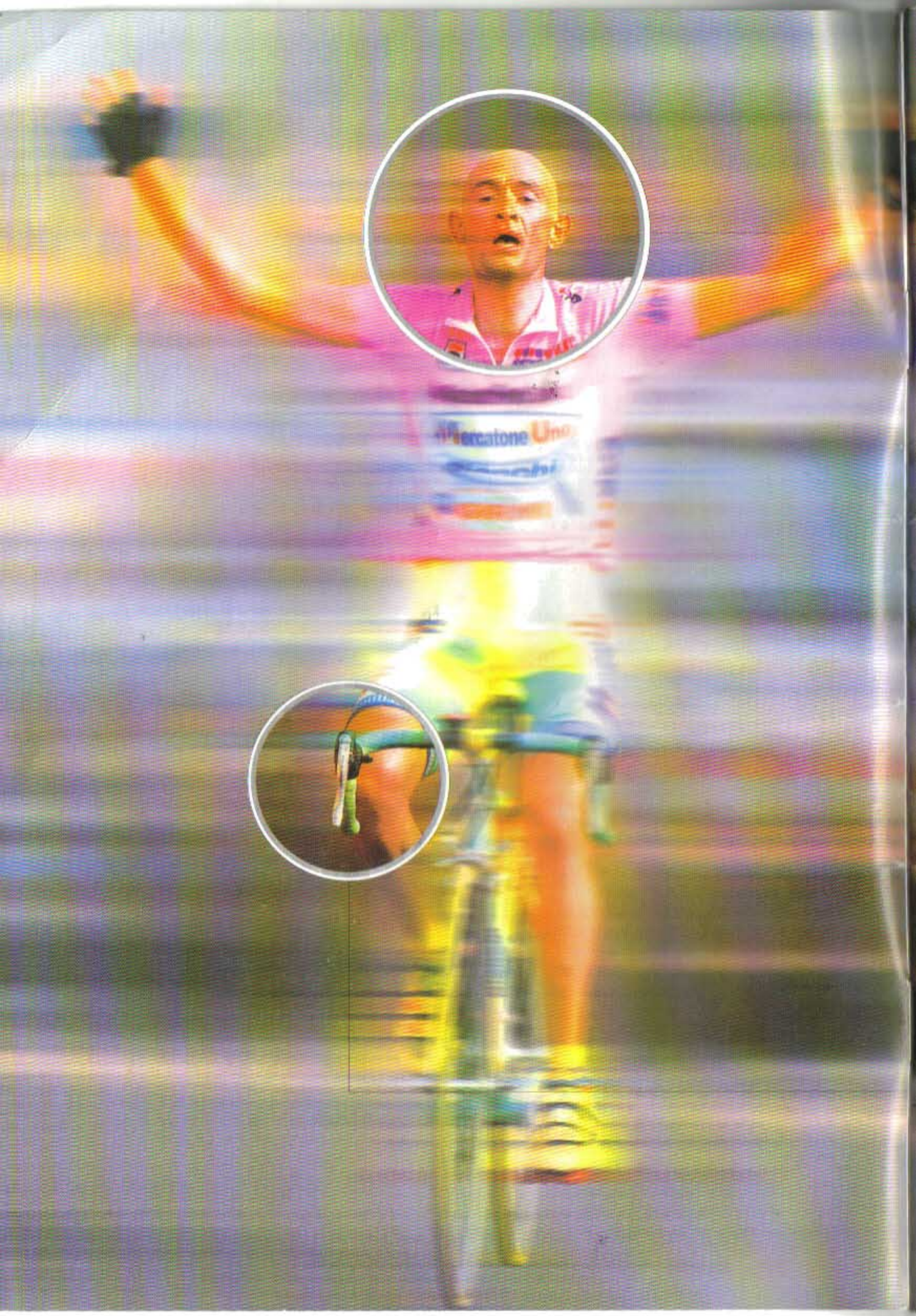
1999

TECHNOLOGY AND EMOTION

Campagnolo



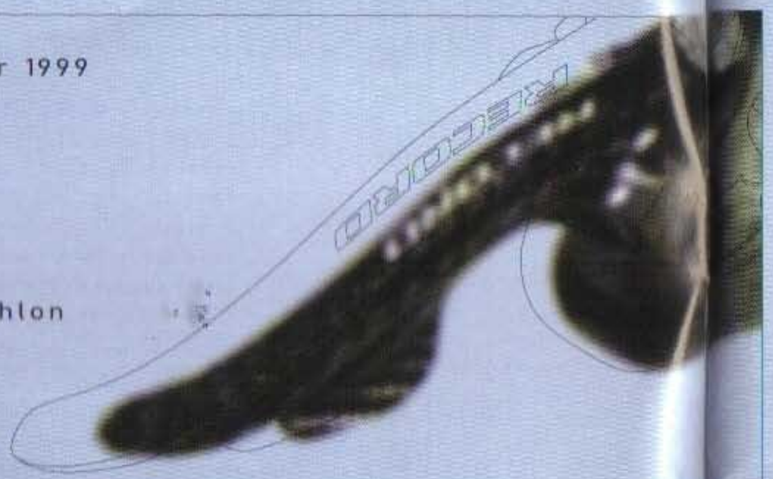
technology and emotion

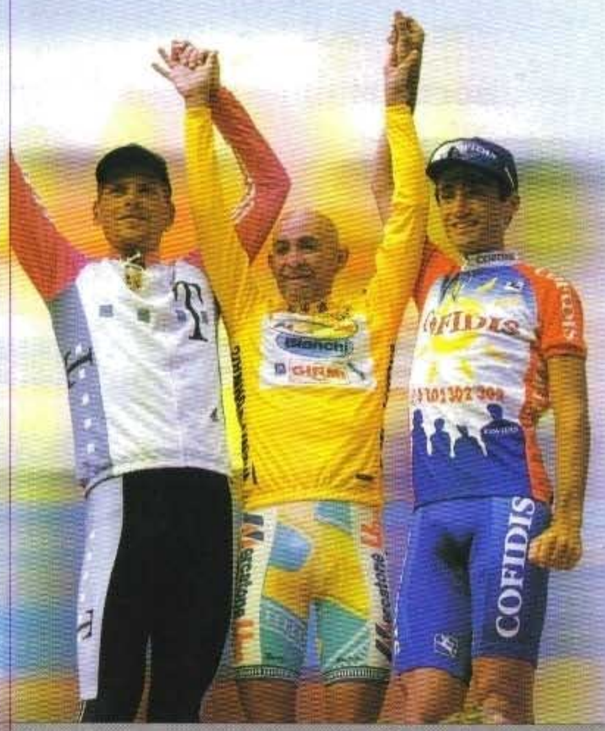
Campagnolo is a company that combines advanced technology with a huge passion for bicycles; it has produced high quality components for racing bikes from the early days of cycling.
Our designers, themselves bike and biking enthusiasts, raise the state of the art step-by-step every day. Experienced in computerized design, but equally connoisseurs of materials and the latest production technology, they stimulate their creativity by living in symbiosis with the world of races - their primary research laboratory.
It is only through maximum specialization that such excellent results can be achieved, as witnessed by a collection of victories unique in the history of cycling.
Our components are designed and manufactured with "passion", to win, year after year, the most demanding and prestigious competitions all over the world. They are high-performance products offering extraordinary reliability, since not only the power of the athlete must be transformed into effortless speed, but the quality, reliability and durability of components must equally allow riders to compete and win year after year with the certainty that only technical excellence can offer.
This is why Campagnolo offers a three-year guarantee on all its products, since the most sophisticated technology applied to industrial production has made it possible to create components which are always lighter and better performing at the same time as ensuring the reliability and durability that make them absolute landmarks in the industry.
The evolution of the technology applied to conventional materials (such as electron band welding controlled by magnetic lenses), the use of new materials, which only a short time ago, were the exclusive preserve of the military industry (light alloys and composites) and, finally, the ever more powerful computerized systems available to engineers mean that creativity can forge materials without sacrificing anything from the point of view of safety.
Ergonomics has always been at the heart of the design effort: each Campagnolo component is conceived as an extension of the mind of the rider, to be used with the same ease with which we shake hands. Braking power is controlled instinctively, free of surprises; gears are changed without a thought, when the legs ask it of the mind; pedaling is harmonious, as if the bicycle were part of the rider.
It is an exciting technology that Campagnolo offers to enthusiasts, because each individual component ever made is entirely identical to those used all over the world by the great champions in winning the most highly competitive races.
This is the way it has always been - for more than sixty years in our history.

groupsets

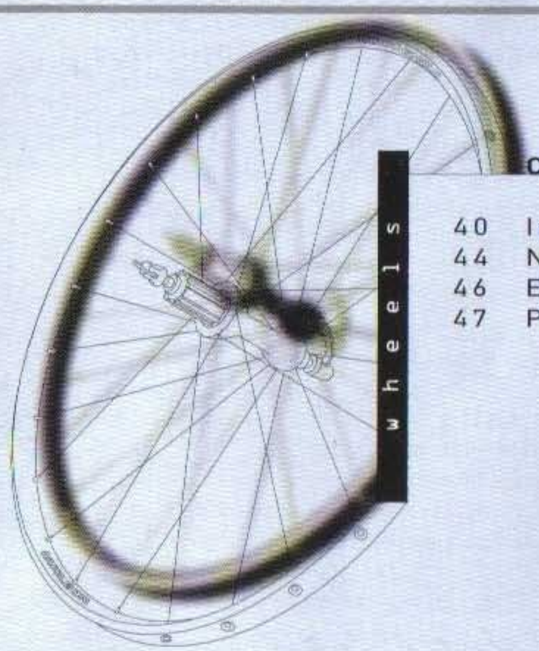
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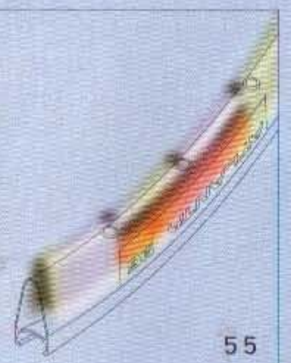
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An extraordinary new generation of ultralight, high performance hubs.

Only when talent and ingenuity work together in one of the most advanced research and development centers in the industry, seeking "uncompromising" technical perfection, can truly extraordinary products be conceived. This new generation of Campagnolo hubs combines radically innovative design with the latest sophisticated technology and advanced materials to offer most demanding enthusiasts and racers the most highly perfected speed systems ever built.
Never before has it been possible to combine such high performance with the low weight, reliability and durability typical of Campagnolo products. Never before has such elegant mechanical perfection ensured such easy and rapid maintenance.

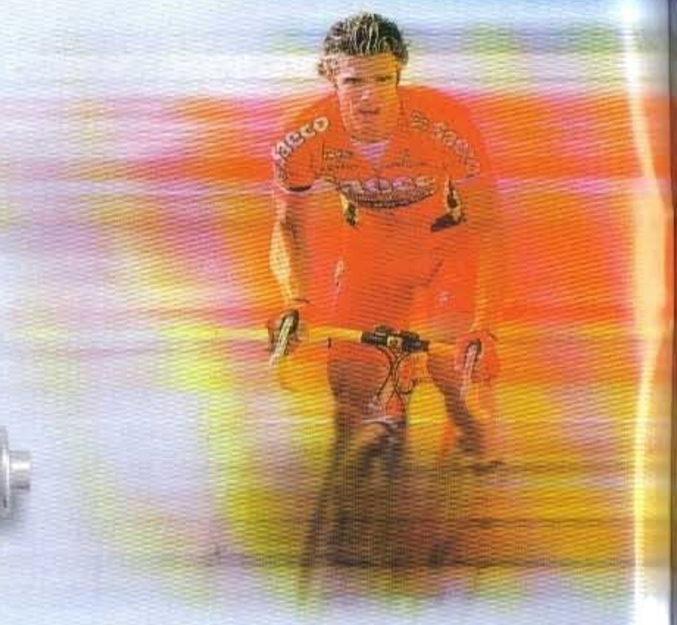


The essence of the new design and the importance of the innovations underlying its development are best seen through certain striking details.

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The "oversized" hub shell is made of 7075 aluminum alloy and boasts a modern new design. 7075 aluminum alloy is stronger than any other known alloy of aluminum and ensures significant weight savings, not only by reducing thicknesses but also because it provides greater freedom in designing outlines. The "oversized" design also helps reduce the weight of the hub, at the same time as improving axial and torsional strength.
The axle is also made from 7075 aluminum alloy and "oversized", combining lightness and greater rigidity without affecting mechanical strength and durability.





Why are lightness and rigidity so important?
Reductions in weight, provided the product's mechanical features are retained, mean that acceleration is faster and climbing more efficient. Higher rigidity maximizes the output of the rider's effort, once again achieving better acceleration and higher speeds both on the flat and uphill.
Innovations continue with a standardized system of bearings which boasts all the advantages of sealed bearings without any of the drawbacks: there are more ball bearings by diameter, maintenance is extremely easy, play can be zeroed instantly even with the wheel mounted on the bike.

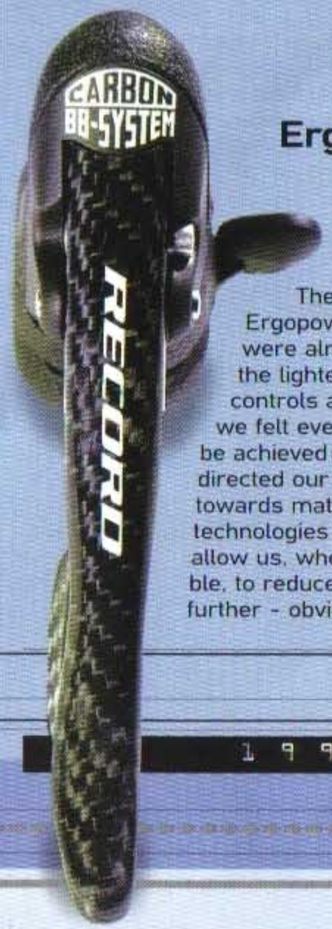
replacement is extremely fast and the axle can be disassembled/reassembled very quickly thanks to the use of small bearing cages. Durability and maintenance intervals are equally unbeatable.





Even the freewheel system has been completely redesigned, above all to make it lighter, yet even the structure and dimensions have been further improved. The new fixed pawls can be instantly disassembled/reassembled by hand; the freewheel ratchet-ring and the right-hand bearing have been moved outwards, thereby achieving a stronger, stiffer and lighter structural geometry.





Carbon Record Ergopower

The Record Ergopower controls were already by far the lightest integrated controls available, but we felt even more could be achieved: so we directed our research towards materials and technologies which would allow us, wherever possible, to reduce weight even further - obviously without sacrificing safety, reliability and durability. Carbon fiber composite materials were the only answer to our requirements for lightness and superior mechanical performance.
This saw the development of the new ultralight carbon fiber levers for a more "RACING" style appearance and performance than ever before: the new Record Ergopower controls are now around 23 grams lighter and represent a perfect alternative for the previous aluminum alloy levers.



All the 9 Speed Ergopower controls in the 1999 range are preset for integration with computer control.

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New design for Ergopower controls

The experience gained in 1998 with the new ergonomic design of the top-of-the-range Ergopower controls is extended even further to the entire 9 Speed range (Athena, Veloce and Mirage): the new design of the body, the brake lever blade which is closer to the handle-bar by 8 mm and the 1 cm longer finger shifting lever ensure even better grip and braking/shifting action even with the hands comfortably resting on the support. The new processing ensures significant lightening of the overall structure.



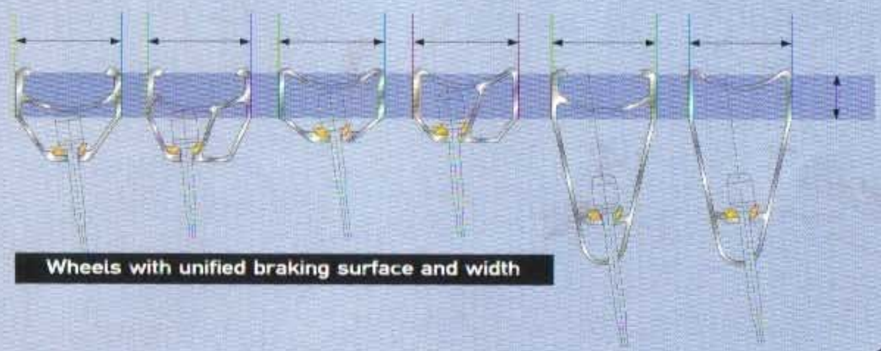


9 Speed drivetrain for Mirage

Campagnolo's technological commitment doesn't focus exclusively on the top of the range, but pays distinctive attention to those products designed for users who keep a close eye on quality and functionality yet are less demanding in terms of materials and weight: so, a year after the introduction of the 9 Speed system for the Veloce set, this important function is now also extended to the Mirage set, as it is becoming more and more popular for all kinds of bicycles. The adaptation of the componentry was based on a complete review of every single detail: the sprocket set is updated with a new system of spacers and a zinc-finish; the derailleur cage and pulleys are thinner to interface with the 9 Speed chain - the same chain that is used with the Veloce set.

New range of wheels

For the 1999 season, Campagnolo is set to launch a new range of wheels destined to become the outright landmark in the sector thanks to radical technical innovation, unprecedented performance and astonishing weight reduction.
This innovation involves both Fluid-Dynamic and Climb-Dynamic wheels - wheels which share many features but nevertheless each boast specific, individual hallmarks.
From a strictly competitive point of view, all the new profiles - for both Climb and Fluid-Dynamic wheels - have a standardized braking surface position in terms of both width and height; this means that changing wheels during races is instantaneous and no longer requires any brake pad adjustments.



Wheels with unified braking surface and width

New Climb-Dynamic wheels

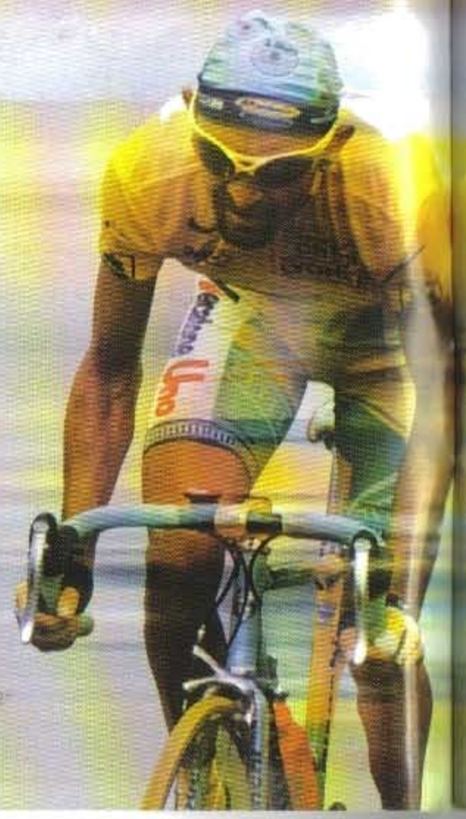
The new Climb-Dynamic wheels are designed to provide unequalled performance together with exceptional lightness: it only takes a quick look at their features to realize they are truly unique competition systems.
The first major innovation concerns the rims: both front and rear rims now have a polygonal cross-section and a machined braking surface; the front rim is ultralight with a symmetrical cross-section, while the rear rim has an asymmetrical cross-section and a reinforced structure. Both are made from the best aluminum alloy available through modern extrusion technology.
The asymmetrical design of the rear rim is accompanied by a special lacing pattern, with a 3 mm offset of the



spokes to the left of the rim in order to improve dish and achieve exceptional lateral stability.
Moreover, the spokes have been differentiated in shape and thickness in proportion to the type of stress they are typically subjected to, thus reducing the overall weight of the wheel as much as possible.
For the first time the "ULTRALINEAR" spoke geometry has been adopted to eliminate any possible spoke bending even near the rim.
This is achieved thanks to a new drilling concept and newly designed spherical coupling nuts

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and plates, replacing conventional nipples with all their drawbacks, so that the spokes can perform their functions at an ideal angle.
The completely new hubs used on the '99 wheels (with the exception of Zonda and Proton) are HPW versions of this year's Record and Chorus hubs, hence combining all the amazing hub innovations with the benefits of the characteristic HPW "straight-pull" spoke flanges.
Lastly, the most immediately apparent innovation: a striking matt black finish to further emphasize the distinct "racing" outlines of the new wheels, as well as the generation gap that distances these new products from anything else available on the market.



New Fluid-Dynamic wheels

Even the range of Fluid-Dynamic wheels has been radically upgraded to provide yet lighter and faster products. The new profiles featuring stiffer and lighter aluminum rims make it possible to adopt "ULTRALINEAR" lacing patterns also on this particular category of wheels. Thanks to the combination of spherical coupling nuts/plates it is ensured that the spokes always function in conditions of perfect linearity, avoiding the negative bending stresses in conventionally laced wheels. The braking surface is machined for powerful, modulated braking.

The weight advantage is truly overwhelming, to the extent that the new Shamal and Vento models are much lighter than the majority of carbon wheels available on the market today.



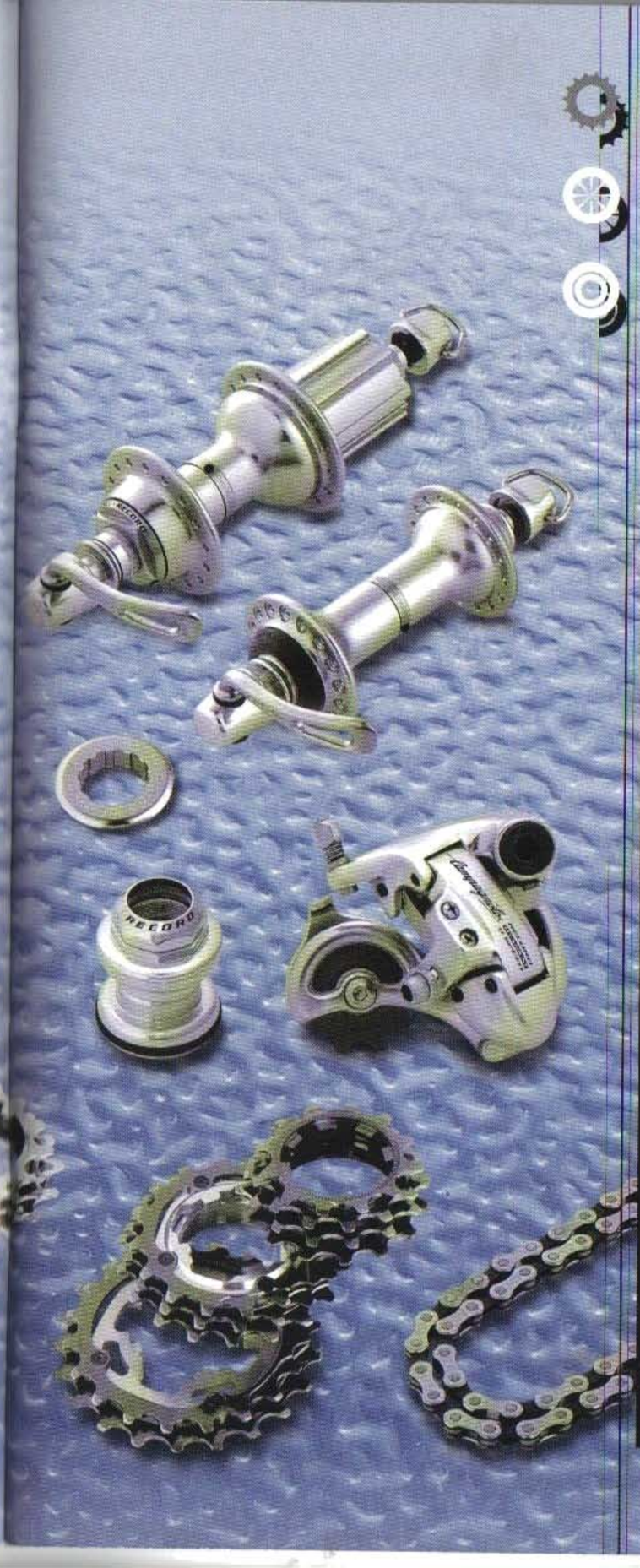
These incredible weight reductions were achieved thanks to the new rims, the use of a new generation of ultralight HPW hubs and, wherever possible, of stress proportioned spokes.



New Rims

The constant search for lightness and high performance has encouraged Campagnolo to redesign three rim models for the '99 range: Atlanta, Barcelona and Montreal.
The new profiles are derived directly from the rim projects developed for the new preassembled wheels and share their main features of: lightness, rigidity and braking performance.
The aerodynamic model is derived from the Zonda profile, while the two low profile models are derived from the rims used on the front Climb-Dynamic wheels.


3 YEARS WARRANTY
RECORD
Campagnolo

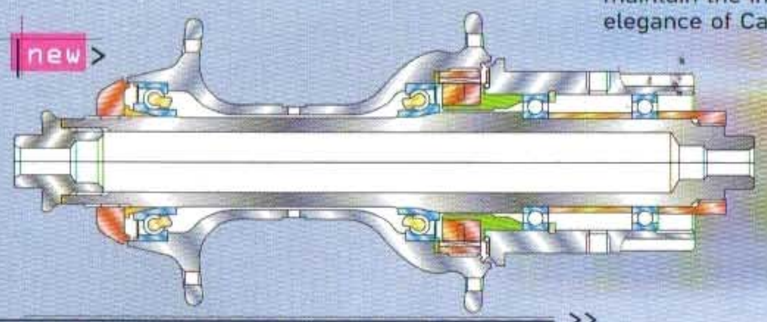

RECORD
Campagnolo



New Record hubs

New hub shells

The Record hub shells have been completely redesigned, exploiting the extraordinary mechanical characteristics of 7075 aluminum alloy which mean that wall thicknesses can be made even thinner at the same time as increasing cross-sections and achieving generalized optimization of design. This kind of design approach - usually defined as "oversizing" - makes it possible to develop products which are both lighter and stronger (axially and torsionally).
Anodized finishing and modern design maintain the incomparable class and elegance of Campagnolo styling.



New axles

Even the new "oversized" axles are made of 7075 aluminum alloy - which is lighter than titanium and, precisely because of the oversized cross-section, stronger than steel.



New bearing system

The new bearing system is an intelligent combination of very high performance and extremely easy maintenance. Unrivalled smooth movement is flanked by instant adjustment of play even with the wheel mounted on the bike, while the bearings can be disassembled/reassembled in record time for all cleaning and lubrication work.
Speed and simplicity of all maintenance operations are ensured by the use of ball bearing cages and twin-cone, self-centering bearing races which can be removed and refitted by hand no longer requiring an axle system with a press-fit cone.
Perfect dimensioning of cone and cup cross-sections means that more ball bearings can be used than is the case with comparable sealed bearings - without increasing the weight. The additional ball bearings lead to a significantly improved load distribution, thereby ensuring greater sturdiness and less wear.
All (front and rear) hubs equipped with the new bearing system use one and the same bearing size and type, making all maintenance operations extremely simple and fast, in keeping with the best Campagnolo traditions.





New freehub body

Once again, the use of 7075 aluminum al-loy has helped achieve even further reductions in weight, a feature implemented by optimizing wall thicknesses and slimming down the cassette supporting collar.
Perhaps even more interesting from a technical point of view is the new fixed pawl system which means that the freewheel can be disassembled/reassembled without requiring any tools!
The pawl carrier ring is still made of titanium, the ideal weight-saving material for this type of application.



Record



New adjusting sleeves

The new adjusting sleeves - identical for both front and rear hubs - are threaded onto the axle and push against the inside of the internal bearing race via a floating cone locator: this system enables perfect and instantaneous adjustment of play with the use of an Allen wrench, even while the wheel remains assembled to the bicycle.
The adjusting sleeve is marked with the group name "CAMPAGNOLO RECORD".

New front hub

The front hub is not only lighter and stronger than before but the flanges have been moved outwards to achieve a wheel with even better dishing.

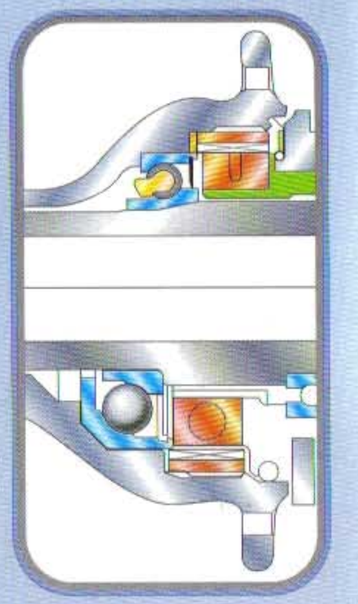


New rear hub

The new rear hub is significantly stiffer and lighter than the previous model (-75 grams).



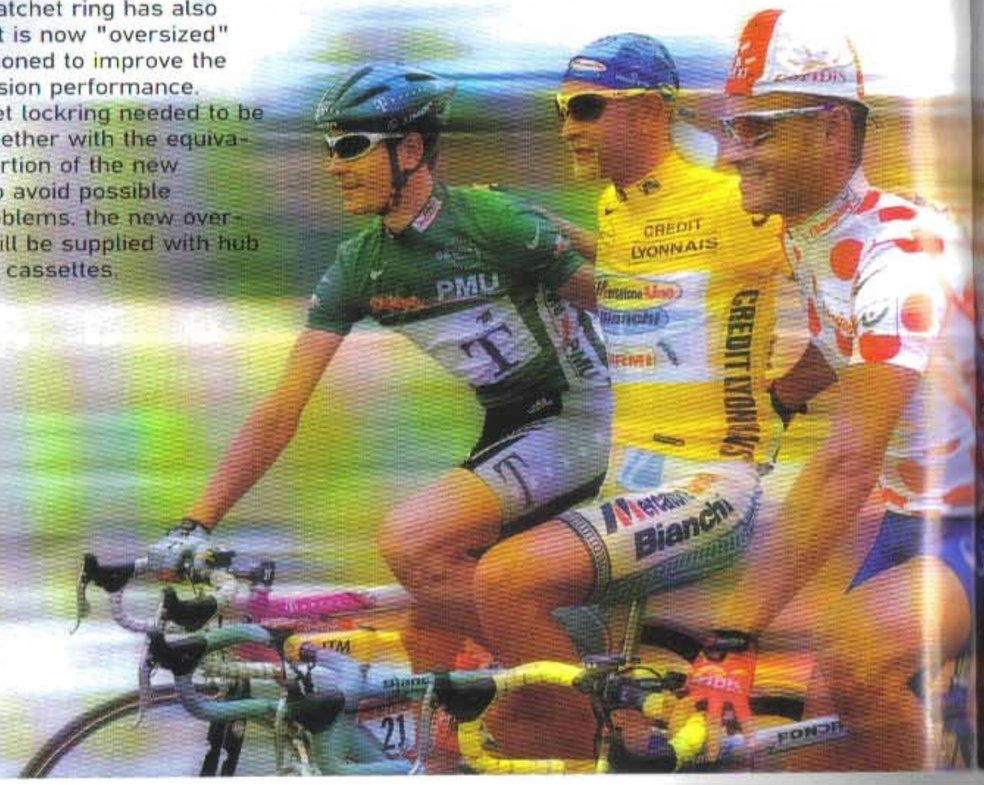
Using 7075 aluminum alloy has made it possible to completely redesign shapes and thicknesses, as well as to reposition the right-hand bearing a few millimeters outwards achieving a wider support area and further improving the already high stability and rigidity performances of the hub.



New Record '99 rear hub

Record '98 rear hub

The freewheel ratchet ring has also been modified: it is now "oversized" and was repositioned to improve the torque transmission performance.
Also the sprocket lockring needed to be "oversized", together with the equivalent threaded portion of the new freehub body. To avoid possible compatibility problems, the new oversized lockring will be supplied with hub and not with the cassettes.



New Record Ergopower



The new integrated Record controls more than ever represent a combination of various technologies, all derived from the aerospace industry. Research into composite materials was initiated precisely in this sector, following decades of experience with aluminum alloys, to meet the need for much lighter materials, at the same time, ensuring equivalent or even superior mechanical features. The very idea of composite materials is as simple as it is ingenious: a combination of materials offering different, but complementary physical and mechanical characteristics creates a final product which brings together the strongpoints of each component without any of the undesired drawbacks. The new Ergopower levers in the Record groupset feature two different types of composite materials, both using carbon fibers and resins. The materials are customized as regards the shape and function of the levers themselves.
The structural component of the brake lever is made up of layers of carbon overlapping at 90°, while the finger shifting lever is made from extra-long, high density carbon fibers.
Both levers are entirely made of composite materials, since the use of cores or metallic reinforcements of any kind - which would only make the items pointlessly heavier - is superfluous.
The outcome is a set of Ergopower levers weighing around 23 grams less per pair and boasting an extremely distinctive appearance while offering the same performance characteristics of aluminum alloy levers.

Record

Record Pro-Fit pedals

Pedals are the key element in power transmission: this is why Campagnolo pays such detailed attention to them: they are designed and manufactured entirely by the company itself. These pedals are the outcome of advanced technology and careful design and embrace all the performance and reliability features typical of all Campagnolo products.
Compact dimensions and low weight (just 265 g/pair) are the result of new technologies and meticulous selection of materials: ergonomic studies of pedaling have made it possible to optimize the amount of aluminum used and its configuration in the body, thereby attaining the ideal compromise between sturdiness, lightness and the width of the foot support surface.

A further reduction in weight is achieved by using titanium for the axle.
The bearing system comprises three rigid radial sealed bearings which make the axle-body unit more compact and minimize any flexing of the axle. The pedal axle is secured to the body of the pedal by an aluminum lockring used on all models in the range.



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Record bottom bracket

"Oversized" is the key word in the design of the bottom bracket: an extremely delicate point where rigidity and smooth movement must be maximized. The design to fit an oversized axle-pin, lightened internally thanks to the advanced technology employed by Campagnolo, means that a truly lightweight component can be produced to provide exceptional performances in terms of both axial and torsional rigidity. The bearing system relies on three sealed bearings leading to a perfectly smooth bottom bracket. The arrangement of the bearings (two on the drive side and one on the non-drive side) is designed to provide greater rigidity wherever pedaling action could generate even the slightest bending stresses, while the carbon fiber cartridge ensures maximum lightness.



Record

The special design of the engaging/release spring means that release force can be regulated through an adjustment screw. A display on the rear of the pedal provides an approximate visual indication of the release tension required to release the foot from the pedal itself.
The cleats are compatible with the classic 'three-bolt' pattern (the most common on the market) and are available in two versions: fixed or with play.

Record MK2 sprockets

Lightness and rigidity: that is the question. Exa Drive MK2: this is the answer. The Record sprocket set itself encompasses the answer to the question all riders ask: combine low weight with precise and immediate response to accelerations.

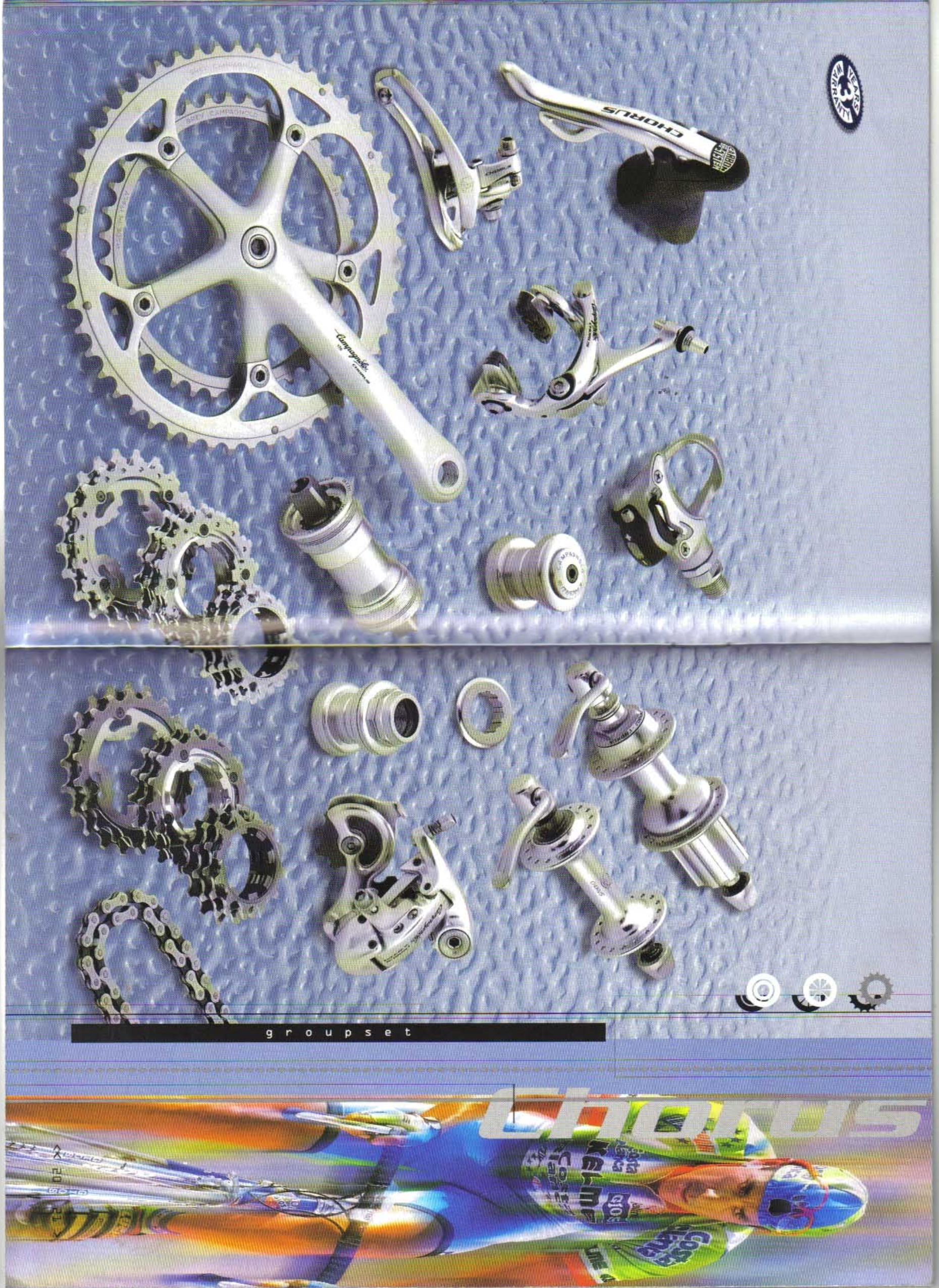
The system with 7075 aluminum supports reduces the amount of steel used for the individual sprockets, while the use of this aluminum alloy ensures a more rigid structure. The sprockets of the first pre-assembled carrier are of titanium, while the second preassembled unit and the remaining four individual sprockets are available in steel or titanium (optional). The MK2 cassette thus configured also ensures easy and rapid assembly on the freehub body.



Record headset

Cyclists are particularly sensitive about headsets: friction or imprecision are noticed immediately. The headset must therefore combine reliability and performance.
Campagnolo produces two headset versions - threaded and unthreaded - both ensuring high performance and reliability and characterized respectively by higher comfort and greater rigidity.
In particular, the threadless headset boasts superb workmanship and performance characteristics making it extremely easy to adjust (thanks to the self-centering system on the upper bearing) - using 7075 aluminum for the main adjusting bolt and carbon fiber for the dust cap also makes this headset appreciated for its combination of lightness and strength.





groupset

new >



New Chorus Ergopower

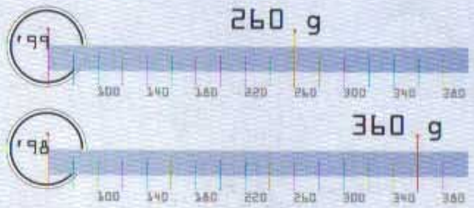
The Chorus Ergopower controls have also been improved and are now much lighter thanks to the use of 7075 aluminum for the main shaft as well as on various parts of the internal mechanism. While retaining the ergonomics and compactness of the former controls, the new model has the main central shaft of 7075 aluminum and a cut out on the main finger shifting lever contributing to achieve a 15 g weight saving per pair of controls (compared to 1998 version).
The design of the body was also researched to bring the lever much closer to the handlebars, with the effect of increasing the number of grip positions on the controls and making riding more comfortable and safer, especially when braking. The central shaft of the shifting mechanism rotates on bearings which increase the smoothness of the system and a compensation spring assists the shifter operation.

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chorus groupset

New Chorus rear hub

The design of the new Chorus rear hub was developed alongside the Record hub and shares its fundamental characteristics, while achieving an extraordinary reduction in weight of 100 gr over the '98 model for an exceptional final weight of just 260 grams.



As a result, the 7075 aluminum alloy axle and hub shell are oversized (both anodized), the freehub body is lightened

< new



with fixed pawls, the new standardized bearing system places the rear right-hand bearings in a new position and an oversized threaded lockring is used to hold the hold the cassette onto the freehub body.
Unlike the Record model, the Chorus hub has a steel pawl carrier ring and all lubrication ports have been eliminated.
The hub comes with Chorus quick release skewers.



Naturally, the Chorus rear hub provides the same performance levels of the Record hub, in terms of both greater efficiency in power transmission thanks to greater axial and torsional strength as well as offering instantaneous adjustment of play - even with the wheel assembled to the bicycle!

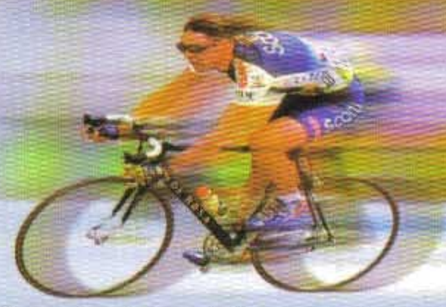
New Chorus front hub

The new Chorus front hub is basically unchanged mechanically while its design has been up-dated to reflect the appearance of the rear hub.



< new

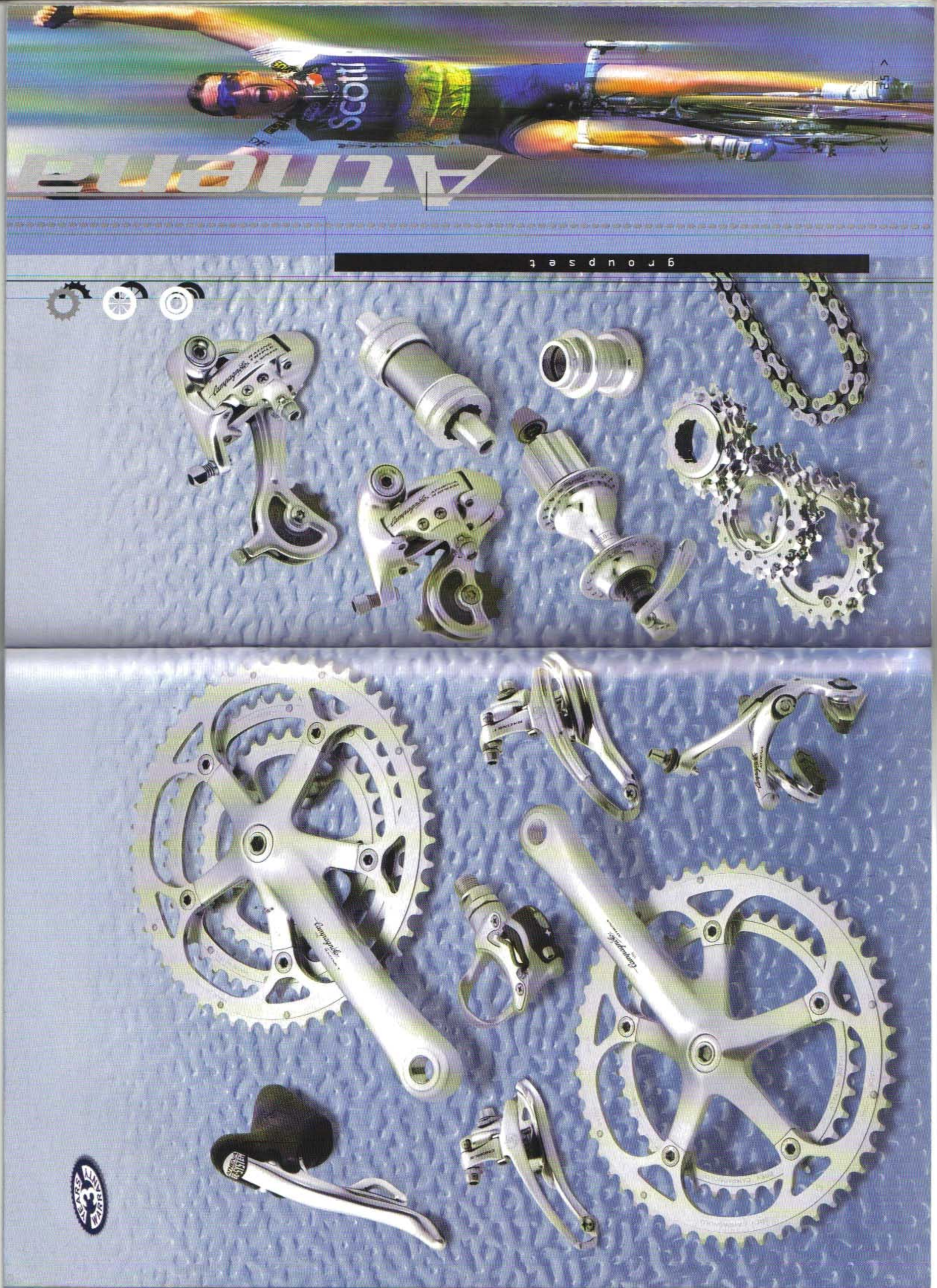
Chorus



Chorus Pro-Fit pedals

Reliability and durability are the concepts which best describe Chorus pedals. Light and compact, yet at the same time providing excellent foot support, they are fitted with steel axles which ensure astonishing rigidity and durability. The pedal body rotates on an adjustable cup/cone bearing system and is secured to the axle by an aluminum lockring.




Athena
scott
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Campagnolo
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3 YEARS GUARANTEE

New Athena Ergopower

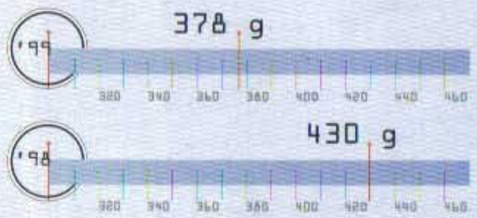


< new

With the aim of improving the man-machine interface and riding safety, the design of the 1998 Record and Chorus controls is now extended across the entire range of 9-speed group sets.
Greater safety is achieved throgh special ergonomics which make the controls more compact and lighter: this special design entails a modification of the hand-rest area and has made it possible to shorten the body by 2 mm moving the brake blade 8 mm closer to the handlebars, with special benefits for riders with small hands. Grip on the controls is therefore much more comfortable and facilitates braking while the hands rest on the body of the control system itself.
The new finger shifting lever is lighter, thanks to a cut-out, and 1 cm longer: this makes derailleur shifting even smoother.
Other improvements have been made to the moving internal parts, where the use of bearings has made it possible to achieve lower friction and less wear.

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Major efforts were also made to obtain further weight reductions: the overall weight of the controls has been cut by 52 g compared with the previous model.



Chorus Pro-Fit pedals for the Athena

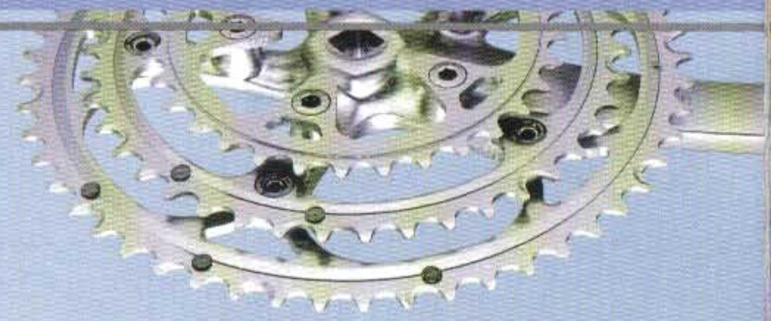


The Athena set will also be standard equipped with Chorus pedals. Light and compact, at the same time as offering an excellent support base, this pedal is characterized by the use of a steel axle that guarantees excellent rigidity and durability.
The body of the pedal runs on adjustable cup&cone bearings and is fixed to the axle by an aluminum lock nut.

3x9 Racing Triple drivetrain

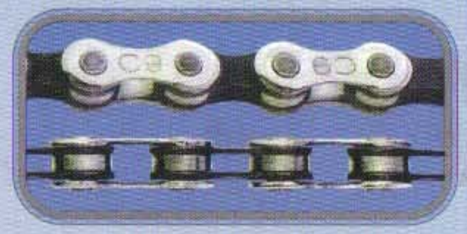


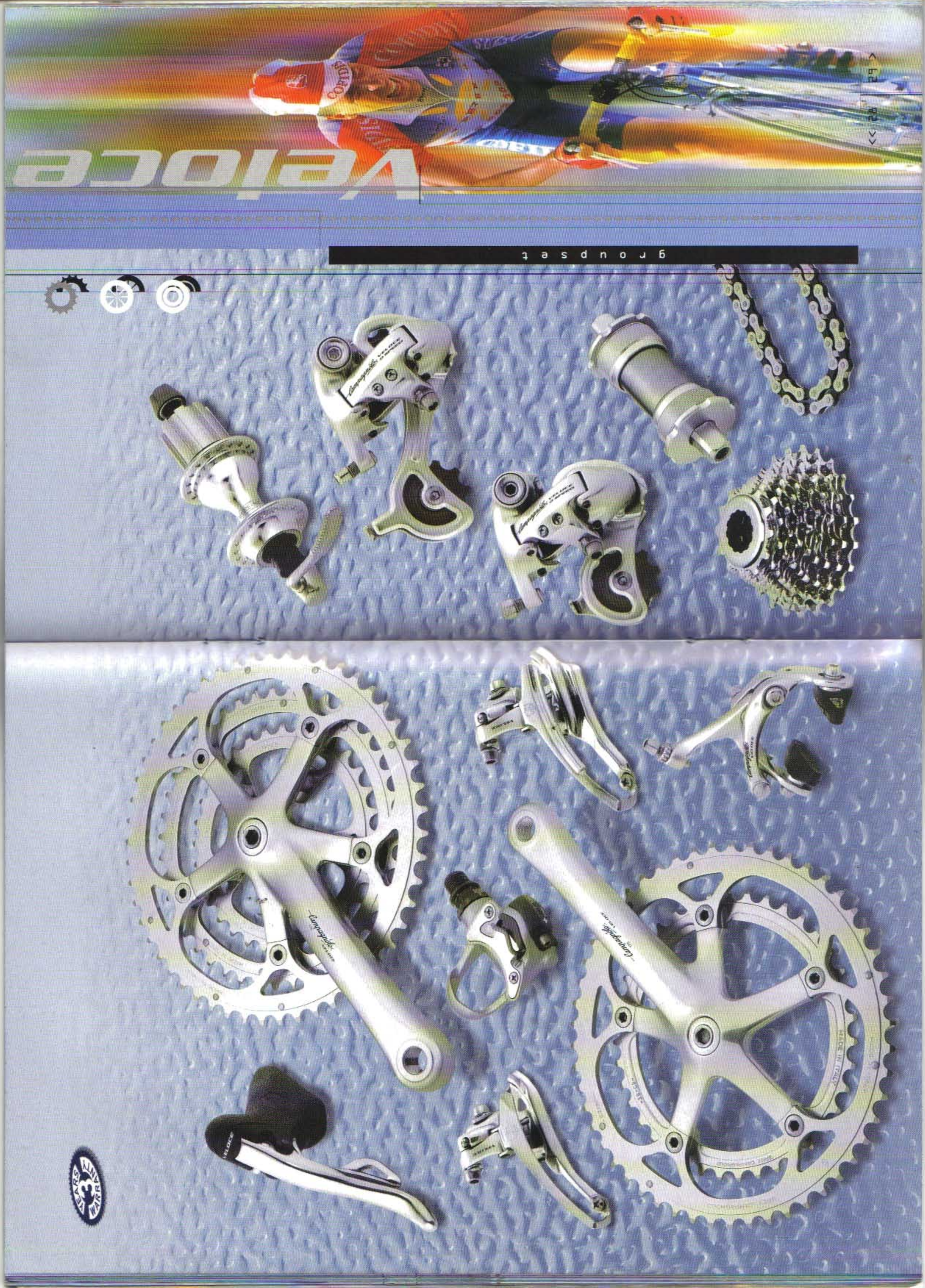
Every day, more and more enthusiasts take part in major cycling events called Century rides - many of whom, because of the difficulties of the course and insufficient training, opt for a triple drive-train to tackle the most demanding climbs.
Campagnolo was the first company to market a triple crank-set specifically designed for racing bikes: a product which represents the outcome of applying the best materials and the most advanced technology. The 3x9 drivetrain (the first ever on the market) thereby offers a wide range of gearing for needs of biking enthusiasts.
Four elements particularly distinguish the Racing Triple 3x9 drivetrain: front derailleur, rear derailleur, bottom bracket and crankset. All these components are offered as optionals for the top-of-the-line Record, Chorus and Athena component sets, and this is why so much attention was dedicated to the smallest details, regarding both quality and aesthetics. Front and rear derailleur boast special details, such as, respectively, a longer cage and a wider front derailleur cage which will reach down to the smaller chainring. The triple crankset is compatible with any of the previous 8-speed drivetrains.



Record chain for the Athena

The chain is one of the elements which means that the Athena set can rightly be considered the prelude to the top end of the Campagnolo range. The same chain supplied with the Record and Chorus sets is now also available for this set.
The Campagnolo 9-speed chain (Floating Link Action patent) ensures a perfect interface between chainrings, sprockets and derailleur-rollers thanks to special chamfers on the chain link plates.
Another quality feature of this chain is the nickel-teflon coating which ensures a perfectly smooth movement of the links.



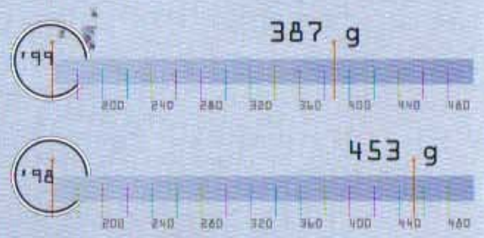

Velocé
gruppset



New Veloce Ergopower

< new

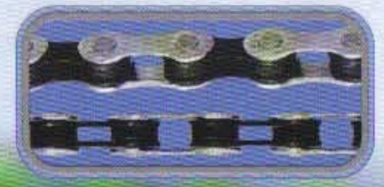
The new design is more ergonomic, lighter and more compact - even for the Veloce Ergopower controls. This design gives a mid-range group-set the look and feel of the top of the line componentry.
As with the '98 Record and Chorus models, Veloce Ergopower levers now boast a more compact, lighter geometry which improves grip on the control bodies and ensures safer riding - especially when using the brakes with the hands resting on the Ergopower bodies. The new finger shifting lever has a cut-out, is lighter and 1 cm longer to facilitate derailleur shifting. The shifting mechanism moves on bushings. The overall weight of the new Ergopower controls is just 387 g, a reduction of 66 g over the '98 model.



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Veloce chain

More silent drivetrain operation and an improved interface between the parts have also been achieved for the Veloce chain, based on the advantages of the Floating Link Action patent. Unlike the top-of-the-line chain, the Veloce chain has burnished bushings and internal link plates and nickel-chrome plated external link plates. The perfect interface between chainrings, derailleur rollers and chain - thanks to the special chamferings of the Floating Link Action patent - optimizes drivetrain performance, while making drivetrain operation even quieter.





New Veloce Pro-Fit pedals

The pedal body is now lighter and more compact. Its geometry leads to an improved cornering angle and reduces the distance from the center of the pedal axle to the top of the pedal's cleat support surface to a mere 10.5 mm.
As for the Chorus pedal the Veloce pedal has a steel axle, which runs on two radial sealed bearings; it is secured to the body of the pedal by a resin cartridge-type retaining lockring. Pedal installation and maintenance have been simplified by the standardization of the lockrings and nuts and by the fact that standard sized tools are used for all maintenance operations.
As with the Record and Chorus pedal, the special design of the engaging/release spring means that release force can be regulated through an adjustment screw. A display on the rear of the pedal provides an approximate visual indication of the release tension required to disengage the foot from the pedal.
The cleats are compatible with the classic three-bolt pattern (the most common on the market) and are available in two versions: fixed or with play.

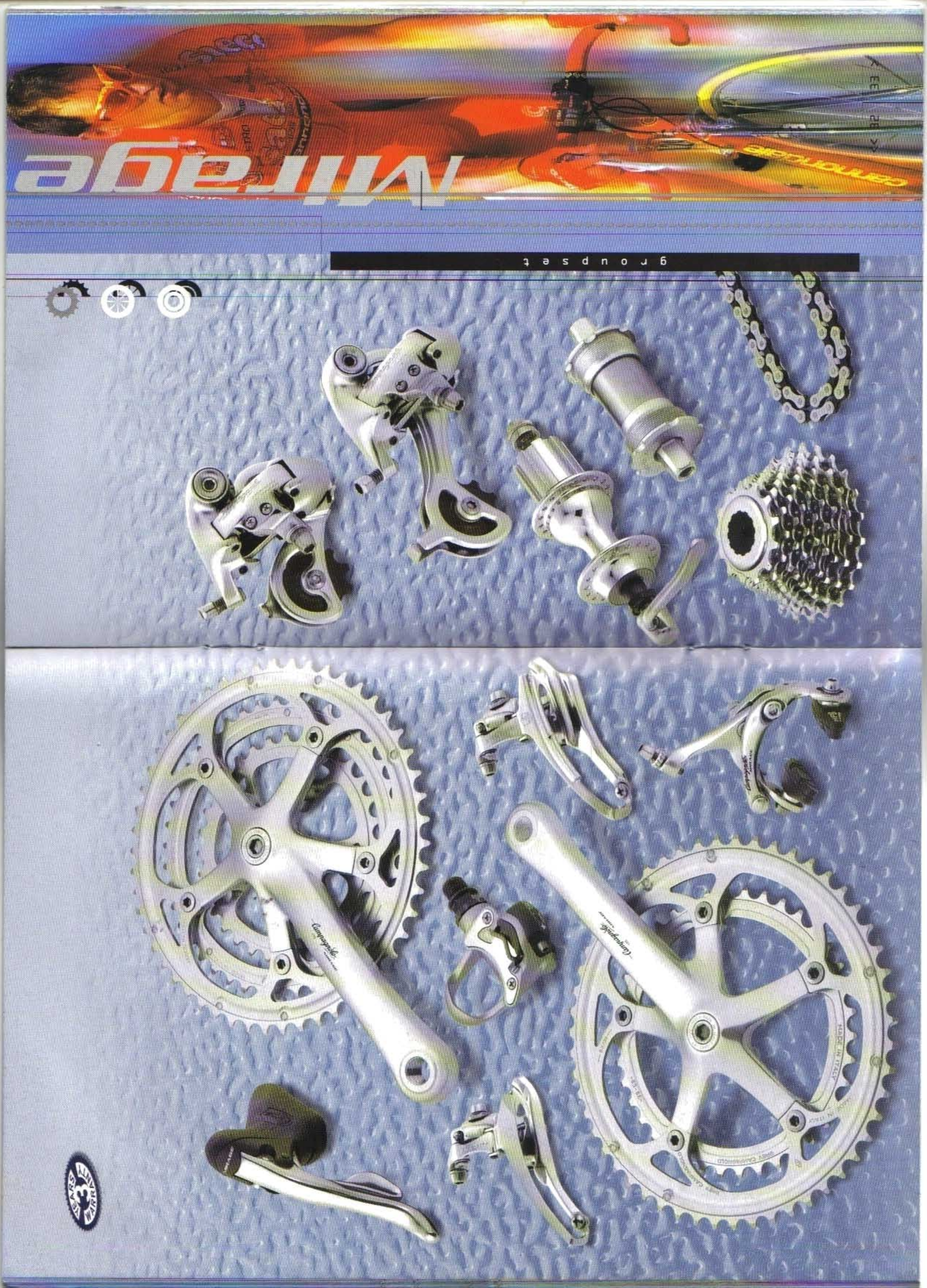


< new



Veloce brakes

Veloce brakes perfectly interpret Campagnolo's design philosophy, focused on safety, comfort and durability.
The DUAL PIVOT system ensures a whole range of advantages for the braking mechanism. The brake levers can be operated with much less effort while achieving the same braking power: the calipers are made of cast aluminum with bushings for smooth operation.
The brake pads, unlike the top-of-the-line systems, are not mounted into aluminum brake shoes, but have an integrated threaded portion, which allows them to be secured directly on to the caliper arms. This kind of brake pad is equipped with built-in wheel guides: a small screw on the side of the caliper makes it possible to fine tune brake pad adjustment and to secure the pads in a centered position in relation to the rim.


Nitrage
groupset
Campagnolo
Campagnolo
Campagnolo
YEARS
WARRANTY

New Mirage 9 Speed Ergopower



Lighter and more ergonomic for even better performance: a great leap ahead for the Mirage group set, which is now equipped with a 9-speed drivetrain as all top-of-the-line component sets.
Together with the changes required for a 9-speed drivetrain, Mirage Ergopower shifters have undergone a major weight reduction of 64 g thanks to the use of aluminum for the main finger shifting lever and a more compact design of the control body. All this ensures safer riding even with the hands resting on the Ergopower body.
The main shaft holding the internal shifting mechanisms is made of steel and rotates on bushings: this mechanism is also fitted with a compensation spring which makes derailleur operation even smoother.

new >

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New 9 Speed chain

As with all the other sets, the 9-speed drive train adopted for the Mirage group set, required a chain that only Campagnolo could design and produce - now used on both the Veloce and the Mirage sets: improved appearance and longer life are achieved thanks to the nickel-chrome plating of the outer link plates, while the rollers and inner link plates are burnished. The Floating Link Action patent, with its special chamferings as on the top-of-the-line chains, ensures a smoother interface between the elements making up the drivetrain as well as a more fluid and silent drivetrain operation.

New Mirage 9 Speed sprockets

The new Mirage 9-Speed sprocket set is lighter and more functional.
The cassettes are made up of individual sprockets with a galvanized finish and are available in three different combinations.



new >



Mirage

New Mirage 9 Speed derailleur

The new design and technical features of the new Mirage rear derailleur are dictated by the requirements of the 9-speed system. Aesthetics are improved thanks to a new, more rounded design, a new upper pivot bolt and recessed adjustment screws. Mirage 9 Speed is embossed on the front plate of the derailleur parallelogram.
Technically speaking, the new derailleur encompasses all the functional improvements required for 9-speed operation: the rollers are narrower to optimize the interface with the new, narrower chain and even the derailleur cage is thinner to maintain an adequate clearance to the driveside spokes of the rear wheel.



< new >



< new

New Mirage rear hub

Even the rear hub has been updated to adapt to the 9-speed drivetrain, while becoming even lighter.
The axle and pawl carrier ring are made of steel while the freehub body is of aluminum. Thanks to this innovation, the rear hub is now 58 g lighter than the previous version.
The freehub body rotates on two radial bearings, a solution which minimizes maintenance requirements.

Mirage bottom bracket

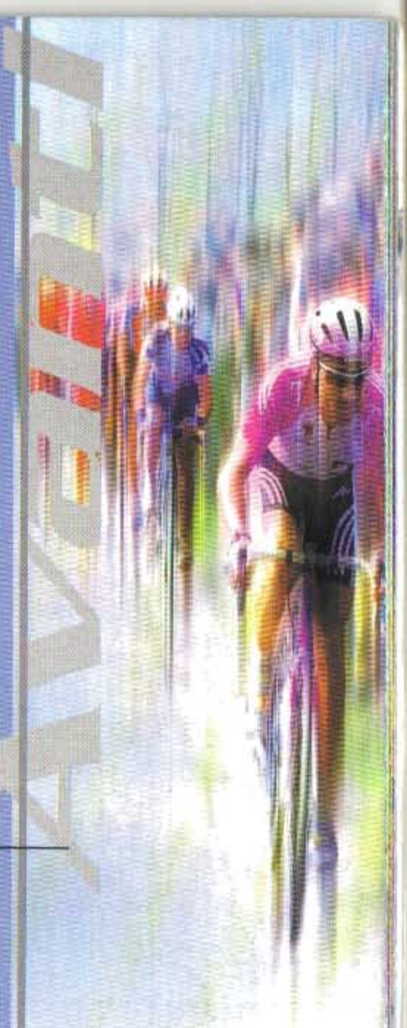
The Mirage set is equipped with a top-quality bottom bracket, designed specifically to meet the needs of an important market segment demanding technologically up-to-date materials and components to ensure smooth operation and unbeatable durability.







AVANTI



groupset

The entry groupset in Campagnolo's component range certainly lives up to its well-known characteristics of reliability and durability: the Dual Pivot generation of brakes and the new Mirage-derived derallieur fitted with the Avanti set are further reasons, for anyone buying a bike for the first time, to choose Campagnolo. The Avanti set ensures the functionality and unchanging value over time that have always distinguished Campagnolo products.



Record Pista groupset

The Record Pista set, over and above a unique history of victories worldwide, shares PRO-FIT pedals with the Record road-race set, having a titanium axles, and, from this year, also the ultralight headset. Other components are specifically designed for Pista, such as the hubs fitted with oversize flanges which allow construction of the extra-rigid wheels that track-racers consider indispensable.



Chrono / Triathlon components

In time trials and triathlon competitions, the demand for aerodynamic performance of the rider/bike combination has encouraged the development of specific frame geometries and components. Campagnolo offers riders looking for gearing ratios (larger than a 53 chain-ring) a set of special extralarge chain-ring combinations that share all the characteristics of the famous Exa-Drive system, such as synchronized engaging pins and ramps. For riders who prefer an elongated riding position requiring aero handle-bars, Campagnolo offers its Bar-End shifters, ...of course, indexed for 9 Speed.

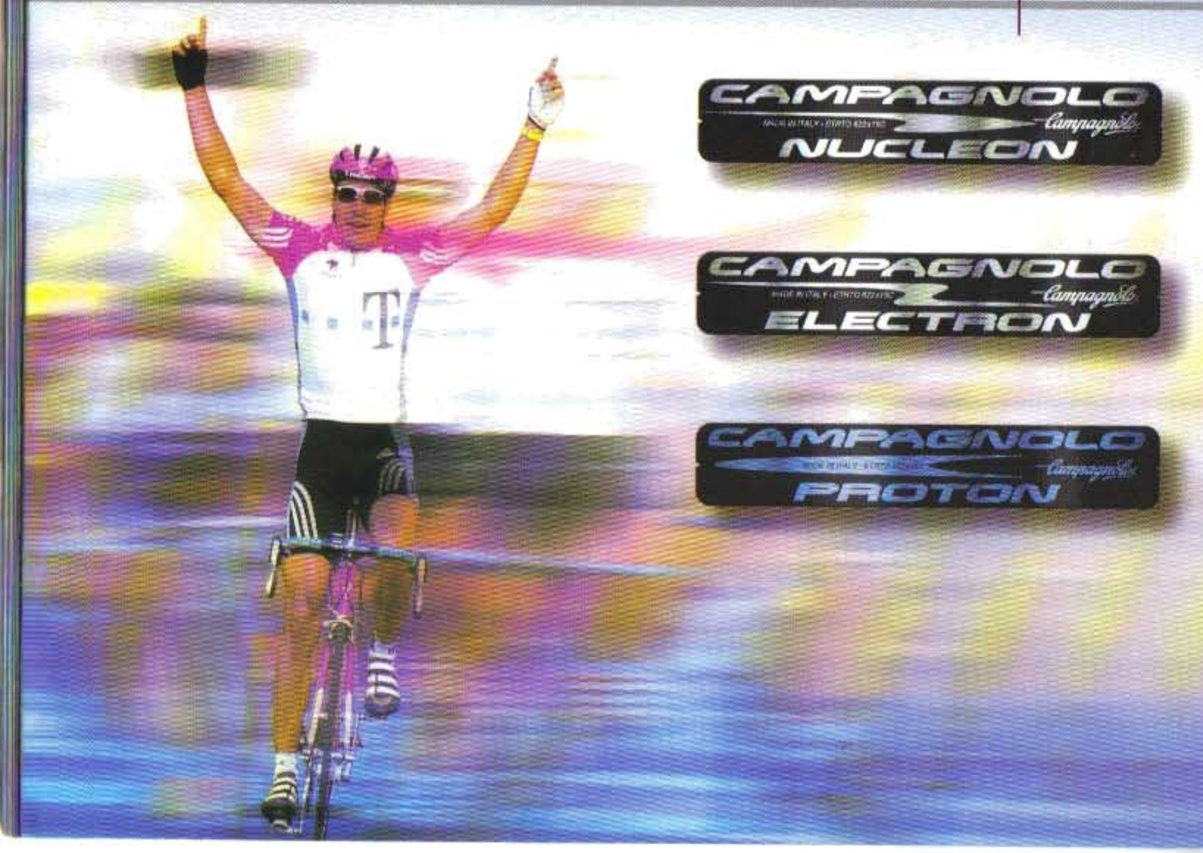


Climb-Dynamic wheels

Special rims

The new rims for Climb-Dynamic wheels were designed in every detail to ensure "no compromise" performance. Only the best extrudable aluminum alloy is used: 6082 T6.
The polygonal cross-section of the rim leads to an extremely strong structure; at the same time, weight has been reduced together with the number of spokes.
The standard eyelets are replaced by alloy plates, which are lighter and distribute spoke tension more evenly.
The sides of the rim are machined on a precision lathe after anodizing to ensure more powerful, progressive and constant braking performance under all riding conditions. The dimensions and positioning of the braking surfaces have been standardized across the '99 wheel range to offer competition riders fast wheel change without having to readjust the brake pads.

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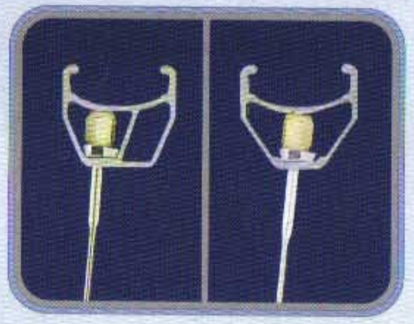


Asymmetrical rear wheels rim

Since the structure of the rear wheel is intrinsically weaker because of the unfavorable RH dishing which gives rise to imbalanced spoke tensions and lateral wheel stability problems, Campagnolo has completely redesigned the entire product to tackle and solve the problem at the root. The result is a radically innovative rim designed exclusively for the rear wheel which, thanks to an ingenious asymmetrical cross-section with differential thicknesses and structural reinforcements, makes it possible to move the spoke fitting points as much as 3 mm further to the left, resulting in a much more stable and evenly-balanced wheel, with unprecedented lateral rigidity.

Front wheel rim

The front wheel has a symmetrical and balanced tensional structure which made it possible to develop an extremely light rim without in any way sacrificing reliability and durability - in the best Campagnolo traditions.



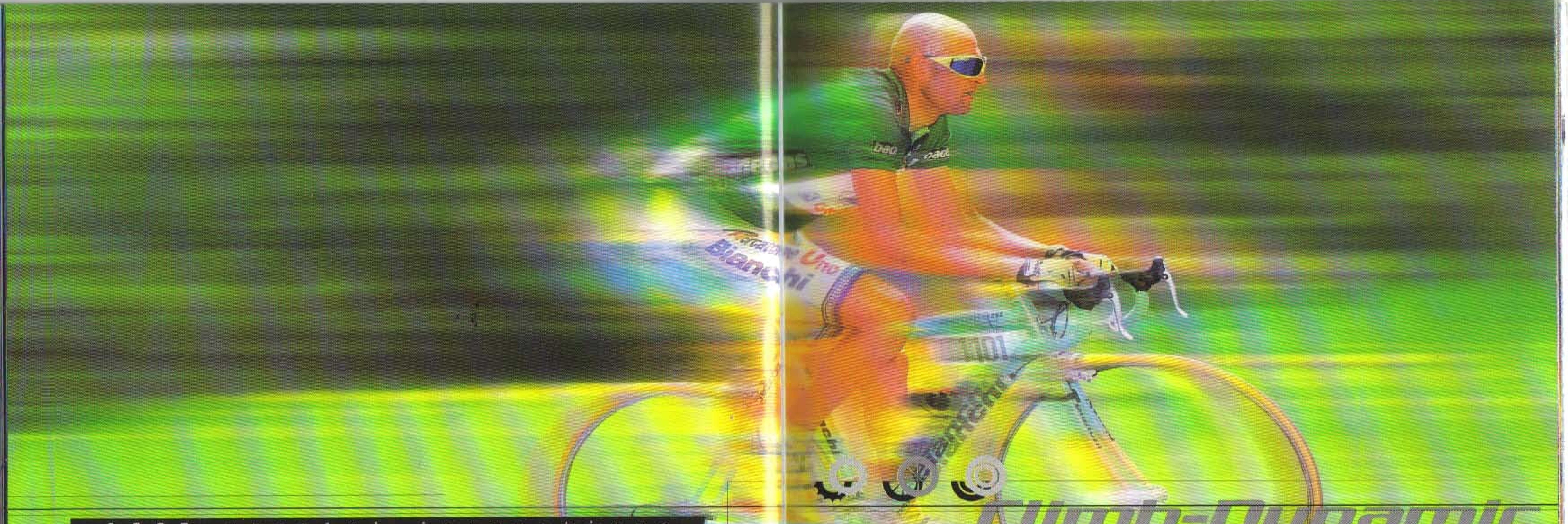
Climb-Dynamic

Spokes

The development of a new generation of wheels offering unprecedented technical features and performances would not have been possible without the introduction of new concepts and radical innovations for wheel spokes.
Four major innovations distinguish the spokes used on the '99 Climb-Dynamic wheels: compensated dishing on the rear wheel as already described in relation to the new rear wheel rims, the "ULTRALINEAR" geometry, the new system of spherical coupling nuts and plates and the differential cross-section of the spokes in relation to the specific tension inside the wheel.

"ULTRALINEAR" geometry

Essentially the "ULTRALINEAR" Geometry stands for eliminating all stress points due to spoke bending so that the spokes remain perfectly straight both at the hub and the rim. The classic elbow spoke geometry generates two kinds of problems: greater risk of breakage as a consequence of the shearing stress exerted on the spoke and the inferior structural rigidity achieved with an equivalent spoke tension.



Climb-Dynamic

Spherical nuts and plates

The new self-positioning, spherical coupling nut and plate system results in spokes that always function in the best possible way - remaining tensioned in a straight line - without requiring special alignment or angle-setting procedures: every spoke tensioning nut is seated in a spherical coupling plate which keeps the spoke perfectly aligned to the required spoke angle, thereby achieving a uniform spoke tension around the whole rim diameter and avoiding the tensional imbalances typical of the conventional nipple/eyelet assembly. 7075 aluminum is used to maximize weight reductions.



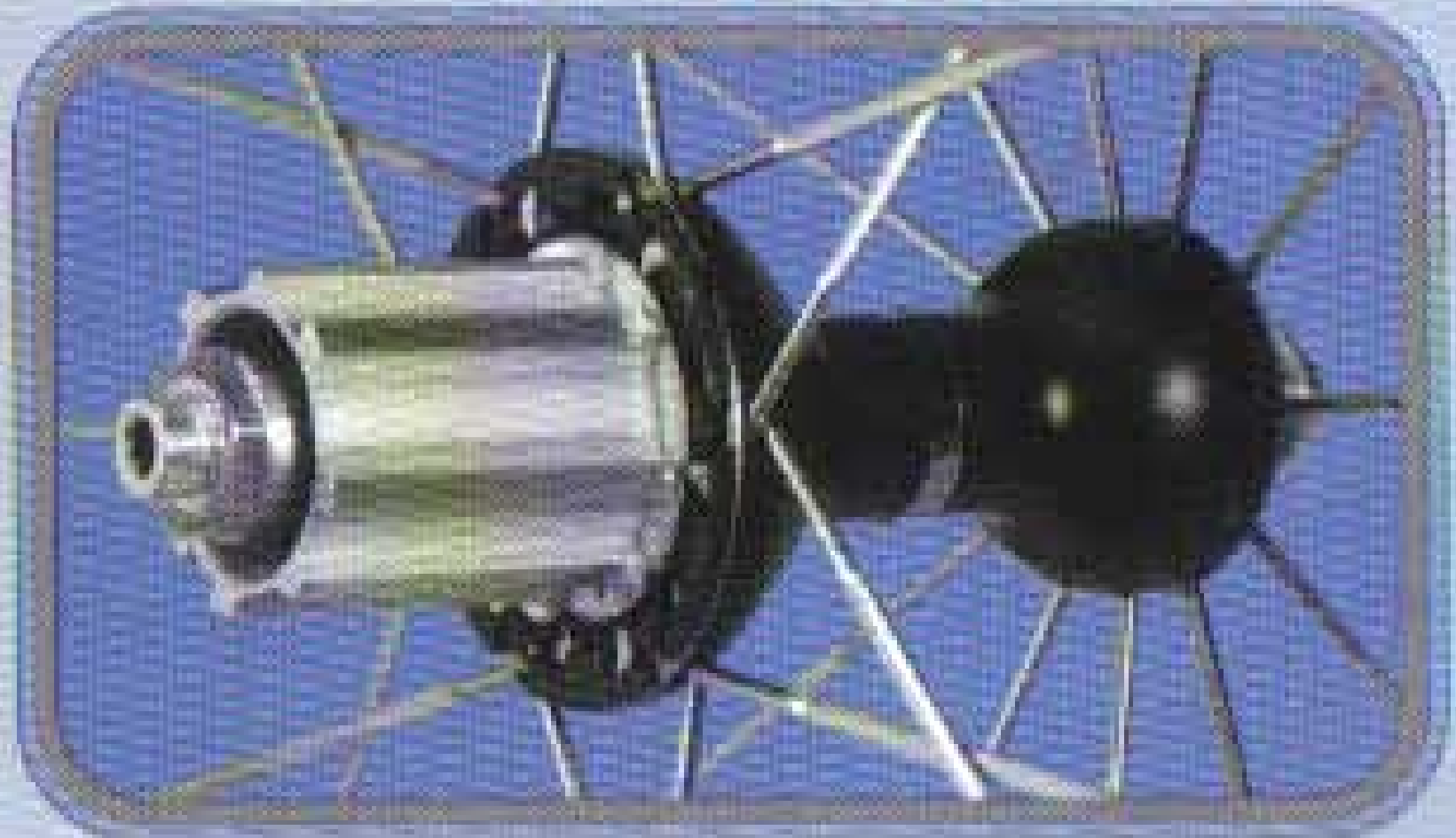
Differential spokes



Wheel spokes are subjected to very different loads depending on their position. Tension is significantly higher on the RH spokes of the rear wheel. It is obvious that standardized spokes have to be dimensioned for maximum tension requirements, i.e. typically the driveside of the rear hub, meaning that the spokes used on the rear LH side and on the front wheel are inevitably oversized. For this reason, Nucleon and Electron wheels use front and LH rear wheel spokes with a smaller cross-section: they are therefore lighter without minimally affecting performance and reliability.

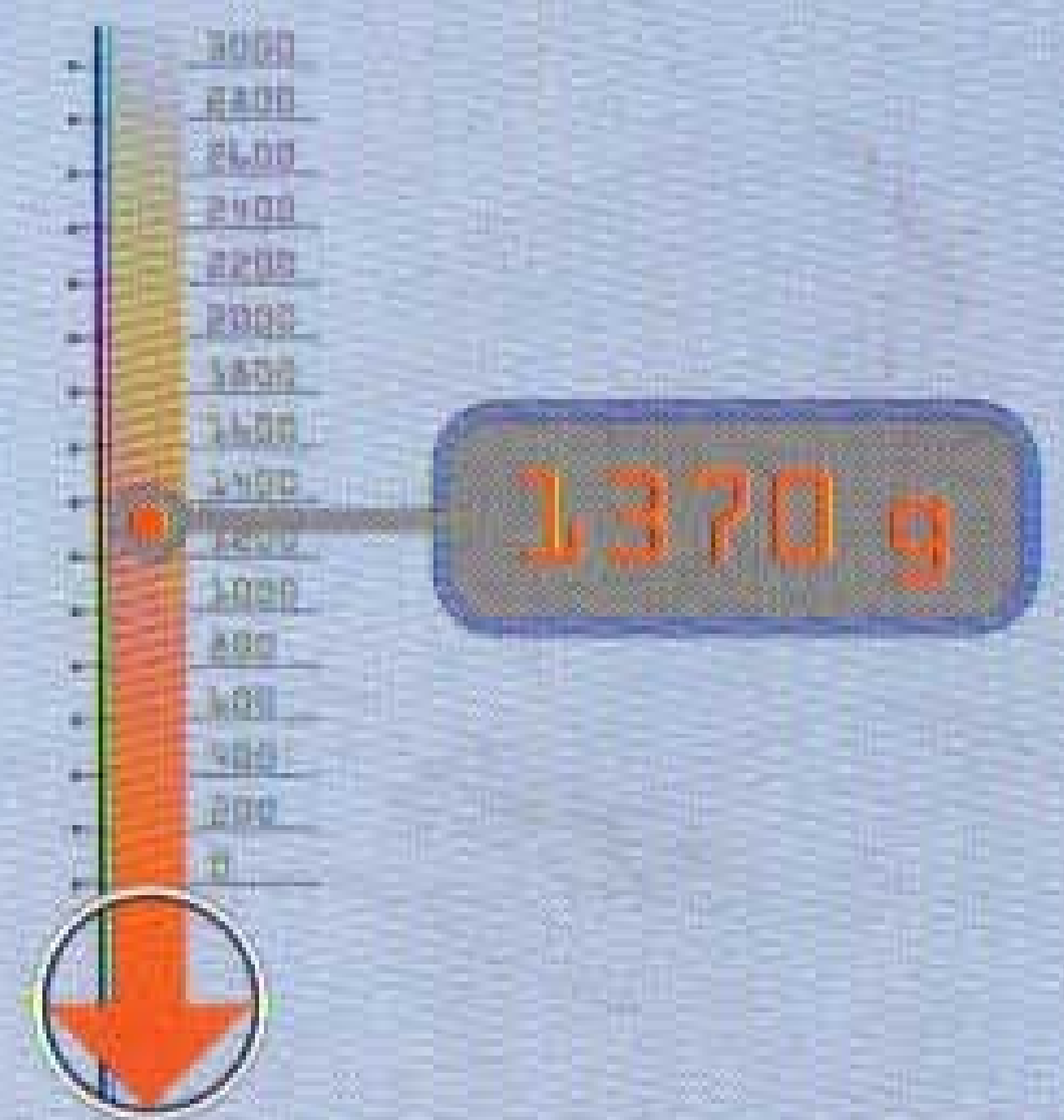
Hubs

The hubs on Nucleon and Electron wheels are directly derived from the new design developed for the '99 Record and Chorus hubs sharing all the innovations and performance features of the latter. They also boast the highly appreciated HPW design which has distinguished our wheels for years. The HPW hubs used on the Proton wheels are substantially unchanged.



Weight Reductions

The weights of the new wheels are incredibly low, starting with the amazing 1709 g for a pair of PROTON wheels down to the truly astonishing 1370 g for a set of tubular NUCLEON wheels.



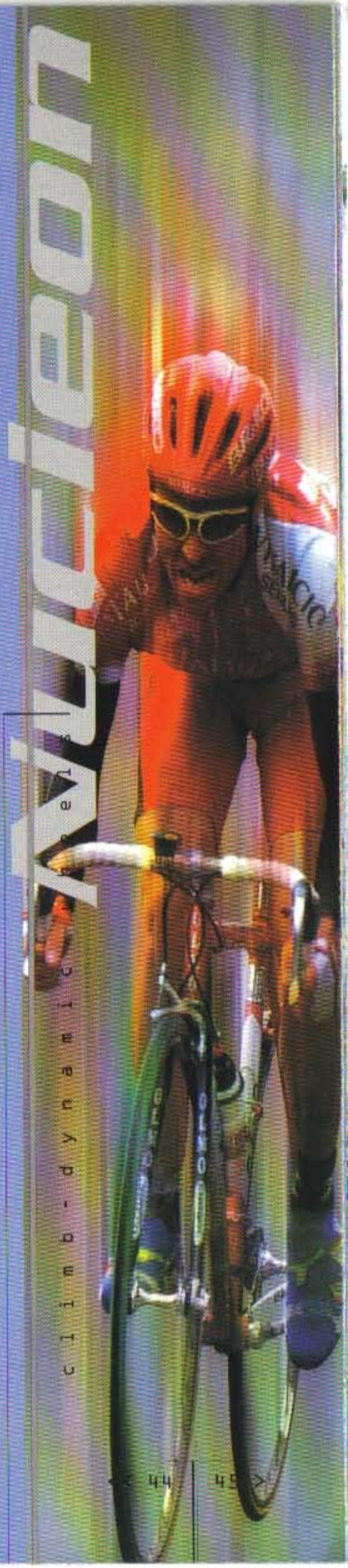
Nucleon

The technological evolution of the new Campagnolo Climb-Dynamic range is synthesized in this wheel: its weight alone speaks volumes: 1370 gr/pair! A wheel that reveals all its quality in races involving steep climbs, where lightness and lateral rigidity are highly appreciated.
The extraordinary performance levels of this wheel emerges in a series of characteristics that distinguish it from the rest of the range.

- 1370 gr/pair
- aerodynamic differential spokes (front, differential 2-0.9mm; rear, LH diff. 2-0.9mm/RH 2mm)
- HPW hubs derived from the new Record hubs
- fast lubrication holes
- pawl carrier in titanium
- Record quick-release







Nucleon

code	type	No. spokes	diameter	tire	tread	O.L.D.	Weight gr.
R-NU100*	front, road	22 aero	28"/700C	tubular	20	100	567
R-NU300**	front, road	22 aero	28"/700C	clincher	20	100	613
R-NU200*	rear, road 9 Speed	24 aero	28"/700C	tubular	20	130	803
R-NU400**	rear, road 9 Speed	24 aero	28"/700C	clincher	20	130	867

* R-NU600= pair of wheels (front+ rear, tubular) packed together
** R-NU500= pair of wheels (front+rear, clincher) packed together

Electron

Electron

The top of the Climb-Dynamic range is completed with the '99 review of the Electron wheel: this wheel, dedicated to long distance racing and time trials with numerous climbs, has been modified in line with the new design concepts, characterized specifically by technical details which have allowed a weight reduction of approx. 150 gr/pair.

- only 1546 gr/pair
- differential spokes, round cross-section (front differential 2-1.8mm, rear LH diff. 2-1.8mm/ RH 2mm)
- HPW hubs derived from the new Record hubs without lubrication holes
- steel pawl carrier
- Record quick-release



3 YEARS WARRANTY

Electron

code	type	No. spokes	diameter	tire	tread	O.L.D.	Weight gr.
R-EL302*	front, road	22	28"/ 700C	clincher	20	100	648
R-EL402*	rear, road 9 Speed	24	28"/ 700C	clincher	20	130	898

* R-EL500= pair of wheels (front+rear) packed together

Proton

R-PR302*	front, road	22	28"/700C	clincher	20	100	684
R-PR402*	rear, road 9 Speed	24	28"/700C	clincher	20	130	1026

* R-PR500= pair of wheels (front+rear) packed together

Proton

A technologically updated release of the Proton set including the innovations introduced to the whole range, with certain design details that improve performance even more; these wheels are still the ideal choice for mixed-terrain races with many climbs descents, as well as for spending many hours in the saddle thanks to the special comfort achieved by its design.

- 1710 gr/pair
- spokes, round cross-section
- Proton '98 derived hubs, without lubrication
- steel pawl carrier
- Chorus quick-release

3 YEARS WARRANTY







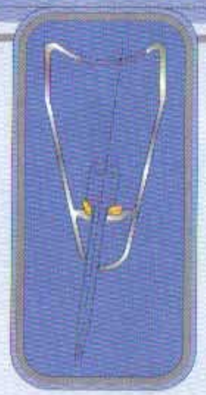
Fluid-Dynamic Wheels

Even the rims of Fluid-Dynamic wheels have been fully redesigned to further improve the performances of a category of wheels which revolutionized the industry. The lower part of the profile is designed to integrate with the "Ultralinear" spoke geometry, which allows to anchor the spoke in the rim bed without any bending whatsoever. The upper part of the profile has a machined braking surface to ensure powerful and uniform braking; the standardized brake surface dimensions and positioning adopted by the entire '99 wheel range, mean that wheels can be instantly changed without having to readjust the brake pads.



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"ULTRALINEAR" geometry



Spokes have always had one main weakness: they are sensitive to flexing. Conventional wheels employ spokes which have elbow bends on the side of the hub flanges; they are also forced to bend at the other end where they are fitted into the rim. It is a fact that any deviation of the spokes out of perfect linearity makes the structure of the wheel intrinsically weaker and less rigid. The ideal construction of a wheel requires that the spokes work exclusively through tension, without any chance of bending or flexing of the spokes. This is why Campagnolo has adopted the ultralinear geometry on all its new generation wheels.

Spherical nuts and plates

The production of wheels featuring an "ULTRALINEAR" spoke geometry required a spoke-to-rim assembly which would enable the spokes to maintain perfect linearity under all conditions. This lead to the development of the innovative 7075 aluminum spherical coupling nut and plate system, used across the range of '99 Campagnolo wheels, to eliminate the abnormal tensions typical in a conventional nipple/eyelet assembly; the new system is lighter and more uniformly distributes spoke tension around the rim diameter.

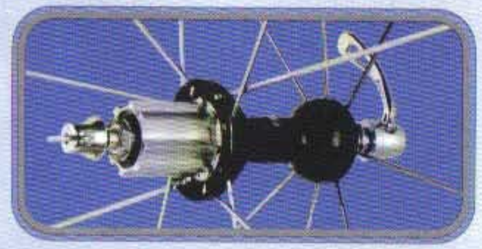


Differential spokes

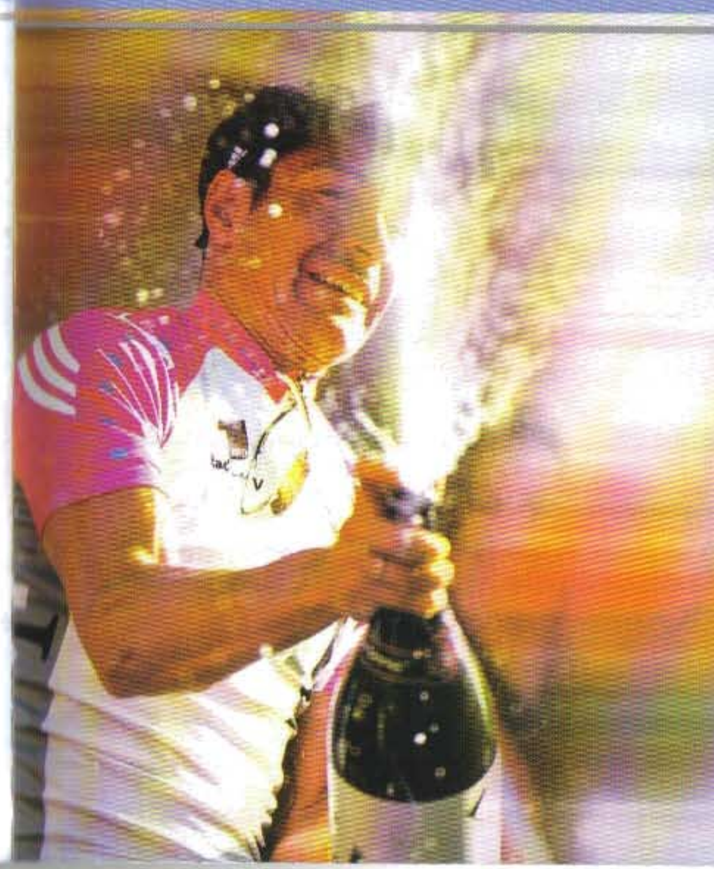


The new Shamal wheel uses spokes with a reduced cross-section on the front wheel and the LH side of the rear wheel.
This ensures better performance by reducing weight without affecting reliability and safety.
Only the spokes on the driveside of the rear wheel are subjected to tensions which make reduced spoke dimensions impracticable.

Hubs



The new Bora, Shamal and Vento hubs were also derived directly from the extraordinary designs developed for the new Record and Chorus hubsets, with all the innovations in terms of form and materials introduced for the '99 range alongside superior performance and significant weight reductions. All Fluid-Dynamic wheels use the new style HPW hubs except for Zonda which has an HPW design that is directly derived from the '98 model.



Weight reductions

Weight savings for Fluid-Dynamic wheels are truly amazing: a pair of tubular Shamal wheels only weighs 1756 g.

Bora

Bora

The Bora wheel is intended exclusively for competitive racing. The rim is in structural carbon with a very rigid and aerodynamic 50 mm deep profile. Inspite of using a carbon rim, the wheel's braking performance is assured by a braking surface in aluminum. The Bora wheel, always at the forefront in stageraces wherever aerodynamic performance is fundamental in order to be the first to cross the finish line, will be even further appreciated for the important technical modifications implemented on the hubs and the spoke lacing.

- aerodynamic differential spokes
- HPW hub derived from the new Record hub
- rapid lubrication holes
- pawl carrier in titanium
- Record quick-release



Bora

code	type	No. spokes	diameter	tire	tread	O.L.D.	Weight gr
R-BO102*	front, road	14	28"/700C	tubular	19	100	722
R-BO202*	rear, road 9 Speed	16	28"/700C	tubular	19	130	898

* R-BO500= pair of wheels (front+rear tubular) packed together

Shamal

R-SH111*	front, road	14	28"/700C	tubular	20	100	788
R-SH306**	front, road	14	28"/700C	clincher	20	100	821
R-SH213*	rear, road 9 Speed	16	28"/700C	tubular	20	130	968
R-SH407**	rear, road 9 Speed	16	28"/700C	clincher	20	130	998

* R-SH600= pair of wheels (front+rear tubular) packed together
** R-SH500= pair of wheels (front+rear clincher) packed together

Shamal

Lightened and aesthetically reviewed, Shamal wheels are ideal for the brisk runs where aerodynamics play an important role; from this year they are equipped with new design concepts implemented by Campagnolo on the '99 hubs and in the new spoke lacing patterns. The distinguishing elements of this wheel set make it the flagship of the Fluid-Dynamic range.

- only 1756 gr/pair (- 94 gr. compared to '98!)
- 38 mm rim profile.
- aerodynamic differential spokes
- HPW hub derived from the new Record hubs
- fast lubrication holes
- pawl carrier in titanium
- Record quick-release





Vento

Vento

In line with the new look of the '99 Campagnolo range of wheels, even Vento receives a reduction in weight, achieving performances that everyone keen on cycling, from amateur racers to recreational riders, will undoubtedly appreciate.They are distinguished by a number of special details.

- 38 mm rim profile
- aerodynamic, constant cross-section spokes
- HPW hub derived from Record hubs, without lubrication holes
- steel pawl carriers
- Record quick-release



3 YEARS WARRANTY

Vento

code	type	No. spokes	diameter	tire	tread	O.L.D.	Weight gr.
R-VE312*	front, road	14	28"/700C	clincher	20	100	859
R-VE412*	rear, road 9 Speed	16	28"/700C	clincher	20	130	1033

* R-VE500= pair of wheels (front+rear) packed together

Zonda

R-ZO308*	front, road	18	28"/700C	clincher	20	100	780
R-ZO408*	rear, road 9 Speed	20	28"/700C	clincher	20	130	1056

* R-ZO500= pair of wheels (front+rear) packed together

Zonda

Campagnolo's medium profile wheel uses top of the range technologies to satisfy the far-reaching demands of everyone interested in aerodynamic factors and also better comfort. This wheel is enhanced with a number of features helping to improve its performance.

- 1836 gr/pair
- 32 mm rim profile.
- aerodynamic, constant cross-section spokes
- HPW hub derived from Zonda '98 hubs, without lubrication holes
- steel pawl carrier
- Chorus quick-release



3 YEARS WARRANTY



Ghibli

Ghibli

The par excellence wheel for time trials is still a favorite with professional riders, triathlon competitors and enthusiasts taking up the challenges of these special races. Once again Campagnolo presents the Ghibli wheel and its astonishing aerodynamic performance combined with rigidity and weight among the best in its category.



All Campagnolo wheels are supplied with a carrier bag

Ghibli

code	type	diameter	tire	tread	O.L.D.	Weight gr.
R0071	front, track	26"/650C	tubular	18	100	863
R0091	front, track	28"/700C	tubular	18	100	954
R0541	rear, track lt. or BSC thread	28"/700C	tubular	18	120	1040
R-GH001	rear, road	28"/700C	tubular	18	130	1115

Rims









	Atlanta 96	Barcelona 92	Montreal 76	Moskva 80
Code	C-AT01SA	C-BA01SA	C-MO11SA	C-MV01TI
Tire	clincher	tubular	clincher	clincher
Ø ETRTO	622 mm	632 mm	622 mm	622 mm
drilling	28-32-36	28-32-36	28-32-36	32-36
eyelets	yes	yes	yes	no
alloy	6082-T6	6082-T6	6082-T6	6082-T6
valve Ø	6,5 mm	6,5 mm	6,5 mm	6,5 mm
weight g	521	402	447	435
Side walls	machine-turned	machine-turned	machine-turned	HPB
Finish	satin	satin	satin	titanium



Campagnolo on the web





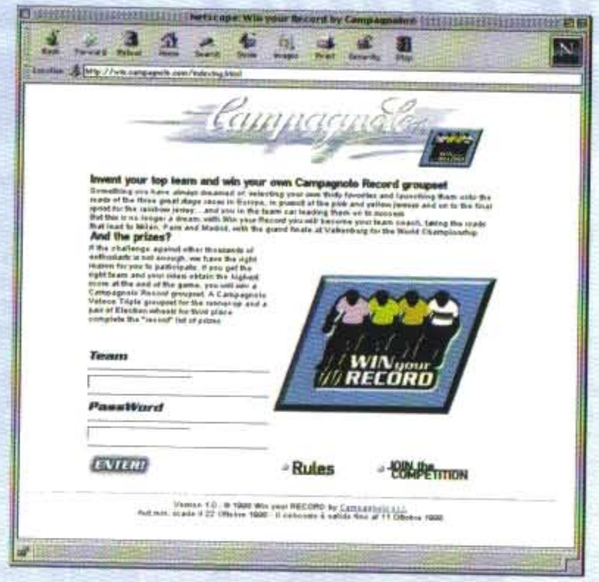
There is a growing, widespread interest in Campagnolo. This is also confirmed by our Internet statistics: in its first year of existence the Campagnolo Website - www.campagnolo.com - recorded more than 4 million hits! Starting off with a daily average of just under 10.000 hits, the site presently attracts more than 15.000 daily visits.





The reasons for this interest can be traced to the combination of on-line services offered: an overview of the company, its products and 70 year old history, a section specifically dedicated to design and manufacturing technologies and a "virtual" tour of the Campagnolo factory. Moreover, a great deal of space is devoted to competitive racing: victories in past and present competitions, with weekly up-dated information regarding teams using Campagnolo equipment, their plans and successes.

Aside from offering a source for interesting news and information, we also wanted our Website to be fun - which is why something more was added to our site: a game.
"Win your record" is the first Internet game dedicated to cycling - and it is fully interactive. Games are undoubtedly the best way to attract the attention of young "surfers", a target we have always followed up with great attention. Yet it is also a way of making the racing season more exciting as well as keeping in touch with cycling fans on a daily basis.
New games will go on-line in 1999 and we are sure that they will prove to be great fun - and there are prizes, too!



the Web



The Campagnolo site will unveil another important innovation in 1999: Campagnolo Direct - a virtual store where all users of Campagnolo equipment can make direct, on-line purchases of special and unique products which will not be available in any shops anywhere in the world. Original items that stand out through the elegance and attention to detail that has always distinguished the Campagnolo trademark.

RECORD Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-19RE	226	9 Speed - Anodized finish - Max. sprocket: 26 teeth - Capacity: 27 teeth - Titanium hanger and pivot bolt
FRONT DERAILLEUR	FD-31SRE	89	For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth - Adjustable spring - Lightened cage Braze-on - Anodized
	FD-31FRE		Clip-on Ø 28,6 mm - Anodized
	FD-12FRE	102	Clip-on Ø 32 mm - Anodized
	FD-13FRE		Clip-on Ø 35 mm - Anodized
ERGOPOWER	EC-29RECG	342	Carbon body - Carbon levers - Ball bearings - 7075 alloy hardware - Triple compatible - Compensation springs - With cables and pre-lubricated casings - No brake housing ferrules
SHIFTING LEVERS	SL-09SRECG	74	9 Speed - Indexed
FRONT HUB	HB-40RE	181*	O.L.D.: 100 mm - Holes: 28/32/36 - Adjustable bearings - 7075 alloy axle - 7075 alloy body - Quick-release with aluminum lock nuts
REAR HUB	FH-29RE	316*	O.L.D.: 130 mm - 7075 alloy 9 Speed freewheel body (MK2) - Holes: 28/32/36 7075 alloy body - Titanium pawl-carrier - With "oversize" lockring (27 x 1 thread) 7075 alloy axle
STEEL SPROCKETS	CS-29RE	182**	9 Speed Exa-Drive MK2 - Steel/Ti - Nickel-chromed - With light alloy carrier Combinations: 11/21 - 11/23 - 12/21 - 12/23 - 13/23 - 13/26 - Without lockring
TITANIUM SPROCKETS	CS-29RETI	132**	9 Speed Exa-Drive MK2 - Titanium - With light alloy carrier Combinations: 12/21 - 12/23 - 13/23 - 13/26 - Without lockring
TITANIUM LOCKRING	CS-10IT	10.3	"oversize" - Thread 27 x 1
CHAIN	CN-19RE	300	9 Speed - "Floating Link Action" - Chrome-Nickel-Teflon finish - 114 links - 8 Speed compatible
CRANKSET	FC-21RE	632*	Low-profile cranks: L. 170 - 172.5 - 175 mm - Anodized - 7075 Alloy fixing bolts and nuts Exa-Drive chainrings: 39 x 52 - 42 x 52 - 39 x 53
BOTTOM BRACKET	BB-31RECART	190	Carbon fibre sealed cartridge - IT 36 x 24 tpi - BC 1.370 x 24 tpi - "oversize" hollow axle - Aluminum cups For double crankset - Axle L 102 - IT thread
	BB-33RECART		For double crankset - Axle L 102 - BC thread
PEDALS	PD-52REQR	265	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 24 tpi Titanium axle - 3 bearings - Adjustable release tension
BRAKES	BR-44RE	388	Dual-Pivot - Height 39÷50 mm - Stainless steel ball bearings - Orbital adjustment - Anodized
BRAKE LEVERS	BL-22RECG	267	Anodized
HEADSET	HS-21RE	104	BC thread 1" x 24 tpi - Total height: 36,5 - Grease-port for fast lubrication - Anodized
THREADLESS HEADSET	HS-01REHD	110	For unthreaded steerers Ø 1" (25,4mm) - Height: 24,5 mm - "Self Centering Bearing System" - Grease-port for fast lubrication - Carbon-cover - 7075 Alloy fixing screw
CABLE GUIDE PLATE	AI-00CD	9.5	Stainless steel with QPQ treatment

* Including "oversize" lockring
* The nominal weight refers to:
12/21 sprocket set, crankset L. 170 - 39/52, 32 holes hub, with quick-release.

CHORUS Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-19CH	243	9 Speed - Anodized finish - Max. sprocket: 26 teeth - Capacity: 27 teeth
FRONT DERAILLEUR	FD-21SCH	87	For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth Braze-on - Anodized
	FD-11SCH		Clip-on Ø 28,6 mm - Anodized
	FD-12SCH	100	Clip-on Ø 32 mm - Anodized
	FD-03FCH		Clip-on Ø 35 mm - Anodized
ERGOPOWER	EC-29CHCG	365	Carbon body - Lightened shifting lever - 7075 alloy hardware - Ball bearings - Triple compatible Compensation springs - Anodized levers - With cables and pre-lubricated casings - No brake housing ferrules
SHIFTING LEVERS	SL-09SRECG	74	9 Speed - Indexed
FRONT HUB	HB-30CH	205*	O.L.D.: 100 mm - Holes: 32/36 - Sealed dust cup - Quick release with aluminum lock nuts
REAR HUB	FH-29CH	326*	O.L.D.: 130 mm - 7075 alloy 9 Speed freewheel body (MK2) - Holes: 32/36 7075 alloy body - With "oversize" lockring (27 x 1 thread) 7075 alloy axle - Quick release with aluminium lock nuts
SPROCKETS	CS-09CH	197*	9 Speed Exa-Drive MK2 - Steel - Nickel-chromed - With light alloy carrier Combinations: 12/21 - 12/23 - 13/23 - 13/26 - Without lockring
TITANIUM SPROCKETS	CS-29RETI	132**	9 Speed Exa-Drive MK2 - Titanium - With light alloy carrier Combinations: 12/21 - 12/23 - 13/23 - 13/26 - Without lockring
TITANIUM LOCKRING	CS-10IT	10.3	"oversize" - Thread 27 x 1
CHAIN	CN-19RE	300	9 Speed - "Floating Link Action" - Chrome-Nickel-Teflon finish - 114 links - 8 Speed compatible
CRANKSET	FC-21CH	667*	Low-profile cranks: L. 170 - 172.5 - 175 mm - Anodized Exa-Drive chainrings: 39 x 52 - 42 x 52 - 39 x 53
BOTTOM BRACKET	BB-01CHCART	220	Carbon fibre sealed cartridge - Symmetrical hollow axle - IT 36 x 24 tpi - BC 1.370 x 24 tpi Aluminum cups For double crankset - Axle L 102 - IT thread
	BB-03CHCART		For double crankset - Axle L 102 - BC thread
PEDALS	PD-42CHQR	325	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 24 tpi - Adjustable cups and cones Adjustable release tension
BRAKES	BR-52CH	380	Dual-Pivot - Height 39÷50 mm - Stainless steel ball bearings - Orbital adjustment - Anodized
BRAKE LEVERS	BL-22RECG	267	Anodized
HEADSET	HS-21CH	106	BC thread 1" x 24 tpi - Total height: 36,5 (sup. 24 mm - inf 12,5 mm) - Grease-port for fast lubrication - Anodized
THREADLESS HEADSET	HS-01CHHD	119	For unthreaded steerers Ø 1" (25,4mm) - Height: 24,5 mm - "Self Centering Bearing System"
CABLE GUIDE PLATE	AI-00CD	9.5	Stainless steel with QPQ treatment

* Including "oversize" lockring
* The nominal weight refers to:
12/21 sprocket set, crankset L. 170 - 39/52, 32 holes hub, with quick-release.

ATHENA Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-09AT	237	9 Speed - Anodized - Maximum sprocket: 26 teeth - Capacity: 27 teeth
TRIPLE REAR DERAILLEUR	RD-09RA3	261	9 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 37 teeth
FRONT DERAILLEUR			For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth
	FD-21SCH		Braze-on - Anodized
	FD-11FCH	87	Clip-on Ø 28.6 mm - Anodized
	FD-12FCH		Clip-on Ø 32 mm - Anodized
	FD-03FCH	100	Clip-on Ø 35 mm - Anodized
TRIPLE FRONT DERAILLEUR			For triple crankset - Capacity: 22 teeth - Max. chainring: 52 teeth
	FD-11SRAS		Braze-on - Anodized
	FD-11FRA3	98	Clip-on Ø 28.6 mm - Anodized
	FD-12FRA3		Clip-on Ø 32 mm - Anodized
	FD-13FRA3	114	Clip-on Ø 35 mm - Anodized
ERGOPOWER	EC-19ATCG	378	Triple compatible - Compensation springs - Anodized levers - Incl. cables and prelubricated casings - No brake housing ferrules - Ball bearings - Lightened shifting lever
FRONT HUB	HB-50AT	216*	O.L.D.: 100 mm - Spoke holes: 32 - 36 - Sealed dust cup - Lateral grease-port
REAR HUB	FH-19AT	455*	O.L.D.: 130 mm - Sealed dust cups - 9 Speed aluminium freewheel body (MK2) - Spoke holes: 32/36 - Lateral grease-port
SPROCKETS	CS-09AT	197*	9 Speed Exa-Drive MK2 - Steel - Nickel-chromed Combinations: 12/21 - 12/23 - 13/23 - 13/26
CHAIN	CN-19RE	300	9 Speed - "Floating Link Action" - Nickel-Teflon finish - 114 links - 8 Speed compatible
CRANKSET	FC-21AT	650*	Low-profile cranks: L. 170 - 172.5 - 175 mm - Anodized Exa-Drive chainrings: 39 x 52 - 42 x 52 - 39 x 53
TRIPLE CRANKSET	FC-11RA3	735	Low-profile cranks: L. 170 - 175 mm - Anodized Exa-Drive chainrings: 30 x 40 x 50 - 30 x 42 x 52
BOTTOM BRACKET	BB-21ATCART BB-23ATCART BB-21RA3 BB-23RA3	267	Sealed cartridge - Symmetrical hollow axle - Italian 36 x 24 tpi - English BC 1.370 x 24 tpi - Recessed aluminium cups For double crankset - For triple for frame with Ø 28.6 mm seat tube - IT thread - Axle L 111 For double crankset - For triple for frame with Ø 28.6 mm seat tube - BC thread - Axle L 111 For triple crankset for frame with Ø 32 or 35 mm seat tube - IT thread - Axle L. 115.5 For triple crankset for frame with Ø 32 or 35 mm seat tube - BC thread - Axle L. 115.5
PEDALS	PD-42CHQR	325	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 20 tpi - Steel axle - Adjustable cups and cones Adjustable release tension
BRAKES	BR-42AT	380	Dual-Pivot - Height 39÷50 mm - Brake pad shoes with orbital adjustment - Anodized
HEADSET	HS-21AT	109	Thread BC 1" x 24 tpi - Balls Ø 3.96 mm (upper) and 4.76 mm (lower) - Overall stack height 36.5 (top 24 mm - bottom 12.5 mm) - Anodized
CABLE GUIDE PLATE	AI-12CD	6.5	Resin - To fit under bottom bracket shell

* The nominal weight refers to:
12/21 sprocket set, double crankset L. 170 - 39/52, triple crankset L. 170 - 30/42/52, 32 holes hub, with quick-release.

VELOCE Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-09VL	251	9 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 27 teeth
TRIPLE REAR DERAILLEUR	RD-09VL3	268	9 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 37 teeth
FRONT DERAILLEUR			For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth
	FD-41SVL	93	Braze-on - Anodized
	FD-41FVL		Clip-on Ø 28.6 mm - Anodized
	FD-22FVL	100	Clip-on Ø 32 mm - Anodized
TRIPLE FRONT DERAILLEUR			For triple crankset - Capacity: 22 teeth - Max. chainring: 52 teeth
	FD-21SVL3	99	Braze-on - Anodized
	FD-21FVL3		Clip-on Ø 28.6 mm - Anodized
	FD-22FVL3	114	Clip-on Ø 32 mm - Anodized
ERGOPOWER	EC-19VLCG	387	Triple compatible - Lightened shifting lever - Compensation springs - Anodized levers With cables and casings - No brake housing ferrules
FRONT HUB	HB-40VL	216*	O.L.D.: 100 mm - Spoke holes: 32/36 - Sealed dust cup Lateral grease-port
REAR HUB	FH-19VL	458*	O.L.D.: 130 mm - 9 Speed aluminium freewheel body Spoke holes: 32/36 - Sealed dust cup - Lateral grease-port
SPROCKETS	CS-09VL	225*	9 Speed Exa-Drive steel sprockets - Nickel-chromed Combinations: 11/23 - 12/23 - 13/23 - 13/26
CHAIN	CN-09VL	300	9 Speed - "Floating Link Action" - 114 links - Burnished inner links and rollers 8 Speed compatible
CRANKSET	FC-31VL	650*	Low-profile cranks: L. 170 - 172.5 - 175 mm - Anodized Exa-Drive chainrings: 39 x 52 - 42 x 52 - 39 x 53
TRIPLE CRANKSET	FC-21VL3	740*	Low-profile cranks: L. 170 - 175 mm - Anodized Exa-Drive chainrings: 30 x 42 x 52
BOTTOM BRACKET	BB-11VLCART BB-13VLCART BB-21RA3 BB-23RA3	299	Sealed cartridge - Symmetrical axle - Aluminium cups - Italian 36 x 24 tpi - English BC 1.370 x 24 tpi For double crankset - For triple for frame with Ø 28.6 mm seat tube - IT thread - Axle L 111 For double crankset - For triple for frame with Ø 28.6 mm seat tube - BC thread - Axle L 111 For triple crankset for frame with Ø 32 or 35 mm seat tube - IT thread - Axle L. 115.5 For triple crankset for frame with Ø 32 or 35 mm seat tube - BC thread - Axle L. 115.5
PEDALS	PD-32VLQR	310	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 20 tpi - Steel axle - 2 bearings Adjustable release tension
BRAKES	BR-32VL	390	Dual Pivot - Height 39÷50 mm - Anodized
CABLE GUIDE PLATE	AI-12CD	6.5	Resin - To fit under bottom bracket shell

* The nominal weight refers to:
12/23 sprocket set, double crankset L. 170 - 39/52, triple crankset L. 170 - 30/42/52, 32 holes hub, with quick-release.

MIRAGE Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-09MI	271	9 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 26 teeth
TRIPLE REAR DERAILLEUR	RD-09MI3	289	9 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 37 teeth
FRONT DERAILLEUR			For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth
	FD-11SMI	102	Braze-on - Anodized
	FD-11FMI		Clip-on Ø 28,6 mm - Anodized
	FD-12FMI	115	Clip-on Ø 32 mm - Anodized
TRIPLE FRONT DERAILLEUR			For triple crankset - Capacity: 22 teeth - Max. chainring: 52 teeth
	FD-11SMI3	119	Braze-on - Anodized
	FD-11FMI3		Clip-on Ø 28,6 mm - Anodized
	FD-12FMI3	132	Clip-on Ø 32 mm - Anodized
ERGOPOWER	EC-09MICG	400	Triple compatible - Compensation springs - Anodized brake levers With cables and casings - No brake housing ferrules
FRONT HUB	HB-30MI	229*	O.L.D.: 100 mm - Spoke holes: 32 - 36 Sealed dust cups - Sealed bearings
REAR HUB	FH-09MI	460*	O.L.D.: 130 mm - 9 Speed aluminum freewheel body Spoke holes: 32 - 36 - Sealed dust cups - Sealed bearings
SPROCKETS	CS-09MI	237*	9 Speed Exa-Drive - Steel - Galvanized finish Combinations: 12/23 - 13/23 - 13/26
CHAIN	CN-09VL	300	9 Speed - "Floating Link Action" - 114 link Burnished inner links and rollers - 8 Speed compatible
CRANKSET	FC-21MI	691*	Low-profile cranks: L. 170 - 172.5 - 175 mm - Anodized Exa-Drive chainrings: 39 x 53 - 42 x 52
TRIPLE CRANKSET	FC-21MI3	728*	Low-profile cranks: L. 170 - 175 mm - Anodized Exa-Drive chainrings: 32 x 42 x 52
BOTTOM BRACKET			Sealed cartridge - Symmetrical axle - Steel cups - Italian 36 x 24 tpi - English BC 1.370 x 24 tpi
	BB-11MICART	358	For double crankset - For triple for frame with Ø 28.6 mm seat tube - IT thread - Axle L 111
	BB-13MICART		For double crankset - For triple for frame with Ø 28.6 mm seat tube - BC thread - Axle L 111
	BB-01MI3		For triple crankset for frame with Ø 32 or 35 mm seat tube - IT thread - Axle L. 115.5
	BB-03MI3		For triple crankset for frame with Ø 32 or 35 mm seat tube - BC thread - Axle L. 115.5
PEDALS	PD-32VLQR	310	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 20 tpi - Steel axle - 2 bearings Adjustable release tension
BRAKES	BR-22MI	390	Dual-Pivot - Height 39÷50 mm - Anodized
CABLE GUIDE PLATE	AI-12CD	6.5	Resin - To fit under bottom bracket shell

* The nominal weight refers to:
12/23 sprocket set, double crankset L. 170 - 39/53, triple crankset L. 170 - 32/42/52, 32 holes hub, with quick-release.

AVANTI Technical specs

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
REAR DERAILLEUR	RD-08AV	278	8 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 26 teeth
TRIPLE REAR DERAILLEUR	RD-08AV3	297	8 Speed - Anodized - Maximum sprocket: 28 teeth - Capacity: 37 teeth
FRONT DERAILLEUR			For double crankset - Capacity: 15 teeth - Max. chainring: 54 teeth
	FD-11SMI	102	Braze-on - Anodized
	FD-11FMI		Clip-on Ø 28,6 mm - Anodized
	FD-12FMI	115	Clip-on Ø 32 mm - Anodized
TRIPLE FRONT DERAILLEUR			For triple crankset - Capacity: 22 teeth - Max. chainring: 52 teeth
	FD-11SMI3	119	Braze-on - Anodized
	FD-11FMI3		Clip-on Ø 28,6 mm - Anodized
	FD-12FMI3	132	Clip-on Ø 32 mm - Anodized
ERGOPOWER	EC-08AVCG	466	Triple compatible - Compensation springs - Anodized brake levers With cables and casings - No brake housing ferrules
FRONT HUB	HB-00AV	234*	O.L.D.: 100 mm - Spoke holes: 32 - 36 Sealed dust cups - Sealed bearings
REAR HUB	FH-30AV	504*	O.L.D.: 130 mm - 8 Speed aluminum freewheel body Spoke holes: 32 - 36 - Sealed dust cups - Sealed bearings
SPROCKETS	CS-08SP	237*	8 Speed Exa-Drive - Steel - Galvanized finish Combinations: 12/23 - 13/23 - 13/26
CHAIN	CN-11AV	330	8 Speed - 114 link - Riveted pentagonal pin
CRANKSET	FC-31AV	730*	Low-profile cranks: L. 170 mm - Anodized Exa-Drive chainrings: 39 x 53 - 42 x 52
TRIPLE CRANKSET	FC-21MI3	728*	Low-profile cranks: L. 170 - 175 mm - Anodized Exa-Drive chainrings: 32 x 42 x 52
BOTTOM BRACKET			Sealed cartridge - Symmetrical axle - Steel cups - Italian 36 x 24 tpi - English BC 1.370 x 24 tpi
	BB-11MICART	358	For double crankset - For triple for frame with Ø 28,6 mm seat tube - IT thread - Axle L 111
	BB-13MICART		For double crankset - For triple for frame with Ø 28.6 mm seat tube - BC thread - Axle L 111
	BB-01MI3		For triple crankset for frame with Ø 32 or 35 mm seat tube - IT thread - Axle L. 115.5
	BB-03MI3		For triple crankset for frame with Ø 32 or 35 mm seat tube - BC thread - Axle L. 115.5
BRAKES	BR-32AV	375	Dual-Pivot - Height 39÷50 mm - Anodized
CABLE GUIDE PLATE	AI-12CD	6,5	Resin - To fit under bottom bracket shell

* The nominal weight refers to:
12/23 sprocket set, double crankset L. 170 - 39/53, triple crankset L. 170 - 32/42/52, 32 holes hub, with quick-release.

RECORD TRACK *Technical specs*

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
FRONT HUB	HB-00PI	240*	O.L.D.: 100 mm - Drilling: 32/36 - Big flanges
REAR HUB	RH-10PI	331*	O.L.D.: 120 mm - Drilling: 32/36 - Big flanges - ISO thread
CRANSET	FC-01PI	592*	Crankarms: L. 165 - 170 mm - Anodized Chainrings (3mm thick): 46 - 47 - 48 - 49 - 50 - 51 - 52
BOTTOM BRACKET	BB-01RE		Symmetric hollow axle - IT 36 x 24 tpi - BC 1.370 x 24 tpi Axle L 111 - IT thread
	BB-03RE	230	Axle L 111 - BC thread
PEDALS	PD-52REQR	265	QR - PRO-FIT - With floating cleats - Thread: 9/16 " x 24 tpi - Titanium axle - 3 bearings - Adjustable release tension
HEADSET	HS-21RE	104	Thread BC 1" x 24 tpi - Overall stacking height: 36.5 - Grease port - Anodized

CHRONO/TRIATHLON SPECIAL COMPONENTS

COMPONENT	CODE	WEIGHT g.	DESCRIPTION
CHAINRINGS			
	FC-TH142	51	42T - Inner - Exa-Drive system
	FC-TH144	56	44T - Inner - Exa-Drive system
	FC-TH154	90	54T (x 42) - Outer - Exa-Drive system
	FC-TH254	89	54T (x 44) - Outer - Exa-Drive system
	FC-TH155	101	55T (x 42) - Outer - Exa-Drive system
	FC-TH255	102	55T (x 44) - Outer - Exa-Drive system
BAR-END SHIFTING LEVERS	SL-09BECG	163	9 Speed

• The nominal weight refers to:
crankset L. 170 - 46T, 32 holes hub, with quick-release.

limited warranty (three year)

Congratulations on your purchase of this genuine Campagnolo product. If any component of the this new Campagnolo product is found to be defective in materials or workmanship within the terms and conditions of this Limited Warranty (also referred to as the "Agreement"), the defective component will be repaired or replaced, at the option of Campagnolo s.r.l., free of charge, within thirty (30) days after receipt of the product by an authorized Campagnolo Service Center.

1. NOT COVERED

This warranty does not cover damage resulting from accidents, alteration, neglect, misuse or abuse, lack of reasonable or proper maintenance, corrosion, improper assembly, repairs improperly performed or replacement parts improperly installed, use of replacement parts or accessories not conforming to Campagnolo s.r.l.'s specifications, use of component parts not manufactured or supplied by Campagnolo s.r.l., modifications not recommended or approved in writing by Campagnolo s.r.l., normal wear and deterioration occasioned by the use of the product, activities such as acrobatics, competitive use or commercial use. This warranty also does not cover cosmetic imperfections in the surface, finish, or appearance of the product which were apparent or discoverable at the time of purchase of the product or damage occurring during shipment or transport of the product. This warranty also does not cover tools, lubricants, brake pads, and other consumables or any expenses related to the transportation of the product to or from an authorized Campagnolo Service Center, labor costs to remove the product from the bicycle, or compensation for inconvenience or loss of use while the product is being repaired or replaced.

2. PURCHASER

This warranty is made only with the original purchaser of the product and does not extend to any third parties. The rights of the Purchaser under this warranty may not be assigned.

3. TERM

The term of this warranty shall commence on the date of purchase and shall continue for a period of three (3) years.

4. ENTIRE AGREEMENT

This warranty supersedes any and all oral, express or written warranties, statements or undertakings that may previously have been made, and contains the entire Agreement of the parties with respect to the warranty of this product. Any and all warranties not contained in this Agreement are specifically excluded.

5. DAMAGES

Except as expressly provided by this warranty, Campagnolo s.r.l. SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ASSOCIATED WITH THE USE OF THE PRODUCT OR A CLAIM UNDER THIS AGREEMENT, WHETHER THE CLAIM IS BASED ON CONTRACT, TORT OR OTHERWISE. The foregoing statements of warranty are exclusive and in lieu of all other remedies. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you.

6. DISCLAIMER

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL IMPLIED WARRANTIES ARISING FROM A COURSE OF DEALING, USAGE OF TRADE, BY STATUTE OR OTHERWISE, IS HEREBY STRICTLY LIMITED TO THE TERM OF THIS WRITTEN WARRANTY. This agreement shall be the sole and exclusive remedy available to the Purchaser with respect to this purchase. In the event of any alleged breach of any warranty or any legal action brought by the purchaser based on alleged negligence or other tortuous conduct by Campagnolo s.r.l., the Purchaser's sole and exclusive remedy will be repair or replacement of defective materials as stated above. No dealer and no other agent or employee of Campagnolo s.r.l. is authorized to modify, extend or enlarge this warranty. The performance of any warranty service under this Agreement is not an admission or agreement that the design or manufacture of a product is defective.

7. PROCEDURE

In the event of a defect covered by this warranty, the purchaser should contact an authorized Campagnolo Service Center (service centers are listed in the catalogs, in the user's manuals and in Campagnolo's web-site) or : Campagnolo s.r.l., Service Center, Via Della Chimica 4, 36100 Vicenza, Italy, Telephone: +39-0-444-225604/5; Fax:+39-0-444-225400; e-mail: service@campagnolo.com. To be honored, claims must be submitted within the three year warranty period and within thirty (30) days of discovery of the defect or nonconformity. The determination whether the defect is covered by this warranty is within the sole discretion of Campagnolo s.r.l.

Campagnolo s.r.l. reserves the right to discontinue products and to change specifications for existing products at any time without notice and shall not be obligated to incorporate new features into products previously sold, even if those products are returned under a warranty claim. Campagnolo may replace defective parts with similar parts of similar quality in the event that identical parts are unavailable. The purchaser must obtain advance authorization in writing before returning any product to a Campagnolo Service Center for warranty inspection. A return authorization number will be issued and must conspicuously appear on the outside of the product's packaging. The issuance of an authorization number does not constitute acceptance of the claim, which will be evaluated by the Service Center upon its inspection of the product.

The product should be securely packed to prevent damage during shipment and must be accompanied by a letter specifying or including the following items of information:

a. dated receipt or other proof of date of retail purchase; b. a copy of this warranty; c. Campagnolo part number; d. detailed description of the problem experienced with the product, including a chronology of efforts made to correct the problem; e. identification of the components used in conjunction with the product; f. estimate of product usage: (i.e. accumulated mileage or time in service); and g. your name, address, and written authorization to ship the repaired product back to you freight collect ("C.O.D.").

8. OTHER RIGHTS

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

9. APPLICABLE LAW

Any disputes arising out of this Agreement or the use of this product will be governed by the laws of the country of Italy and will be decided by the Courts of Vicenza, Italy.

10. WARNING

Always install, repair and use your product in strict compliance with Campagnolo's instructions and the product's owner's manual.

In the world

Campagnolo

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