- TIRES/TUBES:** Specialized Ground Control™, 26 x 1.95, Schrader tubes.
- GEARS:** 17/28, 41, 10/57/30.9, 20.5/31.9, 21.9/32.8, 22.9/33.8.
- COLOURS:** Black with Purple Pearl or White with Gold Pearl.
- WEIGHT:** 22.7 lbs.



A	Chainstay Length	15.9°
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.6°
D	Head Tube Angle	70.5°
E	Fork Rake	1.65°



Deore XT II HyperGlide



Deore XT II cantilevers

The new vernacular

If you haven't bought a bike in a few years, the first thing you'll notice is all the new vocabulary. Unfamiliar words



and acronyms like AcroShift, Displace, HyperGlide, SIS, SLR abound. Here's a round-up of these new terms and the performance advantages they provide for both road and off-road riders.

Index Shifting

Shimano calls it SIS.

SanTour's name is AcroShift. The result is the same. For each click on the shift lever, the bike shifts one (and only one) gear. There's no fumbling; it's simple and precise.

The lever moves the derailleur precisely the same distance as there is between each freewheel cog, so there is no "flex tuning" of the lever needed as with conventional systems. Index shifting also helps eliminate mis-shifts, even when you're climbing in high torque pedaling situations.

HyperGlide Shimano's HyperGlide gears impose shifting performance. When shifting to a lower gear (larger sprocket) on a conventional cog, the chain rides on top of the teeth before fully seating. This "over-ride" causes a slight hesitation, and in some cases produces chain slippage.

Shifting is faster, quieter, and smoother. HyperGlide cogs incorporate what Shimano calls "release teeth." Formed with a thinner cross section than the other teeth on the cog, they determine exactly what point the chain will begin to shift from the smaller cog to the next larger one. Pick-up teeth on the next largest cog smoothly complete the shift by pulling the chain up and moving it without over-ride, even under high pedaling forces.

STUMPJUMPER TEAM

By Gavin Chilcot

My foremost thought while riding the 1989 Team Stumpjumper is that mountain bikes have come a long way. When I first started riding these things about 15 years ago, we weren't too sure just what they ought to do. We rode cruisers with 66 degree angles and wondered why they were so hard to turn at less than 50mph. Those "mountain bikes" were little more than jazzed up versions of the same old paper route bikes that our fathers rode.

OFF-ROAD EVOLUTION

When the off-road craze took off and refinement of frame geometries began evolving, the whole emphasis changed. Specialized signed on a few of us riders years ago in 1985 as the first Team Stumpjumper with hopes that our road racing and cyclocross experience would make us good testers for their designs.

At the time, we insisted upon the geometry of a road bike with fat tires. They gave it to us, but it wasn't a configuration much closer to

optimism than pop's paper route bike. But what came out of all that was a synthesis of ideas that resulted in a whole new breed—the competition all terrain bike. It had a character all its own and was no longer a modified cruiser or racing bike. Mountain bikes had finally come into their own.

THE NEW TEAM

These thoughts were fresh in my mind as I put the new Team Stumpjumper through its paces. This version has all the qualities we always looked for in a mountain bike, but couldn't find during the period of experimentation that went on in the early 80s. The new Team Stump is a pure pleasure to ride, obviously a result of years of refinement. It doesn't compromise anywhere. The handling is well maneuvered at breakneck speeds on wide open downhill, but also nimble on the single tracks. I put this bike through a good test, too on the way, the smooth, the bumps, the rocks and the hope-I-ain't-endo steep downhill. The Team was satisfying in every situation.

Climbing was the same story. The bike is very lightweight, and feels it on the climbs. I was surprised at how the new Prestige tubing feels. I am a hardcore fan of the lively carbon-fiber feel, and the Team feels very "alive" too.

Weight distribution and steering geometry have a lot to do with how a bike rides, and the Team has got what it takes. The chainstays are short, balancing weight over both wheels for non-slip climbing, but not so short as to cause tire clearance problems. And the steering with its 1.65" fork rake and 71 degree head angle is perfect for an aggressive riding style.

FANTASTIC PACKAGE

Shimano's latest edition of Deore XT is truly fantastic. The light action of the brakes is a welcome favor for tired hands, and the firm control of the cantilevers is without compromise. As an advocate of cantilever brakes for reasons of weight and mud clearance, I was happy to see them at the seat stays.

Under load or in the bumps, no matter how I tried, I could not get this bike to misshift a single time. This new componentry is finally the solution to the problem of frustrating shifting that has plagued dirt riding since we gave up on gears.

The 1989 Team Stumpjumper is a great package. It is nice ready right out of the box, but at the same time, so well thought out that any rider would be satisfied with every aspect of its performance. It handles headily, climbs efficiently and takes the frustration out of braking and shifting. Here is enough bike for any racing need, but well-mannered enough for anyone to enjoy. I won't be giving this one back without a fight.

Gavin Chilcot, a member of the original 1985 Team Stumpjumper, still rides professionally. During the past 8 years he has ridden for the 7-Eleven Cycling Team, U.S. Pro Championship team, and in many Coors Classic races.



Biospace for a faster pace Computer designed

Biospace HP chainrings help you ride further with less fatigue and more comfort. As the crank enters its down-



ward power stroke, Biospace effectively decreases the chain-wheel radius. This increases the crank's rotational speed, allowing your leg to push faster, much as it does when running. During the transition at the bottom of the power stroke to the upward return stroke,

the effective chain-wheel radius increases. This helps your leg make use of momentum gained on the power stroke. As a result, crank speed is more closely matched to natural leg movement as it rotates. This smooths out the transition between muscle groups and creates a more efficient pedaling motion.

Better braking SLR and BRS Shimano's SLR

(Shimano Linear Response) and Sax-Tow's BRS (Boltless Response System) offer significant improvement over conventional brakes. By reducing friction in the brake lever, cable and outflap, these new designs give you more efficient, controllable braking.

To help you stop more surely, all elements in the system are integrated to work with each other. Caliper arms are constructed with high tolerance parts, and incorporate a small return spring to lighten the effort. Cable housings are lined with low friction material for smooth cable travel without binding. And brake levers also use a return spring to balance the system.

The brakes work crisply with a light, sure feel. Your hands and forearms are less fatigued on long descents. So you are confident you are in control whether slowing on a steep downhill, or stopping in the wet.

SPECIFICATIONS

- FRAME:** Tange Prestige main tubes, CrMo chainstays and seatstays, STR seat tube reinforcement, double taper seatstays, forged dropouts, Shimano's two waterbottle mounts, brake bosses, all cable guides and stops.
- FORK:** New Specialized Disc-Disc Downsway in Tange 0/3, CrMo steerer and oversteer CrMo blades
- DRIVE/REAR:** Shimano Deore XT II, SLR
- SEAT/POST:** Shimano Deore XT-B, SLR
- CHAINRINGS:** Shimano Deore XT II Biospace HP chainrings, 50/36/26, crank lengths sized to frame
- BOTTOM BRACKET:** Shimano Deore XT II sealed mechanism
- PEDALS:** Shimano Deore XT II Comp, Specialized MountainClips and straps
- REARWHEEL:** Shimano Deore XT II HyperGlide cassette T spd, 12-34-16-18-21-24-28
- CRANK:** Shimano Deore XT II HyperGlide
- HANDLEBAR:** Specialized Team Bar, 5/8" bend, black anodized
- STEM:** Specialized TEG CrMo, black, internal cable routing, sized to frame, 10° rise
- HEADSET:** Specialized SV2, compact, sealed mechanism
- SHIFTERS:** Shimano Deore XT II cantilevers, overwire cables in steel housing, Shimano XT II SLR 4 finger levers
- SHOCKS:** Selle Italia Turbo, black, 40mm
- SEATPOST:** Strong, alloy 30mm
- FORK:** Shimano Deore XT II, 40mm, 32 hole, QR front/rear
- WHEELS:** Specialized GK-23, gray anodized, 32 hole, Whymouth 14g stainless steel
- TUBES/VALVES:** Specialized Ground Control 7/8" 26 x 1.95, Schrader tube
- SEALS/SHIMMERS:** 19/28-4.7, 16/25-4.8, 20/25-4.8, 21/29-32.6, 22/29-33.8
- CHAINS:** Kona/McRae's Magenta or Gray/Gray with Pearl
- WEIGHT:** 26.5 lbs.



A	Chainring Length	16.9"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.6"
D	Head Tube Angle	71°
E	Fork Rake	1.65"



Shimano XT II Biospace HP crank



SLR seat tube reinforcement

STUMPJUMPER EPIC

When Specialized set out to make a no-holds-barred, state-of-the-art mountain bike, the engineers were given free reign to create their interpretation of the best mountain bike possible. Cost was no object. They weren't told to build a bike to sell for a given price. The cost would be arrived at after the design goals were met, not by the financial department's bottom line.

The design team chose oversize carbon fiber tubing mated with chromoly lugs. With a wide open choice of materials, why not select a more costly material like titanium? Or employ a fabrication technique like monocoque construction?

CARBON FIBER PERFORMANCE

Carbon fiber is the most logical choice for the Stumpjumper Epic. It is extremely fatigue resistant, a very important factor to consider for a bike destined to meet up with some pretty mean terrain. And carbon fiber's superior strength-to-weight ratio delivers a strong, stiff frame that weighs just 4.2 pounds (39.5 sized).

Swing weight is set the main purpose of using carbon fiber though. At 25.7 pounds for a 39.5 inch bike, the Epic weighs only a little less than the Tange Prestige Stumpjumper Team. Specialized can't have used this as a showcase for carbon fiber's weight saving ability. Instead, the Epic's performance is built to last.

Handbuilt in the United States at Specialized's headquarters in Morgan Hill, California, the Epics are produced in limited numbers. This insures a high level of craftsmanship and attention to detail attainable only under exacting, controlled conditions.

Each tube is fine tuned to handle the specific stress it will be subjected to. For example, the 1 1/8" diameter downtube is subjected mainly to torsional stress, so more of its fiber layers are oriented in a 45 degree angle. Then, longitudinally wrapped fibers, which are the best at counteracting bending stresses, make up the outermost layers of each tube. Finally, the tubes are epoxy resin impregnated, and after the frame is assembled, covered with a clear top coat that protects the fibers against damage.

CUSTOM TAILORED LUGS

Long strength, TIG welded chromoly lugs are specified because of their strength and versatility. By using these lugs instead of cast

aluminum fixtures, frame angles can be easily altered. This achieves the same high level of performance for larger and smaller frame sizes instead of having to compromise performance by being limited to the same lugs for more than one frame size.

The two-inch long lugs add stiffness and provide a large surface area for an excellent adhesive bond. The bottom bracket juncture extends six inches back into the chainstays, contributing extraordinary stiffness in this critical area. There isn't even a hint of chainring rub as you climb.

THE PAY-OFF IS SWEET

The Epic's handling could be described as precise and predictable, or accurate and nimble, or the word which best sums it up is "sweet." A well balanced front end, combining a 71° head angle with 1.65 inch inches of fork rake, produces high speed stability and light steering. The bike is a confident descender, and through technical trails, it will carry you around obstacles you would have to ride over on a lesser machine.

Acceleration is swift and strong, with the loading of instant pedal response. Traction is superior, even through the most uneven sections. While the Epic is still, it handles bumps without rattling. The carbon fiber has an excellent ability to dampen vibration, a major reason it is employed in high-end golf clubs and formidable tourneys. The Epic is significantly more comfortable in the rough than steel or oversize aluminum.

WORLD CLASS WINNER

All this evaluation is meaningless without substantiation of the Epic's prowess. In 1988, NORBA World Champion Ned Overend powered his way to victory in the Uphill and Cross Country Championship events aboard his Stumpjumper Epic. Fellow Team Stumpjumper members also continue to be victorious on their Epics. These riders were involved in the Epic's development, and will tell you that riding the best of the best is an undeniable competitive advantage.

SPECIALIZED
CHROMOLY
LUGS

S P E C I F I C A T I O N S

FRAME:	Oversize 3 tube carbon fiber frame, carbon fiber main tubes, chainstays and seatstays. CrMo lugs, bonded construction. Brass-ware nut water bottle mounts, brake bosses, all cable guides and stops.
FORK:	New Specialized Direct Drive Uniflex, CrMo steerer and oversize CrMo blades.
HEADSET:	Shimano Deore-XT II, S.I.S.
SHIFTERS:	Shimano Deore-XT II, S.I.S.
CRANKS:	Shimano Deore-XT II Race-type HP chainrings, 28/38 teeth, crank knurled steel to frame.
BOTTOM BRACKET:	Shimano Deore-XT II, sealed mechanism.
PEAKS:	Shimano Deore-XT II Comp, Specialized Mountain Tips and stops.
REARWHEEL:	Shimano Deore-XT II Hypo-Glide cassette 7 spd., 12-16-18-20-22-24-28.
CHAIN:	Shimano Deore-XT II Hypo-Glide.
REAR HUB:	Specialized Team Hat, 5° bend, black anodized.
SPIN:	Specialized LTD CrMo, black, internal cable routing, sized by frame, 10° nut.
WHEELS:	Specialized SV-2, compact, alloy, black, sealed mechanism.
TIRES:	Shimano Deore-XT II chainrings & XT II Uniflex, oversize cables in lined housing, Deore-XT II SLR 4 Engle levers.
SEAT:	Selle Italia Turbo, black leather.
HANDLEBARS:	Sanitor XC, 300mm.
GRIPS:	Shimano Deore-XT II, lock-on, 32 hole, QW bend/size.
SPINNERS:	Specialized GX-25, gray anodized, 32 hole, Whycorin 14g stainless spokes.
WHEELS/TIRES:	Specialized Ground Control™, 25 x 1.95, Schwalbe tube.
WEIGHT:	27.2/29.0, 31.7/30.9, 33.9/31.9, 35.9/33.9, 37.9/35.9.
CRANKS:	Carbon.
WHEELS:	25.7 lbs.



A	Chainstay Length	16.8"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.6"
D	Head Tube Angle	71°
E	Fork Rake	1.65"



Chromoly seat cluster



Deore-XT II SLR 4 Brake

The test of time

Specialized mountain bikes and road bikes are built to perform well over time. They are a long lasting investment due to superior

STRONGER THAN STEEL



(Unlike chromoly, which is subject to crack & split by nature, the Epic's carbon fiber tubes are oriented to handle the specific stresses on each tube.)

design and materials. Years of design leadership, and extensive testing by the best professional riders assure your satisfaction.

Excellent frame tubes

Specialized frame tubes are drawn

to R & D engineers Jim Mera and Mark DiNucci's exacting specifications for maximum strength and performance. Other manufacturers use standard-issue tubes, lowering performance characteristics in the process.

All Specialized steel bikes are built entirely of Japanese chromoly tubing, including fork blades and steerer tubes, main triangle, seatstays and chainstays. (The lone exception is the Hardrock, which uses high tensile steel for the chainstays and seatstays.) Our tubing is both lighter and stronger than the Taiwanese tubing commonly used by other bike companies.

Specialized bicycles are made of double or triple butted chromoly tubing, with some tubes having as many as three separate gauges along their length for maximum strength, minimum weight, and maximum ride comfort (Hardrock and Hardrock Comp use straight gauge chromoly).

The weakest point becomes the strongest Our chief frame designer Mark DiNucci created the new investment cost seat collar to reinforce the high-stress seat tube area against the ravages of frequent quick-release lever use. On mountain bikes, seat height is changed often. Our collar helps protect this area (which is only 1 mm thick on most bikes) from the most common cause of mountain bike frame failure - damage due to overtightening.

Continued on Page 23

ROCKCOMBO

By Ned Overend

Specialized's new RockCombo hybrid is a dawnning class of bicycle. With ATB drop-bars, bar end shifters, seven speed index shifting, Hardpuck tires, light 29" 32 spoke wheels, and tough, oversize triple-butted chromoly frame, the RockCombo is truly a go anywhere, do anything bicycle.

AMAZING CLIMBING ABILITY

After putting in lots of miles on the RockCombo through a wide variety of terrain, the attribute that really surprised me is its climbing ability. The leverage that can be applied to the rear wheel from pulling up on the drop-bar brake hoods produces truly superior traction on steep hills - more than any flat bar bike I've ridden.

Another major advantage is the number of hand positions available. With the Specialized "Combo" bars, I counted five basic positions with several smaller variations. On long rides, this makes the difference between staying comfortable or becoming fatigued. And of course, by riding the drops you are more efficient in the wind.

GETTING TECHNICAL

For technical off-road riding, the RockCombo's stem with a lot of height and not too much reach is ideal. This lets you swivel the front wheel more easily, letting it roll over obstacles like rocks and logs. Once this position is found, it is possible to negotiate 98% of the hardest technical descents which are rideable with flat bars. I recommend taking descents that are rough or have steep drop-offs in the drop position for the most secure hand hold and the best leverage on the brake levers.

I found the RockCombo's relatively long top tube and front/center loop the bike stable during single track high speed descents, while its 72 degree head angle provides quick

steering for dodging obstacles and maneuvering through sharp turns. With a 42" wheelbase almost identical to my race bike and 17" chainstays, this bike is more stable on steep rough descents.

A BLAST ON THE ROAD TOO

On the road, the RockCombo is a real comfort. It soaks up bumps well, and the ride doesn't seem punishing like most road bikes. A function of the fatter tires, longer wheelbase, and more moderate angles than found on most racing bikes, no doubt.

The RockCombo is a gas to ride. This bike really is a lot of fun, particularly on fire roads and smooth single track. It's a blast if you need to cover some road to get to the dirt.

In short, this is an ideal bike for combination on/off road riding. The RockCombo should be considered a high performance off-road bike whose handlebar positioning lets you excel in climbing. It is also an excellent choice for both on and off-road touring. I'd even use one for winter training.

Ned Overend, Captain of Specialized's Team Stampeder Off-Road Racing Team holds the titles of 1986 NORBA World Champion, 1987 NORBA World Champion, 1987 NORBA National Champion and 1986 NORBA National Champion, in addition to other honors too numerous to list.



SPECIFICATIONS

FRAME:	CrMo triple butted tubing, CrMo chainstays and seatstays, STX seat tube reinforcement, brazed steel seat collar, double taper seatstays, forged dropouts with eyelets. Braze-on two waterbottle bosses, rear rack mounts, brake bosses, all cable guides and stays
FOUR:	New Specialized Direct Drive Uniscrew CrMo steerer and oversize CrMo blades
SHOCKERS:	SaoTear XCD 4000 Accessible
SEATPOST:	Sentinel Barcon, AeroShill
CHAINSET:	Specialized ST2, black chainrings, 24tooth, crank bolts fixed to frame
DRIVE:	Specialized CB2, sealed mechanism
PEAKS:	SR MTX-135 with Specialized Mountain Clips and straps
FREEWHEEL:	SaoTear XCD 7 spd, ultra cassette 13-15-17-20-25-28-38
CHAIN:	DHD Index 7, black
HANDLEBAR:	New Specialized ATB drop bar
STEM:	Specialized SV2, cold forged alloy, black, sized to frame
HEADSET:	Specialized, SV2, compact, sealed mechanism
BRIDES:	Dia-Corps 184D cantilevers, oversize cables in bend housing, SaoTear GPX DTS alloy levers
SEAT:	Selle Italia Turbo, black leather
SPACERS:	Strong, alloy 300mm
WHEELS:	SaoTear XCD 6000 cassette, 32 hole, QR front / rear
RIMS:	Specialized GX-21, gray anodized, 32 hole, Wheelmount-14g stainless spokes
TIRE/VALVE:	Specialized Hardpuck, 700 x 1.5, Schrader tube
SPINDLES:	17.5" / 29.6", 14.5" / 30.2", 21.5" / 33.1"
CHAINS:	White with Gold Pearl or Ivory/Tungsten
WEIGHT:	27.4 lbs.



A	Chainstay Length	17.8"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	11.8"
D	Head Tube Angle	72°
E	Top Tube	1.65°



Double Taper Seatstays



Specialized ATB drop bar

ing of the seat quick release. The seat collar is also shaped to prevent damage when using a Hilo-Bite. And to further protect the seat cluster area from the stress of long seat posts and action of the seat quick-release tube, we use our



STR (seat tube reinforcement) a special external bolt on the seat tube.

Why TIG welding?

We chose to use TIG welding for building our mountain bikes because it is the best method of joining frame tubes for off-road use. Tests pub-

lished in *Bicycling Magazine's Bike Tech* performed by Keith Bontrager, Steve Potts and Charlie Cunningham show TIG welded bikes have greater resistance to impact than other types of construction. This is because the brief amount of time needed to apply heat to the tubes during TIG construction produces a smaller heat-affected zone, thus avoiding weakening the tube. And, the TIG welding employed in our off-road bikes is lighter than lagged or fillet brazed construction.

Our coat is tough On each of our models, we use a four-coat paint process, including a base coat, two coats of color, and a clear coat. This insures your Specialized bicycle will keep its good looks long after it has left the showroom.

SIRRUS

By The Editors of *Bicycle Guide Magazine*

It's no secret that the Sirrus is one of *Bicycle Guide's* favorite bikes. It was named one of the best bicycles of 1987 in our February issue, and it was in steady demand during this test. Indeed, it became a benchmark of sorts for the other size contenders (as in, "How does the X handle?" "I don't know, let's take it out with the Sirrus and find out.")

What gives the Sirrus such status? As with all good bikes, it is not any one thing; rather, the Sirrus has a blend of complementary attributes that result in a cohesive and responsive machine.

It is easy to isolate the Sirrus' synergistic elements. Foremost among them is pure racebike geometry inspired by the best of the Old World designs, but appropriately modified for American bodies. Sitting on a short wheelbase, the Sirrus has quick-handling dimensions both front and rear—the chainstays barely exceed 16

inches, and the tight front center puts the toe clips right up against the front wheel. The head tube stands up straight, yet the seat angle varies according to frame size to put the rider over the pedals. The top tube also stretches and shrinks with frame size, though it is always slightly long to keep the rider's back flat when negotiating on the drops.

Indeed, this is one bicycle that you feel you are riding in, rather than on. Our 61 cm (center-to-center) model has an 11 cm stem that is about right with the 38 1/2 cm top tube; that stem connects to 42 cm wide bars, also just about right (ranger riders might like another centimeter in the stem and two added to the bar width; those are easy changes to make). Smaller Sirruses have appropriately smaller parts, and the frame sizes go all the way down to 45 cm (which carries a 5 cm stem, 38 cm bars, and 107.5 mm cranks).

The Sirrus is also rigid. The frame doesn't flex in hard cornering, which aids steering precision, and the bike feels solid in climbs and sprints. The whole thing rides on premium equipment—Wulfer GTX hard anodized clinchers shod with Specialized TRS tires and laced with Wulfer spokes. Last year, we suggested that the Sirrus deserved 32 hole wheels instead of the 36

spokes it carried in 1987. This year, it gets them. The result is a pair of wheels that are reasonably light, strong, and concentric; they roll wonderfully well, and should last a long time.

What else? Ah, yes, the components. Like the Sirrus, the Shimano 105 parts set new standards for performance in their class. Specialized uses the full 105 group, save the headset and bottom bracket (they come from Specialized), including Shimano's trick freewheel, a design that integrates the freewheel in the hub; the advantages include easy cog replacement, because only the outside cog is threaded (the rest slide onto splines), and better axle support, because the right-side bearing sits closer to the end of the axle.

And then there's the way the bike is put together. If you have any doubts that Taiwan can build a first-class frame, the Sirrus will erase them. The investment cast lugs, smooth joint, and deep clearest don't hurt the cause, of course, but the joinery work itself is good—easily the equal of any in this test. Take a close look at this bike, then inspect the prototype, and you will shake your head in wonder.

So is it perfect? Not quite. Specialized's bikes have always had strong frames that are a bit heavier than average; the Sirrus is no different, weighing about seven ounces more than it really needs to. On the other hand, the Sirrus is a truly excellent climber, and has more than enough cornering stiffness at high speeds, so you can't say the extra pounds are totally wasted. And the bike's fast reflexes and superb overall handling make it feel lighter than it really is. Here, powerful riders especially will find nothing to complain about; lighter riders might wish for a bit more give in the frame.

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SPECIFICATIONS

FRAME	CrMo double butted tubing, CrMo chainstays and seatstays, investment cast lugs, Shimano EF forged dropouts, frame-size two water-bottle mounts, chain hanger, pump peg, all cable guides and supports
FOUR	Specialized Unknown with CrMo blades and steerer
SHIMANO 105	Shimano 105 S.L.S.
SHIMANO 105 S.L.S.	Shimano 105 S.L.S.
SHIMANO 105	Shimano 105, Racecase chainrings 42/32, crank lengths sized to frame
SHIMANO 105	Specialized CH-25 sealed mechanism
SHIMANO 105	Shimano 105 with Shimano twoflex and Specialized straps
SHIMANO 105	Shimano 105 7 spd cassette, 13-34 (15-17 19-21 23)
SHIMANO 105	Shimano Uniglide, black
SHIMANO 105	Specialized Model 1 sized to frame
SHIMANO 105	Specialized alloy, silver anodized, sized to frame
SHIMANO 105	Tange, 58.0 steel, sealed mechanism
SHIMANO 105	Shimano 105 Linear Response, short reach, semi-levers
SHIMANO 105	Selle Italia Turbo, black leather
SHIMANO 105	Strong, alloy
SHIMANO 105	Shimano 105 freewheel, 32 hole, quick release
SHIMANO 105	Wulfer GTX-105C, 32 hole, gray anodized, Wulferhub 34g stainless spokes
SHIMANO 105	Specialized Turbo/V12, 100/25C, presta tube
SHIMANO 105	40/71.4, 48/72.8, 51/77.2, 54/79.7, 56/81.8, 58/83.5, 61/86.6 cm
SHIMANO 105	White with Gold Pearl or Ivory/Bluebody
SHIMANO 105	23.9 lbs.



A	Chainstay length	36.2"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	10.6"
D	Head Tube Angle	74°
E	Fork Rate	1.5°



7-speed Shimano 105

Due to clearance considerations, the alloy model uses an inboard seat post clamp and has one set of water-bottle mounts.



New unknown fork

The long and fast track

Specialized road racing bicycles are built to go fast, and to let you test through the long haul. When developing the geometry for our road



bikes, our engineers didn't just pick a design which was quick steering, or good climbing or a fast descender. They mixed all the ingredients into a bicycle which handles each of these tasks well. Specialized road bikes will take you

further and get you there faster. You will not be fatigued from handling which is overly demanding, or a ride which is too stiff and harsh.

The performance formula We realize it is not possible to build a high performance racing bike without varying the geometry for each different frame size. A 48 cm bike can't have the same angles as a 60 cm and still have similar handling characteristics. Yet, many manufacturers try to save money by using the same set of lugs and angles. This, however, alters ride characteristics as their frame size changes.

Specialized racing bikes employ four different head angles and five different seat angles through the range of sizes to maximize steering response and keep the rider in the most efficient position over the pedals. This preserves our fast and stable ride characteristics in all our frame sizes.

Each frame size uses a different top tube length to further assure the rider is in the optimal position for performance and comfort. Our 10.6" bottom bracket height provides a realistic center of gravity for stable handling, and good cornering clearance. The bike's cornering behavior is as

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ALLEZ

By Richard Jew

Here's proof that good designs do not become dated. Change for change sake is not the Allez. Good design, incorporating proven technology, is.

There have been a couple of modifications for 1989, but these focus on the rider this bike is aimed for, and are far better. The most visible is the fork. The three piece uncrown (blades and steerer) is lighter and stronger than the traditional four piece (crown, blades and steerer) front fork assembly. It's sleeker looking in the process.

The other change is to a more shallow 73 degree seat tube angle instead of the past Allez's 74 degrees. This one degree difference gives a more comfortable ride which will appeal to riders like triathletes and century riders who put in long extended miles. I could feel the difference almost immediately after

being used to a couple of '87 and '88 Allez frames. I used for a year and a half as control bikes in component testing for *Bicycling* and *Bike Tech*.

NO FAULTS

After several rides through the evaluation route I've used for almost 20 years, I couldn't detect any lateral flex. Most bikes will either change gears by themselves, or generate tell-tale off-center chain rattle to signal whip in the frame. With the Allez, I didn't get any of those problems, even on the route's steepest climbs.

Fast descents are where design flaws become glaringly evident. The most telling sign is when you start to lose confidence in the bike's ability to do what you want it to. The Allez does just the opposite, precisely responding to your commands. Handling is so neutral that there is never any doubt where the bike is going to go. Nor does it surprise you with an unexpected reaction when lunched up in a tight pack.

INTELLIGENT GEARING

Specialized is one of the few manufacturers who have taken advantage of SanTour's 38 tooth chainring by specifying a 38/52 crankset with a 13.5t freewheel. The advantage of smaller gear sizes at both ends, along

with a shorter chain, is less weight. Numerically, it still provides the same ratios as the traditionally larger 42/52 gears.

GPX is indexed (so anyone not making "click" shifters worry?). This is essentially the same design as SanTour's sweet shifting top-of-the-line Superbe set-up. The thing I like about the SanTour Index system is its ability to run Ultra (narrow) 7-speed spacing, normal 5 and 6-speed spacing and friction mode with just a twist of the outer ring on the lever. No other system provides this versatile feature.

All in all, the Allez is a very strong, solid racing bike. It is comfortable both in its handling and ride qualities; all reasons I selected Allez frames for use in our testing program. And, from my experience, I can say that the Allez will last a long time. Frankly, you won't need another bike if you get one of these.

Richard Jew is a contributing editor to *Bicycling* and *Mountain Bike* magazines.



SPECIFICATIONS

FRAME	CrMo double butted tubing, CrMo chainstays and seatstays, investment cast lugs, Shimano EF forged dropouts, brass cone two waterbottle mounts, chain hanger, pump peg, all cable guides and stops
FORK	Specialized Uncrown with CrMo blades and steerer
HEADSET	SanTour GPX, Index Control
FRONTSET	SanTour GPX, 38/52, crank length fixed to frame
BOTTOM BRACKET	SanTour GPX, sealed mechanism
PEDALS	SanTour GPX with Campy toeclips, Specialized straps
SEATPOST	SanTour 7 spd., Ultra, 13.5x15-16.5-17.5-19.25
CHAIN	SanTour GPX
SHOULDER	Specialized Model 1, hard to frame
STEM	Specialized alloy, black anodized, fixed to frame
HANDLEBAR	Range SE-R, steel, sealed mechanism
SHIFTERS	SanTour GPX, short reach, seven ERS levers
SHIMMERS	Selle Italia Turbo, black leather
SEATSPACER	Strong, alloy
WHEEL	SanTour GPX, 32 hole, quick release
TIRE	Wolber GTX, 700C, 32 hole, grey molded, Woveshield 14p radially spones
WHEEL/TUBES	Specialized Turbo™ TLS, 700c/25C, presta tube
GEAR	43/71.4, 48/76.2, 51/77.2, 54/79.7, 58/81.8, 58/83.5, 61/86.0 cm
COAXIAL	Red or Ivory/Nice Blue
WEIGHT	22.5 lbs.



A	Chainstay length	16.2"
B	Seat Tube Angle	73°
C	Bottom Bracket Height	10.6"
D	Head Tube Angle	74°
E	Fork Rise	1.5"



SanTour GPX crank

Due to clearance considerations, the Allez model uses an investment cast fork crown and has one set of waterbottle bosses.



Specialized Model 1 bars

care and predictable you will see racers on Specialized bikes speed past other riders on the inside of sharp corners.

Specialized racing bicycles have the right combination of a tight wheelbase, aggressive angles, and proportional sizing



of frame and components. The result is a line of road bikes with the lively, resilient ride the pros seek and vagabond cyclists love about.

You get the same award-winning handling no matter which model you choose. And no matter

whether you choose to race or just have some plain old fun giving feet.

Ultimate carbon fiber: The Specialized Method

Carbon fiber is currently considered the ultimate bicycle frame material. It is far lighter than steel and aluminum, or even titanium. In fact, carbon fiber is an unobtainable three times stronger than chromoly steel. All while possessing outstanding shock dampening characteristics.

Carbon mindset To create the ultimate bike from the ultimate material, you have to start with carbon fiber in mind from the beginning. It's not difficult to produce an overly stiff and harsh riding bicycle frame, or one that's wanky and unsure. Designing one that rides well, being stiff, yet comfortable, is a much more complex problem.

Our application of carbon fiber was to create a bike that can take a pounding yet not hammer its rider. The result is a bike which is light, strong, and shock dampening.

Computer aided design Countless hours of computer aided studies were conducted to locate every stress point. Based on these findings, each carbon fiber tube was constructed specifically for its position on the frame by

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ALLEZ EPIC

By Jim Capeland, Gary Miller, John Tones and Jason Osborne

Have you ever wanted to wear the yellow jersey in the Tour of Belgium? or take first place in the U.S. National Championships? Well, Jim, Gary, John and Jason have done this and more. Ever wonder what they think about the bikes they live with 365 days a year? Here's what they say.

"On a course that has you climbing at all I prefer the Allez Epic."

John (Mountain) Tones, 1988 U.S. Criticism Champion

I did the '88 Coors Classic on the Allez Epic. It climbed well and did well on the sprints. The bike gives you a soft ride and it's light weight. Yet, it steers accurately and is responsive.

On long races where comfort really matters, the Epic comes through. You appreciate it after 5 hours - there isn't as much shock.

"The Allez Epic is my all-time favorite bike."

Jim (Classics) Capeland, US National Team, 1988 Olympic Team

I'm most impressed with the Allez Epic's excellent combination of responsiveness and stiffness. When that mile is right, and this is what responds are actually describing when they use the term responsiveness, the bike's ability to go forward when you press on the pedals has been increased.

The Epic also has a superior ability to absorb shock. This is most evident on a fast, rough corner where you want both wheels on the ground. With this bike, they stay there.

Speaking from experience, I have personally proven the Allez Epic's durability. An incident happened last summer during a 75 mile road race in Florida. With 500 meters to go, I was forced into a concrete parking lot at 25-30 mph. I was in the lead break, and we all went down and crashed.

The guy behind me was riding someone else's carbon fiber, his bike snapped in half. Nothing happened to my Epic, no bent fork... nothing. I am still riding the same bike today. This is my all-time favorite bike. It has low lateral flex with the aluminum fork, plus the stiffness necessary to rocket me forward in a sprint. And there's no doubt that with a steel bike, the crash I had would have been probably more.

"The Epic responds when you torture it."

Jason (Trio) Osborne, US National Team, 1988 Olympic Team

Everyone on the team agrees the Allez Epic's sprinting feel is really positive. You can jump on it hard and you don't loose any power. The Epic responds to you when you torture it. It attacks hills quickly, descends rapidly and surely, and handles great. The ride quality holds up on rough roads. There's no chatter or flex.

When you couple low weight and responsiveness with durability, you have an unbeatable combination. I use it to ride a steel Italian bike, an excellent bike, but it just didn't have the Epic's spryness.

"You don't think of the Allez Epic as just being a long bike, a short bike or quick bike - it's everything."

Gary (The 1st) Miller, Winner 1988 Tour of the

When climbing, I like a bike that feels stiff, but is also responsive to the point where it "disappears" so you don't have to fight the bike. The Epic feels stiff, but it's shock absorbing too. This lets me ride a bigger gear with the Specialized carbon fiber than with any steel bike I've ever ridden. The difference is noticeable right away.

Descending on the Epic feels better than on any other bike. It does whatever you ask. You can slam it into a corner, you can hit bumps and gravel, and it's not a big deal. Other bikes tend to lose it. This one always seems to be in control. It really sticks in the corners.

The neutral geometry is wonderful because it just feels like the bike becomes part of you. You don't think of the Allez Epic as just being a long bike, a short bike or quick bike - it's everything. I can't think of another bike that handles such a wide variety of situations as well as the Epic.



SPECIALIZED ALLEZ EPIC

SPECIFICATIONS

Shimano 600 Ulegra/Shimano Dura-Ace

FRAME	Overlaid 8 tube carbon fiber frame, carbon fiber main tubes, chainstays and seatstays, aluminum lugs, stainless steel dropouts, bonded construction. Three-point two water bottle mounts, handle bosses, pump eye, all cable guides and stops.
FORK	Specialized alloy Ultegra
CRANKSET	Shimano 600 Ulegra, S.L.S./Shimano Dura-Ace, S.L.S.
SPINDLE	Shimano 600 Ulegra, S.L.S./Shimano Dura-Ace, S.L.S.
REAR HUB	Shimano 600 Ulegra, Biquel/Shimano Dura-Ace, Biquel 42x52, cross length steel to frame
REAR HUB	Shimano 600 Ulegra/Shimano Dura-Ace, steel mechanism
FRONT HUB	Shimano 600 Ulegra, Shimano two lugs, Specialized straps Shimano Dura-Ace, nylon
REAR WHEEL	Shimano 600 Ulegra, 7 speed cassette, 13-14-15-17-19-21-23 Shimano Dura-Ace, 7 speed cassette, 13-14-15-17-19-21-23
CHAIN	Shimano Uligide, black/Shimano Dura-Ace, silver
REAR DERAIL	Specialized Model 1, steel to frame
FRONT DERAIL	Specialized S-Derail, black steel-to-steel, steel to frame
SHIFTERS	Shimano 600 Ulegra, steel mechanism
SHIFTERS	Specialized alloy, steel mechanism
SHIFTERS	Shimano 600 Ulegra Linear Response, Shimano Dura-Ace Linear Response, short reach, recessed bolts, aero levers
SEAT	Selle Italia Turbo, black leather
SEATPOST	Strong 20mm, alloy/Shimano Dura-Ace
HANDLEBAR	Shimano 600 Ulegra handlebars/Shimano Dura-Ace, freewheel 32 hole, quick release
STEM	Wolker GTX, 700C, 32 hole, gray anodized, Woodruff, 14g stainless spacers, Mape Opta 40C, 700C, 32 hole, gray anodized Woodruff, 14-15g stainless spacers
TIRES/TUBES	Specialized Turbo/VL5, 700C/25, presta tube (Specialized Turbo/VL5, 700C/25, presta tube)
GEAR	22T/28, 54/20.3, 56/21.8, 58/23.5, 60/25.5
CRANKS	Carbon
WEIGHT	20.9 lbs.

A	Chainstay Length	16.3"
B	Seat Tube Angle	74°
C	Bottom Bracket Height	18.1"
D	Head Tube Angle	74°
E	Fork Rake	1.3°



7-speed Shimano Ultegra 600

Epic Dura-Ace

varying its diameter, wall thickness, and fiber orientation. We use only the finest raw materials - a unidirectional carbon fiber with thermoset epoxy resin. We do not add glass fiber filler or take other cost cutting measures. We



also refuse to produce tubes with steel or alloy core material: something that's carbon fiber in name only, providing none of the material's real benefits.

Critical joints

A bike frame is only as strong as its joints. Rather than use lag

designs intended for aluminum bike construction, we created lugs specifically for our carbon fiber tubes. On the Allez Epic, an internal sleeve carries the main load, while the external, visible part of the lug protects the ends of the tubes. This way, the fibers can be oriented to provide proper ride characteristics instead of having to compensate for poor joint design.

After nearly three years research, we selected an adhesive that's considered the best in the world to bond lugs with tubes. Extensive environmental and dynamic testing have shown that the Epic frame will withstand the most extreme conditions and resist failure from such problems as electrolytic corrosion.

Apparently our efforts were worth it. Bicycling Magazine notes: through 23% lighter than most chromoly frames, the Allez Epic ranked as the stiffest carbon fiber frame ever subjected to their Torque-to-Torque Test. "The Epic's ride is a discernible improvement over steel, with more comfort," adds Bicycling.

1 Bicycling Magazine, March 1988

11 Bicycling Magazine, May 1988

BEFORE YOU HIT THE ROAD, HIT THE STORE.

SPECIALIZED

High-performance can't be faked. It has to be designed in right from the start.

A concept we understand very clearly at Specialized.® To see how much more performance you can get, just visit a bike shop. And ask for us by name.

TAKE A LOAD OFF YOUR SHOULDERS.

Our 8oz. expanded polystyrene helmet is different from any you've ever seen. Or worn.

The choice of the 7-Eleven® team, it features a sweeping aerodynamic profile; ANSI and Snell approved; multiple channels and vents for keeping a cool head; and a fit that tells you why we're ahead of the field.



CLIP YOUR TOES RIGHT.

Crafted from a proprietary thermoplastic, the Specialized MountainClips™ stand up to unbelievable treading.

They're available in small, medium, or large; have a wide opening for easy entry and exit for most shoes; feature a superior design that eliminates uncomfortable binding; and work perfectly with our new MountainStraps™.



THE WINNER AND STILL CHAMPION.

More than 80% of the nation's top pro riders race on Ground Control® off-road tires. And every event at the 1988 NORBA World Championships was won on them, too.

So don't settle for less.



TURBO-CHARGE YOUR BIKE.

The revolutionary Specialized Turbo® Series outperforms any other tire on the road. The reason? We roll farther, ride faster, corner tighter, feel better and last longer than the rest of the guys.



TURN YOUR DOGS INTO GREYHOUNDS.



Olympian Bob Mionske, one of the sport's heavyweights and USCF's 1988 Amateur Cyclist of the Year, wears a truly lightweight shoe: Specialized 5600s. Weighing only 261 grams apiece, they're the culmination of five years of building the world's top bicycle racing shoes.



Equipped with a heavy-duty steel barrel and rocksteady cast iron base, this pump won't let you down. Our high-precision, high-pressure gauge eliminates any question about inflation. And a reversible brass chuck fits either presta or Schrader valves.

HAND IT TO SPECIALIZED.

Unlike other brands, the complete line of Specialized gloves are engineered specifically for a superior grip. That's why 7-Eleven hand-picked us as their Team Glove. The machine-washable terry gloves here feature bi-density padding to cushion without loss of control.



RETURN OF THE BLOB.

The wrong saddle can truly be a pain. To find out how much more comfortable the right saddle can be, just do the following. Sit on the Specialized Blob™ Saddle with improved elastopolymer technology.



THE RIGHT TOOL WHEN YOU NEED IT.

The Specialized Gear Box™ tool pack is an ingenious way to prepare you for any situation. A "Y" handle, 8, 9, 10mm sockets, Phillips and flat screwdrivers, and 4, 5, 6mm allen bits all fit neatly in a 55 cu. inch bag that includes an extra compartment for other essentials. A 3-point mount holds it securely under your seat wherever you go.



HOT FOOT.

Among mountain climbing gear, none rates higher than Specialized 3800 off-road cycling shoes. New for this year is a studded outsole; and an insole built from a unique thermoplastic that's still where it should be for riding and flexible for comfortable walking. To achieve peak performance, strap on a pair.



HIT THE BOTTLE.

The official waterbottle of the 7-Eleven Team, the USCF, and Team USA. It's often imitated, but never equaled. Available in 21 or 28 oz. capacities, they're made in the U.S.A. of nearly indestructible FDA-approved plastic. With a big mouth and neck wide enough for ice cubes.





1000 Coliseum Circle, Morgan Hill, CA 95037

Specialized Bicycle Components Limited Warranty

Specialized Bicycle Components ("Specialized") makes the following Limited Warranty:

ONE YEAR LIMITED WARRANTY ON COMPLETE BICYCLE

Specialized warrants to the original owner that this new Specialized bicycle shall be free of defective materials and workmanship for a period of one year from the date of the original purchase provided the bicycle is purchased in the United States and operated under normal conditions and use. During this one-year warranty period, Specialized shall repair or replace, at its sole option, all parts that are found by Specialized to be defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of all parts.

LIFETIME LIMITED WARRANTY ON BICYCLE FRAME

Specialized further warrants to the original owner that the frame of this new Specialized bicycle shall be free of defective materials or workmanship during the lifetime of the original owner. During this lifetime warranty period, Specialized shall repair or replace, at its sole option, the bicycle frame if Specialized determines the frame is defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of the bicycle frame.

GENERAL PROVISIONS

This Limited Warranty is made only to the original owner of this new Specialized bicycle, and it shall remain in force only as long as the original owner retains ownership of the

Specialized bicycle. This Limited Warranty is not transferable. In order to obtain service under this Limited Warranty, the original owner must deliver the Specialized bicycle to an authorized Specialized dealer, together with the Specialized warranty card and the bill of sale or other dated proof-of-purchase document identifying the Specialized bicycle by frame number.

This Limited Warranty does not apply to normal wear or tear, nor to defects, malfunctions or failures that result from the abuse, neglect, improper maintenance, alteration, modification, accident, or release (including, without limitation, bicycle racing, bicycle motorcycling, stunt bicycling or similar activities) of the Specialized bicycle.

THE LIMITED WARRANTY SET FORTH HEREIN OR THE LIMITED WARRANTY SET FORTH BY SPECIALIZED IN ANY BICYCLE WARRANTY, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED TO THE EXTENT THAT IT DOES NOT CONTRADICT THIS LIMITED WARRANTY. SPECIALIZED'S WARRANTY IS NOT EXCLUSIVE OF ANY OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, IMPLIED BY ANY PARTY. THIS WARRANTY DOES NOT LIMIT THE REMEDY OR REMEDIES AVAILABLE TO THE FULL EXTENT OF THE LAW.

THIS LIMITED WARRANTY DOES NOT EXCLUDE LEGAL RIGHTS. THE OWNER SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE BICYCLE FRAME. THE LIMITED WARRANTY DOES NOT EXCLUDE THE LIMITED WARRANTY OF MERCHANTABILITY, OR THE LIMITED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, IMPLIED BY ANY PARTY. THIS WARRANTY DOES NOT LIMIT THE REMEDY OR REMEDIES AVAILABLE TO THE FULL EXTENT OF THE LAW.

THIS LIMITED WARRANTY SET FORTH HEREIN OR THE LIMITED WARRANTY SET FORTH BY SPECIALIZED IN ANY BICYCLE WARRANTY, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED TO THE EXTENT THAT IT DOES NOT CONTRADICT THIS LIMITED WARRANTY. SPECIALIZED'S WARRANTY IS NOT EXCLUSIVE OF ANY OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, IMPLIED BY ANY PARTY. THIS WARRANTY DOES NOT LIMIT THE REMEDY OR REMEDIES AVAILABLE TO THE FULL EXTENT OF THE LAW.

