

INNOVATION

SUNTOUR

INTELLIGENT COM

SUNTOUR PROFESSIONAL TECHNOLOGY

As the world of bicycle componentry continues to evolve, SUNTOUR once again takes the industry lead with design concepts bound to shape the future of cycling. While SUNTOUR continues to reflect the shimmering edge of design ingenuity, riders always know they can rely on compatibility from each SUNTOUR model year to the next.

On the road or off, from the competition proven XC-Pro and Superbe Pro groups down through our sturdy line of entry level groups, it is the advanced product designs and methods of production that sets SUNTOUR apart from the rest.

At the engineering level, lightness never means a sacrifice in durability. SUNTOUR's cold-forged alloy cranks (XC-Pro off-road, Superbe Pro road) boast a highly controlled grain alignment for unparalleled strength.

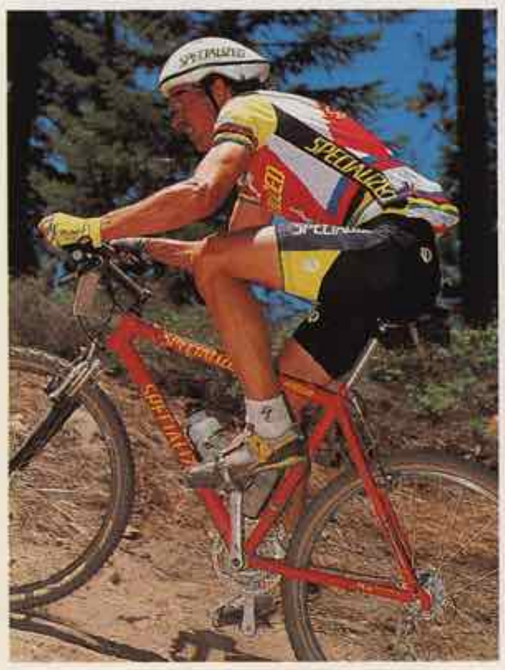
SUNTOUR's SL, XC-Comp, XC-LTD and X-1 cranks are melt-forged, using the metallurgically advanced AC4C Accurad melt forging process. Specially formulated alloy is pumped into SUNTOUR's mold under extreme pressure. The resulting piece benefits from metallurgical properties similar in strength and density ratios to forged pieces.

WTB/SUNTOUR's Grease Guard injection lubrication system makes component maintenance easier and cleaner than ever. Frequent bearing

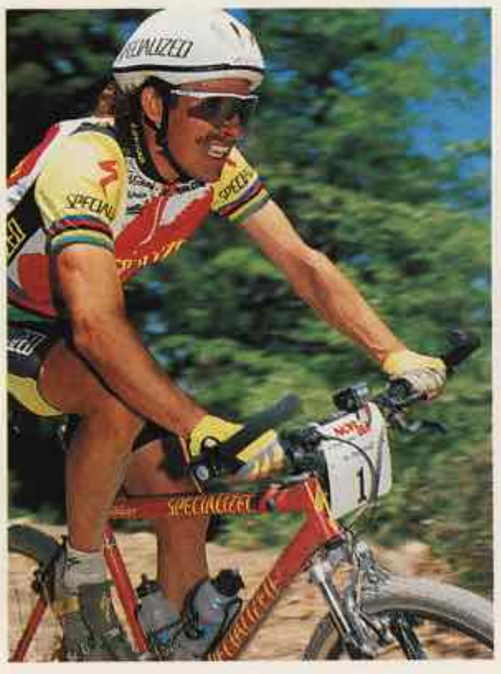














IPONENT DESIGN.





relubrication can now become part of a bike's regular maintenance routine, and will extend the life of bearing race components. Grease Guard has been extolled by major cycling magazines as a true breakthrough for the sport.

For 1992, Grease Guard componentry will be available in a greater range of components throughout our line, both on and off-road.

With off-road component technology becoming more and more sophisticated, SUNTOUR's new MicroDrive drivetrain combines more efficient gearing with lightweight materials to achieve perhaps the finest shifting bicycle transmission ever. An XC-Pro component group option, MicroDrive saves unbelievable weight with no sacrifice of strength over a standard drivetrain.

Our new chain-and-cog drivetrain system, PowerFlo, delivers unprecedented fast and accurate shifting in almost all SUNTOUR component groups.

Our anatomical MultiMount shift lever and brake lever mounting system is highlighted again this year in our newly designed ergonomic Wishbone shift levers. The new design combines under-the-bar shifting with indexed top mount performance.

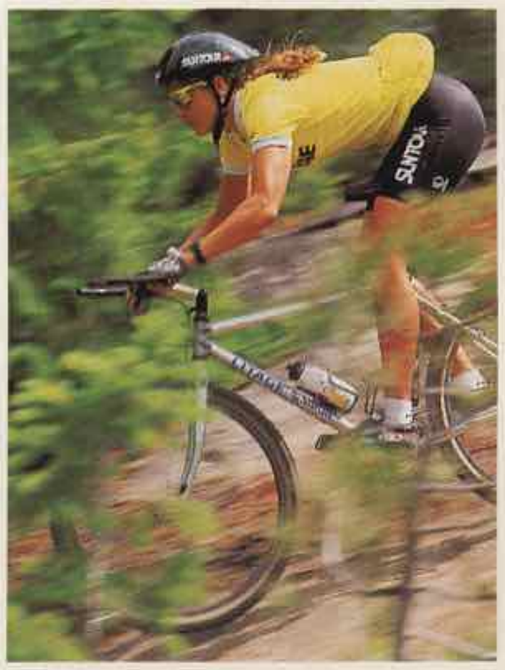
We've included a "pro technique" section in this brochure to provide hints and tips for better riding enjoyment. Please remember to ride safe and ride smart. Wear an approved helmet whenever possible, and obey the rules of the road and the trails at all times.

Welcome to the world of SUNTOUR, where innovation is truly in action.









THE ULTIMATE DRI

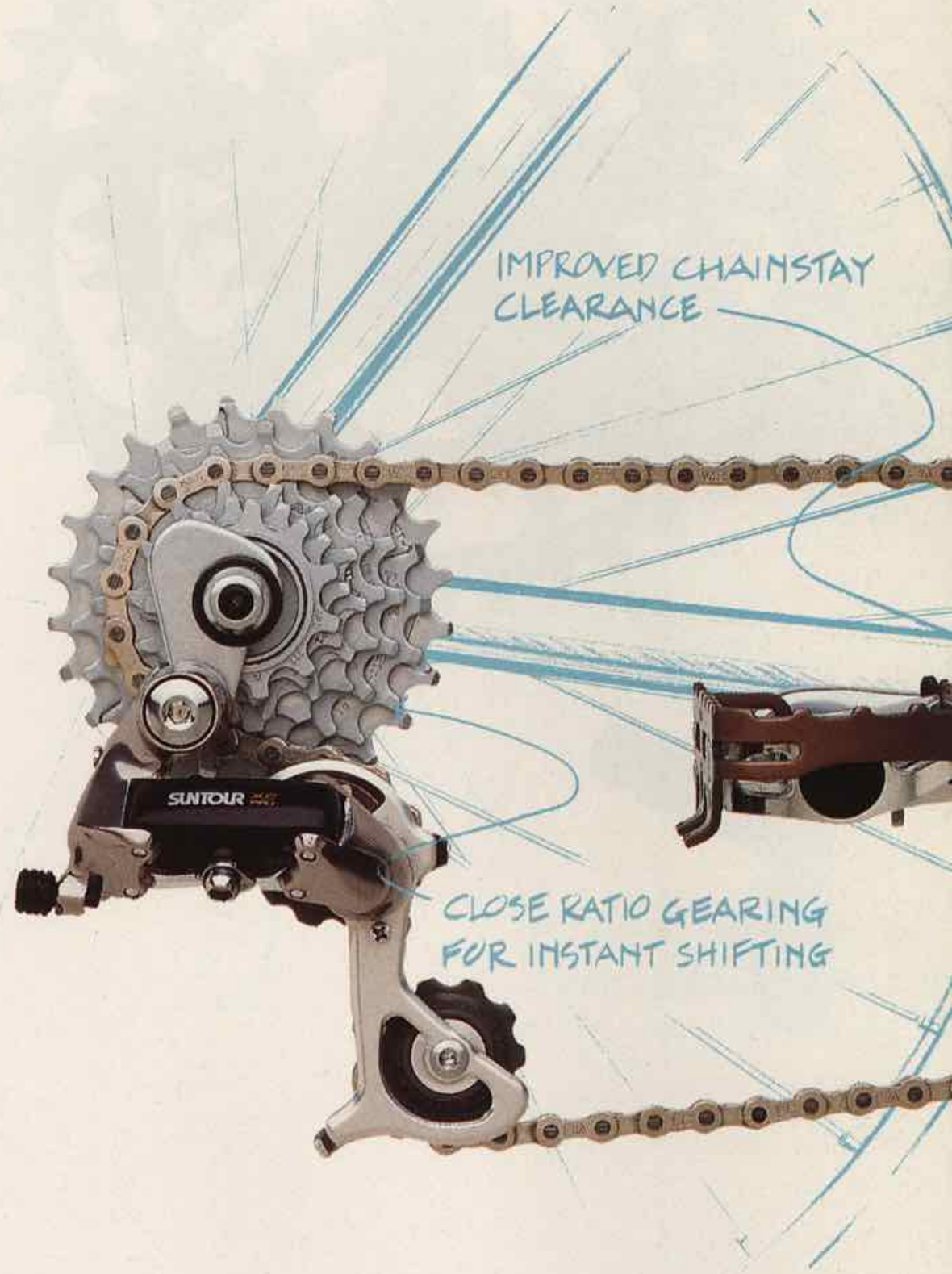
MICRODRIVE

MicroDrive epitomizes SUNTOUR's commitment to making innovative ideas in bicycle technology a reality for the rider.

MicroDrive incorporates a compact crankset with 42-32-20 gearing, a new bullet proof short cage rear derailleur and an all new 11-12-14-16-18-21-24 cassette.

The system's smaller cranks feature alloy outer and middle chainrings (hard-anodized for XC-Pro) and a stainless steel inner ring that overlaps the bottom bracket shell. This overlap prevents chain jam while the smaller rings enhance chainstay clearance to end chain suck and gain an additional inch-and-a-half of ground clearance.

Driven by a stronger and laterally stiffer



TECHNICAL TIPS

Don't be fooled by the small size of the chainrings and cogs! Look at the following gear chart. On the right side, you can see that the highest gear of the MicroDrive is 99.3 gear inches- almost exactly as high as a standard system that uses a 46 tooth ring. On the left side of the chart, notice that the MicroDrive 20 X 24 combination is even lower (easier to pedal) than the standard system. Gearing differences between cogs are tightly spaced and duplications noticeably decreased, compared to standard mountain bike gearing.

Important: this chart does not contain the extreme cross chain ratios (11 X 20 and 24 X 42). These combinations should never be used, and this applies to MicroDrive as well as any other system. Cross chain shifting runs the chain at extreme angles, at the limits of the derailleur's wrap capacity causing excessive wear to the system.

VETRAIN OPTION.

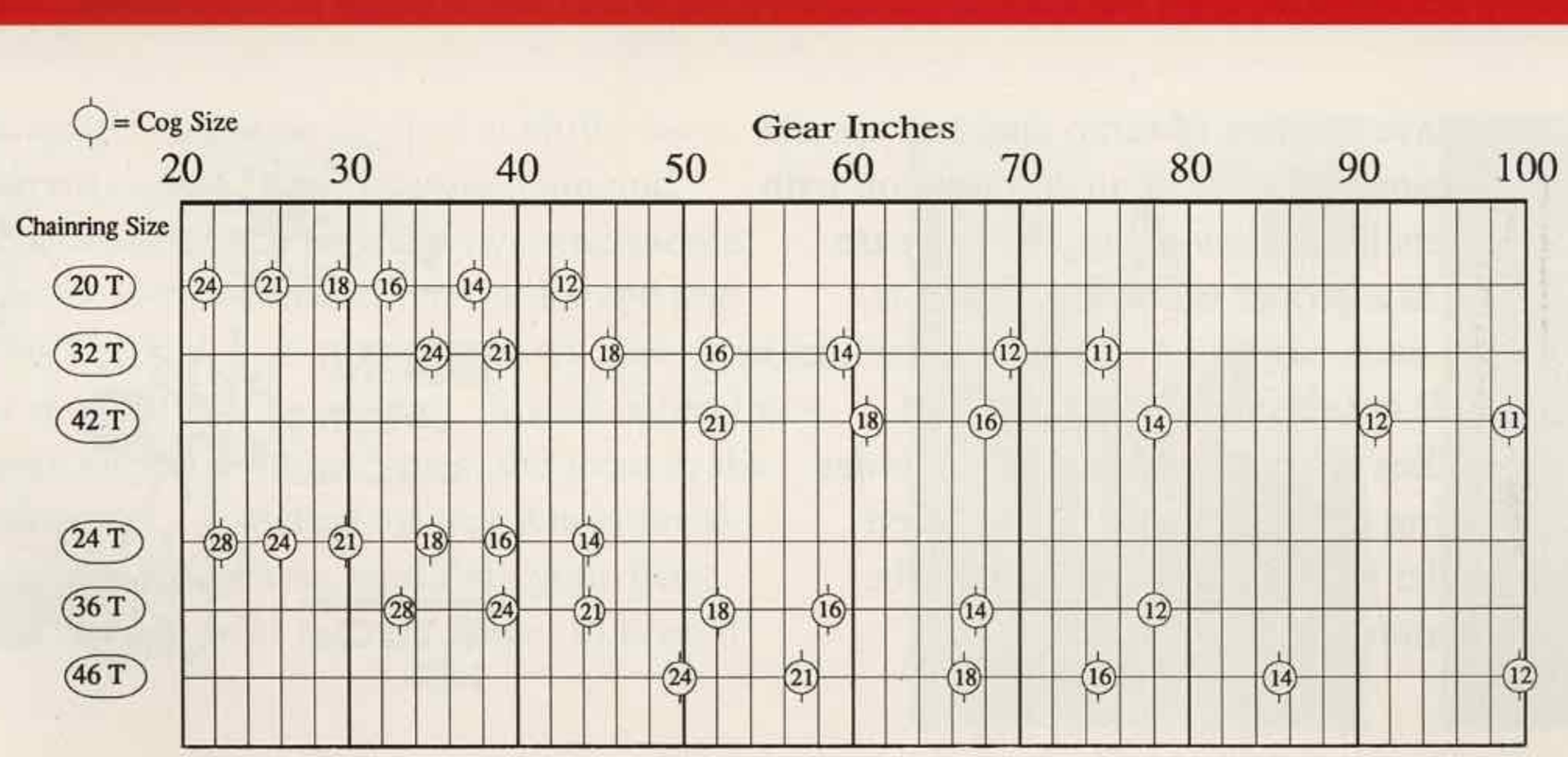


chain, SUNTOUR's new PowerFlo cassette sports a gradual-sloping profile that makes gear changes faster, with far more efficient gear combinations. A new leading-edge cog design helps the chain climb and drop to the adjacent gear more smoothly, with little lateral stress exerted on the side plates.

MicroDrive's short cage rear derailleur features brass bushings at all the pivot points for long lasting performance, and SUNTOUR's new front derailleur (standard and top-pull) is shaped to guide the chain to chainrings of all sizes.

MicroDrive boasts a total weight savings of over 300 grams. An XC-Pro and XC-Comp option for 1992, this advanced drivetrain concept promises to put the competition under a cloud of dust.

TECHNICAL TIPS

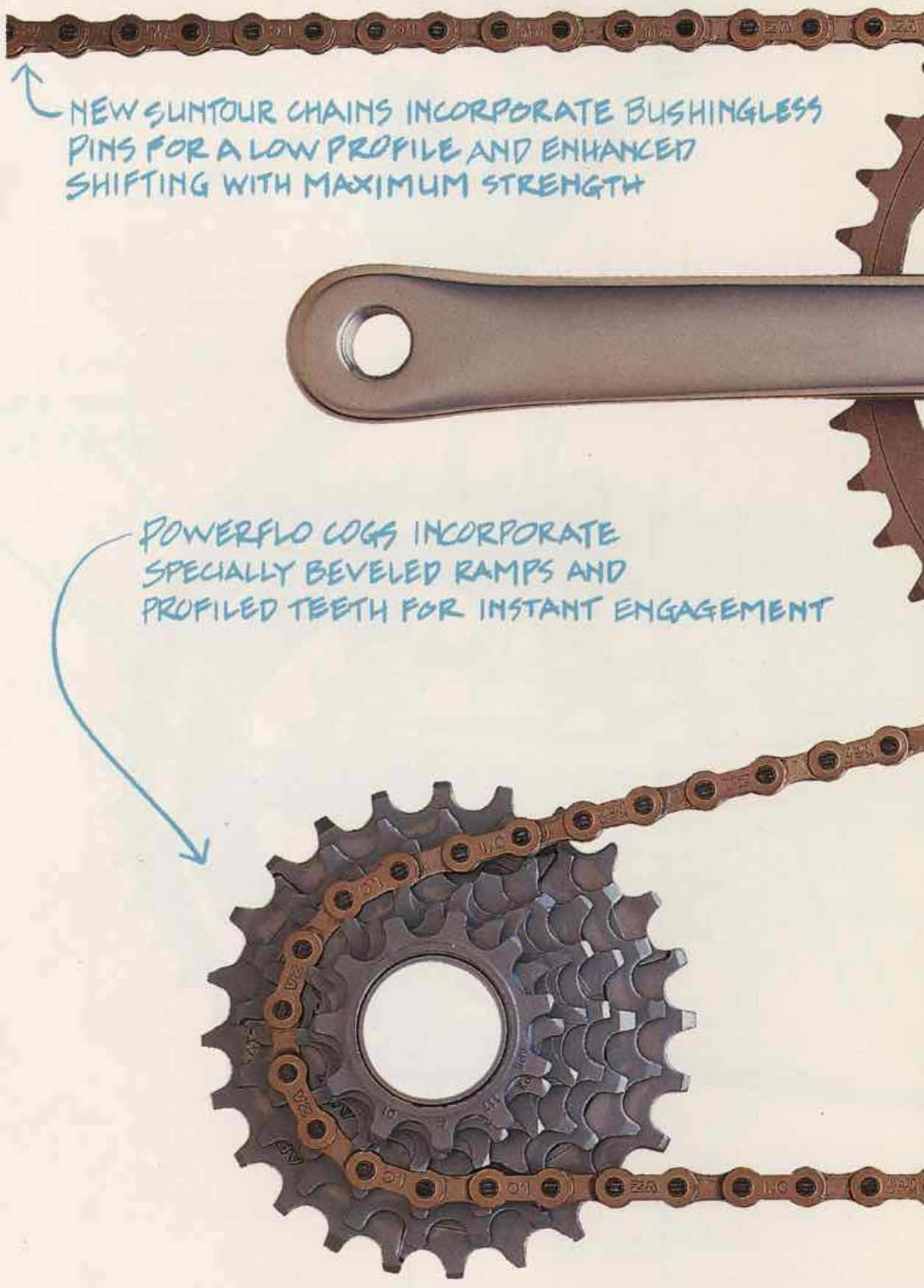


SHIFTING ENGINEERED F

POWERFLO

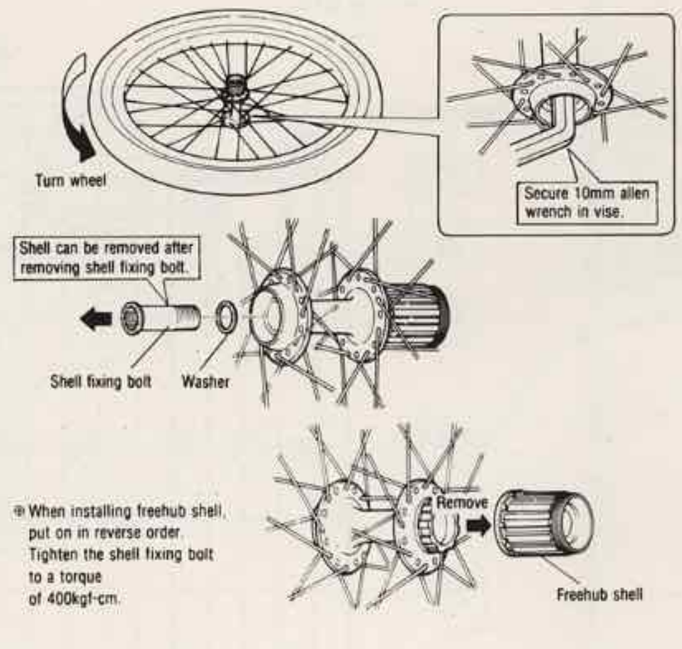
SUNTOUR brings new meaning to shifting accuracy with PowerFlo. Featuring completely new cogs and a new chain with superior lateral stiffness, PowerFlo delivers absolute shifting performance.

SUNTOUR's PowerFlo cogs incorporate specially beveled cogs that are preceded by a leading-edge notch in strategic teeth around each cog. As the derailleur shifts, the beveled cogs help lift the chain in the direction the derailleur is pulling it. PowerFlo's unique notch assists the chain through the shift, eliminating severe jumps for a



TECHNICAL TIPS

PowerFlo cogs have a series of ramp cuts and special tooth profiles that are engineered to work in conjunction with each other. Because of this interrelationship, the cogs are indexed to be assembled in a proper sequence, which is indicated with a mark on each cog and a single, wide spline. While PowerFlo cogs will not fit on older SUNTOUR cassette freehubs, the bodies are compatible with the older hub shells. After extracting the axle, use a 10mm Allen wrench to remove the older freehub body and install the PowerFlo body (see diagram).



OR MAXIMUM POWER.



much smoother and more secure gear change.

The PowerFlo chain features a redesigned side plate that works with SUNTOUR's notched cogs. Lateral stress on the chain is reduced dramatically as a result, increasing the longevity of the chain no matter how rough the terrain is.

Available in almost all SUNTOUR drivetrain groups in 1992, PowerFlo cassette bodies and cogs are compatible with almost all older model SUNTOUR free hubs. Consult your dealer for compatibility.

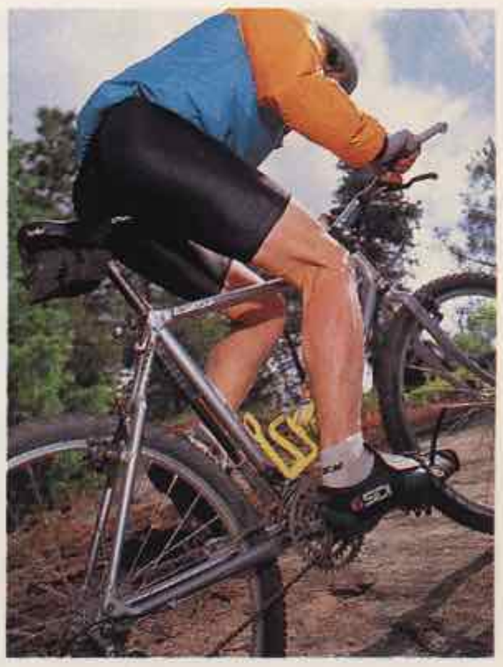
CHAINS ARE EASILY SERVICED WITHOUT SPECIAL TOOLS OR REPLACEMENT PINS



PRO TECHNIQUES

Proper shifting technique while climbing is key in making clean, smooth shifts under power. Keep your eyes on the trail ahead of you, and as you approach a climb be ready to shift before you have to increase pedal pressure. To shift during a steep climb, pedal hard for at least one revolution prior to shifting, then back off on pedal pressure to alleviate stress on the chain. This allows the derailleur to shift the chain smoothly without extreme stress.





30: SECO

GREASE GUARD

SUNTOUR takes the lead in technology once again, and extends the life of its components with an innovative lubrication system built into the XC-Pro group.

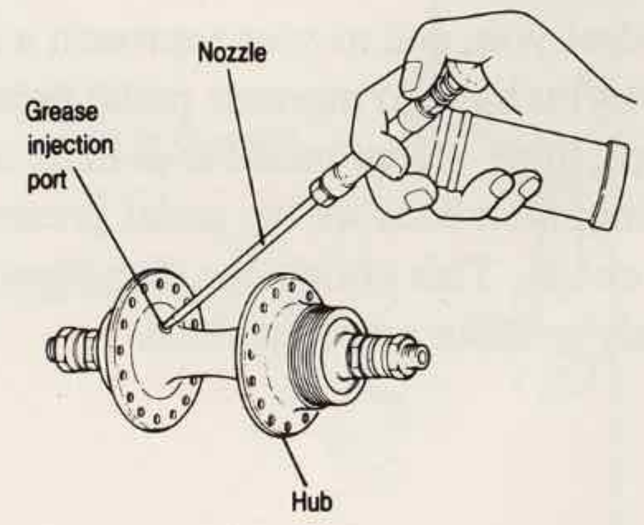
Grease Guard grease-injection technology allows you to inject grease directly into the component through sealed ports, using the SUNTOUR Grease Gun. As fresh, WTB/SUNTOUR Goose Grease is pumped into the part, the old grease and contaminants are purged out through specially designed diaphragm seals that lock out grime and water.



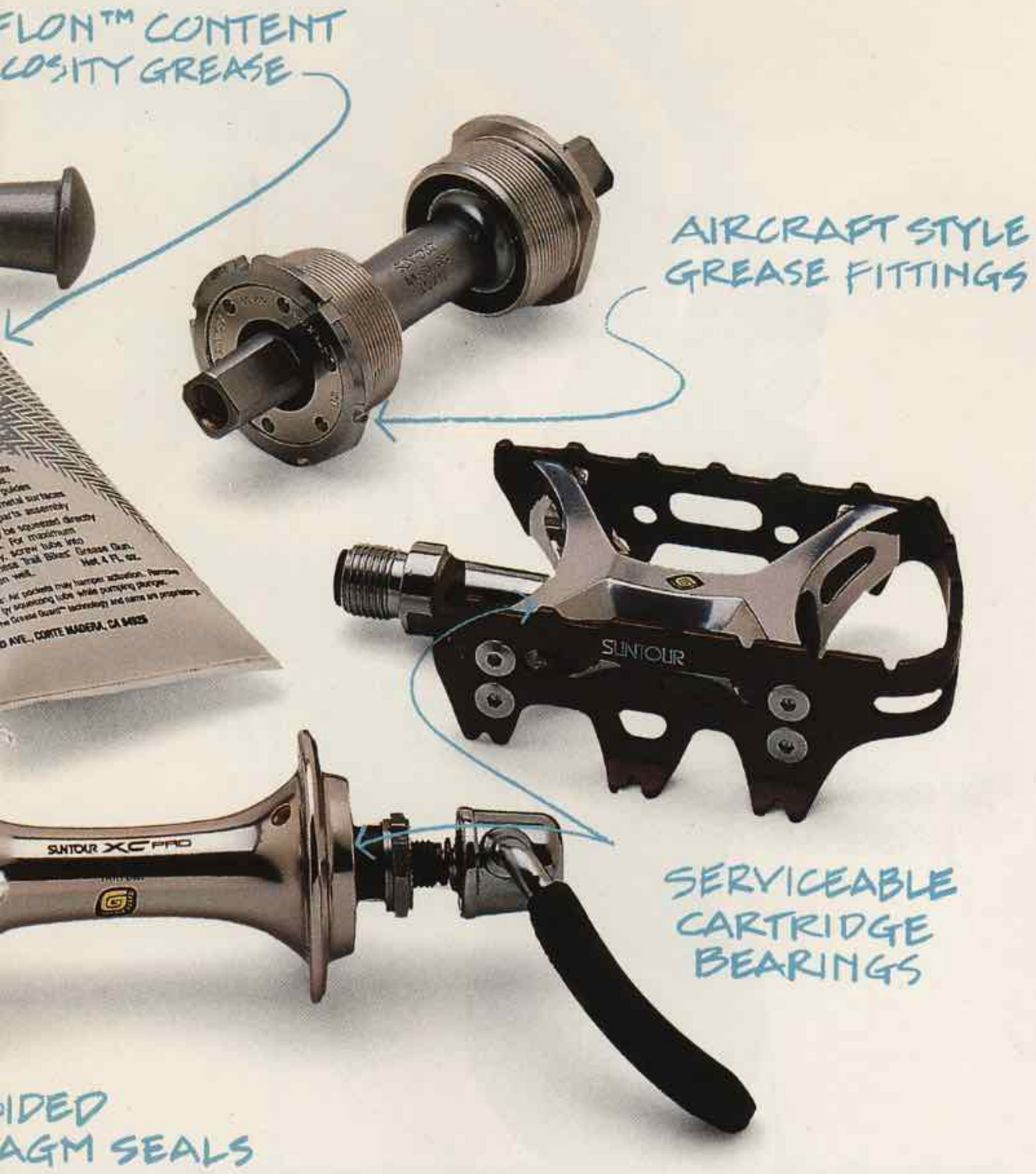
TECHNICAL TIPS

It is very important to re-lube the bearings after every wet ride, since moisture-contaminated grease can damage the races if left in the bearing. As original equipment, WTB/SUNTOUR Goose Grease has a carefully calculated viscosity to avoid seal deformation and to completely purge the bearing chamber of all contaminated grease.

Goose Grease is specially designed to be compatible with the seals used in the Grease Guard system, both for proper bearing protection and grease seal compatibility. It contains PTFE ultra high grade Teflon™ for lowest friction



ND LUBE.

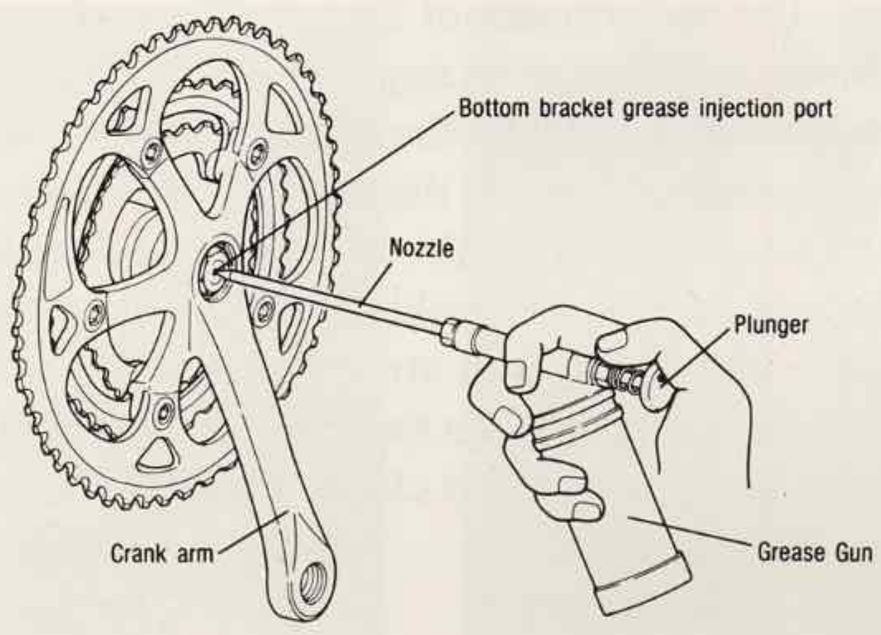


With this progressive technology, SUNTOUR makes it possible to maintain components more frequently and with a lot less mess. While it is not intended as a substitute for a component overhaul, Grease Guard technology gives the rider a frequent maintenance routine that affords a true longevity to the part. Further, it is the first system that permits maintenance to sealed cartridge bearings, which have a lower rolling resistance than conventional cup and cone systems.

Grease Guard technology is available on XC-Pro headset, pedals, bottom bracket, hubs and free hub.

TECHNICAL TIPS

and maximum corrosion resistance. PTFE actually penetrates the metal surfaces to smooth out micro irregularities in the bearing race and for a corrosion resistant coating. It is water resistant, super slick and qualifies as USDA Food Quality grease, which is non-toxic, unlike synthetic greases.

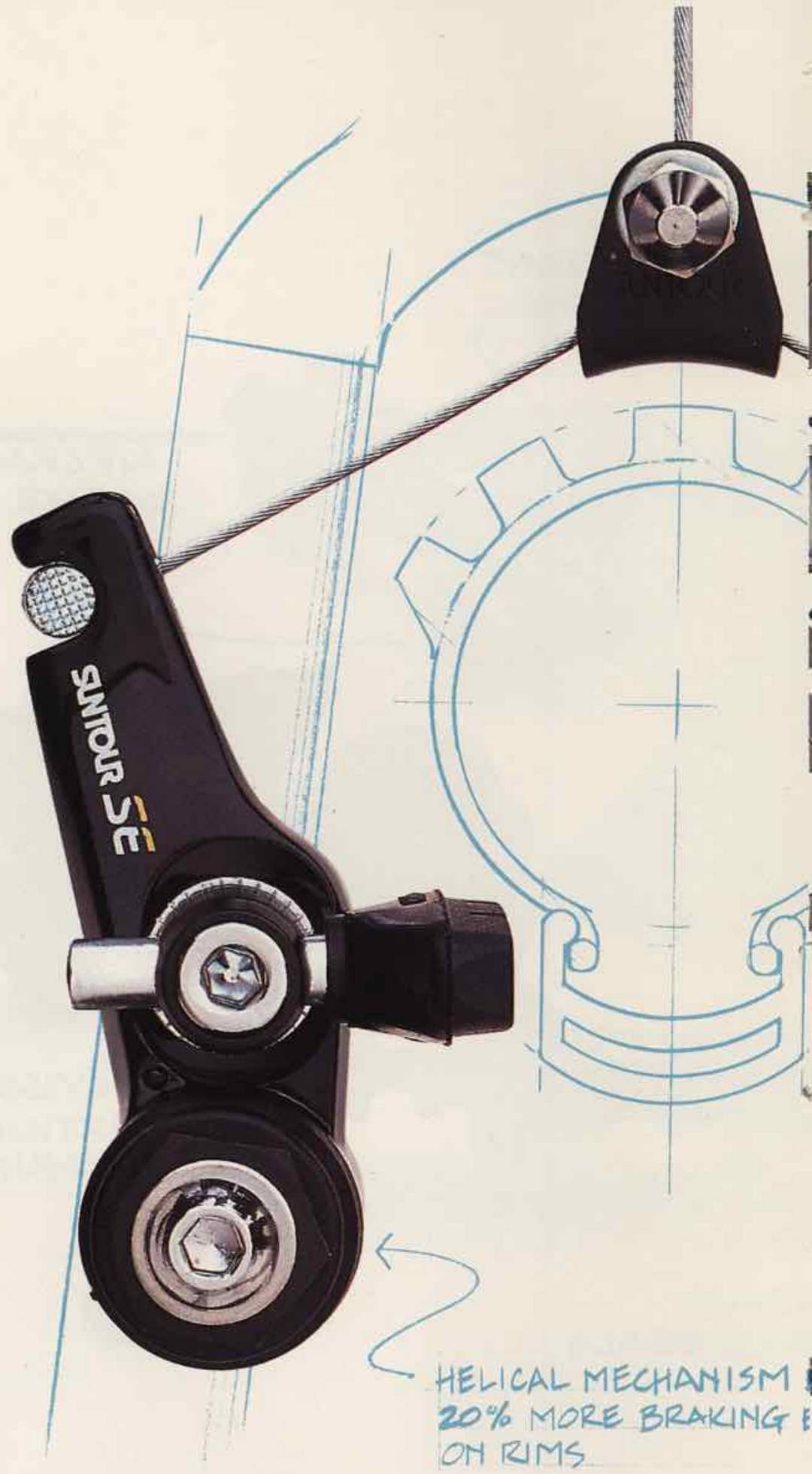


20% MORE BRA

SUPER LOW PROFILE SELF-ENERGIZING BRAKES

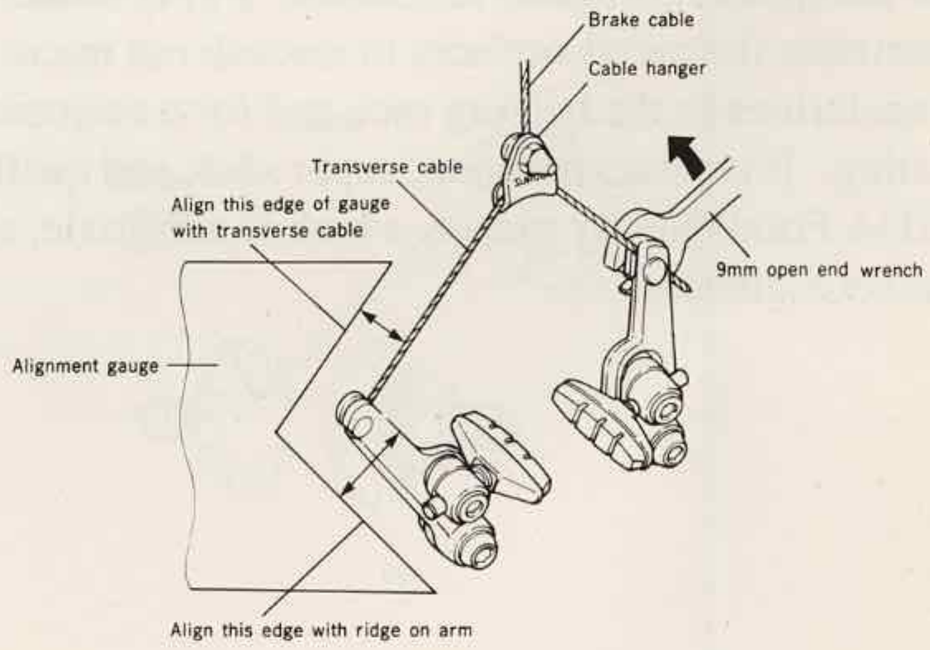
SUNTOUR's newly designed "Super Low Profile" Self Energizing (XC-SE) rear brakes deliver the most braking power ever with minimal brake lever effort.

Designed to enhance the rider's stopping power without expending more energy at the brake lever, Super Low Profile Self Energizing brakes use the directional force of the rim to increase braking energy. As the pads contact the rim they are pulled forward toward the seat stay; the brake's internal helical mechanism drives the pads on to the rim with greater force.

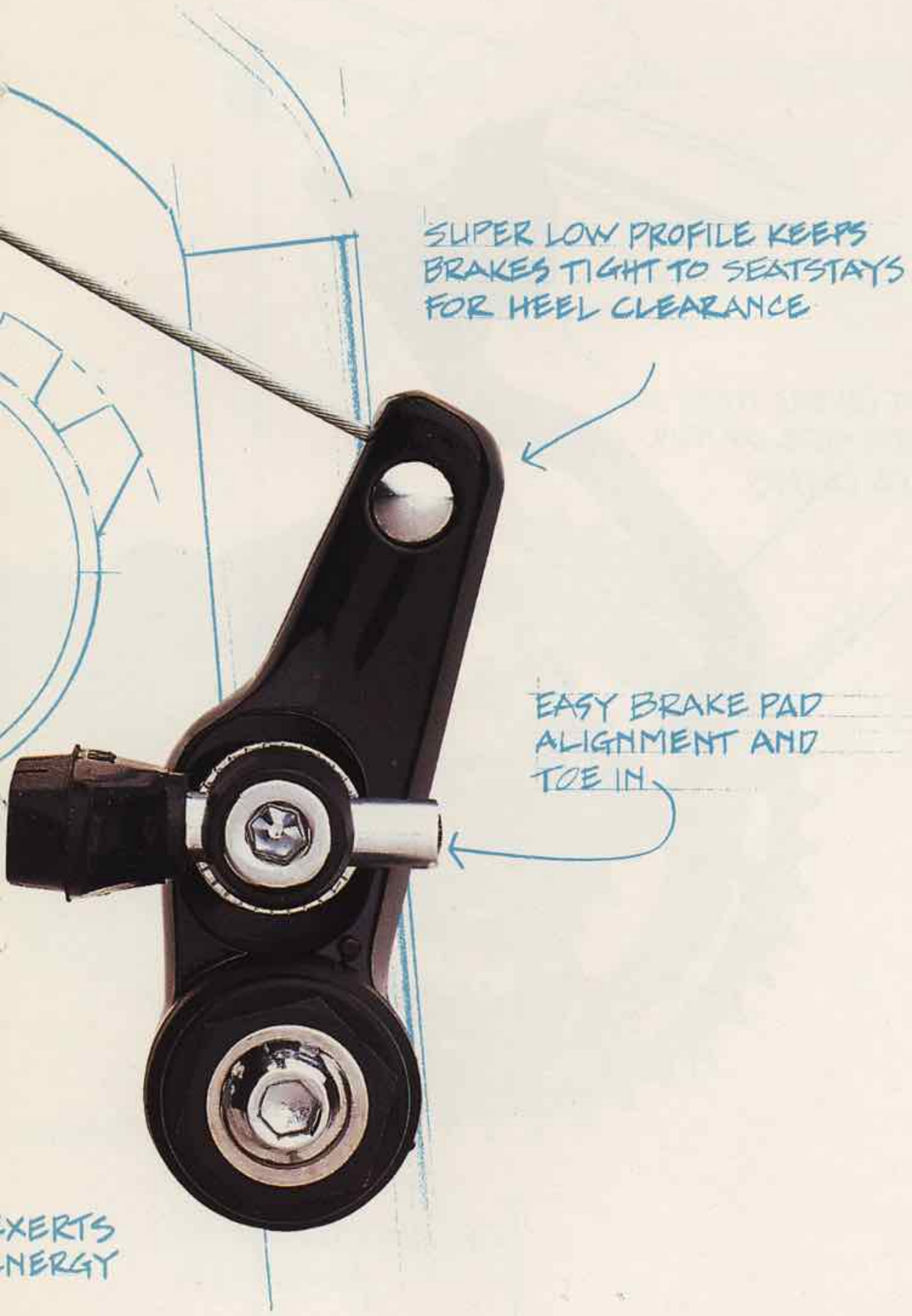


TECHNICAL TIPS

The performance of the new "Super Low Profile" Self Energizing Brakes or any Low Profile brake is extremely dependent on the angle of the straddle cable and the brake arm when the shoes touch the rim. If the cable runs at too wide or too narrow an angle, the mechanical advantage of the system will be poor and braking performance will suffer. If necessary, move the shoes inward on the arm mount and adjust the straddle cable so the angle formed between the transverse cable and arm is close to 102° when the pads touch the rim (see diagram).



AKING POWER.



Compact, new cantilever arms mount at nearly 180°, remaining within the frame structure of the bicycle. This low profile straightens the transverse cable bridge to strengthen braking effectiveness. With the arms tucked out of the way of impact, heel clearance is also improved.

Additional advantages include a weight saving new design, a widened unsprung opening to accomodate the widest all-terrain tires, and a relocated centering mechanism that makes individual spring tension adjustments simple with conventional tools.

PRO TECHNIQUES

Safe braking technique on steep downhills saves the rider and the environment from potential pain and damage. Keep your weight back and low over the saddle, with your pedals level, arms extended but not locked and your back flat. This keeps your center of gravity low relative to your wheels for more effective braking. Speed control is a big factor. As with cars and motorcycles, the front brake does most of the stopping. A locked up rear wheel breaks traction and tears up the landscape; modulate your front brake and shift your weight over the rear wheel to keep it from locking up.





ANATOMICA

MULTIMOUNT

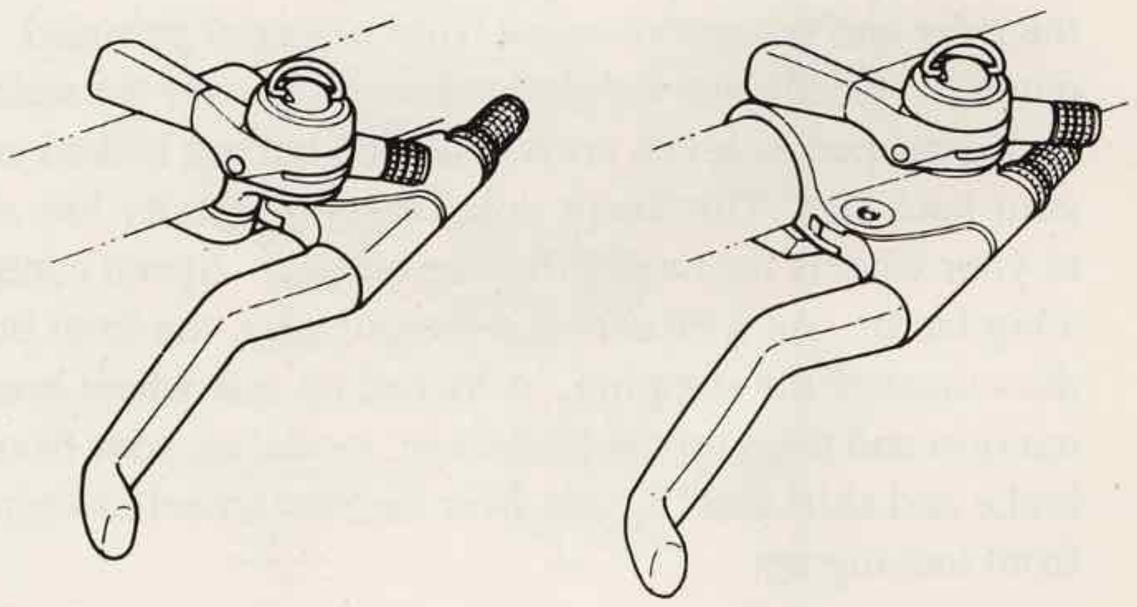
SUNTOUR's MultiMount system gives mountain bike riders true brake and shift lever positioning freedom.

The first system ever to allow completely personalized shift lever and brake lever positioning to suit each individual, MultiMount brackets are integrated into every SUNTOUR handlebar component from the XC-LTD group up. Constructed of lightweight alloy, these narrow profile, durable clamps give cyclists the option of installing their shift levers inside or outside their



TECHNICAL TIPS

MultiMount shift and brake levers nestle close together, closer than any other brake lever/shift lever combination. Adjustment possibilities are endless; mount a standard length brake lever on the bar close to the stem. Mount the shift lever on the bar by the grip. Now your forefinger will be pulling on the end of the lever, giving you a very powerful system. You may have to turn the reach adjuster in to get the end of the brake lever close enough to reach.



AL OPTIONS.



brake levers. Angles are independently adjustable, for the control needed to achieve the highest performance possible.

MultiMount is an integral part of the newly designed Wishbone Shifter. Ergonomically designed to work with the natural reach of the thumb, the advanced Wishbone Shifters are thumb-operated from both directions and allow full cog cross-overs with a single shift. Wishbone Shifters are 7-speed indexed with a light index mode and deliver top-mount performance in an underbar shift lever.

PRO TECHNIQUES

Proper cornering technique can mean the difference between an ecstatic ride and a lot of bumps and bruises. When you approach a corner flatten your back and absorb with your arms. Transfer your weight to your outside pedal while pushing down on the inside grip of your handle bar. This lowers your center of gravity, or, more appropriately, your center of mass, weighting the tires for more positive traction.





SHIFT ON

COMMAND SHIFTERS

Imagine high-speed gear shifts the instant of need... New Command Shifters from SUNTOUR are ergonomically designed to function as part of a rider's reflexes. Command Shifters are so accessible the cyclist will shift gears more often, maximizing his energy efficiency for a stronger, faster ride.

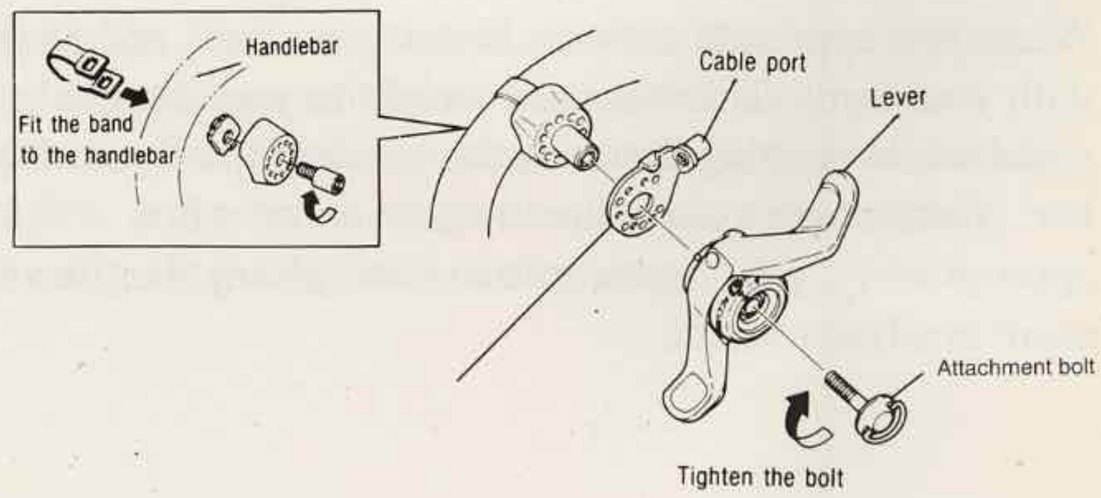
Whether sitting, standing or in the break, Command Shifters let the rider shift without taking his hands from the handlebar. Mounted inboard of the brake levers, their ergonomic design allows the cyclist to pull the lever with his finger or push with



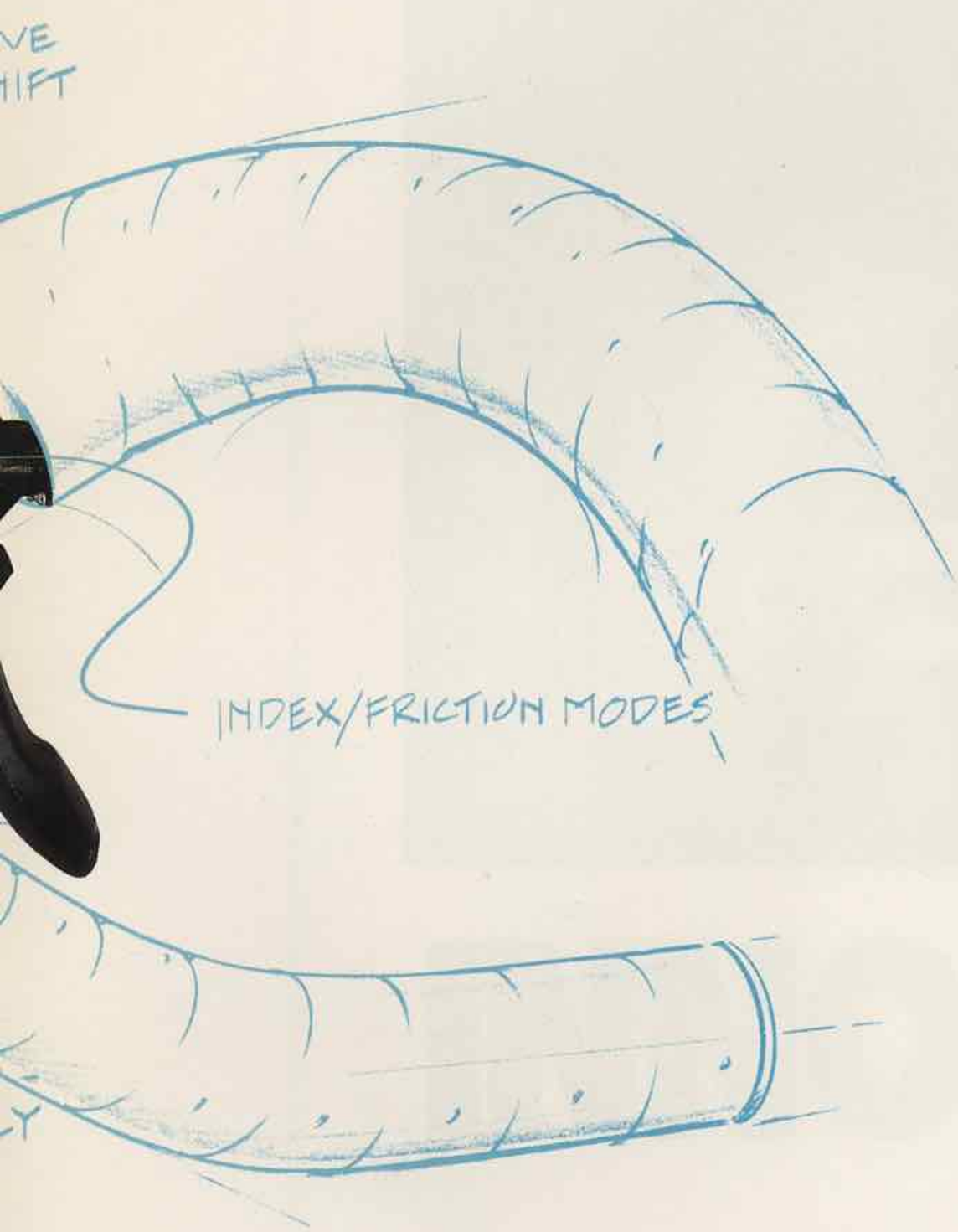
TECHNICAL TIPS

The new Command Shifter uses an "endless" band style mounting strap. This thin strap sits cleanly under the handlebar tape with no protrusions, and attaches the lever to any handlebar.

The Command Shifter's multi-positional mounting bracket allows the lever and casing stop to be attached to the bracket in a variety of angles, and allows custom tailoring of cable routing and hand positions to accomodate all handlebar shapes and rider preferences.



THE FLY.



his thumb for both up- and down-shifting. These uniquely designed controls are positioned for use with hands on the hoods and offer both precision index and light index gear shifts.

In the event of an impact, Command Shifters are safely protected by the handlebars and brake levers.

Light in weight and infinitely durable, SUNTOUR's new Command Shifters are the perfect shift lever option for bikes with drop style bars. Install a pair, and shift on the fly!

The flagship of SUNTOUR's road racing component groups, Superbe Pro is a veritable showcase of technological superiority. Cold forged cranks, sealed cartridge bearings, precision "mirror" ground bearing surfaces and our internally sprung brake calipers demonstrate unyielding durability and world class performance.





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