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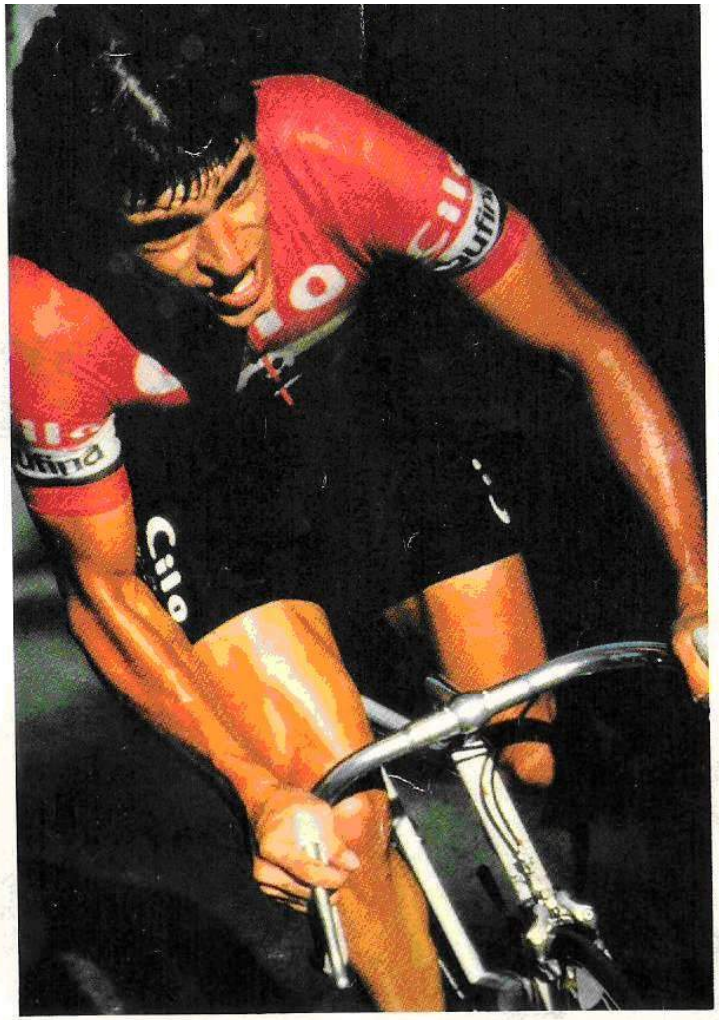
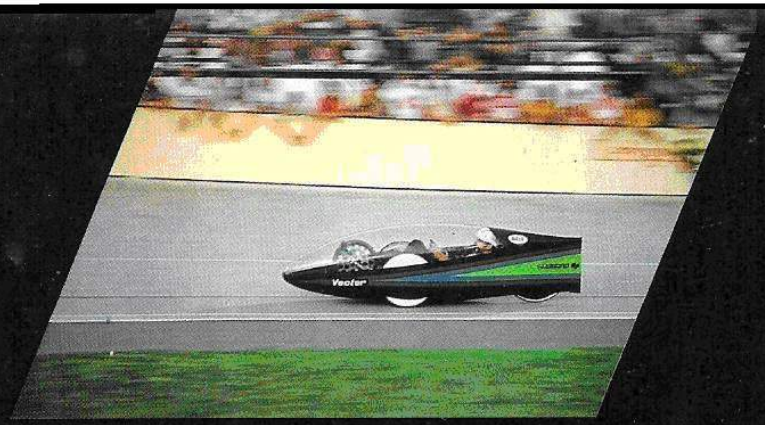


BICYCLE SYSTEM COMPONENTS

SHIMANO



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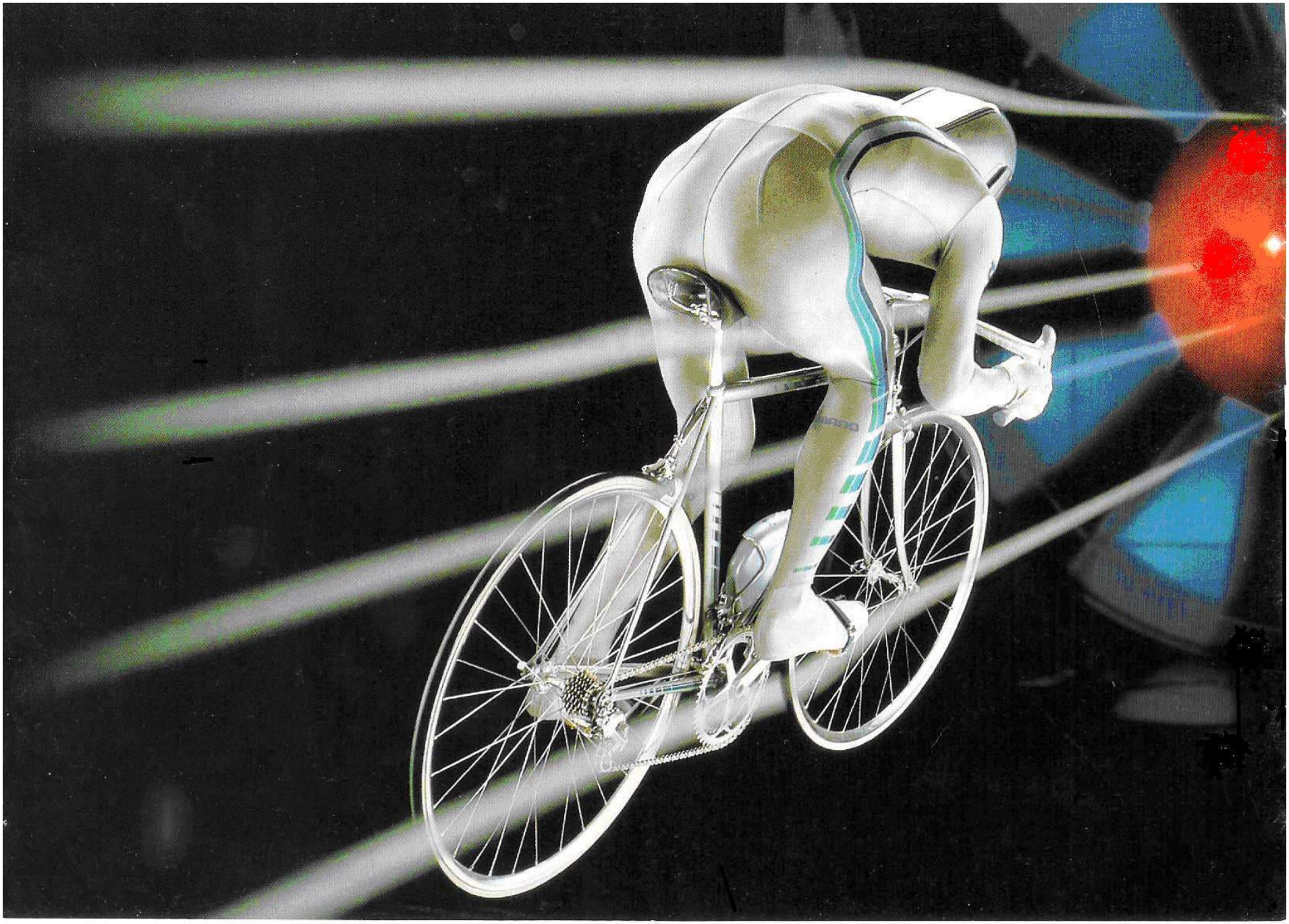
Cover Photo:
Daniel Gisiger
Cilo Aufina Pro Team

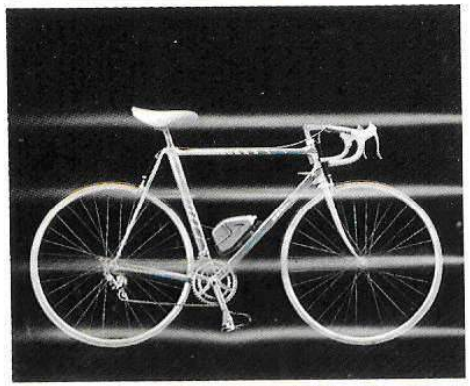
SHIMANO BICYCLE SYSTEM COMPONENTS

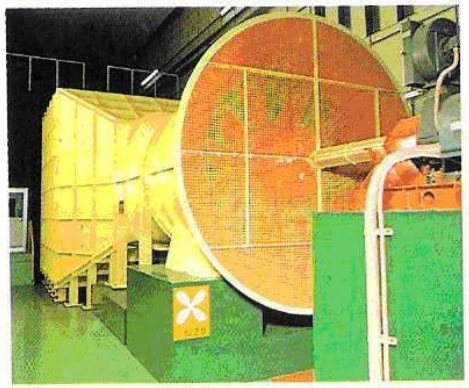
Over sixty countries around the world are receiving Shimano exports in cycling and fishing products.
That network of diverse markets has been built by Shimano's ability to come up with innovative answers to old problems.
This has been fully illustrated by the complete system concept which Shimano has introduced to the world.
Each component is designed to work perfectly with the other and produce results unequalled anywhere else.
The rapid growth of the Shimano organization has been thanks to the diligent labor of many imaginative researchers, people who gather volumes of data and analyze trends for the future.
The combined efforts of the whole Shimano team—in engineering, marketing, distribution and, most of all, the newly developed component systems philosophy—have made the distinctive difference between Shimano and its competitors.



Aerodynamics—
And A New Era is Upon Us

After 100 years of continuous history since the modern bicycle was developed, the scene is set to take the bicycle into yet another era in its evolutionary process.
Already major landmarks in its history were the invention of shifting mechanisms and, in more recent times, a tendency toward lighter weight. Now we are witnessing the bicycle's future challenge—the adoption of aerodynamic features for greater speed and higher energy efficiency.
The bicycle represents a machine of undisputed beauty, grace and power. And in furthering this image, we continue research on components to dynamically improve all-round performance.
Shimano first decided to investigate to what degree riding performance could be improved by means of decreasing air-resistance.
In the realistic conditions of a wind tunnel, we carried out innumerable tests geared to research the effects on aerodynamically designed components. From these beginnings an innovative bicycle design was launched and as a result of accummulative experience and data, Shimano set out to achieve perfection in aerodynamic, system components.





SHIMANO aero dynamics

Air resistance is the biggest obstacle to a cyclist's progress.

When riding a bicycle, there are two major obstacles which impede the bicycle's progress. One is road resistance and the other is air resistance. All land forms of transportation—cars, motor bikes, etc.—are affected by this dual problem and in particular by air resistance.
Shimano's research into this subject revealed just how much air resistance is a factor in restricting the bicycle's forward momentum, especially when compared with road resistance. As seen in the chart below, road resistance remains a fairly constant factor at 1 kg (2.2 lbs.), even when speed is drastically increased. On the other hand, the faster the speed, the greater air resistance becomes.
For example, when riding at 50 km per hour (31.1 mph), road resistance is 1 kg (2.2 lbs.) while air resistance climbs to 3.6 kg (7.9 lbs.). Riding resistance totals 4.6 kg (10.1 lbs.) with air resistance more than three times the total of road resistance.
Thus, the faster the rider cycles, the more he is impeded by air resistance and the more energy he has to burn up to maintain high speeds. When seen in practical terms, a rider who under perfect conditions propels a bicycle at 50 km per hour would also use the same amount of energy to propel the bicycle at 30 km per hour into a head wind of 20 km per hour (Or, in a "no wind" situation, a rider pedaling at 30 mph encounters the same amount of air resistance as a rider cycling at 10 mph into a head wind of 20 mph.)
These conditions apply not only to road racers, but also to the regular 10-speed bicycle rider who also has to deal with the tiring effects of air resistance. The results of Shimano's tests are therefore crucial to road and track racers along with 10-speed touring and leisure riders.

Shimano's Wind tunnel

Air Resistance

We carefully examined air resistance, subdividing it into two groups. One was the human rider's resistance and the other was the bicycle's resistance. At a speed of 50 km per hour (31.1 mph) we found the human body's air resistance amounted to 2.4 kg (5.3 lbs.) and the bicycle's air resistance amounted to 1.2 kg (2.6 lbs.). For Shimano, the 1.2 kg (2.6 lbs.) figure became the target of all our efforts to reduce the bicycle's air resistance.

In the history of bicycles, there have been many major improvements which benefitted not only racers but also ordinary riders. Among these developments was the discovery of the derailleur which made cycling much more comfortable. This was followed in more recent times by lightweight components which made the bicycle less cumbersome and even more efficient to ride. The search to improve the bicycle continues and now the newest stage in the bicycle's evolution has arrived with the introduction of Shimano's aerodynamic components.

Here we have detailed some of the many interesting facts which came to light during our aerodynamic tests.

Accelerating Performance Improved

Air resistance increases by a factor of the square of speed, therefore is easy to understand that when speed increases so does air resistance. Thus, the bicycle that is the most aerodynamically efficient can expect to encounter a reduction in air resistance. This means that acceleration can be achieved in a shorter period of time with less energy loss.

Maximum Speed Increased

Using data from our various tests we calculated mathematically the difference between a conventional bicycle and our aerodynamically designed bicycle in a 1,000 m (1,094 yard) time trial. We took into account figures obtained from our wind tunnel tests with both conventional and aerodynamic components and a model of a racer wearing a regular racing uniform and helmet. We also calculated 1 kg (2.2 lbs.) road resistance on a flat track without any acceleration or braking, and regular human pedaling power. The only difference between the two mathematical tests was the exchange of an aerodynamic bicycle for a conventional bicycle. The conventional bicycle result was calculated at 63 seconds to cover the course with an average speed of 57 km per hour (35.4 mph) and 5.7 kg (12.6 lbs.) air resistance. In total, 1.2 horse power was required to cover the whole distance. The aerodynamic bicycle, with a seven percent decrease in air resistance, was calculated with the same 1.2 horse power to run the distance in 61.6 seconds with an average speed of 58.4 km per hour (36.3 mph). Compared to the conventional bicycle, a saving of 1.4 seconds was possible with a gain of 22.2 m (24.3 yards) in distance. The figures quoted here are the basis of our mathematical calculations and clearly illustrate the tremendous effect aerodynamic streamlining has on the bicycle.

Decreased Energy Loss

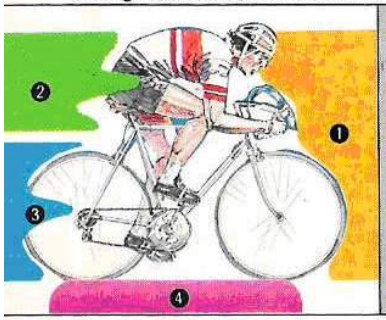
In a race there is a big mathematical difference in air resistance between the leader and followers. From Shimano wind-tunnel tests it was calculated that when riding at 50km per hour (31.1 mph), there was a decrease in air resistance of 45.3% between front and following riders: An important fact when discussing air resistance ratios. Naturally, among the benefits of decreased air resistance relative to the bicycle is a reduction in rider fatigue, especially on long road races. Thus, these mathematical evaluations on air resistance reductions are an important factor in improving overall performance.

Conclusion

The introduction of our aerodynamic components will make a big impact on the history of the bicycle's development. Already, at the world's most prestigious bicycle show, the IFMA Show held in Cologne, 1980, almost all the major European bicycle manufacturers (14 in total) chose to equip their top-line bicycles with our aerodynamic Dura-Ace AX Series.

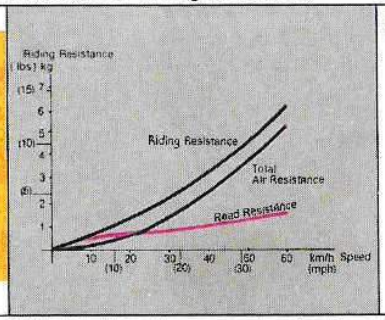
In addition to our celebrated Dura-Ace AX Racing Series we also considered the other areas of cycling by developing and introducing aerodynamic components through our Shimano 600 AX, Adamas AX, and Shimano AX series for club racing, touring and regular 10-speed bicycles. Shimano thoroughly researched aerodynamic components to bring the best of modern technology to all bicycles.

Riding Resistance Brakedown.



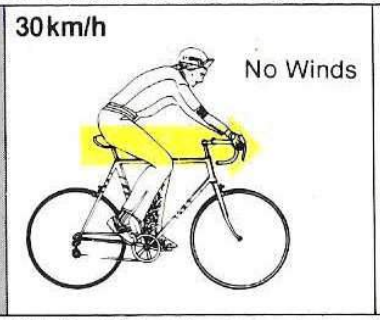
❶ Total Air Resistance
❷ Human Body Air Resistance
❸ Bicycle Air Resistance
❹ Road Resistance

Evaluation of Riding Resistance



While Road Resistance remains almost constant during speed increases, Air Resistance increases drastically by the square of speed.

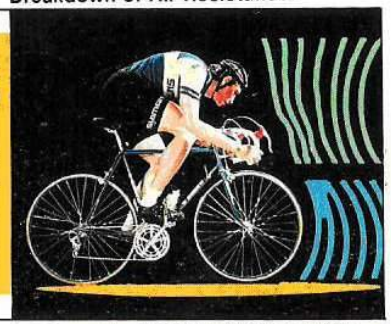
Air resistance remains the same in each case.



While Road Resistance remains almost constant during speed increases, Air Resistance increases drastically by the square of speed.

Bicycle Speed: 30 km/h
Head Winds: No Wind
Air Resistance: 1.3kg
Road Resistance: less than 1 kg.

Breakdown of Air Resistance.



50km/h (About 31 mph)

Measuring bicycle and rider separately
Human Body Air Resistance 2.39kg (5.27 lbs.)
Bicycle Air Resistance 1.22kg (2.69 lbs.)

AX Series-Improve Your Bicycle With Shimano's Exciting New Features

DRIVE TRAIN MECHANISMS

W-cut Mechanism
All AX Series

When shifting the chain on a conventional front chainwheel from high to low, a tremendous effort is required to lift it up on the gear teeth, especially while under a heavy load.
To help rectify this situation, Shimano developed the W-cut Teeth and greatly improved this gear changing operation. We simply shortened the length of the two sprocket teeth behind the crank arm and the two teeth directly opposite. These are the points where the least amount of chain tension is present when cycling and thus the perfect position to readily release the chain. Because of Shimano's thorough research activities, shifting from high to low gear is a completely smooth operation.

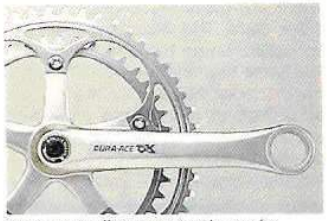
Gear shift on W-cut Teeth

Safety Crank Arm
All AX Series

In order to increase strength and reduce the likelihood of the ankle being struck, we shortened the crank axle and reshaped the crank arm. A perfect safety feature.

Offset Crank Arm
Dura-Ace AX, Shimano 600AX

By repositioning the crank arm in relation to the front chainwheel spider arms, we could strengthen the structure drastically. The secret was to build it into the chainwheel making one integral unit. This allowed us to shorten the crank axle for reduced chainwheel flexibility.

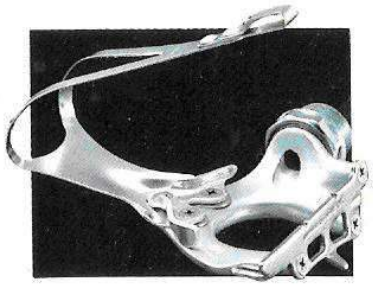


Crank arm is offset against spider arm for increased durability.

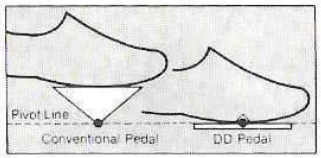
Along with improving durability, the DD Pedal's performance has also been greatly improved. Pedaling power is directly transformed into driving power and the bicycle's overall performance is heightened.

DD Pedal
Dura-Ace AX, Shimano 600 AX

Shimano's in depth research into bicycle technology and biomechanics produced the DD Pedal, ideally suited for transforming the rider's energy into driving power.

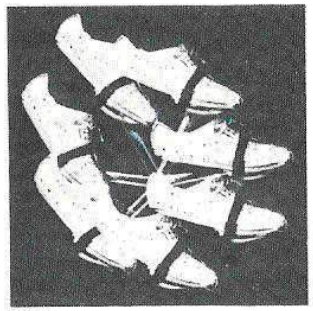


When Shimano closely examined the conventional pedal, it soon became apparent that because the axle is lower than the pedal body, energy was easily dissipated trying to keep the pedal steady. This meant the rider was forced to use valuable energy "ankling" instead of concentrating soley on rotating the pedals.



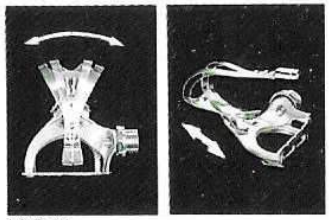
The conventional pedal's pivot is lower than the platform so that power input is dissipated maintaining pedal stability when pedaling. In comparison, the DD Pedal is much more stable with full power centered on the pedal axle for maximum driving force.

In contrast, the DD Pedal's axle connects to the crank arm slightly above the pedal body. Now the pedal platform is on the same level as the axle. The pedal always maintains a stable position allowing full rider pedaling power to drive the chainwheel—and the bicycle. A tremendous improvement in performance.



Effective
DD Pedal Rotation

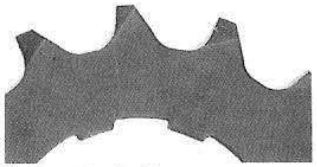
The position of the DD Pedal has also lowered the center-of-gravity for both rider and bicycle. This means bicycle stability is increased and, in keeping with Shimano's aerodynamic policy, air resistance is lessened.



DD Pedal
The toe-clip adjust back and forth by 10mm (0.39"), and also laterally to obtain the most comfortable setting.

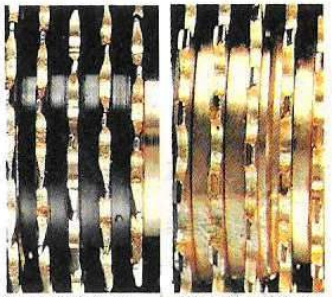
Super-Shift Sprocket
Dura-Ace AX, Shimano 600AX

Shimano's Super-Shift Sprocket has again revolutioned conventional thinking by its innovativeness and sheer effectiveness. We decreased the outside diameter of the sprocket and eliminated that part of the sprocket tooth which was responsible for preventing the chain from making smooth gear changes. This new design now allows the chain to be released quickly during a shift and onto the next gear smoothly and naturally.



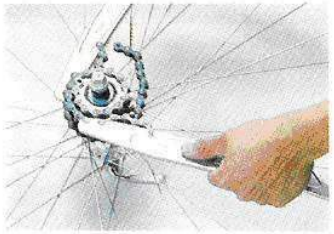
Wave form shaped teeth

By using Super-Shift Sprockets on the conventional UG Freewheel, we were able to improve performance to a much higher level. In addition, we designed a new teeth formation assembly, the alignment system. This allows the teeth to be closer to low side gears and high side gears in alternating sequence. As a result, the low to high and high to low gear changes are greatly speeded up. Further the Super-Shift Sprockets are responsible for improved shifting lever performance with no need for fine-tuning. Also pedaling power



Super-Shift Sprocket　　Conventional Sprocket Teeth

remains constant when shifting instead of slowing down as with conventional systems.
Features include no shifting shocks, no slipping during close ratio shifting, usually the most difficult case of all, and smooth shifting, even on a hill, without losing momentum.

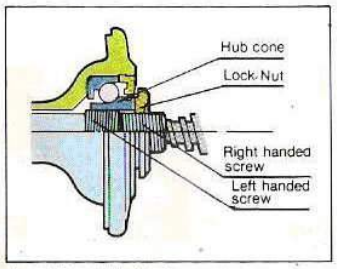


When removing sprockets, as seen in photograph, use the double wrap sprocket turning chain for easier operation.

Special Front Hub Structure

Dura-Ace AX

The hub is usually fixed by tightening the lock nut and spacer. But now because of the development of the hub axle structure, only the lock nut is needed to fix it. And we shortened the lock nut's dimensions without changing those between the flanges. This means, of course, lighter weight and reduced air resistance without any weakening of the wheel.



Special Front Hub Axle Structure

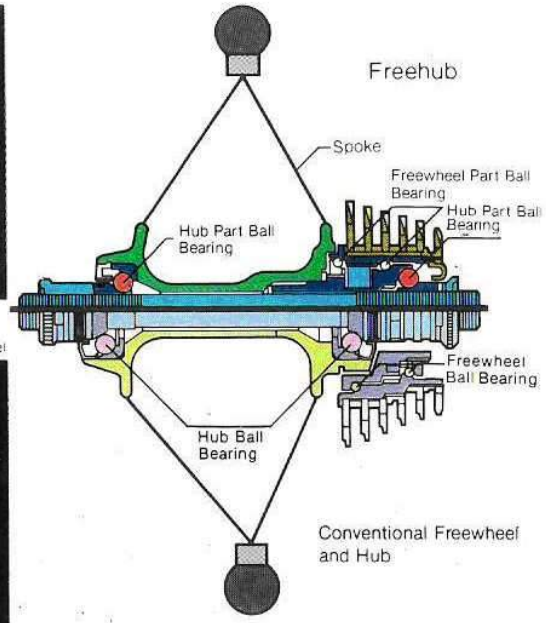
Uni-Balance Mechanism

Shimano 600 AX, Shimano Adamas AX,

The conventional dished wheel assembly with multiple freewheel was seen by Shimano to cause both vertical and lateral vibrations; a major cause of damage to both spokes and the rim. (The ratio of spoke tension on right and left side spokes causes an imbalance of 10:6. This is because the center of the hub and frame do not align with each other due to the multiple freewheel's positioning.)
The dished assembly, with its obvious demerits has been used for a long period. Not until Shimano tackled this long outstanding problem was a solution discovered.
With the development of the Uni-Balance Mechanism, equal distribution of tension on both right and left side spokes was made possible. We were able to reduce the dish substantially while still keeping the usual distance between flanges.
The Uni-Balance Mechanism was responsible for improving durability of spokes and the rim along with solving vertical problems due to imbalance. In addition braking performance has also benefited from the inherent stability of the wheel assembly.
Another big problem solved was when the rider wanted to exchange a 5-speed freewheel for a 6-speed, it was necessary to change the frame also. Now, the Uni-Balance allows 5 and 6-speed freewheels to be used on the same frame.

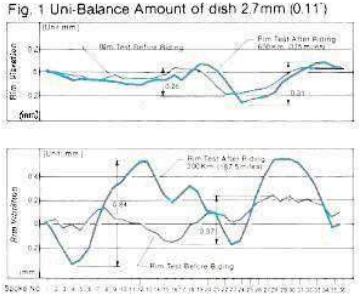
Uni-Balance Wheel

Dished Assembly Wheel



Conventional Freewheel and Hub

Fig. 1 Uni-Balance Amount of dish 2.7mm (0.11")

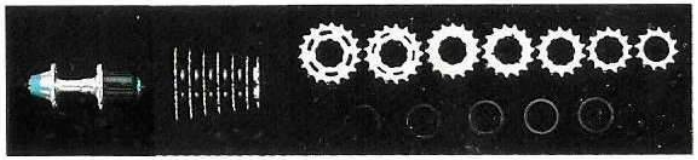


The illustrates the difference in Vibration levels between a conventional dished assembly and the Uni-Balance assembly, using 36 spoke wheels, when tested before and after riding. The result of the rim Vibration difference for the conventional rim assembly is 0.47mm (0.02") (Fig. 2) while the Uni-Balance is only 0.05mm (0.002") (Fig. 1). Thus, the Uni-Balance has solved the problem of rim Vibration so apparent in the conventional assembly, and exhibits incredible rigidity.

Cassette Freehub

All AX Series

The Freehub was another Shimano first. By combining the freewheel and hub into one unit, we were able to move the freewheel side ball bearing over toward high gear and widen the distance between both sides' balls. This adjustment reduced deflection on the axle while at the same time increasing durability. Furthermore, because of the reduced deflection, drive power could be used efficiently with power loss drastically reduced.
Another improvement followed the unification of the freewheel and hub. We were able to make the freewheel accept cassette sprockets; something not possible before. The rider is now able to choose gear combinations according to leg strength or touring conditions and make changes easily.
The Cassette Type Freehub has won international acclaim and is becoming a favorite with many of the world's top racers because of its unique features which include lightness, ease of changing sprockets, rigidity and increased power input without deflection on the axle.

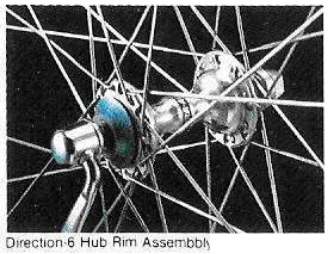


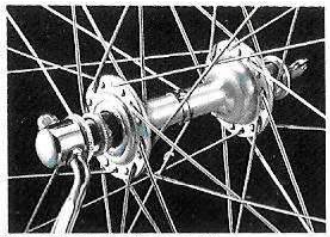
Direction-6 Mechanism

All AX Series

Rim assembly on a wheel is one of the most troublesome chores associated with the bicycle, needing time and skill.
The Direction-6 Hub has greatly alleviated this problem with its specially designed flanges. Each spoke hole is designed to face the spoke in the correct direction with every other hole recessed. This means that all spokes can be threaded from one side of the flange. And they can be threaded on each side in separate operations which makes assembly much easier and efficient.
Another feature is the increase in spoke width assembly of 12% compared to conventional models. Also,

the cross over system allows almost equal tension on each spoke thereby increasing vertical and lateral strength substantially. (20% increase for lateral force and 10% for vertical force according to Shimano data.)
Direction-6 is not only a great boost for racing efficiency but also a great benefit to touring.


Direction-6 Hub Rim Assembbl)


Conventional Hub Rim Assembly

Super Finish Treatment

Dura-Ace AX Series

Our new Super Finish Treatment is used on the ball race section of the hub. And the resulting increase in rotating performance and durability is an outstanding improvement.
The Super Finish Treatment, a highly technical process, was found to be far superior to conventional finishes.
Because of this technique, we could achieve maximum surface precision, symmetrical durability and set new standards for product finishing of the highest quality.

SHIFTING MECHANISMS

Direct Cable Mechanism

All AX Series

A constant aim of our development planning has been to examine even the least likely areas of power loss. It was found that the outer cable was responsible for a slight loss in force and response, so we tackled the problem of disposing of the outer cable. We joined the inner cable to the rear derailleur, without outer cable, and transferred the shift lever pulling power directly. Now the inner cable maintains a constant length, unlike before due to outer cable shrinkage. Shifting lever and rear derailleur are perfectly coordinated and response is both faster and more efficient.
By removing the outer cable we also helped reduce the overall air resistance of our components and, of course, reduced weight.

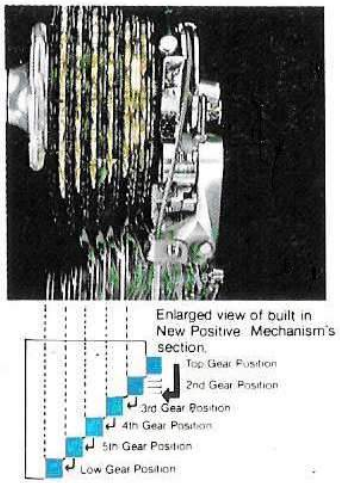

Direct Cable Mechanism

New Positive Mechanism

All AX Series

Shimano's New Positive Mechanism has eliminated gear changing problems, especially with close ratios, experience even by the most seasoned of racers. Each gear is now positively indexed so that the rear derailleur automatically engages the chain on any gear from top to low. Thus, special techniques so often employed in conventional gear changes, with accompanying noise and slippage, are no longer necessary.
In addition, a positive "click" is felt from the shifting lever on completion of each gear change notifying the rider of a successful operation. Smooth and reliable gear changes are possible at all times under the severest racing conditions with Shimano's New Positive Shifting Mechanism.

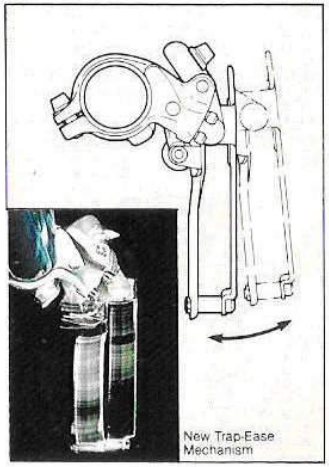
The built in Positive Indexing Mechanism of the rear derailleur provides continuous top to low gear changes



New Trap-Ease Mechanism with lateral link design

Dura-Ace AX, Shimano 600 AX, Shimano Adamas AX

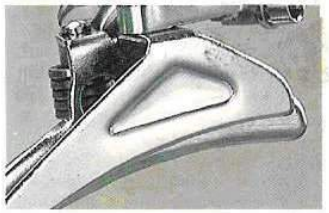
Already Shimano's Trap-Ease Mechanism has won world-wide acclaim as an orginal, innovative technique for shifting. Now Shimano has taken it one step further by introducing a front derailleur with our New Trap-Ease Mechanism. The new design has improved shifting efficiency along with incorporating an aerodynamic shape reducing air resistance.
Further, another dimension has been added to the already efficient shifting operation of our Trap-Ease Mechanism. Now the special link design enables the front derailleur, when shifting from low to top gear, to transport the chain with a diagonally lateral thrust. This energy efficient movement is also given an added push from the outward swing motion of the derailleur rear end. As a result, an even faster shift is possible. By using the lateral link design, the front derailleur's low to top gear shift is a much more natural and reliable operation.

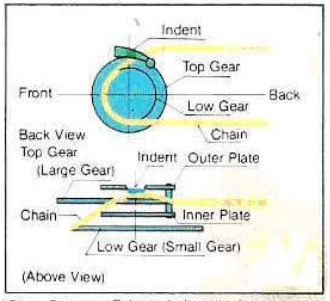


Chain Release Indent

All AX Series

Shimano has incorporated a unique device on the front derailleur's outer plate to prevent the chain from dropping between the large gear and crank arm. The device itself takes the form of an indentation which holds the chain back from overshifting the large gear—a hazard often encountered in conventional front derailleurs. Thus gear changes are carefully engineered to lift the chain to the ideal position before releasing it for a perfect gear change.





Chain Protector Release Indentation's movement

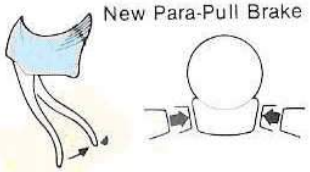
BRAKING MECHANISMS

New Para-Pull Mechanism

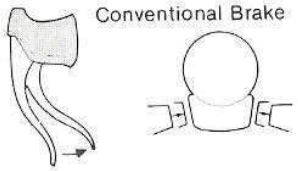
All AX Series

The new Shimano AX Para-Pull Mechanism was developed especially for speed control when riding in addition to a reliable braking function.
The Para-Pull Mechanism utilizes a unique braking system painstakingly developed by Shimano's engineers. The brake arm arches work on a parabolic movement caused by the triangular carrier with its special cut-away section on top.
This mechanism provides two great features:

1. When commencing to brake, the cut-away section on the triangular carrier is responsible for transmitting braking power to the brake arm arch immediately without delay. Thus, the brake shoes are activated toward the rims. The faster transmission of power means a wider dimension between brake shoes is possible and the quick release system is no longer necessary.
2. The precision design of the lower section of the triangular carrier (the slider) results in a steady flow of braking power, an important factor for reliable braking. And just as important, even when brake shoes are worn the special design of the brake arm and brake shoe compensates so braking can always be relied on. In addition, unstable braking due to rim width is now perfectly under control.

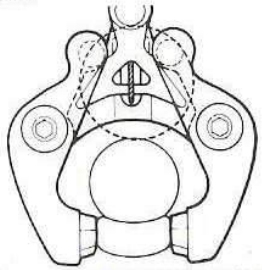


The first touch on the brake lever is quickly transmitted to the brake shoes which move toward the rim.



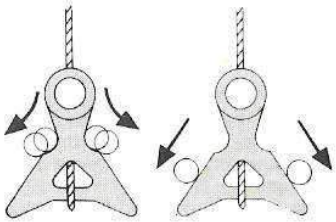
The lever stroke and brake shoe stroke are the same

These two innovative features allow the rider to control exactly the amount of speed required by means of the ideal positioning of brake shoes and their operation.
Another feature is unbalanced braking to one side has been eliminated because the design of the brake arm arch interior follows the parabolic movement provided by the lower section of the triangular carrier. Thus, any bias to one side is immediately balanced by the special geometry of the related parts.



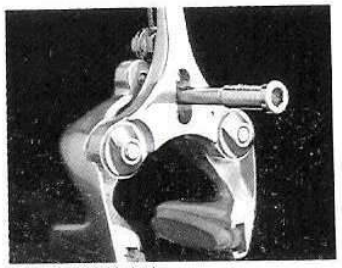
Because of the triangular carrier arch's quick transmission mechanism, the quick release mechanism is unnecessary

The assembly angle of the brake shoe holder, so essential for braking input, was decided upon by researching the frame's offset angle along with the most suitable brake shoe assembly angle.

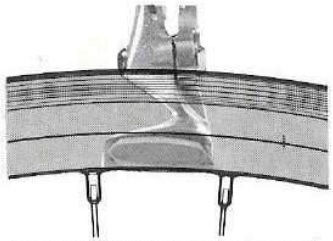


Arch quick response mechanism with specially designed triangular carrier.

We designed the brake shoe similar to the keel of a ship, so that fine assembly angle is no longer necessary. And also we solved the troublesome conventional brake shoe assembly method by combining brake shoe and arm.



Sliding adjustable brake.



Fine adjustments are unnecessary because of the keel shape design of the brake shoes

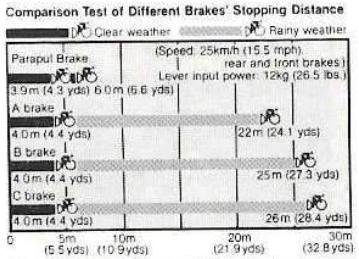
We built a spring into the arch and used a perfectly sealed mechanism. Therefore, reliable performance is always ensured and accidents prevented even in the rainiest weather or muddiest conditions.

Sealed Mechanism preventing mud, water and unwanted objects from entering for smooth braking at all times.

AW Brake Shoe

Shimano Adamas AX

This brake shoe has been designed to ensure safe and stable braking even under the wettest conditions. Shimano's brake shoe was developed from material with the biggest resistance against wet conditions. Continuous trials and tests were carried out in order to reach the exacting standards we set to satisfy ourselves of the quality of the AW Brake Shoe.
The AW Brake Shoe exhibits stable braking features in all wet weather conditions. This provides excellent braking at all times and, of course, is perfect for racing whether in rain or under normal conditions.

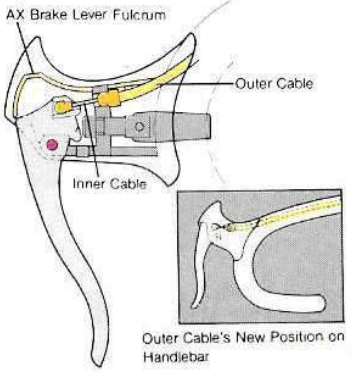


Comparison tests between AW brake shoe and conventional brake shoe for braking distances in wet conditions.

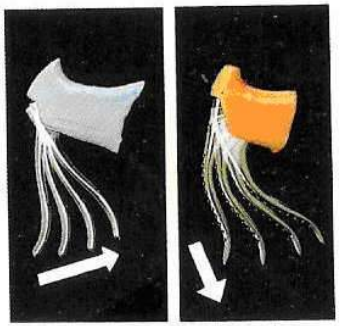
AX Brake Lever

All AX Series

In developing a brake lever suitable for today's modern cyclist we first closely examined the function of the original lever familiar to most people. To work effectively, the brake lever transfers power from a rider's grip to the cable. From our tests, we could find that ordinary brake levers required power input in excess of actual braking output. This meant that the rider was forced to find extra power when braking; an exercise both wasteful of energy and extremely tiring for long-distance touring.
Our solutions, which we incorporated in the AX Brake Lever, were

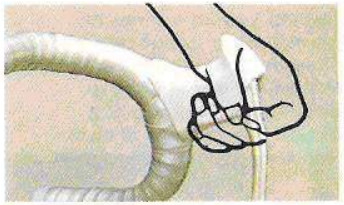


Outer Cable's New Position on Handlebar



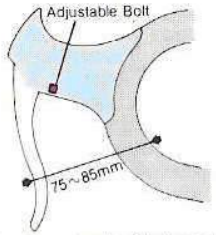
AX Brake Lever Action Ordinary Brake Lever Action

to position the brake lever fulcrum in a more forward setting than before for increased leverage. To build the outer cable into a groove situated in the tubing. And to increase the pulling angle of the inner cable by 90%.



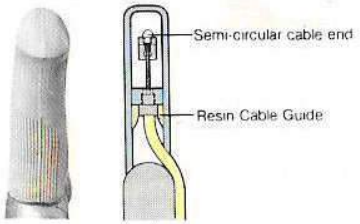
Undulations which spread palm pressure power evenly

These features have all contributed in making the brake lever's operation more power efficient without using excessive energy, a great boon to long distance tourers, and as a result safer and more reliable. The outer cable's new position on the handlebar improves appearance and, as part of our "Aerodynamics" policy, contributes to the overall reduction in air resistance.
All these innovative features are found only on Shimano's AX Brake Lever.
The AX Bracket Cover has been designed especially to fit the shape of the rider's palm, the advantage being that the rider can maintain the same gripping position without tiring. Shimano researched this special shape by comparing the natural form taken by fingers and palm when gripping and utilizing the most efficient position in the design of our Bracket Cover. Now the hand and bracket act as one unit with an increase in power efficiency. The grooved design allows palm and fingers to slot easily and comfortably into the most natural gripping position. The result: the hand and bracket are so joined to form a streamlined unit thus reducing air resistance.
Taking a close look at the brake lever stroke, we ascertained that about 80mm constituted the ideal distance for optimum power response. However, the wider stroke distance employed in present brake levers has persisted because of the mechanics of the brake body and lever. By overhauling the design, Shimano's Brake Lever now allows the rider to adjust gripping stroke between 75—85mm (2.95" to 3.35") for perfect braking response.



From the underside of the bracket, an Allen Key will adjust grip stroke from 75mm to 85mm (2.95" to 3.35").

Improvements to the cable itself include reshaping the cable end drum to a semi-circular form for easier assembly. Now cable assembly can be performed simply by inserting the inner cable end to the bracket.
A time-saving and trouble-free procedure.



Additional Features

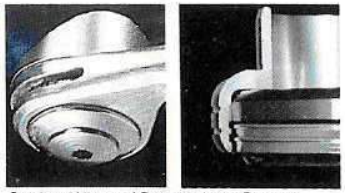
One Key Release
Dura-Ace AX, Shimano 600AX

To disassemble the cotterless-type front chainwheel, a special tool plus monkey wrench are ordinarily used in a several-step operation.
Shimano's One Key Release consists of one hexagon wrench key for detachment and attachment—and all in one movement.

Hexagon wrench key (6 mm) with Dura-Ace AX Front Chainwheel.

Sealed Mechanism

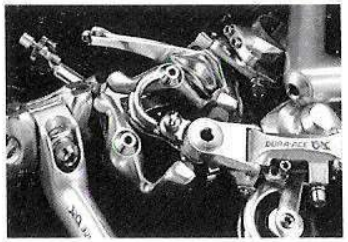
Altogether, we have incorporated numerous innovative and useful mechanisms into our AX Series.
The Sealed Mechanism is another of our ideas which we introduced to the DD Pedal, Freehub, Rear Derailleur and Brake Springs to prevent revolving and exposed parts from water, dust and foreign particle invasion.
This mechanism is a great boost for component efficiency and in reducing tiresome maintenance and cleaning work.



Sectional Views of Rotating Head Part and Shifting Lever (Labyrinth seal).

Hexagon Release
Dura-Ace AX

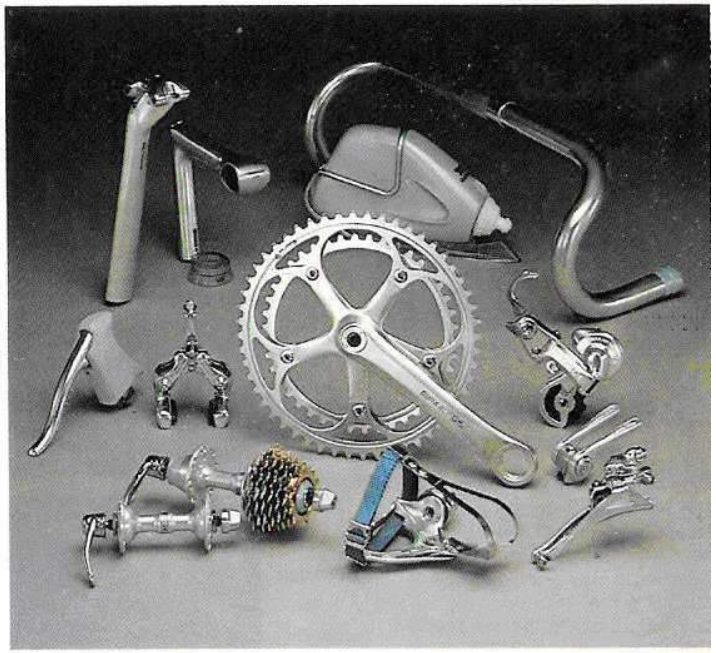
Wherever possible, a hexagon wrench key is used to tighten all Dura-Ace AX Series components. Easy handling and secure tightening, along with a sportier appearance, are all added benefits.



Light weight

The AX Series not only incorporates many aerodynamic ideas, but also contains a number of new mechanisms. However, in spite of adding new mechanisms, they have not contributed to weight increases. Instead, such mechanisms have allowed easier rotation of moving parts and higher energy efficiency. Also, the new AX Series has many features which have decreased air resistance and in effect lightened the pedaling load for the rider.

Dura-Ace AX Road Ensemble



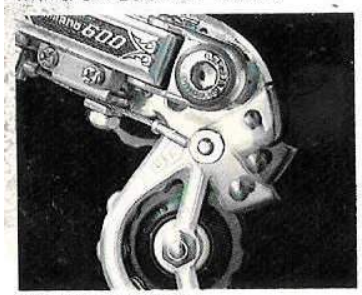
SHIMANO SYSTEM COMPONENTS SPECIAL INNOVATIONS

Hatch-Plate Mechanism

EX Series, Deore

The Hatch-Plate Mechanism allows much easier dismantling of the rear derailleur than ever before. The need to remove the pulley bolt or to undo the chain is eliminated. A simple movement is all that is needed.

Easier assembly and disassembly is possible and maintenance is much easier to carry out. Also, the elimination of the left plate has resulted in a lighter component. The Hatch-Plate Mechanism rear derailleur is suitable for use on any multi-speed bicycle—and is made especially for a bicycle equipped with a Uni Balance Freehub.



Hatch-Plate Mechanism

Servo-Panta Mechanism

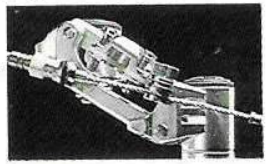
EX Series, Deore PPS System

The Pantograph design is presently the most widely used derailleur. Shimano improved it by inserting a spring inside the bracket body (B-Tension) of the rear derailleur. This enables the derailleur guide pulley to maintain the proper distance from the freewheel sprocket teeth no matter what the combination of gears may be.

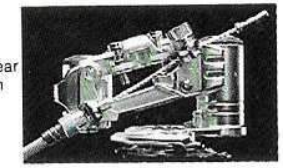
Synchro-Line Mechanism

Dura-Ace EX

The Synchro-Line Mechanism, the newest addition to the Dura-Ace Rear Derailleur, keeps the adjusting barrel and the cable fixing pin constantly aligned and therefore the inner cable straight while the derailleur changes speeds. This reduces strain on the cable, prolongs the cable's service life, and facilitates a "positive shift" feeling at the shift lever.



Low Gear Position

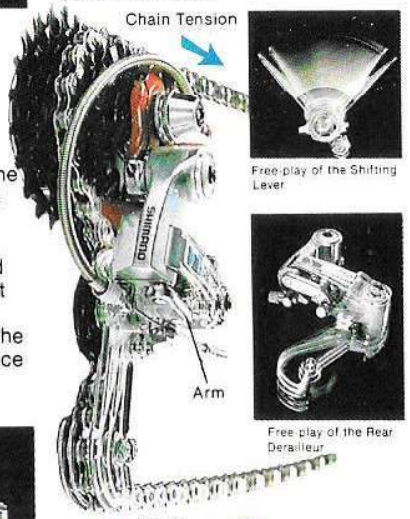


High Gear Position

Centeron Mechanism

Deore

The Centeron Mechanism employs a unique and extremely effective method of guiding the rear derailleur to the desired gear sprocket. Instead of the guide spring controlling both left and right link plates directly as usual, we have developed a system whereby the guide spring makes direct contact only with the left link. Contact with the right link is made through a special arm which, in turn, controls the link.



Free-play of the Shifting Lever

Free-play of the Rear Derailleur

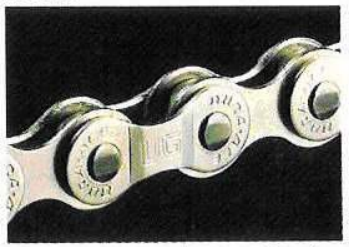
The reason is to allow the right link a certain amount of designated free-play when shifting from high gear to low. Now when a gear is selected, the shifting lever, via the cable, moves the derailleur toward the gear. At this time the rotating tension of the chain takes over and leads the derailleur and pulley into line with the gear. The free-play of the derailleur's Centeron Mechanism is responsible for the all important flexibility of movement at the point of engagement. In the case of the conventional derailleur, movement is rigidly controlled by the shifting lever without any allowacne made for errors of judgement. The Centeron Mechanism is also incorporated in the shifting lever. This means that both rear derailleur and shifting lever have the same coordinated movement for surer, faster and quieter gearshifts.

Features of the "Centeron Mechanism"

1. Irritating noises are eliminated for a quieter and smoother gear change.
2. Durability is increased because of reduced friction.
3. Fine-Lever adjustment is no longer needed after gear changes.
4. Immediate shifting response.

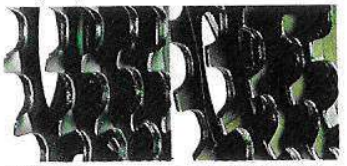
Uniglide Mechanism

EX Series, Shimano 600 Series



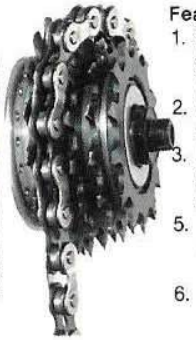
The UG Chain. Outerplates are widened to the level of chainpin heads.

10 speed bicycles now command the major share of the bicycle market. At Shimano we have pushed forward a series of developments based on our "System Components" principle. We believe that in order to innovate the structure of a bicycle, the function of each component has to be re-evaluated and the individual part seen as it relates to the whole.



UG Teeth — Conventional Teeth

Our engineers studied the complete power train of the bicycle and singled out the chain and freewheel as being the basis for fundamental improvement. The outcome was the introduction of the Uniglide freewheel (UG freewheel). As components especially designed for multi-speed bicycles, the chain and freewheel greatly improve gearshift performance and have won attention as a revolutionary development.



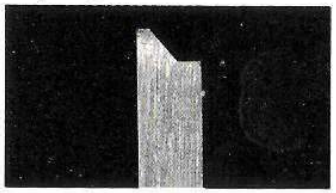
Features

1. Sure and smooth gearshifting performance!
2. Overshifts eliminated!
3. Irritating noises eliminated and durability increased!
5. Longlasting, high gearshifting efficiency!
6. Immediate shifting response!

Chamfered Sprocket Teeth

Dura-Ace Road

Whether the chain is changing up or down, the chamfered teeth are designed to offer the best possible engagement. The result is a surer, faster gear change every time.

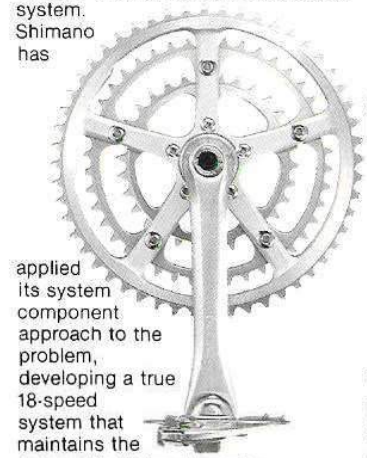


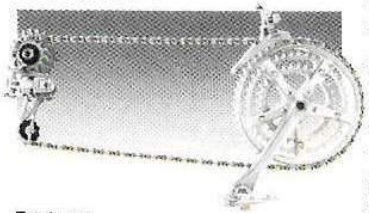
Triple-gear Sprocket with 18-Speed Capability

Deore

The DEORE front chainwheel introduces a fine blend of functional superiority and fashionable style. The chainwheel is cold forged aluminum alloy, affording excellent rigidity, graceful lines and aerodynamic sleekness, while the 5-pin spider with triple chainwheel capability makes possible up to 18 speeds, all with ultra-smooth shifting. Conventional triple sprocket front chainwheels present real shifting problems from the inner to middle gear. In many cases, because of this difficulty, one must first shift to the outer gear, then down to the middle. Poor alignment and noise also plague use of the lower front and higher rear gear combinations. Because of these problems, with conventional systems the full 15-or 18-gear capacities are rarely used.

Not so with the DEORE chainwheel system. Shimano has applied its system component approach to the problem, developing a true 18-speed system that maintains the same spindle length as the Conventional Model (121.5mm). At any time, the double-chainwheel DEORE front chainwheel can be converted to a triple-chainwheel system, without changing the 119mm spindle. And, more important, this can be done with greatly reduced alignment and noise problems.



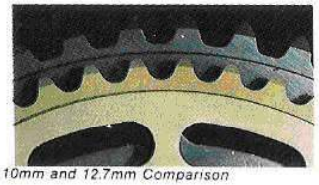


Features

1. Easy to exchange sprockets.
2. High precision and durability.
3. Overall weight greatly reduced, without affecting durability, by using steel for the chainring and light alloy for the adapter and crank.
4. The chain line is fixed by an exclusive design and exhibits minimal deflexion.

10 10mm Pitch System

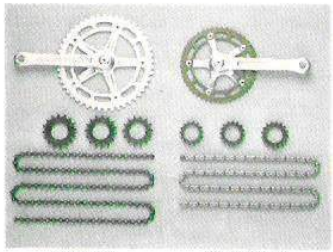
Dura-Ace 10 Series



10mm and 12.7mm Comparison

Features of the 10mm. Pitch System

1. Miniaturization of Components—
By reducing the chain pitch from 12.7mm. to 10mm., the diameters of the front chainwheel and rear sprocket have been reduced by a corresponding factor of 10/12.7. This means the front chainwheel has been made 21% smaller in size and 38% lighter in weight.
2. Increased Efficiency—
As the rotating parts of the 10mm. pitch system have been made lighter, the rear sprocket wheel rotates more easily, increasing accelerating efficiency. The rider's energy is transmitted to the bicycle faster and with less power loss due to components mass and friction just a light step is enough to set the bicycle in motion.
3. Reduced Deflection—
The 10mm. pitch's smaller drive train greatly reduces bending or flexing due to deflection. Since the rider's energy is transmitted more directly and efficiently from the front chainwheel, through the chain and rear sprocket, to the wheels, less effort is wasted.



Dura-Ace *Dura-Ace 10*

DURA-ACE 10—DURA-ACE Comparison Chart * Weight Comparison (Track Models)

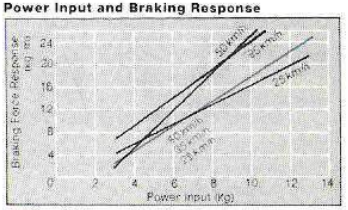
	Dura-Ace 10	Dura-Ace	Saving
Right Hand Crank	8.5 oz. (239 g.)	9.8 oz. (277 g.)	1.3 oz (38 g.)
Chainwheel (49T)	2.2 oz. (63 g.)	4.1 oz. (116 g.)	1.9 oz. (53 g.)
Chain	11.6 oz. (330 g.)	11.8 oz. (335 g.)	0.2 oz. (5 g.)
Rear Hub W/Lock Ring	10.4 oz. (295 g.)	11.0 oz. (313 g.)	0.6 oz. (18 g.)
Rear Sprocket (14T)	0.8 oz. (22 g.)	1.4 oz. (38 g.)	0.6 oz. (16 g.)
TOTAL	33.5 oz. (949 g.)	38.1 oz. (1079 g.)	4.6 oz. (130 g.)

NBM Shoe Brake

Dura-Ace EX

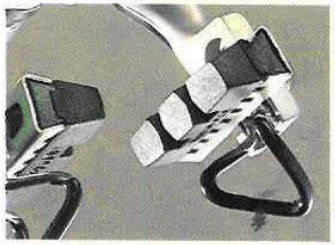
The new Dura-Ace NBM Brake Shoe was developed specifically for road racing. It is a well known fact road racing makes many demands on braking equipment—and especially on brake shoes. Inherent material deficiencies of present brake shoes cause fluctuations in braking reliability. Power input is not always consistent with response.

Power Input and Braking Response



The new NBM brake shoe remains proportionately stable and reliable irrespective of rider's power input or speed. The conventional brake shoe's performance alters appreciably whenever the bicycle's speed changes, causing unreliable responses.

Shimano studied this problem and came up with a material perfectly suited for road racing resulting in the NBM Brake Shoe.
The molybdenum additive is responsible for a material that is both heat resistant and much more durable. Also the treads have been redesigned for optimum gripping power without being too severe.
Because of these features, the braking properties of the material never alters appreciably. The rider can exercise perfect judgement when controlling speeds or stopping. Also, the noise factor is reduced considerably.
The new NBM Brake Shoe allows power input to equal response so that the rider is always in control of braking.



DURA-ACE 10 SERIES TRACK ENSEMBLE

10mm Pitch Chaindriving System

DURA-ACE 10 Track Ensemble

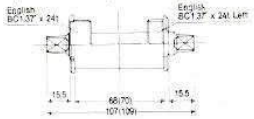
DURA-ACE 10 Front Chainwheel

Model FC-7000 BB-7500

SPECIFICATIONS

Material ● Light Alloy • Special Surface Treatment
Type ● Cotterless
Chain Ring ● 10mm. x 3mm.
Teeth ● 46~53T
Crank Lengths
● 6-1/2" (165mm.), 6-3/4" (170mm.)
Available by request 6-19/32" (167.5mm.)
Crank Thread ● BC 9/16" x 20 T.P.I.
Cup Thread ● English 1.37" x 24T, French 35 x 1.0, Italian 36 x 24T
Super Polished Ball Race

Spindle Length: (Unit: mm)



DURA-ACE 10 Front & Rear Hubs with Lock Ring

Model HB-7020

SPECIFICATIONS

Weight ● Front 7.9 oz. (225 g.) Rear 10.4 oz. (295 g.)Including Lock Ring
Material ● Light Alloy • Anodized Finish
Over Lock Nut Dimensions
● Front 3.94" (100mm.)
Rear 4.33" (110mm.) 4.72" (120mm.)
Fork End Slot Width
● Front 0.35" (9mm.), 0.31" (8mm.)
Rear 0.39" (10mm.), 0.31" (8mm.)
Sprocket Thread
● BC33 x 24 T.P.I.
Spoke Holes ● 28H, 32H, 36H
Lock Ring Thread
● BC32 x 24 T.P.I. (Left)
Super Polished Ball Race

Drilled Out Shaft

DURA-ACE 10 Sprocket for Track Hub

Model SS-7000

SPECIFICATIONS

Material ● Nickel Chromium Molybdenum Steel
Standard Sprocket
● 10mm. x 3mm.
Thread ● BC33 x 24 T.P.I.
Teeth ● 14T, 15T, 16T
Weight ●

14T	0.8 oz. (22.0 g.)
15T	0.9 oz. (26.8 g.)
16T	1.1 oz. (30.8 g.)

Sprocket for Use with Standard Dura-Ace Track Hubs Only
Thread ● 1.37" x 24 T.P.I.
Teeth ● 15T, 16T
Weight ●

15T	0.9 oz. (26.0 g.)
16T	1.0 oz. (29.0 g.)

DURA-ACE 10 Chain

Model CN-7000

SPECIFICATIONS

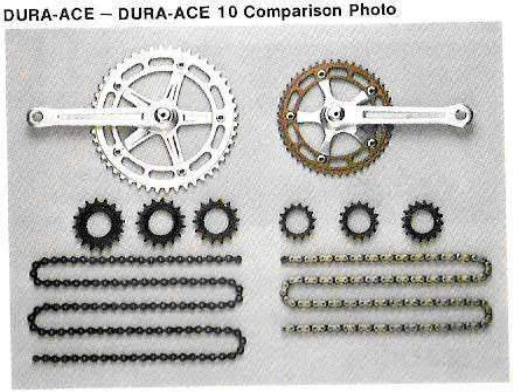
Material ● Chromium Molybdenum Steel • Special Surface Treatment
Type ● Bushed Chain

DURA-ACE 10—DURA-ACE Comparison Chart

* Weight Comparison (Track Models)

	Dura-Ace 10	Dura-Ace	Saving
Right Hand Crank	8.5 oz. (239 g.)	9.8 oz. (277 g.)	1.3 oz. (38 g.)
Chainwheel (49T)	2.2 oz. (63 g.)	4.1 oz. (116 g.)	1.9 oz. (53 g.)
Chain	11.6 oz. (330 g.)	11.8 oz. (335 g.)	0.2 oz. (5 g.)
Rear Hub W/Lock Ring	10.4 oz. (295 g.)	11.0 oz. (313 g.)	0.6 oz. (18 g.)
Rear Sprocket (14T)	0.8 oz. (22 g.)	1.4 oz. (38 g.)	0.6 oz. (16 g.)
TOTAL	33.5 oz. (949 g.)	38.1 oz. (1079 g.)	4.6 oz. (130g.)

DURA-ACE — DURA-ACE 10 Comparison Photo



DURA-ACE SERIES TRACK ENSEMBLE

SHIMANO DURA-ACE Track Ensemble

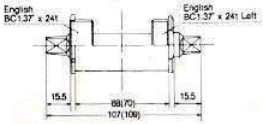
DURA-ACE Front Chainwheel

Model FC-7500 BB-7500

SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 1/8" Chain
Teeth ● 45T~52T
Crank Lengths
● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-7/8" (175mm.) Available by request 6-19/32" (167.5mm.), 6-13/16" (172.5mm.)
Crank Thread ● BC 9/16" x 20 T.P.I.
Cup Thread ● English 1.37" x 24t, French 35 x 1.0, Italian 36 x 24t
Option ● Super Polished Ball Race

Spindle Length: [Unit: mm.]



Cold-Forged Chain Ring

DURA-ACE Sprocket for Track Hub

Model SS-7500

SPECIFICATIONS

Material ● Chromium Molybdenum Steel/Light Alloy • Special Surface Treatment
Standard Sprocket
● 1/2" x 1/8" Chain
Thread ● 1.37" x 24 T.P.I.
Teeth ● 13T, 14T, 15T, 16T
Weight ●

	Light Alloy	Steel
13T	0.39 oz. (11.0 g.)	1.06 oz. (30.1 g.)
14T	0.48 oz. (13.5 g.)	1.34 oz. (38.0 g.)
15T	0.55 oz. (15.7 g.)	1.67 oz. (47.3 g.)
16T	0.63 oz. (18.0 g.)	1.89 oz. (53.5 g.)

Super Polished Ball Race

DURA-ACE Front & Rear Hubs with Lock Ring

Model HB-7520

SPECIFICATIONS

Weight ● Front 8.5 oz. (240 g.) Rear 11.0 oz. (313 g.)/Including Lock Ring
Material ● Light Alloy • Anodized Finish
Type ● Solid Axle
Thread ● 1.37" x 24 T.P.I.
Over Lock Nut Dimensions
● Front 3.94" (100mm.) Rear 4.33" (110mm.), 4.72" (120mm.)
Fork End Slot Width
● Front 0.35" (9mm.), 0.31" (8mm.) Rear 0.39" (10mm.), 0.31" (8mm.)
Spoke Holes ● 28H, 32H, 36H
Lock Ring Thread
● 1.29" x 24 T.P.I. (Left)
Super Polished Ball Race

DURA-ACE Head Parts

Model HP-7500

SPECIFICATIONS

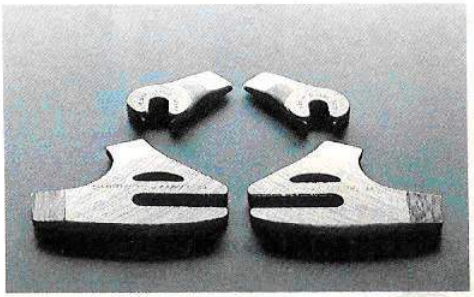
Material ● Chromium Bearing Steel (Main Parts)
Polished Ball Race

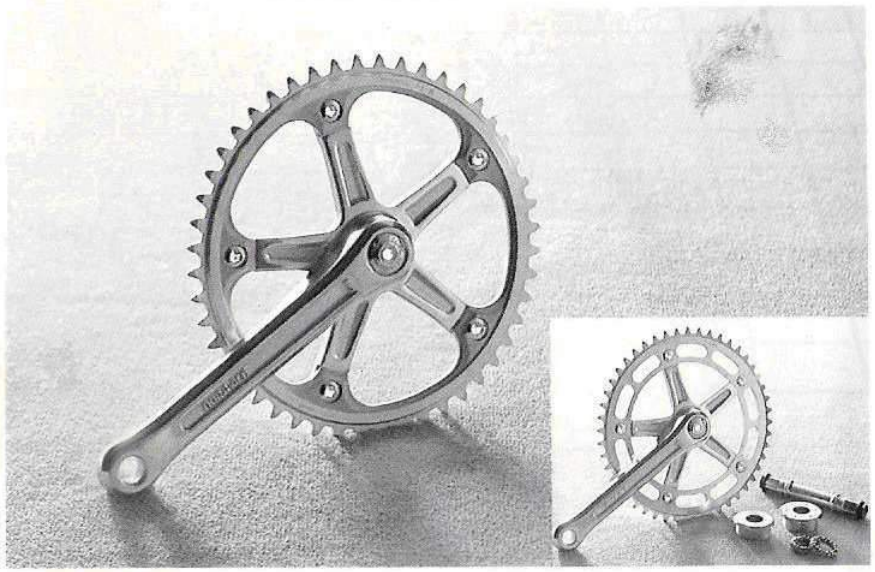
SHIMANO-UFP Fork Ends

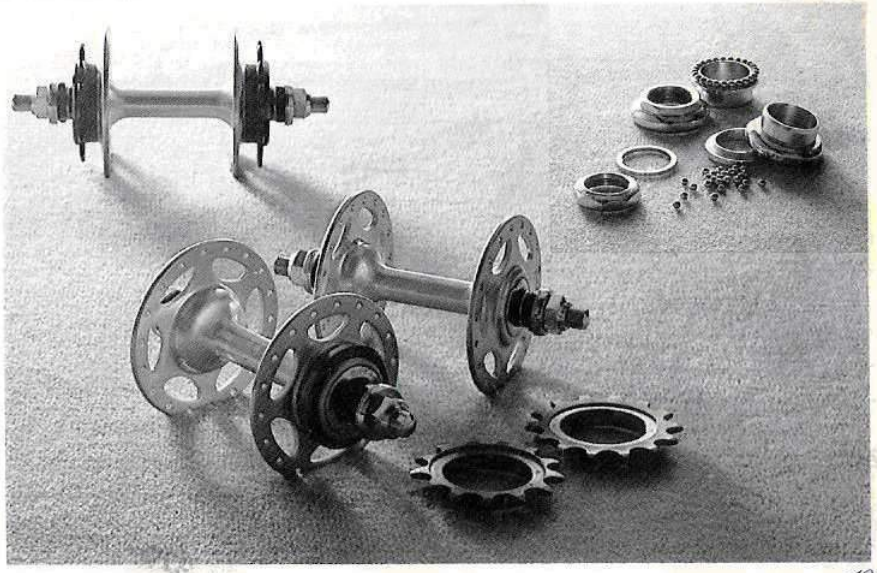
Model FE-UF10

SPECIFICATIONS

Material ● Steel
Fork End Slot Width
● Front 0.35" (9mm.), 0.31" (8mm.) Rear 0.39" (10mm.), 0.31" (8mm.)
Specially Ground Hub Connection Face—on Both Sides
Fine Blanking Finish







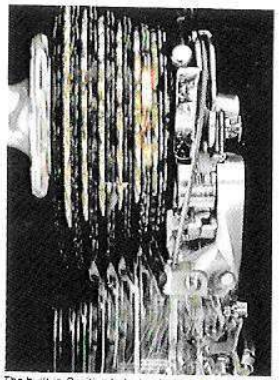
DURA-ACE AX SERIES ROAD RACING ENSEMBLE

DURA-ACE AX Rear Derailleur

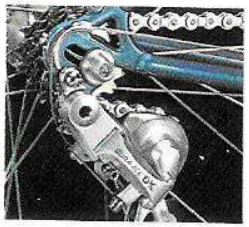
Model RD-7300

SPECIFICATIONS

Capacity ● Front Difference: 13T. or less
Rear Largest Sprocket: 26T. or less
Weight ● 7.5 oz. (214g.)
Material ● Light Alloy
Features ● Aerodynamic Design/Built-in Pulley Tension Spring/ Direct Cable Mechanism/ New Positive Mechanism/ Hexagon Release



The Built-in Positive Indexing Mechanism of the rear derailleur provides continuous top to low gear changes.



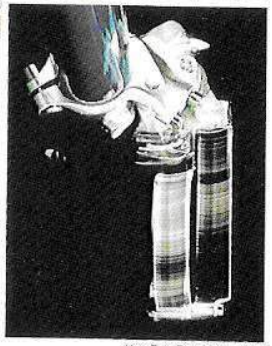
Direct Cable Mechanism

DURA-ACE AX Front Derailleur

Model FD-7300 (Band Type)
FD-7310 (Brazed-on Type)
FD-7320 (Brazed-on Type for oval Tube)

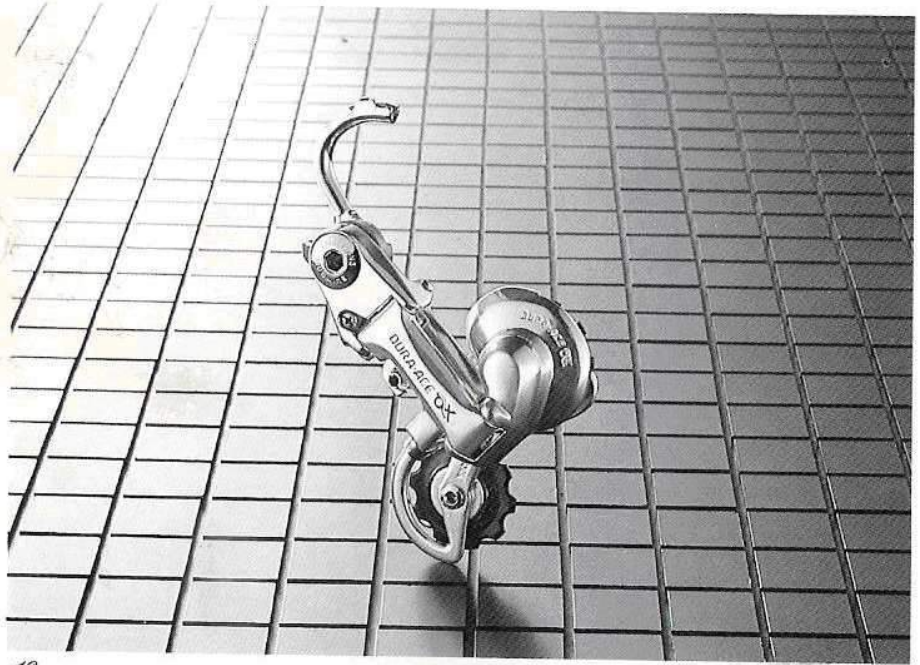
SPECIFICATIONS

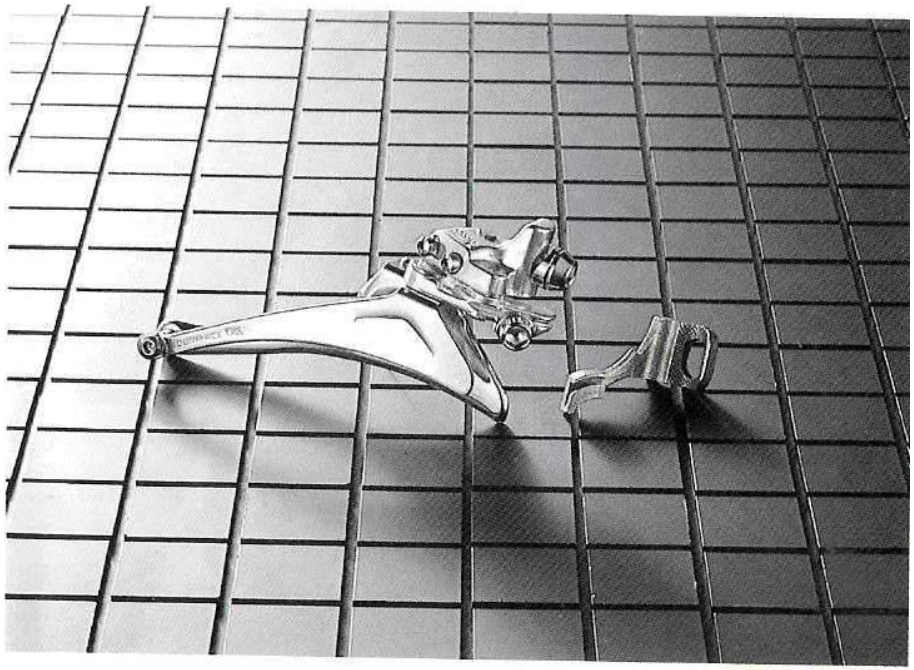
Capacity ● 14T. or less
Weight ● Band Type; 3.4 oz. (96g.)
Brazed-on Type; 3.1 oz. (88g.)
Brazed-on Parts; 0.5 oz. (13g.)
Material ● Light Alloy • Anodized Finish (Body)
Steel • Chromium Finish (Chain Guide)
Inlet Diameter ● Band Type/1-1/8" (28.6mm.), 1-3/32" (28.0mm.)
Brazed-on Type/1-1/8" (28.6mm.)
Brazed-on Type (For Oval Tube)/ 1-1/4" (31.8mm.)
Features ● Aerodynamic Design/New Trap-Ease Mechanism/Indent Guide Mechanism/Hexagon Release/ Inner End Guide



New Trap-Ease Mechanism

Chain Release Inden





DURA-ACE AX

DURA-ACE AX Shifting Lever

Model SL-7300 (Band A Type)
SL-7310 (Brazed-on A Type)
SL-7311 (Brazed-on B Type)
SL-7321 (Brazed-on B Type for Oval Tube)

SPECIFICATIONS

Weight ● 2.3 oz. (64g.) (SL-7300)
1.8 oz. (50g.) (SL-7310)
2.4 oz. (69g.) (SL-7311)
2.4 oz. (69g.) (SL-7321)
Material ● Light Alloy • Anodized Finish
Type ● Friction Type
Attachment Position ● Down Tube
Lever Clamp Diameter ● SL-7300; 1-1/8" (28.6 mm.)
SL-7310; 1-1/8" (28.6mm.)
SL-7311; 1-1/8" (28.6mm.)
SL-7321; 1-1/4" (31.8mm)
Features ● Aerodynamic Design/Sealed Mechanism/Light Weight/With Fairing Cover/Hexagon Release

Band A Type (SL-7300)

SL-7310 Brazed-on Parts A Type

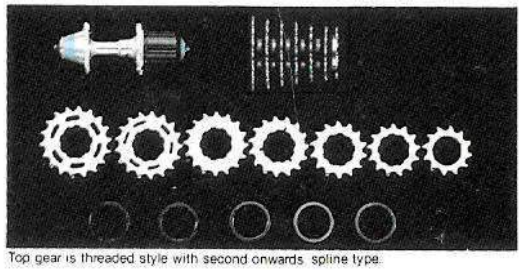
SL-7311 Brazed-on Parts B Type

DURA-ACE AX Freehub

Model FH-7370 (Small/7-speed)

SPECIFICATIONS

Weight ● Front; 7.1 oz. (200g.)
Rear; 14.0 oz. (398g.)
Over Lock Nut Dimensions
● Front; 3-1/4" (82mm.)
3-15/16" (100mm.)
Rear; 4-31/32" (126mm.)
Amount of Dish ● Rear; 13/32" (10.5mm.)
Material ● Light Alloy Anodized Finish (W/Light Alloy Nut)
Sprocket ● Golden Finish
Teeth ● Threaded Sprocket: 11T. — 19T.
Spline Sprocket: 12T. — 28T.
Spoke Holes ● 32H./36H.
Features ● Aerodynamic Designed Sealed Cap/Super-Finish Treatment/ Super-Shift Sprocket / Aerodynamic Designed Quick Release Lever/Cassette Gear/Sealed Mechanism/Light Weight/Direction-6 Hub
Super-Shift Sprocket 11T. — 20T. available.



Top gear is threaded style with second onwards spline type.

DURA-ACE AX SERIES ROAD RACING ENSEMBLE

DURA-ACE AX Front Chainwheel & Bottom Bracket Assembly

Model FC-7300
BB-7500 (B.B. Parts)

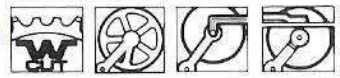
SPECIFICATIONS

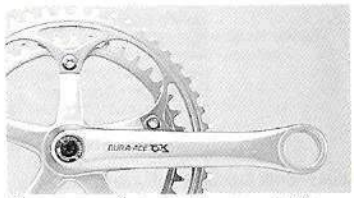
Weight ● 32.1 oz. (909g.) 42T. — 52T. Type. (170mm)
9.0 oz. (256g.) B.B. Parts
Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" × 3/32" Chain
Teeth ● Inner Chain Ring; 39T. — 45T.
Outer Chain Ring; 48T. — 53T.
Crank Length ● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-25/32" (172.5mm), 6-7/8" (175mm.)
Crank Thread ● BC 1" × 24 T.P.I.
Cup Thread ● English 1.37" × 24 T./French 35 × 1.0/Italian 36 × 24T.
Chain Ring Material ● Light Alloy • Anodized Finish
Features ● Aerodynamic Design/Offset Crank Arm/W-cut Mechanism/ One Key Release Mechanism/ Safety Crank Arm

Optional Use ● (B.B. Parts) Polished Ball Race
● With DURA-ACE AX DD Pedal (PD-7300) or SHIMANO 600AX DD Pedal (PD-6300)

B.B Parts Size

Part No.	B.B. Shell Width	Axle Length
1370110	68mm	107mm
1370111	70mm	109mm





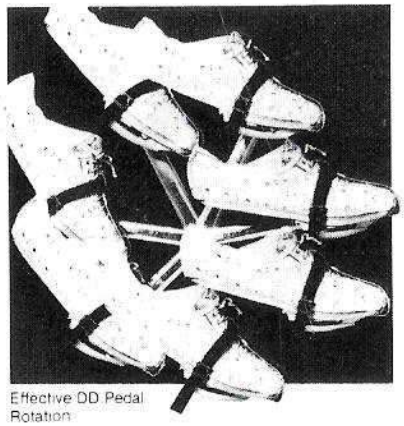
Crank arm is offset against spider arm for increased durability

DURA-ACE AX DD Pedal

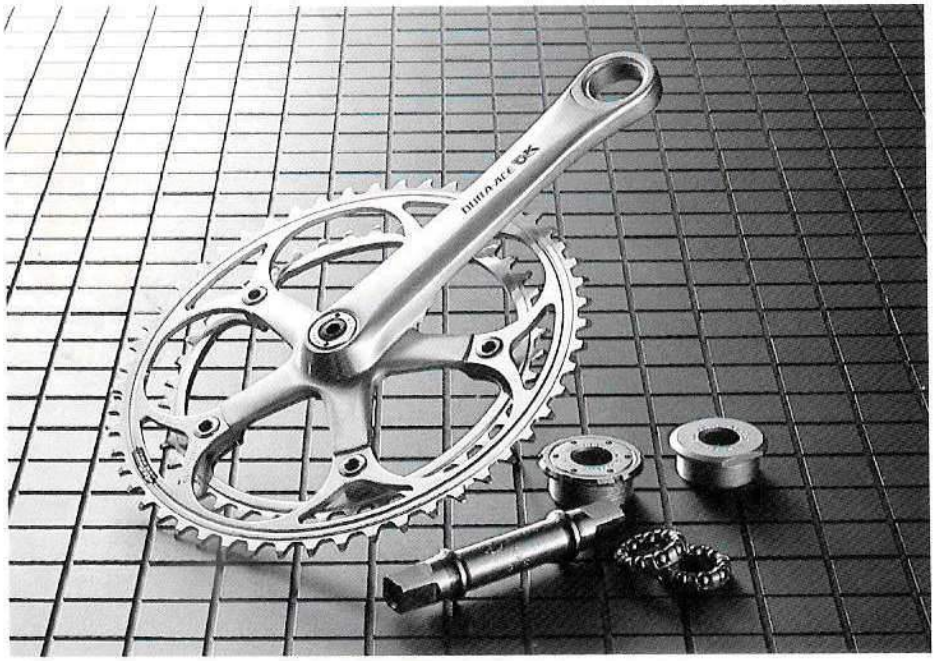
Model PD-7300

SPECIFICATIONS

Weight ● 7.5 oz. (214g.) (Including Toe Clip & Toe Strap)
Material ● Light Alloy • Anodized Finish (Body)
● Chromium Molybdenum Steel (Cup • Cone)
● Stainless Steel (Toe Clip)
Crank Thread ● BC 1 × 24 T.P.I.
Features ● Aerodynamic Design/DD Mechanism/Sealed Mechanism/ Light Weight/Adjustable Toe Clip
Use ● With DURA-ACE AX Front Chainwheel (FC-7300)
Option ● DD Pedal Reflector



Effective DD Pedal Rotation

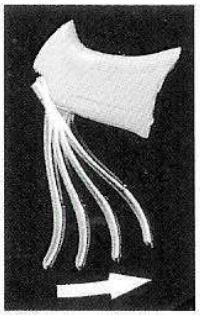


DURA-ACE AX Brake Lever

Model BL-7300

SPECIFICATIONS

Weight ● 3.8 oz. (107g.) each (with Pad)
Material ● Light Alloy • Anodized Finish
Features ● Aerodynamic Design/Grip Stroke Adjustment (75—85mm.)/One-Step Cable Attachment
Lever Clamp Diameter ● 23.8mm., 24.2mm.
Available: Amber Color (Bracket Cover)



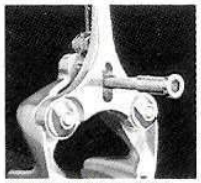
AX Brake Lever Action

DURA-ACE AX Parapul Brake

Model BR-7300

SPECIFICATIONS

Weight ● Front & Rear; 12.1 oz. (344g.)
Material ● Light Alloy • Anodized Finish
Features ● New Para-Pull Mechanism/ Aerodynamic Design/ Balanced Braking Mechanism/ Quick Response Mechanism/ Quick Release Lever Eliminated/Hexagon Release



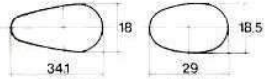
Sliding adjustable brake

DURA-ACE AX Seat Pillar

Model SP-7300 A-Type
SP-7310 (Semi Oval Tube) B-Type
SP-7320 (Order Made Oval Tube) C-Type
SP-7322 (Oval Tube) E-Type

SPECIFICATIONS

Weight ● 7.9 oz. (224g.) (SP-7300; 26.8mm.) 8.6 oz. (244g.) (SP-7310; 26.8mm.)
Material ● Light Alloy • Anodized Finish
Outside Diameter of Pillar ● SP-7300, 7310/25.4mm., 26.0mm., 26.2mm., 26.4mm., 26.6mm., 26.8mm., 27.0mm., 27.2mm., SP-7320, 7322 (Oval Tube) Made under special condition
Features ● Aerodynamic Design (SP-7310, 7320, 7322)/Hexagon Release/Light Weight



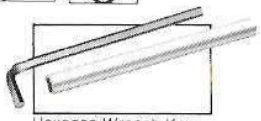
C-Type E-Type

DURA-ACE AX Handle Stem

Model HS-7300

SPECIFICATIONS

Weight ● 8.9 oz. 252g. (100mm.), 9.2 oz. 260g. (120mm.)
Material ● Light Alloy • Anodized Finish
Handle Stem Diameter ● 7/8" (22.2mm.) • (22.0mm.)
Extension ● 2-3/4" (70mm.), 3-5/32" (80mm), 3-1/2 (90mm.), 3-15/16" (100mm.), 4-5/16" (110mm.), 4-11/16" (120mm.), 5-1/8" (130mm.)
Features ● Aerodynamic Design/One Key Release/Hexagon Release
Handle Bar Clamp Diameter ● 26.0mm., 25.4mm.



Hexagon Wrench Key for Handle Stem

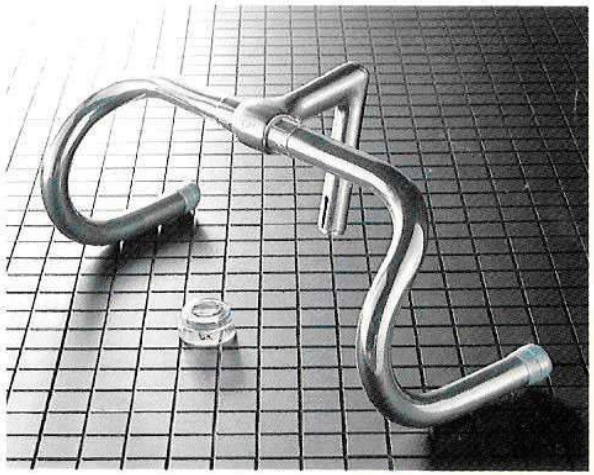
DURA-ACE AX Handle Bar

Model HD-7300

SPECIFICATIONS

Bar Width & Weight ● 380mm. 12.0 oz. (340g.), 400mm. 12.3 oz. (348g.), 420mm. 12.5 oz. (355g.)
Material ● Light Alloy
Handle Bar Clamp Diameter ● 1-1/16" (26.0mm.)
Use ● With DURA-ACE AX Handle Stem & Brake Lever (HS-7300, BL-7300)
Features ● Aerodynamic Design/ Bar End Cap Included

Handle Bar End Cap



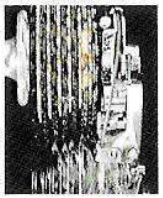
SHIMANO-600 AX SERIES ROAD RACING ENSEMBLE

SHIMANO 600 AX Rear Derailleur

Model RD-6300

SPECIFICATIONS

Capacity● Front Difference: 13T. or less
Rear Largest Sprocket: 28T. or less
Weight● 7.7 oz. (218g.),
Material● Light Alloy
Features● Aerodynamic Design/Built in Pulley Tension Spring/ Direct Cable Mechanism/ New Positive Mechanism/ Light Weight/Hexagon Release



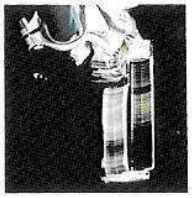
The built in Positive Indexing Mechanism of the rear derailleur provides continuous top to low gear changes.

SHIMANO 600 AX Front Derailleur

Model FD-6300 (Band Type)

SPECIFICATIONS

Capacity● 14T. or less
Weight● 3.8 oz. (107g.)
Material● Light Alloy (Body)
Steel (Chain Guide)
Inlet Diameter● 1-1/8" (28.6mm.)
Features● Aerodynamic Design/New Trap-Ease Mechanism/Indent Guide Mechanism/Inner End Guide



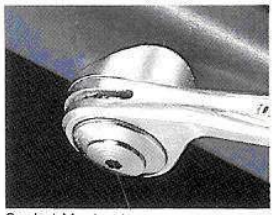
New Trap-Ease Mechanism

SHIMANO 600 AX Shifting Lever

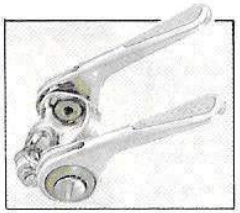
Model SL-6300 (Band A Type)
SL-6310 (Brazed-on A Type)
SL-6311 (Brazed-on B Type)
SL-6321 (Brazed-on B Type for Oval Tube)

SPECIFICATIONS

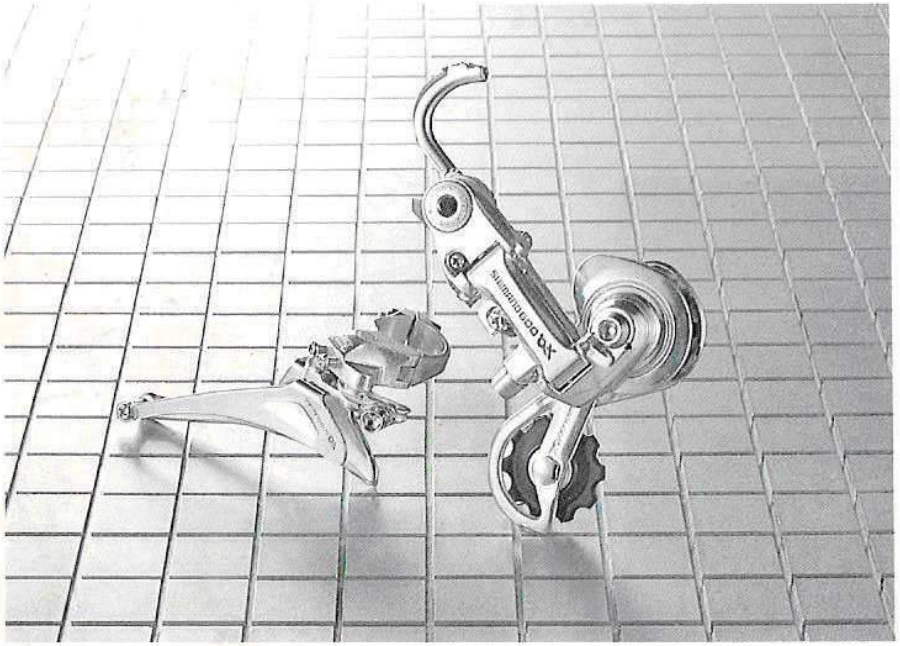
Weight● 2.3 oz. (64g.) (SL-6300)
1.8 oz. (50g.) (SL-6310)
2.3 oz. (64g.) (SL-6311)
2.2 oz. (63g.) (SL-6321)
Material● Light Alloy
Type● Friction Type
Attachment Position ● Down Tube
Lever Clamp Diameter ● SL-6300, 1-1/8" (28.6 mm.)
SL-6310; 1-1/8" (28.6mm)
SL-6311; 1-1/8" (28.6mm)
SL-6321; 1-1/4" (31.8mm)
Features● Aerodynamic Design/Hexagon Release/With Fairing Cover/ Sealed Mechanism

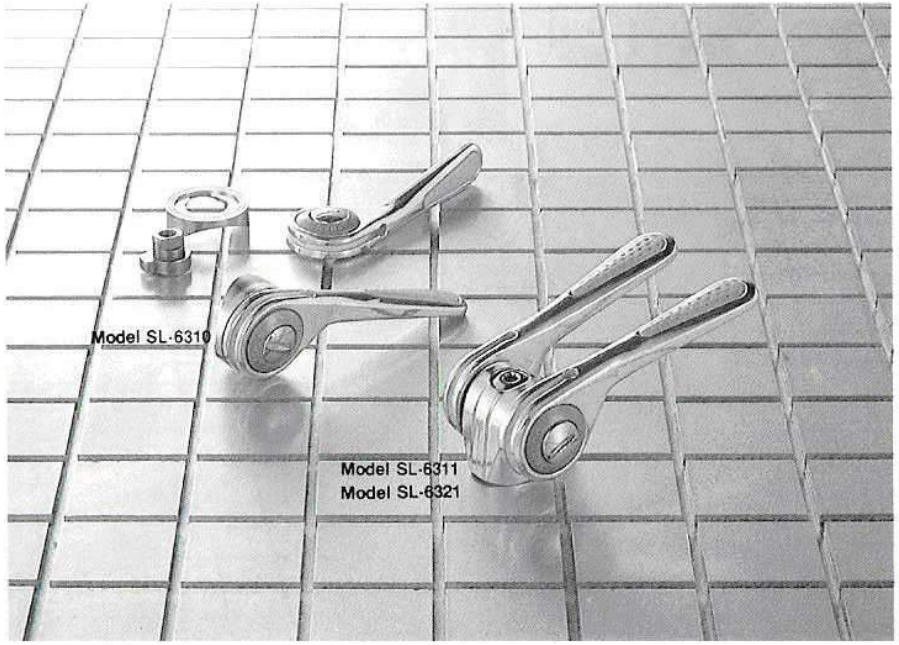


Sealed Mechanism



Band A Type (SL-6300)





SHIMANO 600 AX Freehub

Model FH-6361 (Small/6 speed)

SPECIFICATIONS

Weight	Front 8.5 oz. (242g.) Rear 13.9 oz. (394g.)
Over Lock Nut Dimensions	Front 3-15/16" (100mm.) Rear 5" (126mm.)
Amount of Dish	Rear 7/32" (5.9 mm.)
Material	Light Alloy
Sprocket	Nickel Finish
Teeth	Threaded Sprocket: 12T. — 16T. 2nd Sprocket; 13T. — 17T. Spline Sprocket; 15T. — 28T.
Spoke Holes	32H/36H.
Features	Aerodynamic Designed Sealed Cap/Super-Shift Sprocket / Aerodynamic Designed Quick Release Lever/Direction-6 Hub/Uni Balance Mechanism/ Light Weight/Cassette Gear/ Sealed Mechanism

Uni-Balance Wheel

Dished Assembly Wheel

SHIMANO 600 AX Front Chainwheel & Bottom Bracket Assembly

Model FC-6300
BB-6200 (B.B. Parts)

SPECIFICATIONS

Weight	24.0 oz. (680g.) 42T. — 52T. Type, (170mm) 10.8 oz. (306g.) B.B. Parts
Material	Light Alloy • Satin Finish
Type	Cotterless
Chain Ring	1/2" × 3/32" Chain
Teeth	Inner Chain Ring: 39T. — 45T. Outer Chain Ring: 48T. — 53T.
Crank Length	6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread	BC 1" × 24 T.P.I.
Cup Thread	English 1.37" × 24T./French 35 × 1.0/Italian 36 × 24T.
Chain Ring Material	Light Alloy • Anodized Finish
Features	Aerodynamic Design/Offset Crank Arm/W-cut Mechanism/ One Key Release Mechanism/ Safety Crank Arm
Use	With SHIMANO 600 AX DD Pedal (PD-6300) or DURA-ACE AX DD Pedal (PD-7300)

B.B. Parts Size

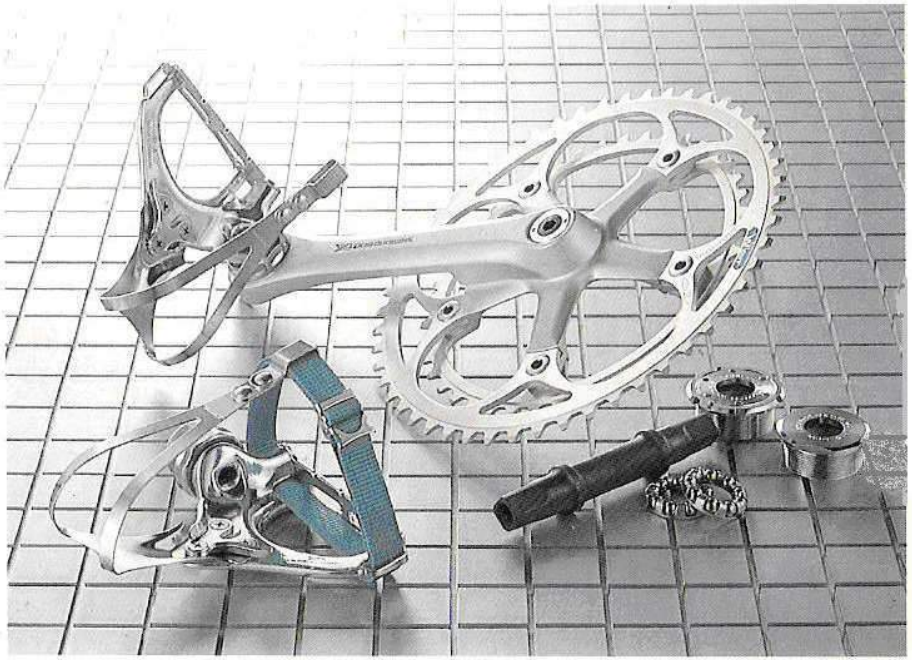
Part No.	B.B. Shell Width	Axle Length
1480101	68mm	116mm
1480100	70mm	119mm

SHIMANO 600 AX DD Pedal

Model PD-6300

SPECIFICATIONS

Weight	8.4 oz. (237g.) (Including Toe Clip & Toe Strap)
Material	Light Alloy (Body) • Chromium Molybdenum Steel (Cup • Cone) • Steel (Toe Clip)
Crank Thread	BC 1" × 24 T.P.I.
Features	Aerodynamic Design/ DD Mechanism/Sealed Mechanism/Light Weight
Use	With SHIMANO 600 AX Front Chainwheel (FC-6300) or DURA-ACE AX Front Chainwheel (FC-7300)
Option	DD Pedal Reflector



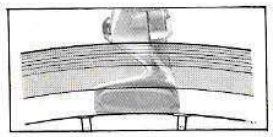
SHIMANO-600 AX SERIES

SHIMANO 600 AX Parapul Brake

Model BR-6300

SPECIFICATIONS

Weight • Front & Rear: 13.2 oz. (375g.)
Material • Light Alloy
Features • Aerodynamic Design/ New Para-Pull Mechanism/ Balanced Braking Mechanism/ Quick Response Mechanism/ Quick Release Lever Eliminated/ Hexagon Release



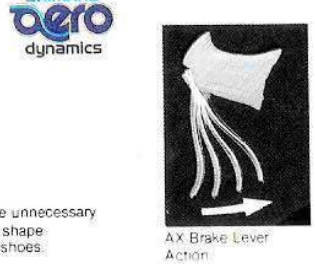
Fine adjustments are unnecessary because of the keel shape design of the brake shoes.

SHIMANO 600 AX Brake Lever

Model BL-6300

SPECIFICATIONS

Weight • 3.8 oz. (109g.) each (with Outer Pad)
Material • Light Alloy
Features • Aerodynamic Design/Grip Stroke Adjustment (75 — 85mm.)/One-Step Cable Attachment
Lever Clamp Diameter • 23.8mm.,



AX Brake Lever Action

Ordinary Brake Lever Action

SHIMANO 600 AX Handle Stem

Model HS-6300

SPECIFICATIONS

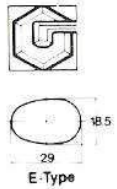
Weight • 10.1 oz. (286g.) (100mm.)
Material • Light Alloy
Handle Stem Diameter • 7/8" (22.2mm.)
Extension • 2-3/4" (70mm.), 3-5/32" (80mm.), 3-1/2" (90mm.), 3-15/16" (100mm.), 4-5/16" (110mm.), 4-11/16" (120mm.), 5-1/8" (130mm.)
Features • Aerodynamic Design/One Key Release/Hexagon Release
Handle Bar Clamp Diameter • 26.0mm., 25.4mm.

SHIMANO 600 AX Seat Pillar

Model SP-6300 A-Type
SP-6310 (Semi Oval Tube) B-Type
SP-6322 (Oval Tube E Type)

SPECIFICATIONS

Weight • 9.5 oz. (268g.) (SP-6300, 26.8mm.) 9.5 oz. (270g.) (SP-6310, 26.8mm.)
Material • Light Alloy
Outside Diameter of Pillar • SP-6300, 6310/25.4mm., 26.0mm., 26.2mm., 26.4mm., 26.6mm., 26.8mm., 27.0mm., 27.2mm. SP-6322/18.5mm × 29mm
Features • Aerodynamic Design (SP-6310,6322)/Hexagon Release

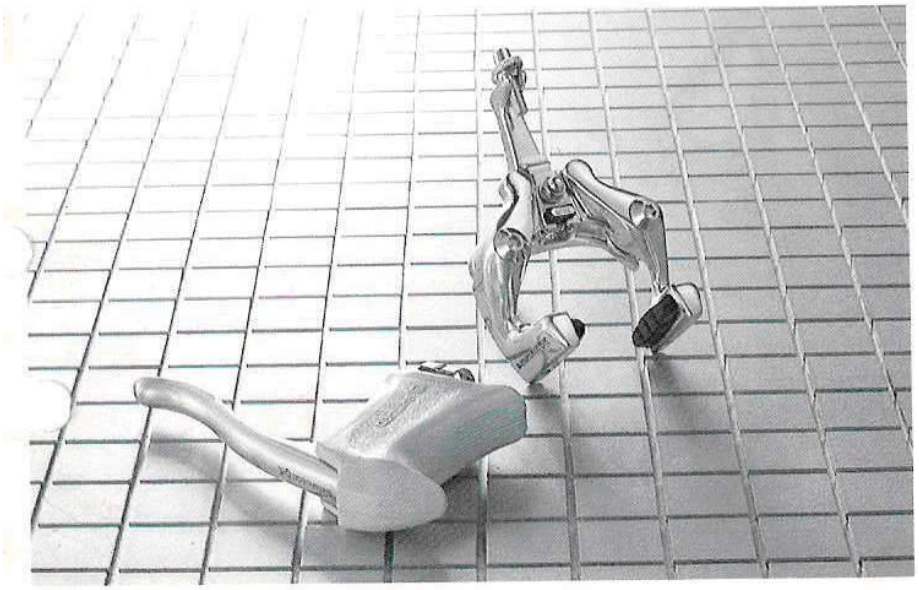


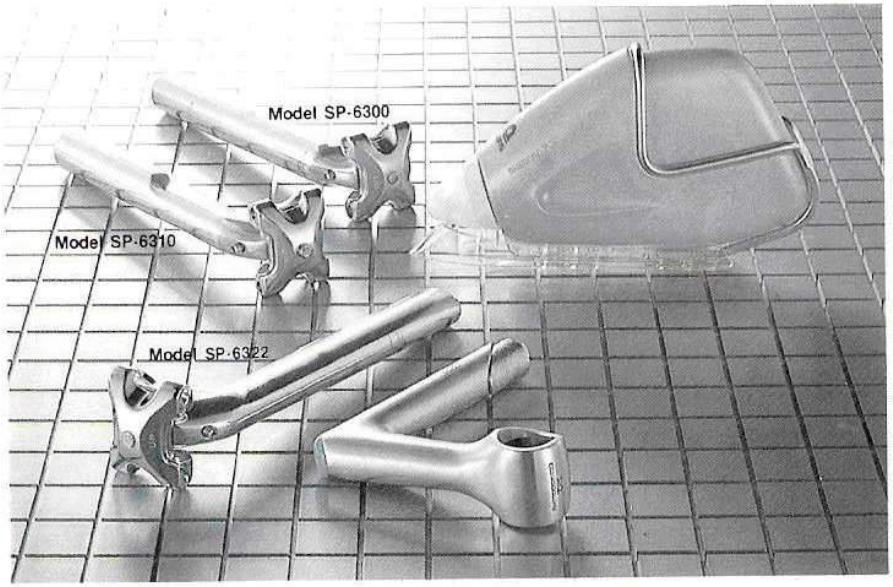
SHIMANO Aero-Bottle

Model SM-BT10

SPECIFICATIONS

Weight • Bottle: 2.5 oz. (72g.)/Skirt & Cage: 2.1 oz. (60g.)
Material • Bottle: Polyethylene Skirt: Plastic
Feature • Aerodynamic





DURA-ACE EX SERIES ROAD ENSEMBLE

DURA-ACE EX Road Ensemble

DURA-ACE EX Freehub

Model FH-7250 (Small /5-speed)
FH-7260 (Small/6-speed)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

		Weight	Over Lock Nut Dimensions	Amount of Dish
Front		7.4 oz. (210 g.)	3.94" (100 mm.)	
Rear (Except Cassette Gears)	5-speed	13.9 oz. (393 g.)	4.72" (120 mm.)	0.17" (2.95 mm.)
	6-speed	14.0 oz. (398 g.)	4.72" (120 mm.)	0.31" (7.8 mm.)
		14.0 oz. (403 g.)	4.96" (126 mm.)	0.19" (4.8 mm.)

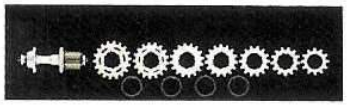
UNIGLIDE SEALED LIGHT WEIGHT QR HUB

Material ● Light Alloy • Anodized Finish (W/Light Alloy Adjusting Nut)
Sprocket ● Golden Finish
Teeth ● Threaded Sprocket 11T~19T
● Spline Sprocket 12T~28T
Spoke Holes ● 28H, 32H, 36H
Type ● Quick Release, Uni Balance Mechanism, Uniglide Teeth Cassette Gear, Sealed Mechanism (Double-Jointed Seal)
Use ● With EX Rear Derailleur Only

Dura-Ace EX Freehub sprocket combinations:

High Gear (Threaded)	Gears from 2nd to low (Spline Type)
11T	12, 13, 14, 15, 16T
11T	12, 13, 15, 17, 19T
11T	13, 15, 17, 19, 21T
12T	13, 14, 15, 16, 17T
13T	14, 15, 16, 17, 18T
13T	14, 15, 17, 19, 21T
13T	15, 17, 19, 21, 23T
14T	15, 16, 18, 20, 22T
14T	16, 18, 20, 22, 24T

We offer all kinds of tooth sprocket possibilities. High gear (threaded sprockets) from 11T to 19T, other gears (spline type) from 12T to 28T.



DURA-ACE EX Front Derailleur

Model FD-7210 (Brazed-on Type)
FD-7200 (Band Type)

SPECIFICATIONS

Capacity ● 14 Teeth or Less
Weight ● 3.6 oz. (102 g.)
Material ● Light Alloy (Body)
● Steel • Chromium Finish (Chain Guide)
Type ● Lower Inlet Type 1-1/8"
● Trap-Ease Mechanism Hexagon Release

DURA-ACE EX Rear Derailleur

Model RD-7200

SPECIFICATIONS

Capacity ● Front Difference/13 Teeth or less
● Rear Largest Sprocket/26 Teeth or less
Weight ● 6.2 oz. (175 g.)
Material ● Light Alloy • Anodized Finish (Body)
● Light Alloy (Cage Plate)
● Heat Treated Stainless Steel (Guide Pulley Teeth)
Type ● Servo Panta Mechanism, Hatch Plate Mechanism, Without Left Plate, Hexagon Release, Synchro-Line Mechanism, Sealed Mechanism

Low Gear Position

High Gear Position

LIGHT WEIGHT SEALED

DURA-ACE EX Shifting Lever

Model SL-7200 (Band Type)
SL-7210 (Brazed-on A Type)
SL-7220 (Brazed-on B Type)

SEALED LIGHT WEIGHT

Brazed-on Type Only

SPECIFICATIONS

Weight ● 2.01 oz. (57 g.)
Material ● Light Alloy • Anodized Finish
Type ● Friction Type
Attachment Position ● Down Tube
Lever Clamp Diameter ● 1-1/8"
Option ● Brazed-on parts (w/Sealed Mechanism)
Lever Non-loosening Feature

Brazed-on Parts (Model SL-7210)

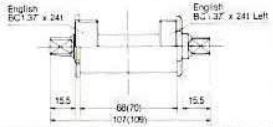
DURA-ACE EX SERIES ROAD ENSEMBLE

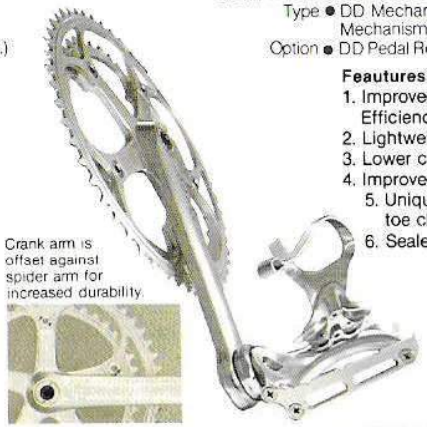
DURA-ACE EX
Front Chainwheel
& Bottom Bracket Assembly

Model FC-7200
BB-7500

SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" × 3/32" Chain
Teeth ● Inner Chain Ring 39T~45T
Outer Chain Ring 48T~53T
Crank Lengths ● 6-1/2" (165 mm.), 6-3/4" (170 mm.), 6-25/32" (172.5mm.), 6-7/8" (175mm.)
Crank Thread ● BC1" × 24 T.P.I.
Cup Thread ● English 1.37" × 24t, French 35 × 1.0 Available by request: Italian 36 × 24t
Material of Chain Ring ● Light Alloy. • Anodized Finish
Type ● Aerodynamic Design, Offset Crank Arm, W cut Mechanism, One Key Release Mechanism, Safety Crank Arm
Option ● Super Polished Ball Race
Use ● With DURA-ACE EX DD Pedal (Model PD-7200) Only





Crank arm is offset against spider arm for increased durability.

DURA-ACE EX DD Pedal

Model PD-7200

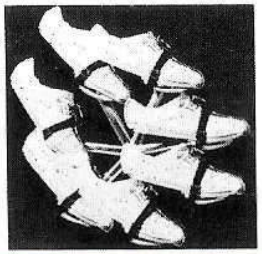
SPECIFICATIONS

Weight ● 6.1 oz. (173 g.)Including Toe Clip & Toe Strap (Blue & Red)
Material ● Light Alloy (Body)
● Chromium Molybdenum Steel (Cup • Cone)
● Steel (Toe Clip)
Light Alloy Toe Clip (Optional Parts)
Crank Thread ● BC1" × 24 T.P.I.
Type ● DD Mechanism, Sealed Mechanism, Aerodynamic Design
Option ● DD Pedal Reflector

*Use With Shimano DA EX Front Chainwheel (Model FC-7200)

Feautures of the DD Pedal:

1. Improved "Ankling" increases pedaling Efficiency
2. Lightweight and aerodynamic design
3. Lower center-of-gravity
4. Improved shoe grip
5. Unique, adjustable toe clip
6. Sealed mechanism



DURA-ACE EX Freehub

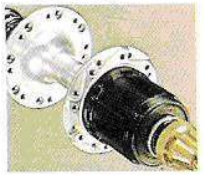
Model FH-7261 (Small/6-Speed Silver)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

	Weight	Over Lock Nut Dimensions	Amount of Dish
Front	8.1 oz. (229 g.)	3.94" (100 mm.)	—
Rear (Except Cassette Gears)	14.5 oz. (412 g.)	4.96" (126 mm.)	0.17" (4.3mm.)

Material ● Light Alloy • Anodized Finish (W/Light Alloy Adjusting Nut)
Sprocket ● Golden Finish
Teeth ● Threaded Sprocket 11T~19T
● Spline Sprocket 12T~28T
Spoke Holes ● 32H
Type ● Direction Mechanism, Quick Release, Uni Balance Mechanism, Uniglide Teeth, Cassette Gear, Sealed Mechanism (Double-Jointed Seal)
Use ● With EX Rear Derailleur Only



DURA-ACE EX Caliper Brake

Model BR-7200 (CS-49 Type)

SPECIFICATIONS

Weight ● Front 5.6 oz. (160 g.)
● Rear 5.6 oz. (158 g.)

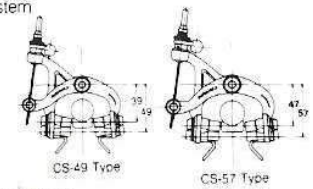
NBM Brake Shoe

Model BR-7210 (CS-57 Type)

SPECIFICATIONS

Weight ● Front 6.3 oz. (180 g.)
● Rear 6.3 oz. (178 g.)
Material ● Light Alloy • Anodized Finish
Type ● Side Pull with Quick Release and Tire Guide
● Pivot Bolt with Lubricating Channel
● Hexagon Release, NBM Brake Shoe
Option ● Sunk Pivot Bolt System

Quick Release



DURA-ACE EX Brake Lever

Model BL-7200

SPECIFICATIONS

Weight ● 7.3 oz. (206 g.)/Pair (Including Rubber Cover)
Material ● Light Alloy • Anodized Finish
Lever Clamp Diameter
● 23.8 mm ,24.2mm.
Type ● Hooded Lever with Rubber Cover
Drilled Out Finish One-Step Cable Attachment Mechanism

DURA-ACE EX Head Parts

Model HP-7200

SPECIFICATIONS

Weight ● 3.7 oz. (106 g.)
Material ● Light Alloy • Anodized Finish (Body),
● Bearing Steel (Ball Race)
Type ● Road Type
Polished Ball Race Sealed Mechanism (Labyrinth Seal)

DURA-ACE EX Seat Pillar

Model SP-7200

SPECIFICATIONS

Weight ● 7.9 oz. (224 g.)
For pillar w/27.2 mm. Outside diameter
Material ● Light Alloy
Outside Diameter of Pillar
● 26.0mm., 26.2mm., 26.4mm., 26.6mm., 26.8mm., 27.0mm., 27.2mm.
Type ● Hexagon Release Mechanism, Aerodynamic Design

DURA-ACE EX Handle Stem

Model HS-7200

SPECIFICATIONS

Weight ● 8.9 oz. (252 g.), 9.2 oz. (260 g.)
Material ● Light Alloy
Handle Stem Diameter
● 22.2 mm.
Handle Bar Clamp Diameter
● 25.8 mm or 26.5mm
Extension ● 70mm., 80mm., 90mm., 100mm., 110mm., 120mm., 130mm.,
Type ● Hexagon Release Mechanism, Aerodynamic Design

Hexagon Wrench Key for Handle Stem

SHIMANO-600 EX SERIES ROAD & TOURING ENSEMBLE

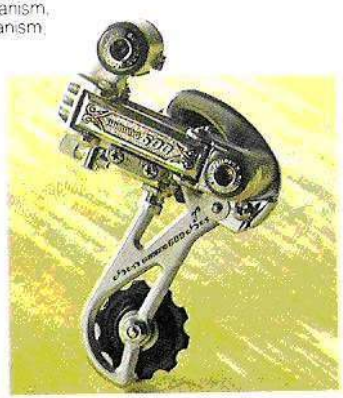
SHIMANO-600 EX
Rear Derailleur

Model RD-6200

SPECIFICATIONS

Capacity ● Front Difference/13 Teeth or Less
● Rear Largest Sprocket/28 Teeth or Less
Weight ● 6.7 oz. (190g.)
Material ● Light Alloy • Anodized Finish (Body)
● Light Alloy (Cage Plate)
Type ● Servo Panta Mechanism, Hatch-Plate Mechanism, Without Left Plate

Arabesque Pattern Design



Long Cage Type (Model RD-6210)

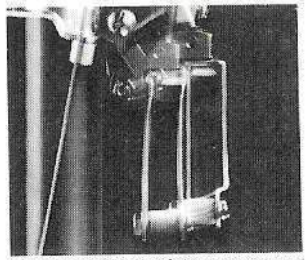
SHIMANO-600 EX Front Derailleur

Model FD-6200

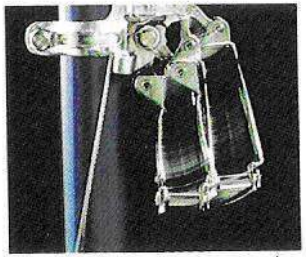
SPECIFICATIONS

Capacity ● 14 Teeth or Less
Weight ● 3.95 oz. (112g.)
Material ● Light Alloy (Body)
● Steel • Chromium Finish (Chain Guide)
Type ● Lower Inlet Type 1-1/8" Trap-Ease Mechanism

Arabesque Pattern Design



Parallel movement of the conventional pantograph mechanism



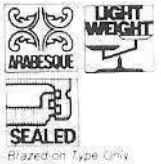
Trapezium shaped swing motion of Trap-Ease Mechanism

SHIMANO-600 EX Shifting Lever

Model SL-6200 (Band Type)
SL-6210 (Brazed-on Type)

SPECIFICATIONS

Weight ● 2.05 oz. (58g.)
Material ● Light Alloy
Type ● Friction Type
Attachment Position
● Down Tube
Lever Clamp Diameter
● 1-1/8"
Arabesque Pattern Design
Lever Non-loosening Feature



Brazed-on Type Only

Brazed-on Parts

SHIMANO-600 EX Front Chainwheel

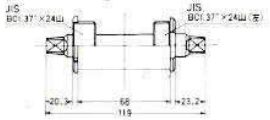
Model FC-6200
BB-6200

(Spindle Length
116 mm, 119mm.)

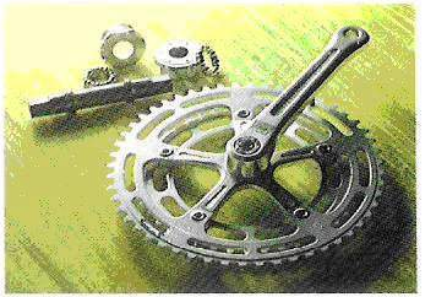
SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 3/32" Chain
Teeth ● Inner 39T∿45T,
Outer 48T∿53T.

Spindle Length: [Unit: mm.]



Crank Lengths
● 6-1/2" (165mm.), 119mm. Spindle
6-3/4" (170mm.) 116mm. Spindle
Crank Thread ● 9/16" x 20t.
Cup Thread ● English 1.37" x 24t,
French 35 x 1.0, Italian 36 x 24t
Material of Chain Ring
● Light Alloy • Anodized Finish
W cut Mechanism, One Key Release Mechanism,
Safety Crank Arm and Arabesque Pattern Design



Dura-Ace Chain Ring Attachable

SHIMANO-600 EX Small Flange Freehub

Model FH-6261 (Silver/6-speed)
FH-6251 (Silver/5-speed)
FH-6260 (Black/6-speed)
FH-6250 (Black/5-speed)

SHIMANO-600 EX Large Flange Freehub

Model FH-6263 (Silver/6-speed)
FH-6253 (Silver/5-speed)
FH-6262 (Black/6-speed)
FH-6252 (Black/5-speed)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

		Weight (Small)	Weight (Large)	Over Lock Nut Dimension	Amount of Dish
Front		8.3 oz. (235 g.)	9.7 oz. (275 g.)	3.94" (100 mm.)	—
Rear (Except Cassette Gears)	5-speed	13.9 oz. (395 g.)	14.2 oz. (405 g.)	4.72" (120 mm.)	0.07" (1.75 mm.)
		14.1 oz. (402 g.)	14.5 oz. (412 g.)	4.88" (124 mm.)	0" (0 mm.)
	6-speed	14.2 oz. (403 g.)	14.5 oz. (413 g.)	4.72" (120 mm.)	0.28" (7.05 mm.)
		14.2 oz. (405 g.)	14.6 oz. (415 g.)	4.88" (124 mm.)	0.21" (5.3 mm.)
		14.3 oz. (408 g.)	14.7 oz. (418 g.)	4.96" (126 mm.)	0.17" (4.3 mm.)

Material ● Light Alloy
Sprocket ● Silver Finish
Option ● Black Finish
Teeth ● Threaded Sprocket 12T∿15T
Spline Sprocket 13T∿28T
Spoke Holes ● 36H
Type ● Quick Release, Uni Balance Mechanism, Uniglide Teeth Cassette Gear, Sealed Mechanism
Use ● With EX Rear Derailleur Only

Shimano-600 EX Freehub sprocket combinations:

High Gear (Threaded)	5-SPEED Gears from 2nd (4 gears united)	6-SPEED Gears from 2nd (5 gears united)
12T	13, 14, 15, 16T	13, 14, 15, 16, 17T
13T	14, 15, 16, 17T	14, 15, 16, 17, 18T
	15, 17, 19, 21T	14, 15, 17, 19, 21T
	15, 17, 20, 23T	15, 17, 19, 21, 23T
14T	16, 18, 20, 22T	15, 16, 18, 21, 22T
	16, 18, 21, 24T	16, 18, 20, 22, 24T
15T	18, 21, 24, 28T	17, 19, 21, 24, 28T

We offer a wide range of tooth sprockets. High gear (threaded sprockets) from 12T to 15T, other gears (spline type) from 13T to 28T. Even if all 3 bolts of the 600 EX unit gear are removed the bicycle can still proceed unhindered.

UNIGLIDE
SEALED
QR HUB

SHIMANO-600 EX SERIES

SHIMANO-600 EX UG Chain

Model CN-6200

SPECIFICATIONS

Material ● Steel
Surface Treatment
● Roller Link Plate/Black Finish
● Pin Link Plate/Satin Nickel Finish (Silver)
● Rivet Pin/Special Hardened Finish
Type ● Roller Chain
Size ● 1/2" × 3/32" Chain

Features

1. Sure and smooth gearshifting performance!
2. Overshifts eliminated!
3. Irritating noises eliminated for quiet and smooth gear changes!
4. Sure and smooth shifting on inclines!
5. Longlasting, high gearshifting efficiency!
6. Immediate shifting response!

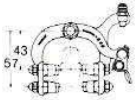
SHIMANO-600 EX
Caliper Brake

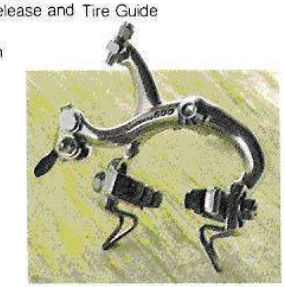
Model BR-6200

SPECIFICATIONS

Weight ● Front 5.6oz. (159g.)
Rear 5.5oz. (157g.)
Material ● Light Alloy • Anodized Finish
Type ● Side Pull with Quick Release and Tire Guide
Size ● 43mm.~57mm.
Option ● Sunk Pivot Bolt System

QR BRAKE





SHIMANO-600 EX
Caliper Brake

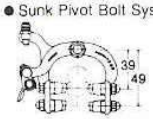
Model BR-6210

SPECIFICATIONS

Weight ● Front 5.3oz. (150g.)
Rear 5.2oz. (147g.)
Material ● Light Alloy • Anodized Finish
Type ● Side Pull with Quick Release and Tire Guide
Size ● 39mm.~49mm.
Option ● Sunk Pivot Bolt System

Model BR-6210

QR BRAKE



SHIMANO-600 EX
Brake Lever

Model BL-6200

SPECIFICATIONS

Weight ● 7.4oz. (209g.)/Pair (Including Rubber Cover)
Material ● Light Alloy • Anodized Finish
Type ● Hooded Lever with Rubber Cover
One-Step Cable Attachment
Drilled Out Finish
Lever Clamp Diameter ● 23.8mm.

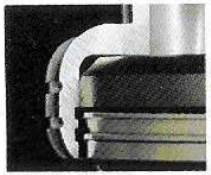
SHIMANO-600 EX Head Parts

Model HP-6200

SPECIFICATIONS

Weight ● 5.29oz. (150g.)
Material ● Light Alloy • Anodized Finish
(Cup & Nut)
Steel • Chromium Finish (Cone)
Type ● Road Type
Sealed Mechanism
(Labyrinth Seal)

SEALED LIGHT WEIGHT



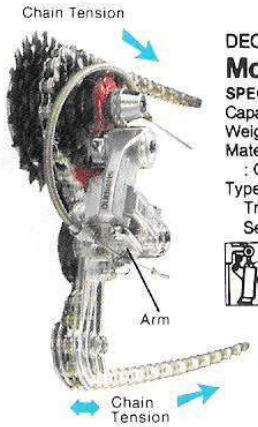
Sectional View of Rotating Head Part (Labyrinth Seal)

DEORE TOURING ENSEMBLE

DEORE Rear Derailleur

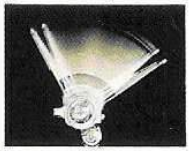
Model RD-DE10 (Middle Cage)
RD-DE20 (Long Cage)

SPECIFICATIONS
Capacity: Front Difference/20 Teeth or Less
: Rear Largest Sprocket/30 Teeth or Less (Middle) 34 Teeth or Less (Long)
: Total of Front & Rear Sprocket Difference/30 Teeth or Less (Middle) 34 Teeth or Less (Long)
Weight: 7.7oz. (218g.) Middle
9.30oz. (265g.) Long/Except Bracket
Material: Body/Light Alloy
: Cage Plate/Light Alloy (Middle)/Steel (Long)
Type: Servo Panta Mechanism, Centeron Mechanism, Hatch-Plate Mechanism, Sealed Mechanism



Free-play of the Rear Derailleur

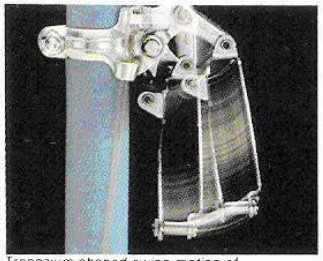
Free-play of the Shifting Lever



DEORE Front Derailleur

Model FD-DE10

SPECIFICATIONS
Capacity: 20 Teeth or Less
Weight: 4.3oz. (121g.)
Material: Body/Light Alloy
: Chain Guide/Steel
Type: Lower Inlet Type 1-1/8" Trap-Ease Mechanism, Sealed Mechanism



Trapezium shaped swing motion of Trap-Ease Mechanism

Sealed Mechanism

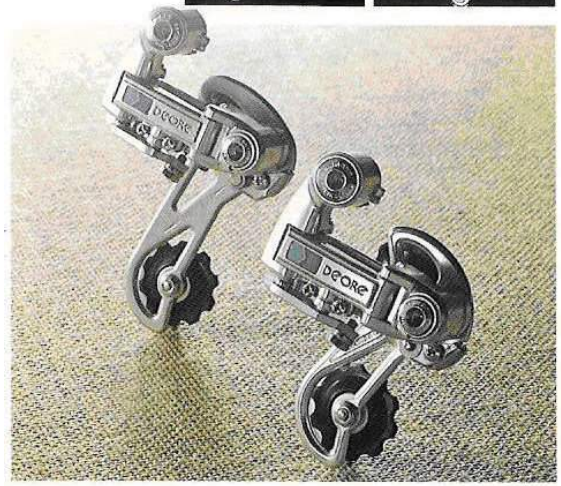
Chain Release Indent

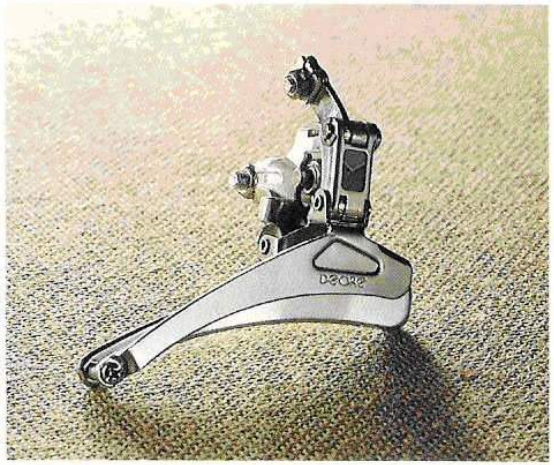
DEORE Shifting Lever

Model SL-DE21 (Brazed-on Type)
SL-DE20 (Band Type)

SPECIFICATIONS
Weight: 1.4oz. (39g.)/Brazed-on Type
: 2.9oz. (82g.)/Band Type
Material: Light Alloy, Steel
Type: Friction Type
Attachment Position: Down Tube
Lever Clamp Diameter: 1-1/8"
Centeron Mechanism, Sealed Mechanism (Brazed-on Type Only), Lever Non-loosening Feature
Use: Rear Derailleur with Centeron Mechanism Only

Brazed-on Parts





DEORE TOURING ENSEMBLE

DEORE Front Chainwheel

Model FC-DE21 (Double/LD Type)
FC-DE20 (Double/MD Type)
BB-6210 (Spindle Length 119mm.)

SPECIFICATIONS

Material: Light Alloy (Top Sprocket/Forged)
Type: Cotterless 5-Pin Type
Chain Ring: 1/2 × 3/32" Chain (2mm.)
Teeth: LD Type/Inner Chain Ring 39T~45T
Outer Chain Ring 48T~53T
: MD Type/Inner Chain Ring 34T~35T
Outer Chain Ring 48T~50T
Crank Lengths: 6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread: BC1 × 24T.P.I.
Cup Thread: English 1.37" × 24T, French 35 × 1.0
Aerodynamic Design, One Key Release, Safety Crank Arm
Use: With DEORE DD Pedal

Model FC-DE31 (Triple/LD Type)
FC-DE30 (Triple/MD Type)
BB-DE30 (Spindle Length 121.5mm.)

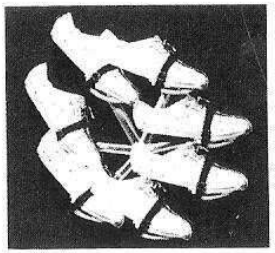
Teeth: LD Type/Inner Chain Ring 28T~33T
Middle Chain Ring 39T~45T
Outer Chain Ring 48T~53T
: MD Type/Inner Chain Ring 28T~33T
Middle Chain Ring 34T~37T
Outer Chain Ring 48T~50T

DEORE DD Pedal

Model PD-DE10

SPECIFICATIONS

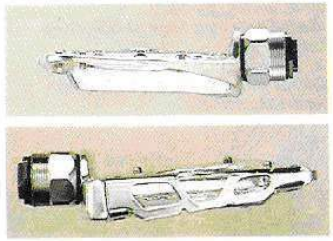
Weight: 20.1oz. (570g.)
Material: Body/Light Alloy
: Cup Cone/Chromium Molybdenum Steel
Crank Thread: BC1" × 24T.P.I.
Right-handed Screw (Right Pedal) BC × 24T.P.I. Left-handed Screw (Left Pedal)
Type: DD Mechanism, Aerodynamic Design, Sealed Mechanism
Use: DEORE Front Chainwheel



Effective DD Pedal Rotation

Improved Shoe Grip

With the DD pedal, "ankling" stability is not only enhanced by the lowered pedal axle, but also by the contoured shoe plate, for a better grip.



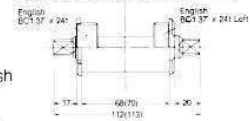
DURA-ACE SERIES ROAD ENSEMBLE

SHIMANO DURA-ACE Road Ensemble

DURA-ACE Front Chainwheel

Model FC-7110
BB-7200

Spindle Length: [Unit: mm.]



- Material ● Light Alloy • Anodized Finish
- Type ● Cotterless
- Chain Ring ● 1/2" x 3/32" Chain
- Teeth ● Inner Chain Ring 39T~45T
  ● Outer Chain Ring 48T~53T
- Crank Lengths
  ● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-7/8" (175mm.)
- Available by request
  ● 6-19/32" (167.5mm.), 6-13/16" (172.5mm.)
- Crank Thread ● BC9/16" x 20 T.P.I.
- Cup Thread ● English 1.37" x 24t, French 35 x 1.0, Italian 36 x 24t
- Material of Chain Ring
  ● Light Alloy • Anodized Finish
- W cut Mechanism, One Key Release Option ● Super Polished Ball Race

W cut Mechanism

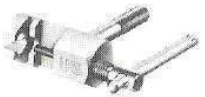
One Key Release

DURA-ACE UG Chain

Model CN-7100

SPECIFICATIONS

- Material ● Outer & Inner Plate/Steel. Link Pin/Bearing Steel • Special Surface Treatment, Bush/Chromium Molybdenum Steel
- Size ● 1/2" x 3/32" Chain
- Surface Treatment
  ● Roller Link Plate/Nickel Finish, Pin Link Plate/Nickel Finish
- Type ● Roller Chain
- Information ● Special Chain Cutter available for UG Chain



Chain Cutter for both UG Chain and ordinary chain (Model TL-CN20)

DURA-ACE
Light Alloy Hub

Model HB-7110 (Small)

SPECIFICATIONS

- Weight ● Front 7.8 oz. (220 g.)
  Rear 10.8 oz. (305 g.)/5-speed
  10.9 oz. (310 g.)/6-speed

DURA-ACE
Light Alloy Hub

Model HB-7120 (Large)

SPECIFICATIONS

- Weight ● Front 9.2 oz. (260 g.)
  Rear 11.6 oz. (330 g.)/5-speed
  11.8 oz. (335 g.)/6-speed
- Material ● Light Alloy • Anodized Finish
- Type ● Quick Release
- Thread ● 1.37" x 24 T.P.I. (English)
- Available by request 35 x 1.0 (French)
- Over Lock Nut Dimensions
  ● Front 3.94" (100mm.)
  Rear/5-speed/4.72" (120mm.)
  Rear/6-speed/4.96" (126mm.)
- Spoke Holes ● 28H, 36H
  Available by request 24H, 32H, 40H
- Polished Ball Race

DURA-ACE SERIES ROAD ENSEMBLE

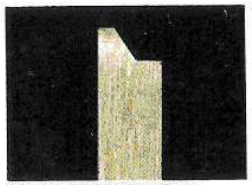
SHIMANO DURA-ACE Road Ensemble

DURA-ACE
Multiple Freewheel
Model MF-7150 (5-speed)
MF-7160 (6-speed)

SPECIFICATIONS
Standard Sprocket
● 1/2" x 3/32" Chain (2mm.)
Thread ● 1.37" x 24 T.P.I. (English)
Available by request 35 x 1.0 (French)
Sprocket ● Golden Finish
Polished Ball Race

Standard Sprocket Combinations

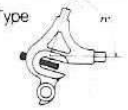
5-speed	13, 14, 15, 17, 19T
	13, 15, 17, 19, 21T
	14, 16, 18, 20, 22T
	15, 17, 19, 21, 24T
6-speed	13, 14, 15, 16, 17, 18T
	13, 15, 17, 19, 21, 23T



Chamfered Sprocket Teeth

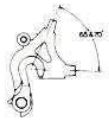
DURA-ACE Head Parts
Model HP-7100
SPECIFICATIONS
Material ● Chromium Bearing Steel (Main Parts)
Type ● Road Type
Polished Ball Race

SHIMANO-EF Fork End
Model FE-EF20
LIGHT WEIGHT
SPECIFICATIONS
Weight ● 5.1 oz. (145g)/Rear Only
Material ● Steel
Type ● Road Type
With Adjusting Bolt
Specially Ground Hub Connection Face



SHIMANO-SF Fork Ends
Model FE-SF20
SPECIFICATIONS
Weight ● 8.8 oz. (250 g.)/ Including Front & Rear
Material ● Steel
Type ● Road Type
With Adjusting Bolt
Specially Ground Hub Connection Face

SHIMANO-SFR Fork Ends
Model FE-SF21
SPECIFICATIONS
Weight ● 5.2 oz. (147 g.)/ Rear Only
Material ● Steel
Type ● Touring Type
Vertical Drop Out
Specially Ground Hub Connection Face



SHIMANO-UF Fork Ends
Model FE-UF20
SPECIFICATIONS
Weight ● 5.7 oz. (161 g.)/ Including Front & Rear
Material ● Steel
Type ● Road Type
With Adjusting Bolt (2mm.)
Specially Ground Hub Connection Face

SHIMANO-600 SERIES ROAD & TOURING ENSEMBLE

SHIMANO 600

SHIMANO-600
Light Alloy Hub

Model HB-6120 (Large)

SPECIFICATIONS

Weight ● Front 9.7 oz. (275 g.)
● Rear 12.4 oz. (350 g.)/5-speed
12.5 oz. (355 g.)/6-speed

Model HB-6110 (Small)

SPECIFICATIONS

Weight ● Front 8.3 oz. (235 g.)
● Rear 12.0 oz. (340 g.)/5-speed
12.2 oz. (345 g.)/6-speed
Material ● Light Alloy
Type ● Quick Release
Thread ● 1.37" x 24 T.P.I. (English)
Over Lock Nut Dimensions
● Front 3.94" (100mm.),
● Rear 4.72" (120mm.)/5-speed
4.96" (126mm.)/6-speed
Spoke Holes ● 36H

QR HUB

SHIMANO-600 UG Multiple Freewheel

Model MF-6150 (Black/5-speed) MF-6160 (Black/6-speed)

MF-6151 (Silver/5-speed) MF-6161 (Silver/6-speed)

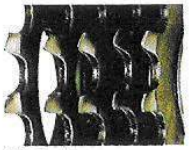
SPECIFICATIONS

Standard Sprocket
● 1/2" x 3/32" Chain
Sprocket ● Black Finish,
● Satin Nickel Finish

UNIGLIDE

Standard Sprocket Combinations

5-speed	13, 15, 17, 19, 21T
	14, 16, 18, 21, 24T
	15, 17, 19, 21, 24T
6-speed	13, 14, 15, 16, 17, 18T
	13, 15, 17, 19, 21, 23T



UG Teeth

Conventional Teeth

UNIGLIDE FREEWHEEL

Model MF-1500 (Black/5-speed)

MF-1510 (Silver/5-speed)

SPECIFICATIONS

Material • Surface Treatment:
Steel • Black Finish/Satin Nickel Finish
Chain Size: 1/2" x 3/32" Chain
Thread: 1.37" x 2.4 T.P.I.

Type	Standard Sprocket Combinations
5DS	15T · 17T · 19T · 21T · 24T
5DW	14T · 17T · 20T · 24T · 28T
5DUW	14T · 17T · 21T · 26T · 32T
5DC	14T · 16T · 18T · 20T · 22T

UNIGLIDE

SHIMANO-600 UG Chain

Model CN-6110

UNIGLIDE

SPECIFICATIONS

Material Steel
Surface Treatment
● Roller Link Plate/Black Finish
● Pin Link Plate/Golden Finish
Type ● Roller Chain

The UG Chain. Outerplates are widened to the level of chainpin heads.

SHIMANO-600 UG Chain

Model CN-6120

UNIGLIDE

SPECIFICATIONS

Material ● Steel
Surface Treatment
● Roller Link Plate/Black Finish
Pin Link Plate/Satin Nickel Finish
Type ● Roller Chain

Chain Link Lock

Model CN-6130

SPECIFICATIONS

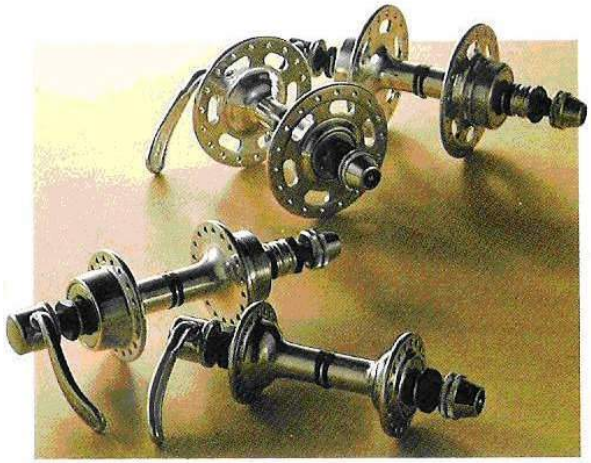
Material ● Steel • Silver Finish
Use ● 1/2" × 1/8" Chain
1/2" × 3/32" Chain

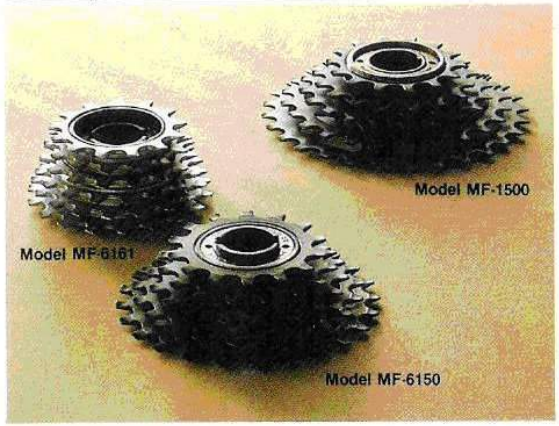
UNIGLIDE-II (UG-II)

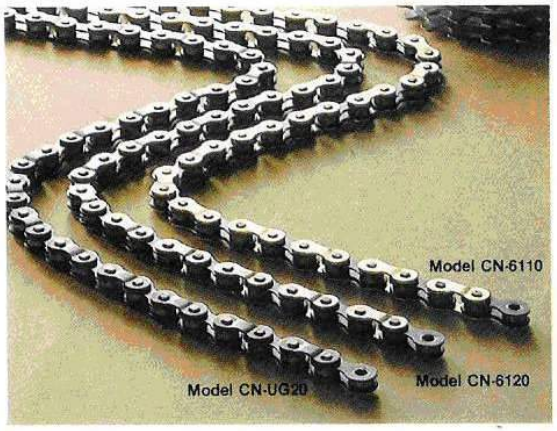
Model CN-UG20

SPECIFICATIONS

Material: Steel
Surface Treatment: Roller Link Plate/Black Finish, Pin Link Plate/Brown Finish
Type: Roller Chain







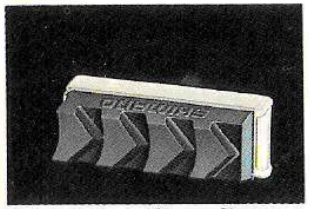
SHIMANO-600 SERIES ROAD & TOURING ENSEMBLE

SHIMANO 600

SHIMANO-600
Cantilever Brake

Model BR-6102

SPECIFICATIONS
Weight ● 11.9oz. (338g.)
Material ● Light Alloy and Steel
Type ● Cantilever Brake With Brake Mounting Shaft
Option ● Cable Hanger



The ideally shaped Chevron Shoe – the result of Shimano's numerous brake tests.

SHIMANO-PR Fork Ends

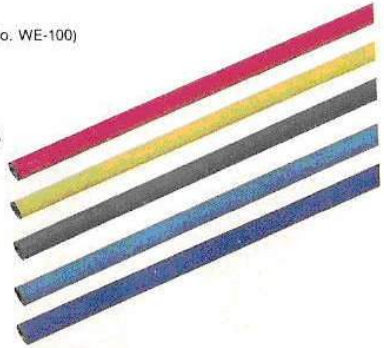
Model FE-PR20

SPECIFICATIONS
Weight ● 4.4 oz. (127 g.)/Rear Only
Material ● Steel
Type ● Vertical Drop Out

Adamas AX Type

COLOR OUTER CASING (Old Model No. WE-100)

(Red)
(Yellow)
(Green)
(Blue)
(Dark Blue)



Cable Parts

CABLE GUIDE

Model SM-CG10

SPECIFICATIONS
Material ● Steel
Clamp Diameter ● 1-1/8"
Use ● 10-speed

CABLE GUIDE

Model SM-CG11

SPECIFICATIONS
Material ● Steel
Clamp Diameter ● 1-1/8"
Use ● 10-speed

OUTER STOPPER

Model SM-CS30

SPECIFICATIONS
Material ● Steel
Clamp Diameter ● 5/8"

OUTER STOPPER

Model SM-CS11

SPECIFICATIONS
Material ● Steel
Clamp Diameter ● 1-1/8"
Use ● 10-speed and Bar-End Control

Brazed on Parts

CABLE GUIDE

Model SM-CG70

SPECIFICATIONS
Material ● Steel

OUTER STOPPER

Model SM-CS70

SPECIFICATIONS
Material ● Steel

OUTER BAND

Model SM-CB20

SPECIFICATIONS
Material ● Steel
Clamp Diameter ● 1"

ADAMAS AX SERIES ROAD & TOURING ENSEMBLE

SHIMANO ADAMAS AX Front Chainwheel & Bottom Bracket Assembly

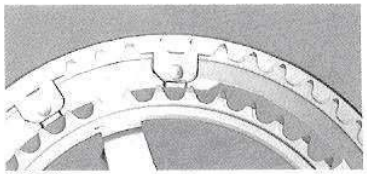
Model FC-AD11 (Single)
FC-AD21 (Double)
BB-SL31 (B.B. Parts)

SPECIFICATIONS

Weight	• FC-AD 11 • 7.9 oz. (224g.) 48T. Type FC-AD 21 • 9.7 oz. (275g.) 36T. — 48T. Type 10.7 oz. (305g.) 42T. — 52T. Type 11.6 oz. (328g.) B.B. Parts
Material	• Light Alloy
Type	• Cotterless
Chain Ring	• 1/2" × 3/32" Chain
Teeth	• FC-AD11; 48T. only FC-AD21; 36T. — 48T. Type 42T. — 52T. Type
Crank Length	• 6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread	• BC 9/16" × 20 T.P.I.
Cup Thread	• English 1.37" × 24T./French 35 × 1.0
Features	• Aerodynamic Design/Twin Gear/M Teeth Mechanism/W-cut Mechanism/Safety Crank Arm/Octa Joint Crank
Use	• With SHIMANO ADAMAS AX Pedal (PD-AD10) or Conventional Pedals

Available; Black Type

Gear shift on W-cut Teeth



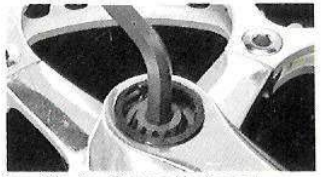
M Teeth

SHIMANO ADAMAS AXII front Chainwheel & Bottom Bracket Assembly

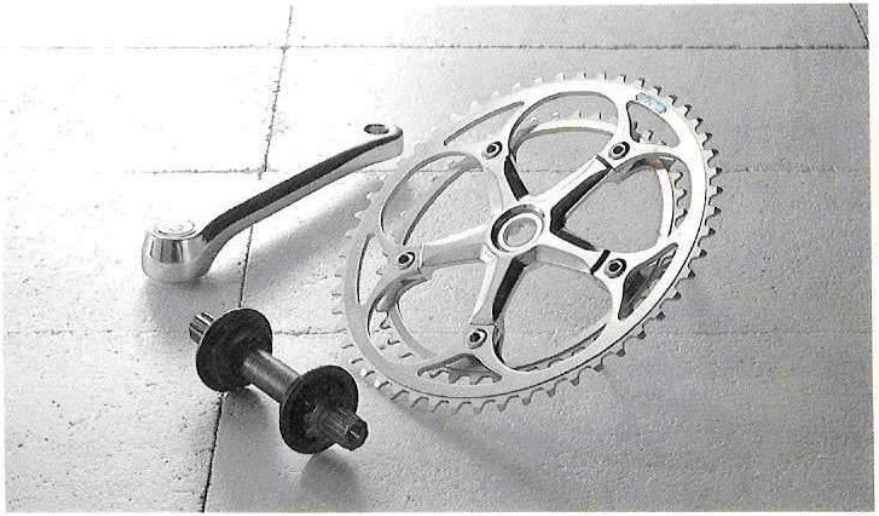
Model FC-AD22 (Bouble)
BB-SL31 (B. B. Parts)

SPECIFICATIONS

Material	• Light Alloy
Type	• Cotterless
Chain Ring	• 1/2" × 1/32" Chain
Teeth	• Inner 39T.—45T. Outer 48T.—53T. Twin Gear 42T.—52T.
Crank Length	• 6-11/16" (170mm.)
Crank Thread	• 9/16" × 20 T.P.I.
Cup Thread	• English 1.37" × 24T./French 35 × 1.0
Features	• Aerodynamic Design/New One Key Release Mechanism/W cut Mechanism/Safety Crank Arm/Octa Joint Crank
Use	• With SHIMANO ADAMAS AX Pedal (PD-AD10) or Conventional Pedals
Option	• Cap



New One Key Release Mechanism



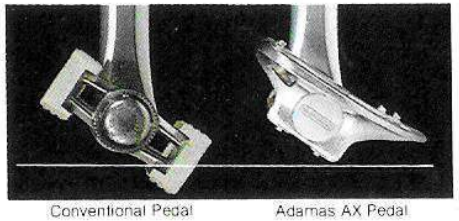
ADAMAS AX SERIES ROAD & TOURING ENSEMBLE

SHIMANO ADAMAS AX Pedal

Model PD-AD10

SPECIFICATIONS

Weight • 18.3 oz. (520g.)
Material • Light Alloy
Crank Thread • BC 9/16 × 20 T.P.I. M14 x P1.25
Features • Aerodynamic Design/Increased Road Clearance/Specially Weighted Design
Use • With SHIMANO ADAMAS AX Front Chainwheel (FC-AD11, 21) or Conventional Chainwheel



Conventional Pedal　　Adamas AX Pedal

The platform design is suitable for all pedaling and riding styles.

Because of increased road clearance, the Adamas pedal allows the rider to continue pedaling while cornering. The Adamas pedal permits the rider to bank by as much as 25.30° compared to the conventional bicycle's 22.28°.

SHIMANO ADAMAS AX Freehub

Model FH-AD61

(Small/6 speed — Nut Type)

FH-AD65

(Small/6 speed — Quick Release Type)

SPECIFICATIONS

Weight • FH-AD61
Front 6.8 oz. (194g.)
Rear 13.7 oz. (389g.)
FH-AD65
Front 8.2 oz. (232g.)
Rear 14.5 oz. (410g.)
*Excluding Sprockets' weight
Over Lock Nut Dimensions
• FH-AD61
Front 3-21/32" (93mm)
Rear 4-7/8" (124mm)
FH-AD65
Front 3-13/16" (96mm)
Rear 4-7/8" (124mm)
Amount of Dish • Rear 7/32" (5.5mm.)
Material • Light Alloy Buff Finish
Sprocket • Black Finish
Teeth • Threaded Sprocket: 13T. — 15T.
Spline Sprocket: 14T. — 34T.
Spoke Holes • 36H.
Features • Aerodynamic Designed Sealed Cap/Aerodynamic Designed Quick Release Lever/Direction-6 Hub

SHIMANO ADAMAS AX Freehub Protector

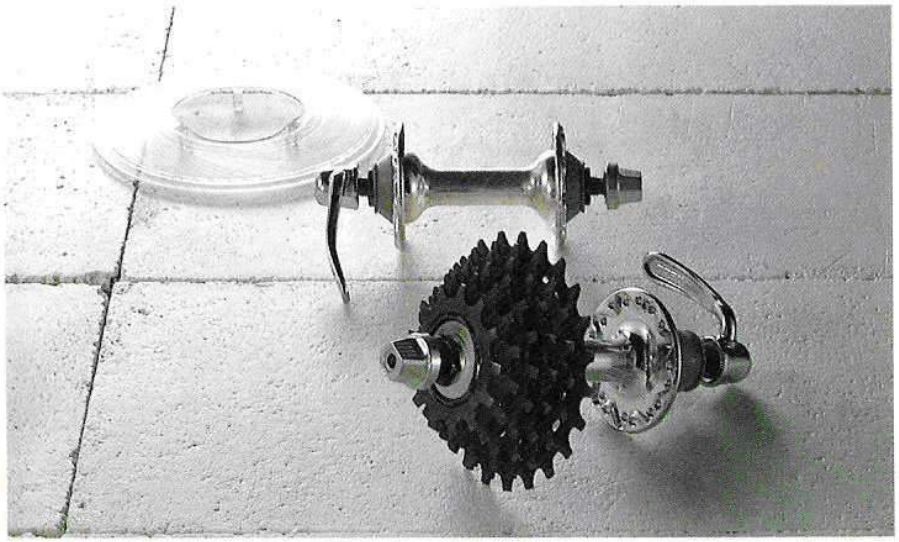
Model CP-AX30
CP-AX50

SPECIFICATIONS

Weight • 1.1 oz. (31g.) CP-AX30
1.8 oz. (52g.) CP-AX50
Material • Resin (Blue)
Freehub Protector Dimension
• CP-AX30; 5.4" (137mm.)
CP-AX50; 7-1/2" (188mm.)
Use • AX Series Freehub 36H. only
Feature • Aerodynamic Design

CP-AX50

CP-AX30



SHIMANO ADAMAS AX Rear Derailleur

Model RD-AD10

SPECIFICATIONS

Capacity • Front Difference; 13T. or less
Rear Largest Sprocket; 28T. or less
Weight • 10.0 oz. (283g.).11.3 oz. (319g.) with Bracket
Material • Light Alloy
Features • Aerodynamic Design/Built in Pulley Tension Spring/Direct Cable Mechanism/Light Weight/New Positive Mechanism

The built in Positive Indexing Mechanism of the rear derailleur provides continuous top to low gear changes.

SHIMANO ADAMAS AX Front Derailleur

Model FD-AD10

SPECIFICATIONS

Capacity • 14T. or less
Weight • 3.9 oz. (111g.)
Material • Light Alloy (Body) Steel • Chromium Finish (Chain Guide)
Inlet Diameter • 1-1/8" (28.6mm.)
Features • Aerodynamic Design/New Trap-Ease Mechanism/Indent Guide Mechanism/Inner End Guide

New Trap-Ease Mechanism

SHIMANO ADAMAS AX Shifting Lever

Model SL-AD10 (A Type for Down Tube)
SL-AD11 (Brazed-on B Type for Down Tube)
SL-AD12 (B Type for Down Tube)
SL-AD15 (Brazed-on A Type for down Tube)

SPECIFICATIONS

Weight • 2.2 oz. (63g.)
Material • Light Alloy & Steel
Type • Friction Type
Lever Clamp Diameter • 1-1/8 (28.6mm.)
Features • Aerodynamic Design/ Light Weight

SL-AD24

SHIMANO ADAMAS AX Shifting Lever

Model SL-AD24 (For Top Tube)

SPECIFICATIONS

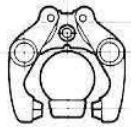
Weight • 5.3 oz. (150g.) (Including Cable Guide)
Material • Light Alloy & Zinc
Type • Friction Type
Lever Clamp Diameter • 1" (25.4mm)
Features • Aerodynamic Design

SHIMANO ADAMAS AX Parapul Brake

Model BR-AD20

SPECIFICATIONS

Weight • Front & Rear: 14.0 oz. (397g.)
Material • Brake Arch, Alloy/Support, Steel
Features • Aerodynamic Design/Para-Pull Mechanism/Quick Response Mechanism/Quick Release Lever Eliminated/AW Brake Shoe



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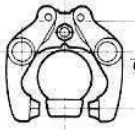


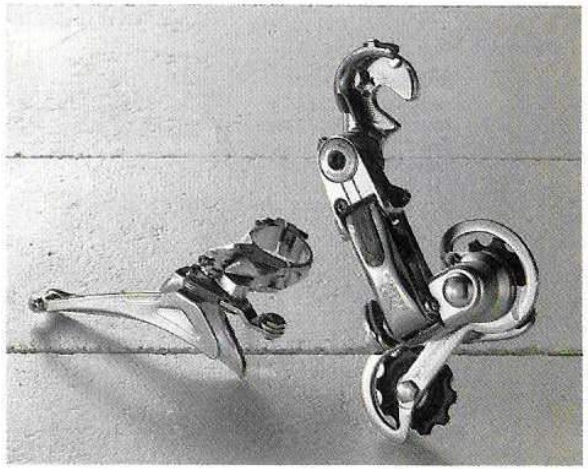
61-79

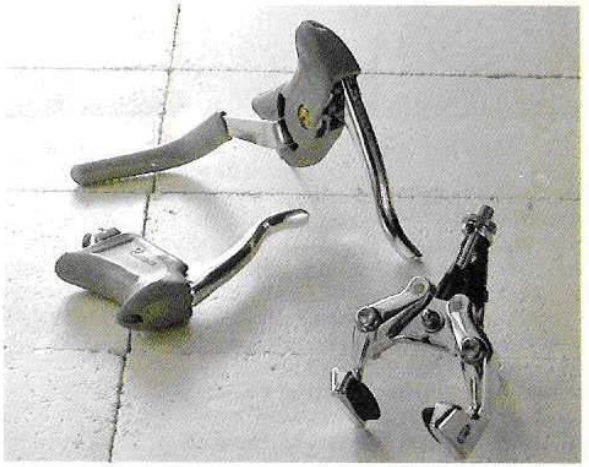
SHIMANO ADAMAS AX Brake Lever

Model BL-AD10
BL-AD50 (With Dual Extension Lever)

SPECIFICATIONS

Weight • 4.9 oz. (140g.) (BL-AD10 with Pad) 7.7 oz. (220g.) (BL-AD50 with Pad)
Material • Brake Lever: Light Alloy/ Bracket; Steel
Features • Aerodynamic Design/Grip Stroke Adjustment (79 ~ 89mm.)
Lever Clamp Diameter • 23.8mm., 22.2mm.





FF SYSTEM

Freewheel Moves Up Front For Foolproof Shifting

Shimano's FF (Front Freewheel) System moves the freewheel mechanism up to the chainwheel—where you pedal. This allows the chain to revolve even when your feet stop pedalling.

Now you can shift effortlessly. Smooth FF System shifting can be done while coasting, back-pedalling, even with your feet off the pedals! The FF System is a new standard of 10-speed gear shifting performance.

The FF System is the result of Shimano's research on the problems of 10-speed gear-changes. The 10-speed bicycle has gained prominence as a recreational and transportational vehicle. Both young and old enjoy the convenience of multi-speeds, but many new riders have difficulty shifting correctly.

Now with the FF System anyone can ride and enjoy the benefits of a multi-speed bicycle.

FRONT FREEWHEELING FF SYSTEM

DOUBLE CHAINWHEEL
For Three-Piece Crank

Model FC-FF33

SPECIFICATIONS
Type: Twin Gear Double Chainwheel
Material: Body/Light Alloy Outer Chain Ring/Steel
Standard Sprocket Teeth: 48T-36T, 52T-42T
Chain Size: 1/2" × 3/32" Chain
With Resin Protector on Low Side, Ornamental Cap.

Bottom Bracket Set
& OCTA Joint Crank

Model BB-FF30

SPECIFICATIONS
Crank Length: 6-1/2" (165mm.), 6-3/4" (170mm.)
Cup Thread: BC 1.37" × 24 T.P.I.
Material of Crank: Steel
OCTA Joint Crank

Friction Freewheel (5-speed)

Model MF-FF51 (Narrow)

Top Protector: Black

Friction Freewheel (6-speed)

Model MF-FF61 (Narrow)

SPECIFICATIONS
Use: FF System Only
Chain Size: 1/2" × 3/32" Chain
Thread: BC 1.37" × 24 T.P.I.

Type	Standard Sprocket Combinations
FB-5N (5-speed)	14T • 17T • 20T • 24T • 28T
FB-6N (6-speed)	13T • 15T • 17T • 21T • 26T • 32T
	13T • 15T • 17T • 20T • 24T • 28T

Uniglide Sprockets

UNIGLIDE

*Can be used with POSITRON-FI Rear Derailleur

Chain Protector for MF-FF61

Friction Freewheel

Model MF-FF50 (Wide)

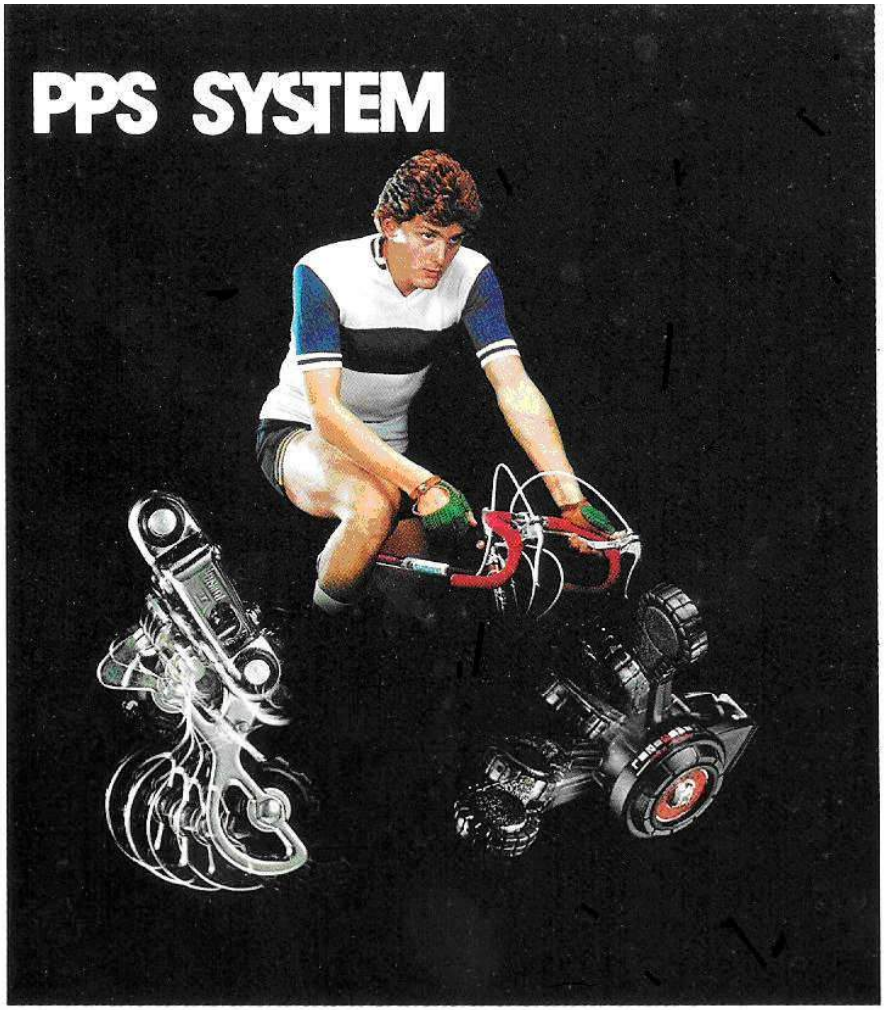
SPECIFICATIONS
Use: FF System 5-speed Only
Chain Size: 1/2" × 3/32" Chain
Thread: BC 1.37" × 24 T.P.I.
Top Protector: White
Standard Sprocket Combinations:

14T, 17T, 20T, 24T, 28T
14T, 17T, 21T, 26T, 32T

Uniglide Sprockets

UNIGLIDE

PPS SYSTEM



Positive and Pre-Select Shifting System

Multiple speeds make a bicycle both fun and easy to ride. Cyclists can ride over varied terrain with minimum effort by using the proper gear. However, shifting a derailleur requires a certain amount of skill.....skill that usually comes with practice. But many people will not even consider using a multi-speed bicycle because shifting gears sounds too complicated.

However, gear shifts were simplified recently when Shimano introduced the Positron PPS System. The Positron derailleur centers the gear automatically. Thus, the guess-work of shifting is eliminated.

The introduction of a numbered gear lever means the rider can now accurately pre-select a gear at any time, and always know which one is engaged.

The all new PPS (Positive Pre-Select) System is the perfect answer, to trouble-free multi-speed cycling.

NEW POSITRON PPS SYSTEM

POSITRON-FH

POSITRON-FH Rear Derailleur

Model RD-PF10 (Short Cage)

RD-PF20 (Middle Cage)

SPECIFICATIONS

Use: Shimano Freehubs & PPS-FH Plus FF System Only
Capacity: Double Front Sprockets/Front Difference 13T or Less
Rear Freewheel 13T~28T (Short Cage)
13T~32T (Middle Cage)
Single Front Sprocket/Rear Freewheel
13T~32T (Short Cage)
13T~34T (Middle Cage)
Weight: 11.1 oz. (316g.)/Short Cage
: 11.6 oz. (328g.)/Middle Cage
Material: Steel
Type: Positive Mechanism with Pre-Select Mechanism and Servo Panta Mechanism
Changeover of 10 (5)-speed to 12 (6)-speed is possible

Middle Cage

Use with Shimano Freehub (Model: 6A10, 5A10) or Friction Freewheel (Model MF-FF51, FF61)

PPS-FH STEM Shifting Lever

Model SL-PF13 (12-Speed)

SPECIFICATIONS

Use: With POSITRON-FH Rear Derailleur Only
Material: Resin
Type: Friction Type
Attachment Position: Handle Stem
Lever Clamp Diameter: 0.833"
Single Lever Available

PUSH-PULL CABLE

Model CL-P210

SPECIFICATIONS

Size: 43.3" (1,100 mm.) × 46.1" (1,170 mm.)
47.2" (1,200 mm.) × 50.0" (1,270 mm.)
57.1" (1,450 mm.) × 59.8" (1,520 mm.)
61.0" (1,550 mm.) × 63.8" (1,620 mm.)

OX SERIES SYSTEM COMPONENTS CHART

Shimano pioneered the "System Components" concept which has been responsible for producing so many exciting and innovative systems for the bicycle's advancement.
And the latest development from Shimano is truly revolutionary in concept. A new aerodynamically designed component system which brings the bicycle into line with today's space-age developments and technology—Shimano's AX Series. In addition, these series are the beneficiaries of many of Shimano's world-famous mechanism innovations. Designed to enhance the bicycle's performance as a whole rather than concentrating on individual parts, great improvements have been possible due to this enlightened policy.
Each component series has been given special consideration with regard to its intended function. Whether designing top-of-the-line racing components or regular multi-speed components, we have applied the same high standards of research and development to improve performance. Thus, the best of our mechanisms and design techniques are incorporated into all our products, irrespecitve of class or use.
Furthermore, Shimano's aims have always been consistent: strength, lightness and research to decrease air resistance for a better bicycle. The cyclist enjoys a more comfortable and faster ride with efficient use of human energy. And these principles have been passed onto all our series where applicable. The "System" chart demonstrates the versatility of our products from top racing components through to regular multi-speed components.
Here you can see how each component works perfectly with the other and you can select the most suitable components to work in unison for a better ride.

ROAD RACING ENSEMBLE

DURA-ACE OX SERIES

For Oval Tube

FC-7300

For Round Tube

ROAD RACING ENSEMBLE

SHIMANO 600 OX SERIES

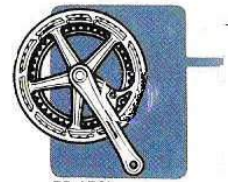
For Oval Tube

FC-6300

For Round Tube

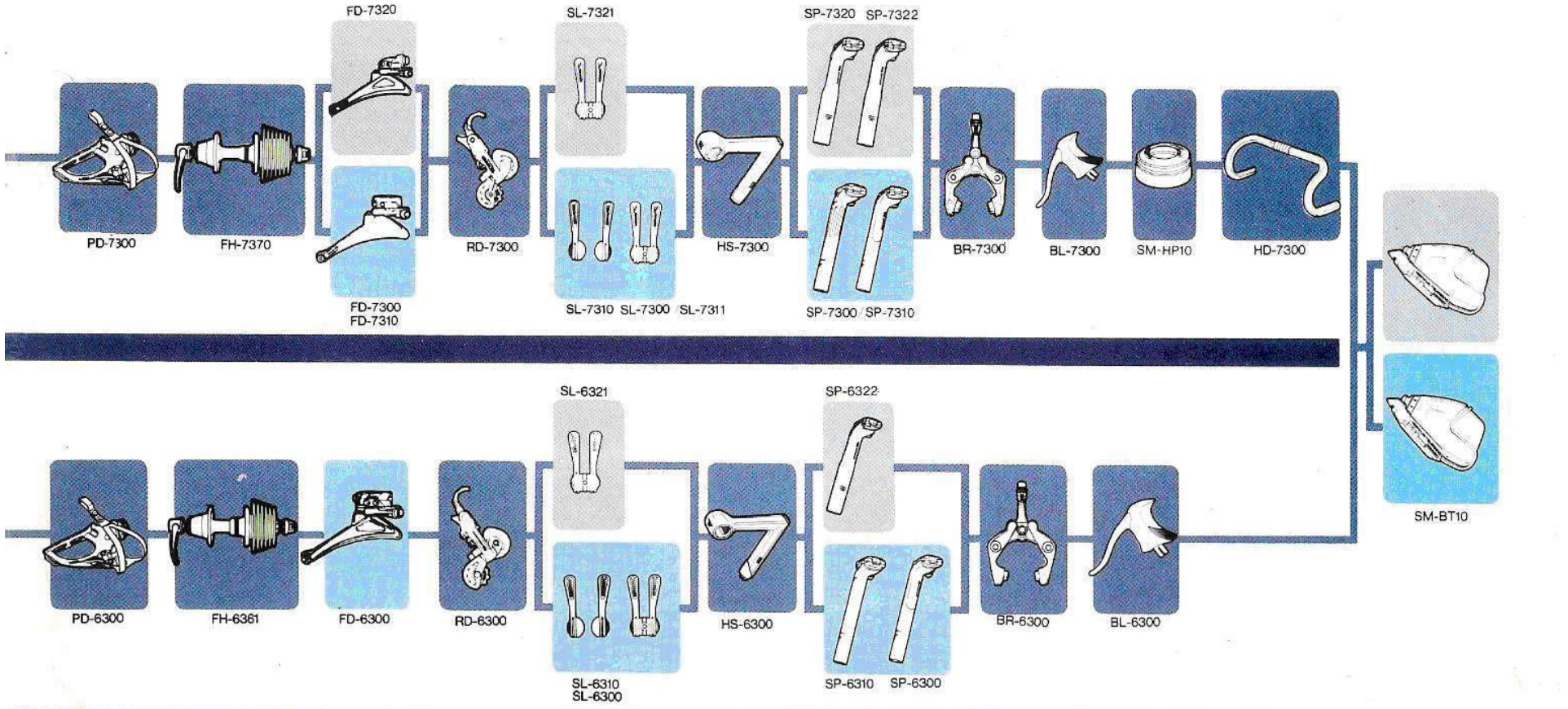
ROAD & TOURING ENSEMBLE

adamas OX SERIES



FC-AD21
FC-AD22

For Round Tube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SP-7320 SP-7322
PD-7300
FH-7370
FD-7300
FD-7310
RD-7300
SL-7310 SL-7300 SL-7311
HS-7300
SP-7300 SP-7310
BR-7300
BL-7300
SM-HP10
HD-7300
SM-BT10
SL-6321
SP-6322
PD-6300
FH-6361
FD-6300
RD-6300
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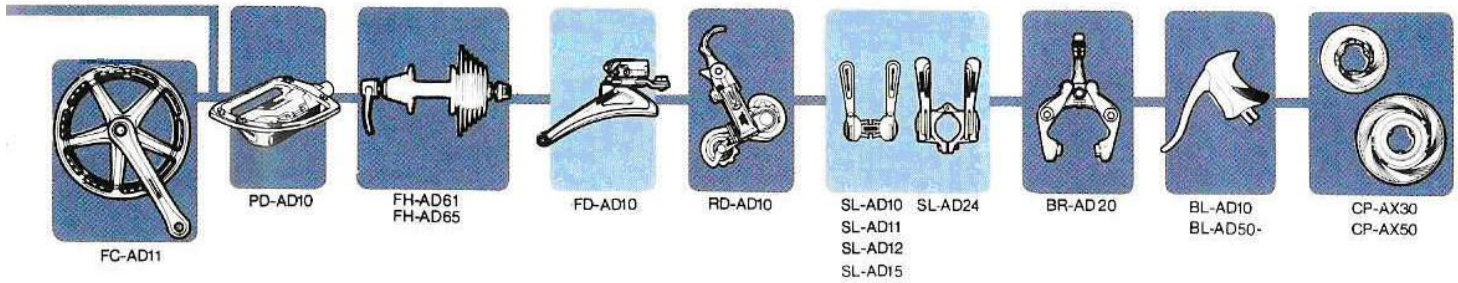
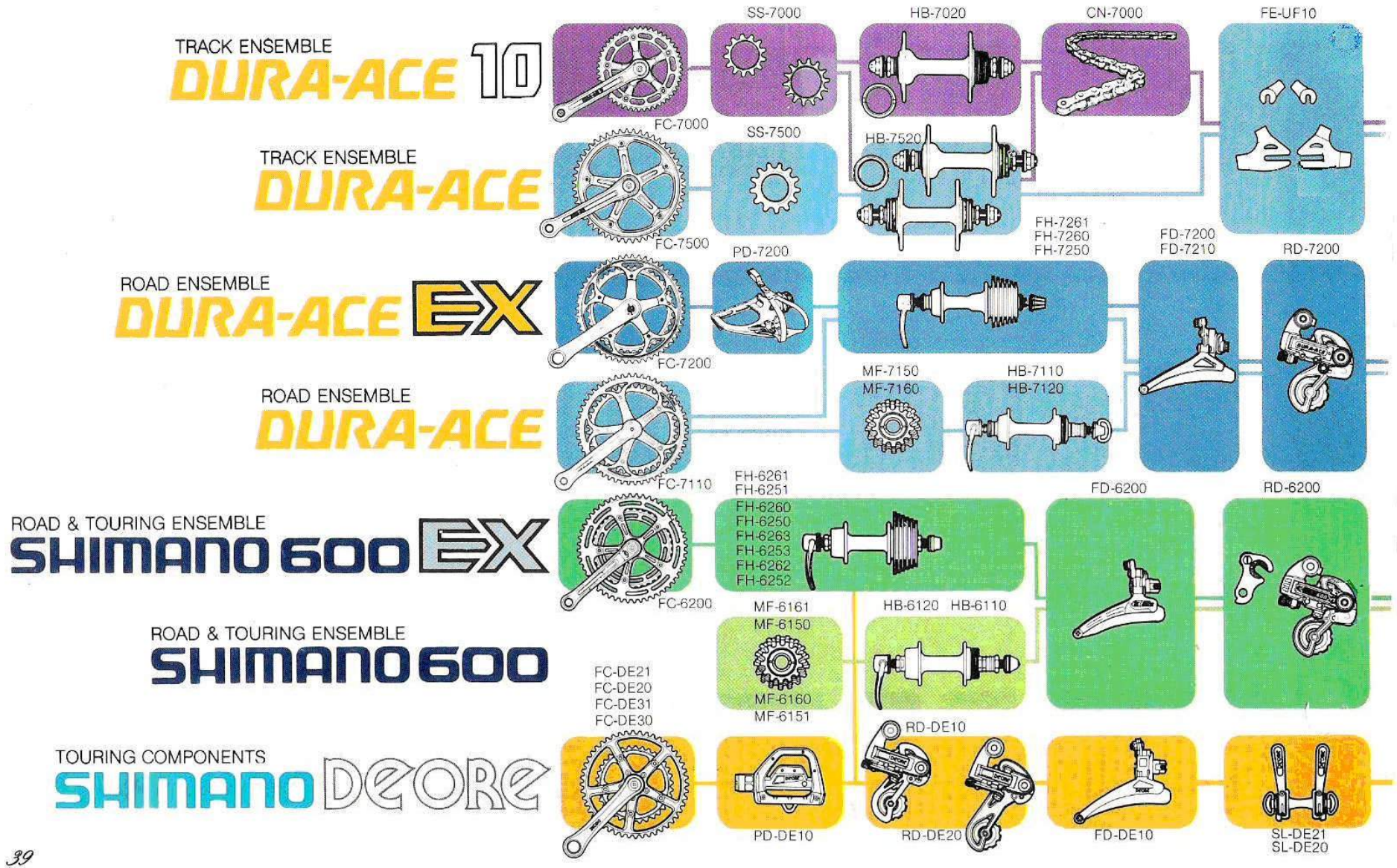
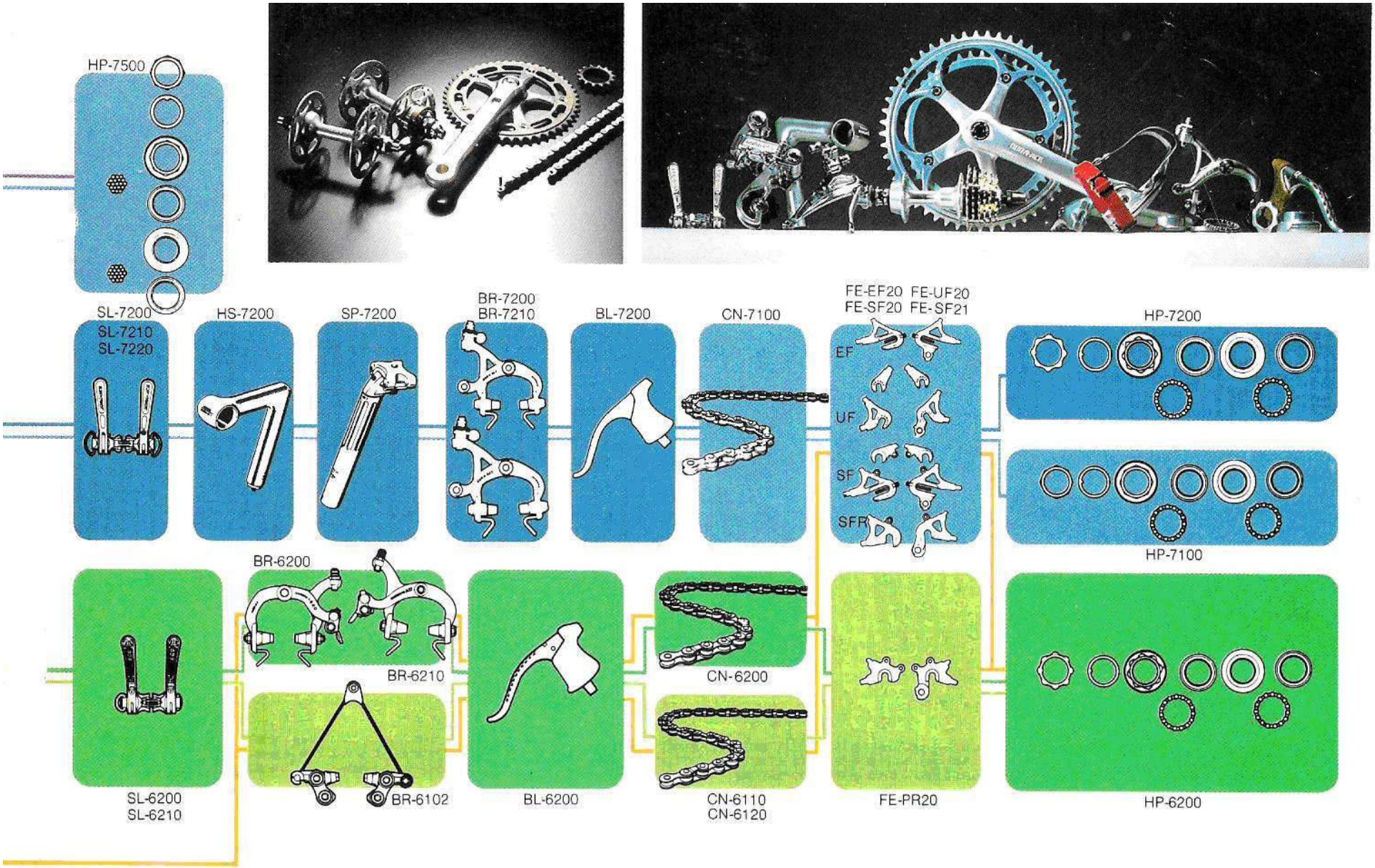
BL-6300


FC-AD11
PD-AD10
FH-AD61
FH-AD65
FD-AD10
RD-AD10
SL-AD10 SL-AD24
SL-AD11
SL-AD12
SL-AD15
BR-AD20
BL-AD10
BL-AD50-
CP-AX30
CP-AX50

SHIMANO BICYCLE SYSTEM COMPONENTS

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SL-7210
SL-7220
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FE-EF20 FE-UF20
FE-SF20 FE-SF21
EF
UF
SF
SFR
HP-7200
HP-7100
BR-6200
BR-6210
BR-6102
CN-6200
CN-6110
CN-6120
SL-6200
SL-6210
BL-6200
FE-PR20
HP-6200

SHIMANO

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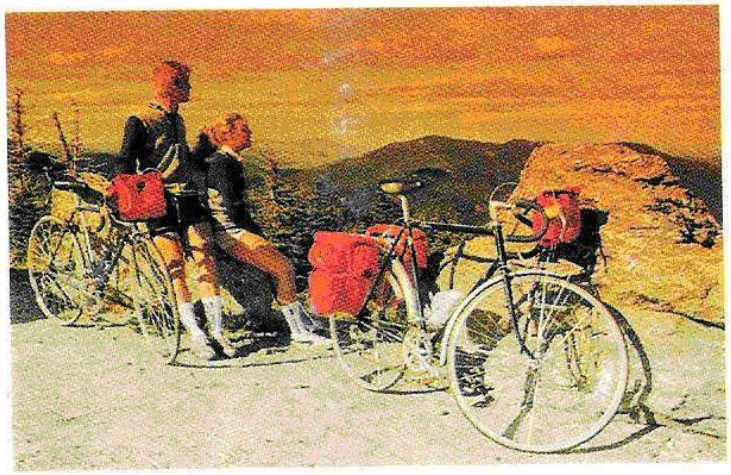

Specifications are subject to change without notice.