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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

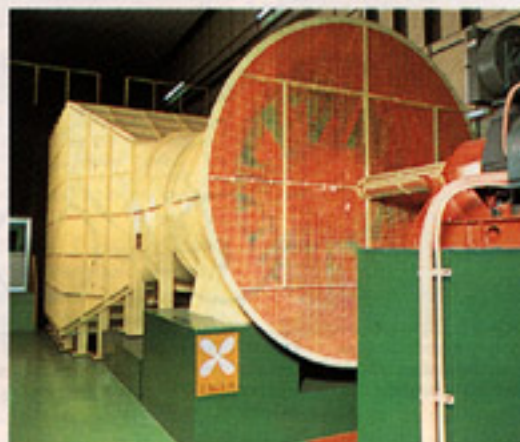
After 100 years of continuous history since the modern bicycle was developed, the scene is set to take the bicycle into yet another era in its evolutionary process.

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 accumulative experience and data, Shimano set out to achieve perfection in aerodynamic, system components.



SHIMANO
zero
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 30 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



remains constant when shifting instead of slowing down as with conventional systems.

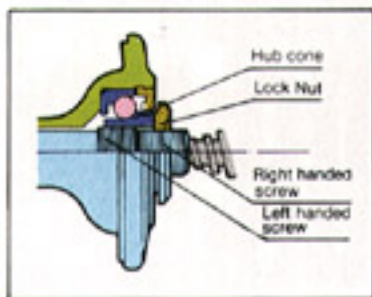
Features include no shifting shocks, no slipping during close ratio shifting, usually the most difficult case of all, and smooth shifting, even on a hill, without losing momentum.



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 pro-

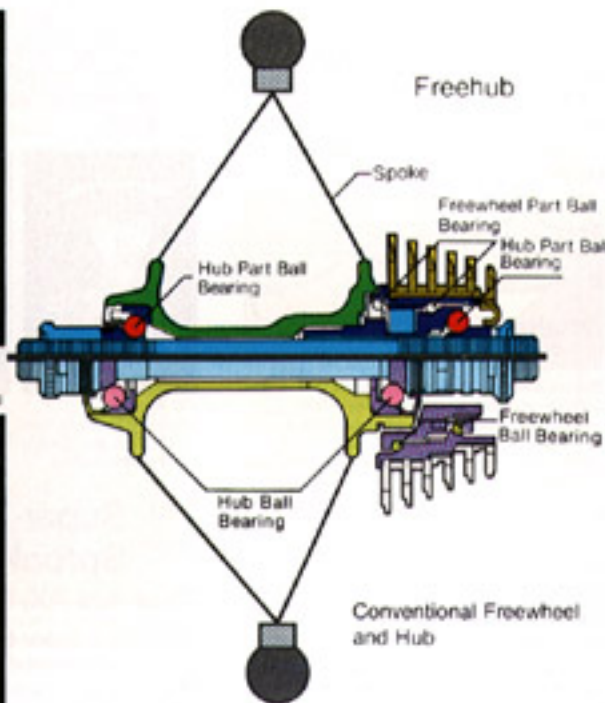
blem was a solution discovered. With the development of the Uni-Balance Mechanism, equal distribution of tension on both right and left side spokes was made possible. We were able to reduce the dish substantially while still keeping the usual distance between flanges. The Uni-Balance Mechanism was responsible 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

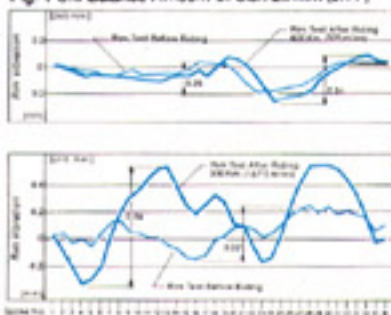


Dished Assembly Wheel



Conventional Freewheel and Hub

Fig. 1 Uni-Balance Amount of dish 27mm (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 inches) (Fig. 2) while the Uni-Balance is only 0.05mm (0.002 inches) (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%



Direction-6 Hub Rim Assembly



Conventional Hub Rim Assembly

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.

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.

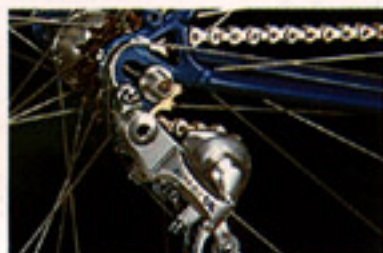
SHIFTING MECHANISMS

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



Direct Cable Mechanism

resistance of our components and, of course, reduced weight.

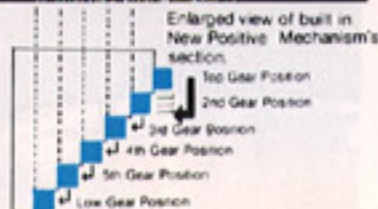
New Positive Mechanism

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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

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

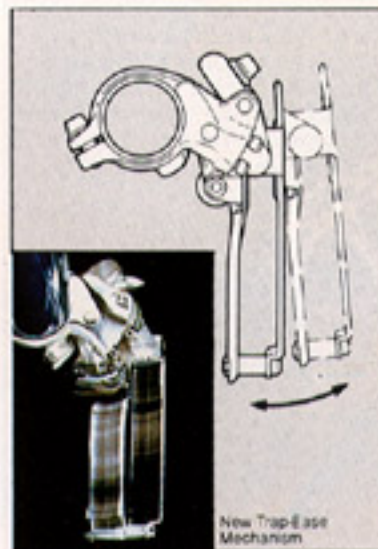


are possible at all times under the severest racing conditions with Shimano's New Positive Shifting Mechanism.

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 original, 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

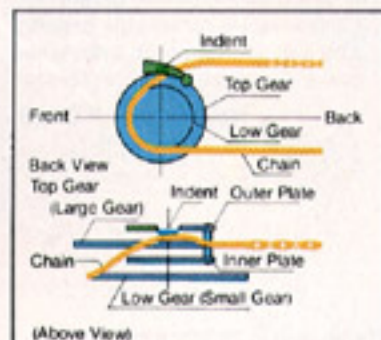


design enables the front derailleur, when shifting from low to top gear, to transport the chain with a

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



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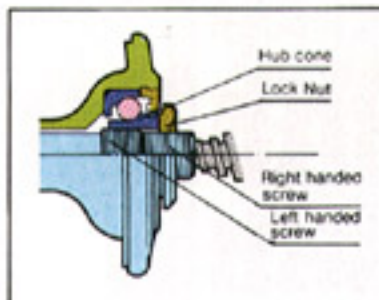
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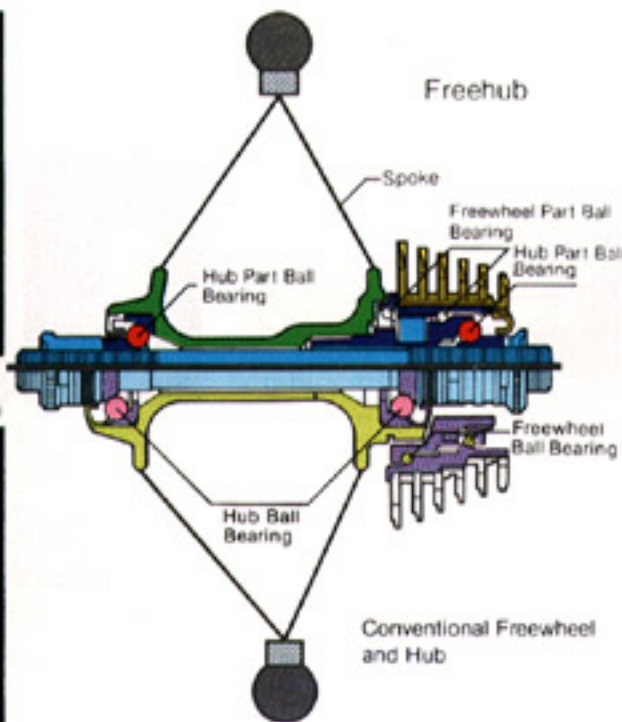
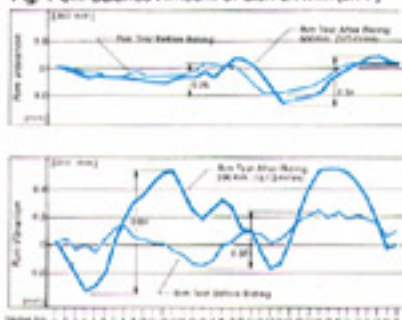


Fig. 1 Uni-Balance Amount of dish 2.7mm (0.11")



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Direct Cable Mechanism

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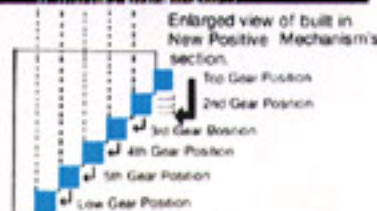
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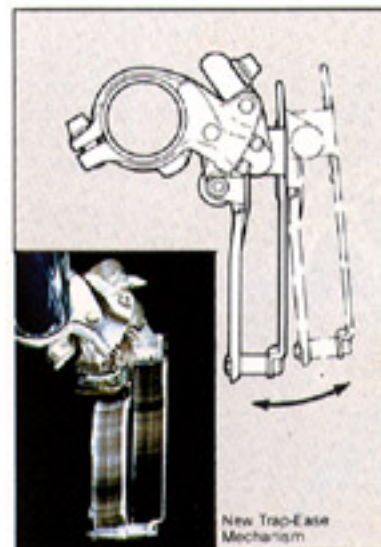


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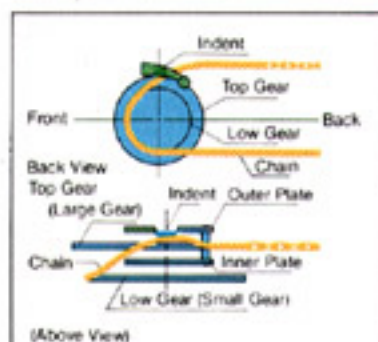
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Chain Protector Release Indentation's movement



BRAKING MECHANISMS

New Para-Pull Mechanism

All AX Series

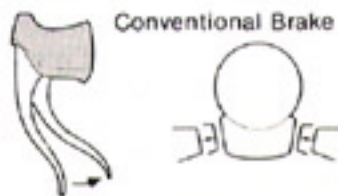
The new Shimano AX Para-Pull Mechanism was developed especially for speed control when riding in addition to a reliable braking function.

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:

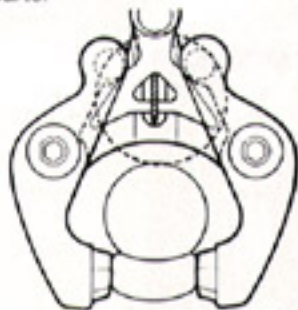
1. When commencing to brake, the cut-away section on the triangular carrier is responsible for transmitting braking power to the brake arm arch immediately without delay. Thus, the brake shoes are activated toward the rims. The faster transmission of power means a wider dimension between brake shoes 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 lever stroke and brake shoe stroke are the same.

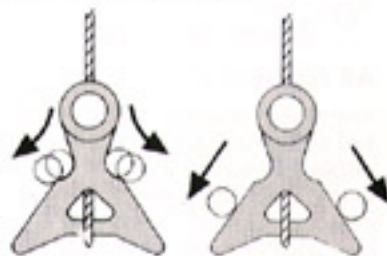
These two innovative features allow the rider to control exactly the amount of speed required by means of the ideal positioning of brake shoes and their operation. Another feature is unbalanced braking to one side has been eliminated because the design of the brake arm arch interior follows the parabolic 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.

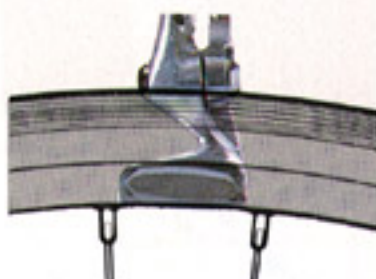


Arch quick response mechanism with specially designed triangular carrier

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 Test of Different Brakes' Stopping Distance

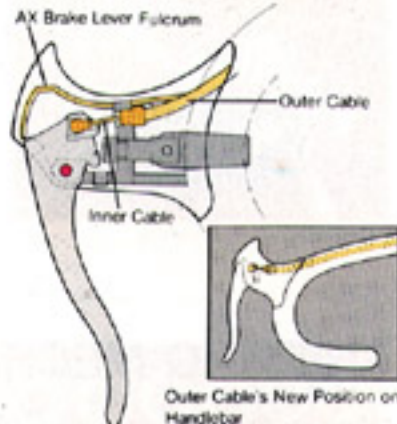
Brake Type	Clear weather		Wet weather	
	Speed	Levers input power	Speed	Levers input power
Parapull Brake	29km/h (18.0 mph)	12kg (26.5 lbs)	22km/h (13.7 mph)	12kg (26.5 lbs)
A brake	3.3m (10.8 yds)	0.0m (0.0 yds)	4.0m (13.1 yds)	2.2m (7.2 yds)
B brake	4.0m (13.1 yds)	0.0m (0.0 yds)	4.5m (14.8 yds)	2.5m (8.2 yds)
C brake	4.5m (14.8 yds)	0.0m (0.0 yds)	5.0m (16.4 yds)	2.5m (8.2 yds)

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

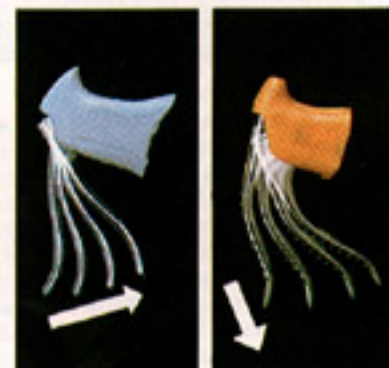
AX Brake Lever All AX Series

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.

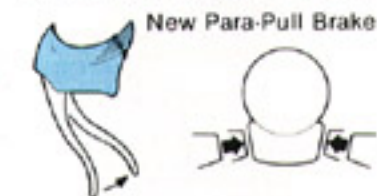
Our solutions, which we incorporated in the AX Brake Lever, were



Outer Cable's New Position on Handlebar



AX Brake Lever Action Ordinary Brake Lever Action



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

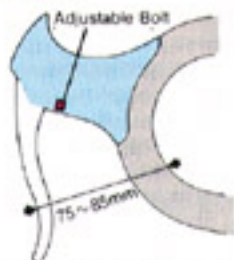
to position the brake lever fulcrum in a more forward setting than before for increased leverage. To build the outer cable into a groove situated in the tubing. And to increase the pulling angle of the inner cable by 90%.



Undulations which spread palm pressure power evenly

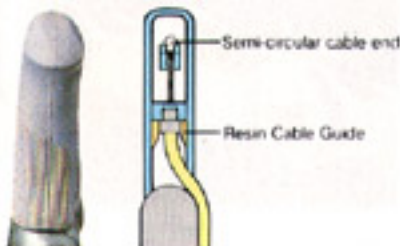
unit with an increase in power efficiency. The grooved design allows palm and fingers to slot easily and comfortably into the most natural gripping position. The result; the hand and bracket are so joined to form a streamlined unit thus reducing air resistance.

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.



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

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.

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.

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).

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.



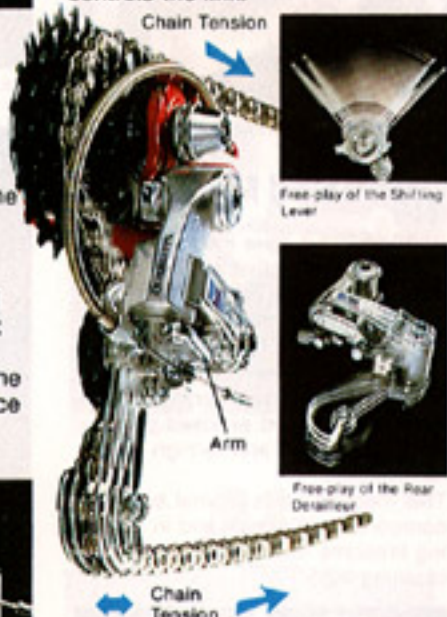
Low Gear Position



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.



Chain Tension

Arm

Chain Tension



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 allowance 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



UG Teeth

Conventional Teeth

component has to be re-evaluated and the individual part seen as it relates to the whole.

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.



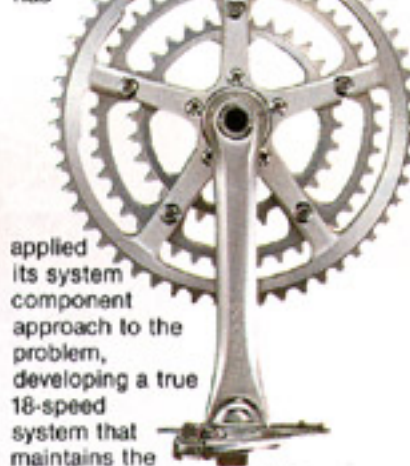
Triple-gear Sprocket with 18-Speed Capability

Deore

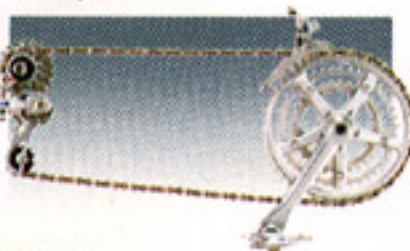
The DEORE front chainwheel introduces a fine blend of functional superiority and fashionable style. The chainwheel is cold forged aluminum alloy, affording excellent rigidity, graceful lines and aerodynamic sleekness, while the 5-pin spider with triple chainwheel capability makes possible up to 18 speeds, 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 deflection.

10mm Pitch System Dura-Ace 10 Series

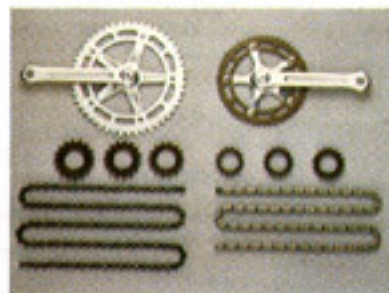


10mm and 12.7mm Comparison

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

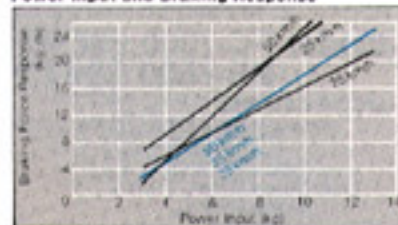
DURA-ACE 10—DURA-ACE Comparison Chart • Weight Comparison (Track Models)

	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	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 response.

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

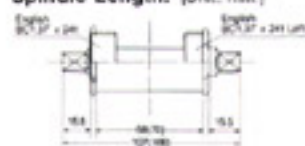
Type • Cotterless
Chain Ring • 10mm. x 3mm.
Teeth • 46~53T

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

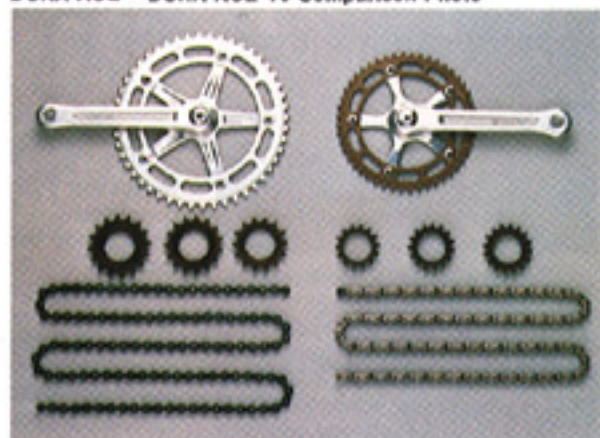
Type • Bushed Chain

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. (16 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

DURA-ACE Front Chainwheel

Model FC-7500 BB-7500

SPECIFICATIONS

- Material • Light Alloy • Anodized Finish
- Type • Cotterless
- Chain Ring • 1/2" x 1 1/8" Chain
- Teeth • 45T~52T

Crank Lengths

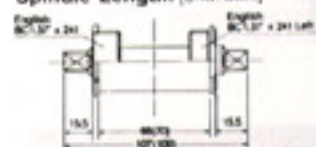
- 6-1/2" (165mm), 6-3/4" (170mm), 6-7/8" (175mm)
- Available by request 6-19/32" (167.5mm), 6-13/16" (172.5mm)

Crank Thread • BC 9/16" x 20 T.P.I.

- Cup Thread • English 1.37" x 24I, French 35 x 1.0, Italian 36 x 24I

- 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 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

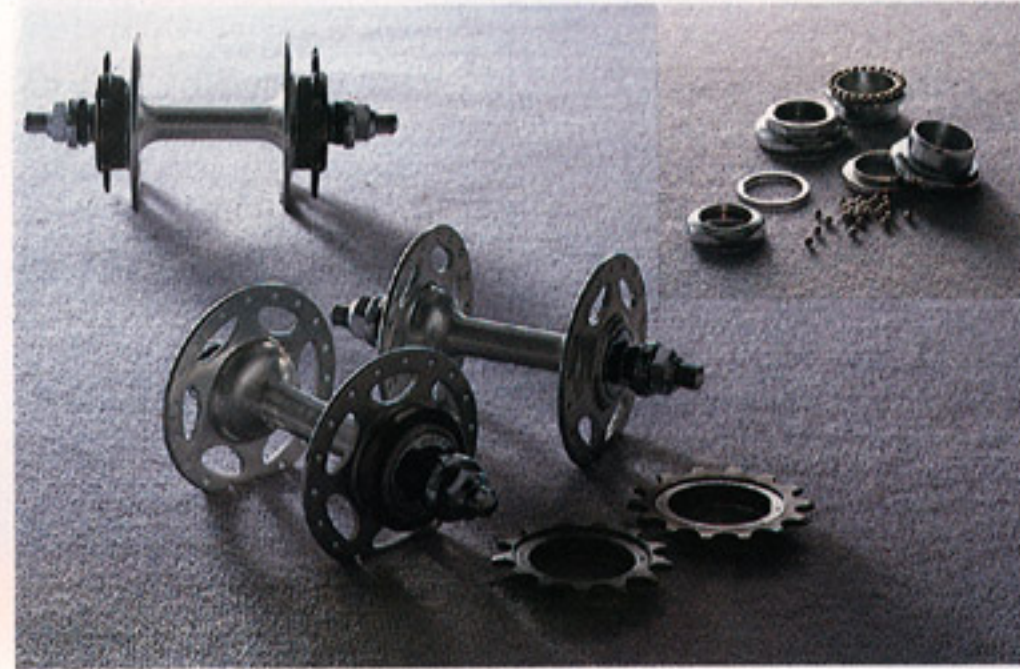
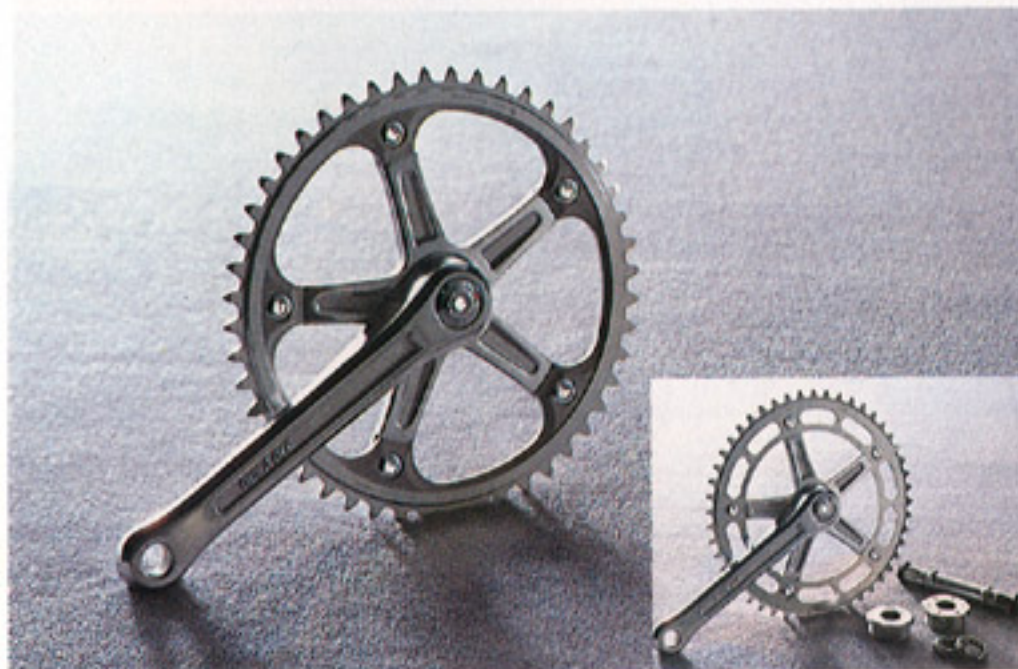
- Material • Steel

Fork End Slot Width

- Front 0.35" (9mm), 0.31" (8mm)
- Rear 0.39" (10mm), 0.31" (8mm)

- Specialty 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 Indent



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 • Front: 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" (28.6mm.)

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. —

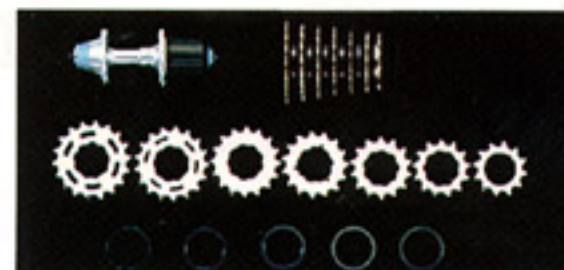
19T.

Spline Sprocket: 12T. — 26T.

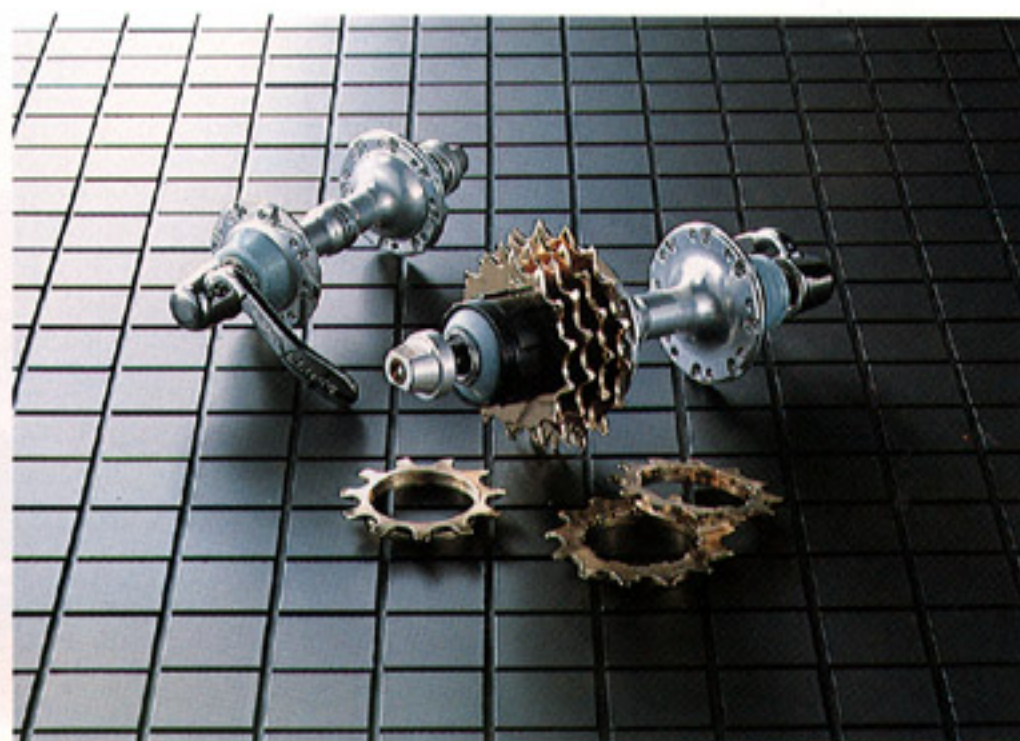
Spoke Holes • 32H/36H.

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" x 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" x 24 T.P.I.

Cup Thread • English 1.37" x 24 T./French 35

x 1.0/Italian 36 x 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 Straps)

Material • Light Alloy • Anodized Finish (Body)

• Chromium Molybdenum Steel (Cup • Cone)

• Stainless Steel (Toe Clip)

Crank Thread • BC 1" x 24 T.P.I.

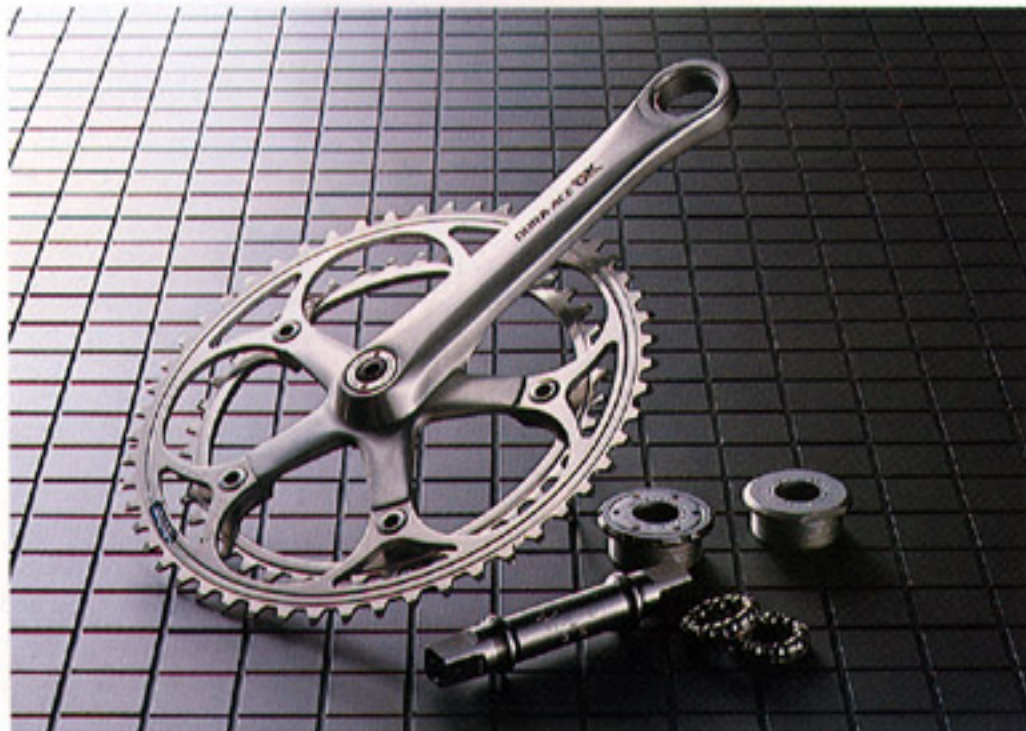
Features • Aerodynamic Design/DD Mechanism/Sealed Mechanism/
Light Weight/Adjustable Toe Clip

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 Parapull 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



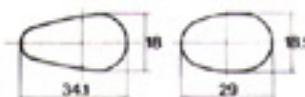
Sliding adjustable brake.

**DURA-ACE AX Seat Pillar
Model SP-7300**

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



**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.



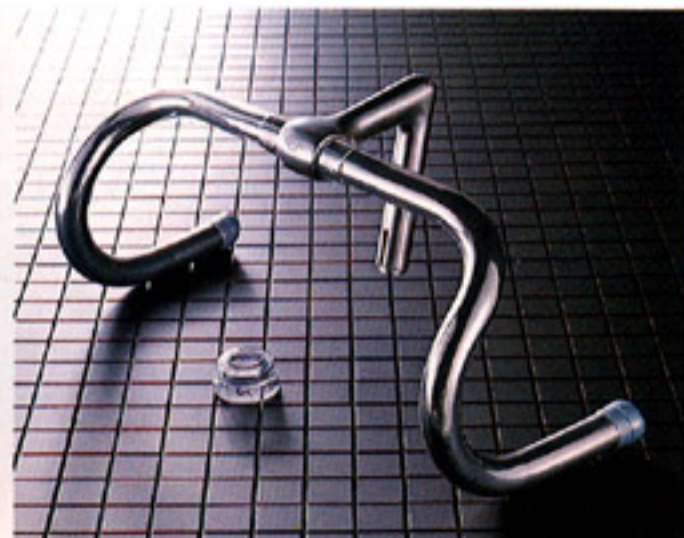
Hexagon Wrench Key for Handle Stem

**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

shimano
zero
dynamics



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

shimano
zero
dynamics



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" (28.6mm)

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

shimano
zero
dynamics



Sealed Mechanism

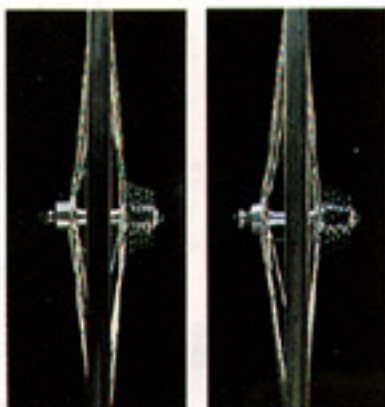


Band A Type (SL-6300)



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" (5.9mm.)
- Material • Light Alloy
 Sprocket • Nickel Finish
- Teeth • Threaded Sprocket: 12T. — 16T.
 2nd Sprocket: 13T. — 17T.
 Spine 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" x 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" x 24 T.P.I.
 Cup Thread • English 1.37" x 24T./French 35 x 1.0/Italian 36 x 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 Front Chainwheel (FC-7300) or AX DD Pedal (PD-7300)

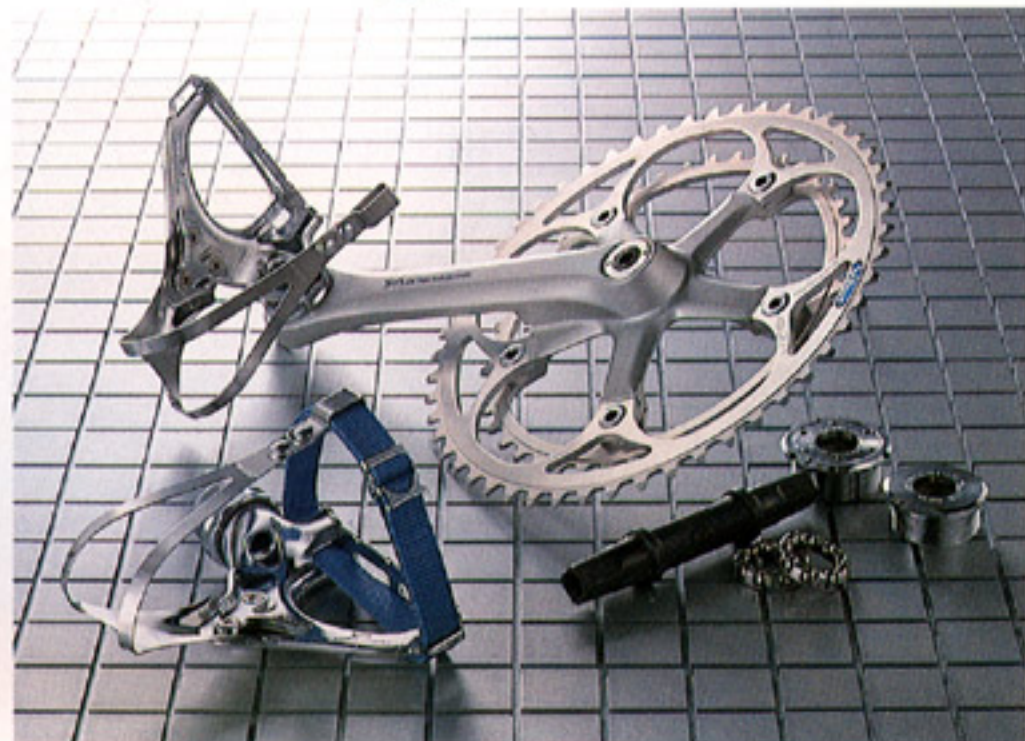
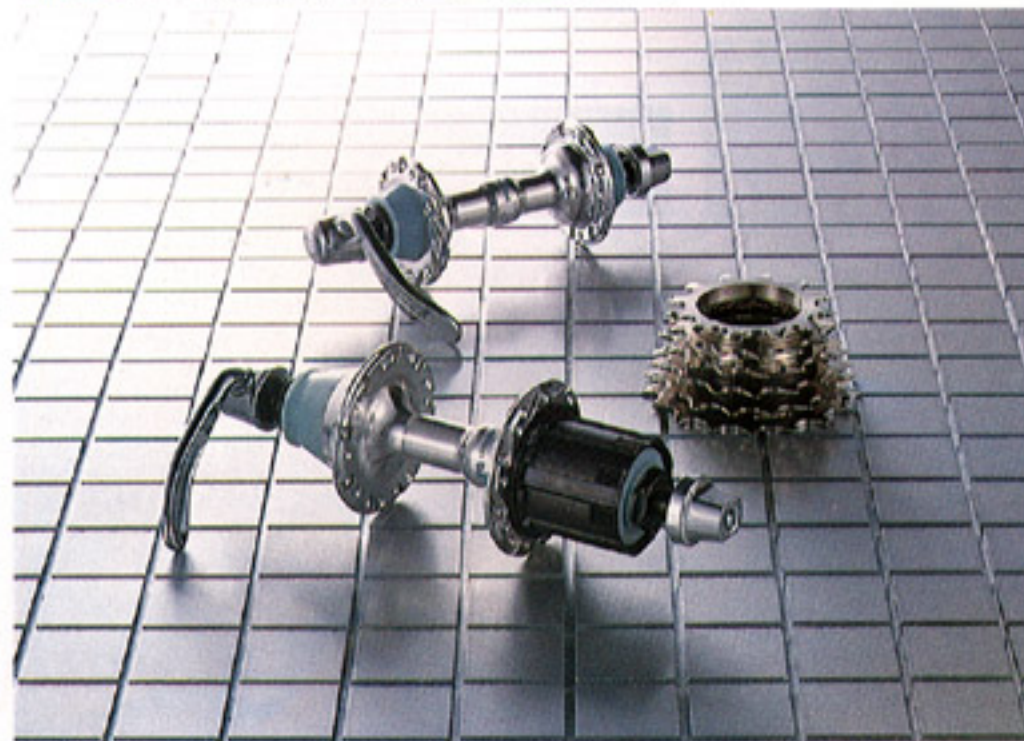


B.B. Parts Size

Part No.	B.B. Shell Width	Axle Length
1480101	66mm	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" x 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 Parapull 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 Seal Pillar Model SP-6300

SP-6310

A-Type

(Semi Oval Tube)

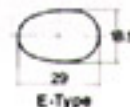
SP-6322

B-Type

(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. x 29mm.
- Features • Aerodynamic Design (SP-6310, 6322) / Hexagon Release

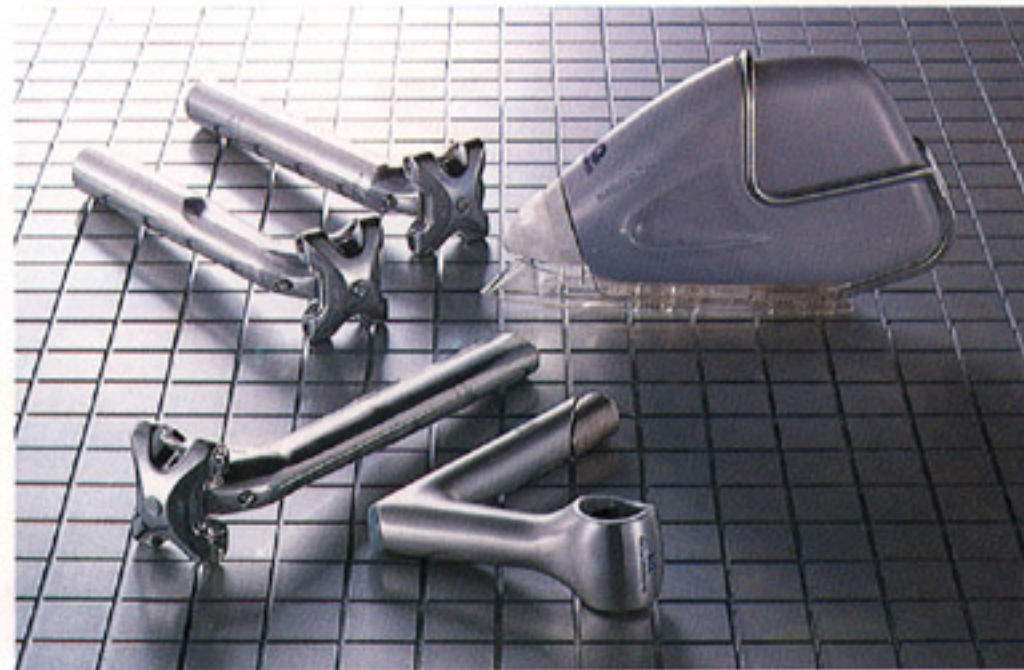
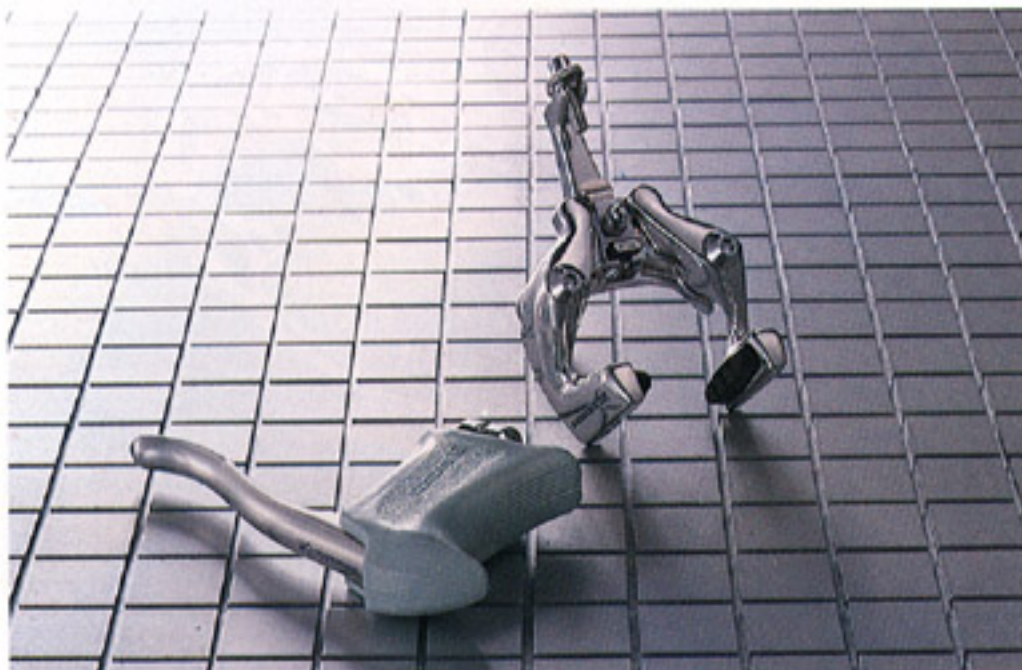


E-Type

SHIMANO Aero-Bottle Model SM-BT10

SPECIFICATIONS

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



DURA-ACE EX SERIES 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. (210g)	3.94" (100 mm)	
Rear (Except Cassette Gears)	5-speed 13.9 oz. (393g)	4.72" (120 mm)	0.17" (4.35 mm)
	6-speed 14.0 oz. (395g)	4.72" (120 mm)	0.21" (5.3 mm)
		4.96" (126 mm)	0.19" (4.8 mm)

- Material • Light Alloy • Anodized Finish (W/ Light Alloy Adjusting Nut)
- Sprocket • Golden Finish
- Teeth • Threaded Sprocket 11T~19T
- Spine Sprocket 12T~28T
- Spoke Holes • 28H, 32H, 36H
- Type • Quick Release, Uni Balance Mechanism, Unslide 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 (Spine Type)	We offer all kinds of tooth sprocket possibilities. High gear (threaded sprockets, from 11T to 19T, other gears (spine type), from 12T to 28T.
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	
15T	15, 17, 19, 21, 23T	
14T	15, 16, 18, 20, 22T	
14T	16, 18, 20, 22, 24T	

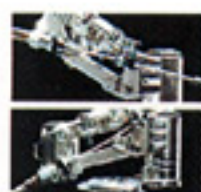


DURA-ACE EX Rear Derailleur

Model RD-7200

SPECIFICATIONS

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



Low Gear Position
High Gear Position



DURA-ACE EX Front Derailleur

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



SPECIFICATIONS

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



DURA-ACE EX Shifting Lever

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



Braze-on Parts (Model SL-7210)

SPECIFICATIONS

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



DURA-ACE EX SERIES ROAD ENSEMBLE

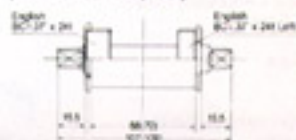
DURA-ACE EX
Front Chainwheel
& Bottom Bracket Assembly

Model FC-7200
BB-7500



SPECIFICATIONS

- Material** • Light Alloy • Anodized Finish
Type • Cotterless
Chain Ring • 1/2" x 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" (172.5 mm.), 6-7/8" (175 mm.)
Crank Thread • BC1" x 24 T.P.I.
Cup Thread • English 1.37" x 24T,
French 35 x 1.0 Available by
request; Italian 36 x 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" x 24 T.P.I.
Type • DD Mechanism, Sealed
Mechanism, Aerodynamic Design
Option • DD Pedal Reflector

Features 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



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

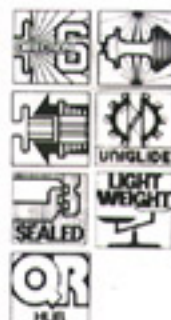
DURA-ACE EX Freehub
Model FH-7261 (Small 6-Speed
Silver)

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" (4.3 mm.)

- Material** • Light Alloy • Anodized Finish
(With Light Alloy Adjusting Nut)
Sprocket • Golden Finish
Teeth • Threaded Sprocket 11T~19T
• Spine Sprocket 12T~26T
Spoke Holes • 32H
Type • Direction Mechanism, Quick
Release, Uni Balance
Mechanism, Unglide 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)

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

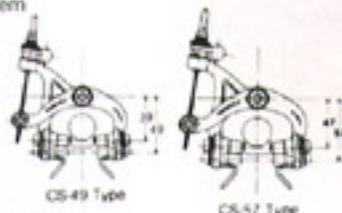


NBM Brake Shoe



DURA-ACE EX Brake Lever
Model BL-7200

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



CS-49 Type

CS-57 Type



Quick Release



DURA-ACE EX Head Parts

Model HP-7200

SPECIFICATIONS
Weight ● 3.7 oz. (106g)
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
● 25.8mm 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 Paralle 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 ● 3.95oz. (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.

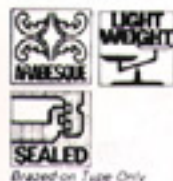


Trapezium shaped swing motion of Trap-Ease Mechanism.

SHIMANO-600 EX Shifting Lever Model SL-6200 (Band Type) SL-6210 (Brazed-on Type)

SPECIFICATIONS

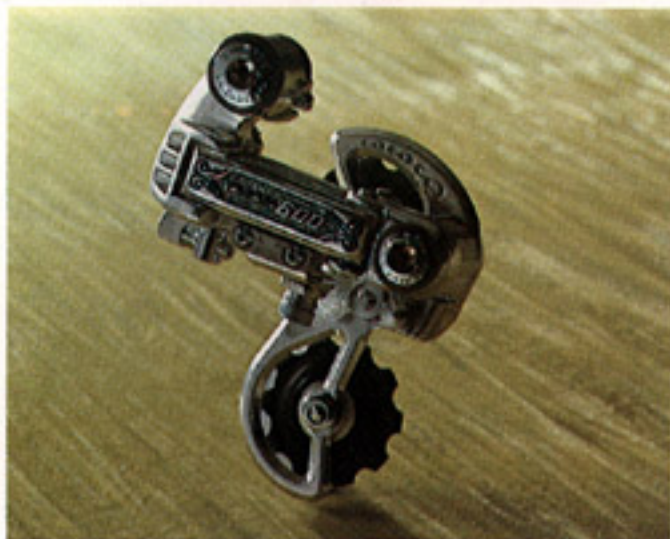
- Weight ● 2.05oz. (58g.)
- Material ● Light Alloy
- Type ● Friction Type
- Attachment Position ● Down Tube
- Lever Clamp Diameter ● 1-1/8"
- Arabesque Pattern Design
- Lever Non-loosening Feature



Brazed-on Type Only



Brazed-on Parts



SHIMANO-600 EX Front Chainwheel
Model FC-6200

BB-6200

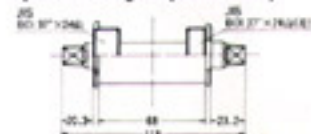
(Spindle Length
116 mm, 119 mm.)

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-6260

(Black/6-speed)

FH-6251

(Silver/5-speed)

FH-6250

(Black/5-speed)

SHIMANO-600 EX Large Flange Freehub

Model FH-6263

(Silver/6-speed)

FH-6262

(Black/6-speed)

FH-6253

(Silver/5-speed)

FH-6252

(Black/5-speed)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of
Dish ●

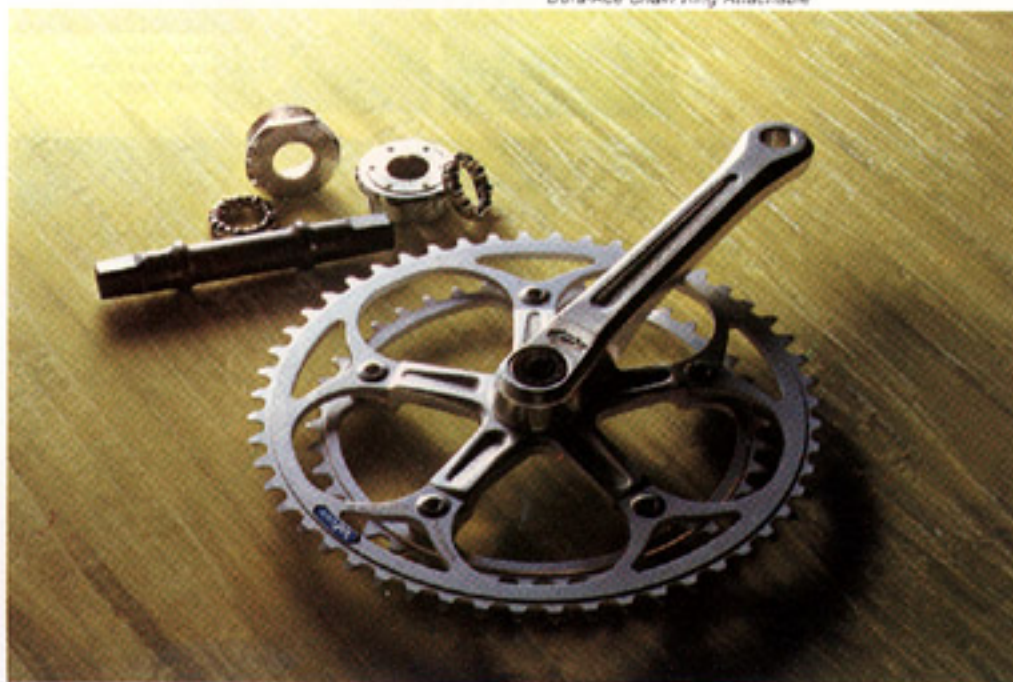
	Weight (Small)	Weight (Large)	Over Lock Nut Dimension	Amount of Dish
Front	8.3 oz (235 g)	9.7 oz (275 g)	3.94" (100 mm)	—
Rear (Except Cassette Gears)	13.9 oz (395 g)	14.2 oz (405 g)	4.22" (107 mm)	0.07" (1.75 mm)
	14.1 oz (402 g)	14.5 oz (412 g)	4.68" (119 mm)	0" (0 mm)
5-speed	14.2 oz (405 g)	14.5 oz (413 g)	4.72" (120 mm)	0.26" (6.65 mm)
	14.2 oz (405 g)	14.6 oz (415 g)	4.88" (124 mm)	0.21" (5.3 mm)
6-speed	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
Spine Sprocket 13T~28T
Spoke Holes ● 36H
Type ● Quick Release, Uni Balance
Mechanism, Unglide
Teeth, Cassette Gear,
Sealed Mechanism
Use ● With EX Rear
Derailleur Only

Shimano-600 EX Freehub sprocket combinations:

High Gear (Threaded)	5-SPEED		6-SPEED	
	Gears from 2nd (4 gears unfixed)		Gears from 2nd (5 gears unfixed)	
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	
14T	15, 17, 20, 22T		15, 17, 19, 21, 22T	
	16, 18, 21, 24T		16, 18, 20, 22, 24T	
15T	18, 21, 24, 26T		17, 19, 21, 24, 26T	

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



SHIMANO-600 EX SERIES

SHIMANO 600
EX
Road Ensemble

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" x 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



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



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)



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



Sealed Mechanism



Trapezium shaped swing motion of
Trap-Ease Mechanism



Chain Release Indent

DEORE Shifting Lever Model SL-DE21 (Braze-on Type) SL-DE20 (Band Type)

SPECIFICATIONS
Weight: 1.4oz. (39g.) Braze-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
(Braze-on Type Only), Lever Non-loosening
Feature



Use: Rear Derailleur with Centeron
Mechanism Only



Braze-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" x 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" x 24T.P.I.

Cup Thread: English 1.37" x 24T., French 35 x 10

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" x 24T.P.I.

Right-handed Screw (Right Pedal) BC" x

24T.P.I. Left-handed Screw (Left Pedal)

Type: DD Mechanism, Aerodynamic Design, Sealed Mechanism

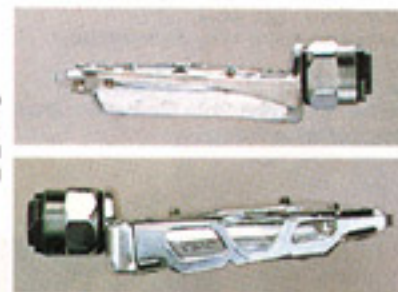
Use: DEORE Front Chainwheel



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

- 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 • BC9116" 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

Spindle Length: [Unit: mm.]



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 11.5 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

DURA-ACE
Multiple Freewheel
Model MF-7150
MF-7160

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



Chamfered Sprocket Teeth



Standard Sprocket Combinations

	13, 14, 15, 17, 19T
5-speed	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



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

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



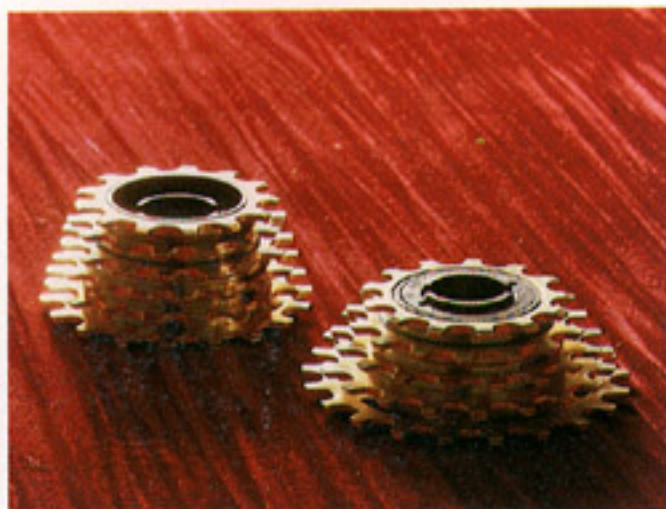
SHIMANO-SFR Fork Ends
Model FE-SF21

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" (125mm.) 6-speed

Spoke Holes • 35H



SHIMANO-600 UG Multiple Freewheel

Model MF-6150 MF-6160

(Black/5-speed) (Black/6-speed)

MF-6151 MF-6161

(Silver/5-speed) (Silver/6-speed)

SPECIFICATIONS

Standard Sprocket

- 1/2" x 3/32" Chain
- Sprocket • Black Finish,
- Satin Nickel Finish

Standard Sprocket Combinations

	13, 15, 17, 19, 21T
5-speed	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



SHIMANO-600 UG Chain

Model CN-6110

(Black/5-speed)

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

(Black/5-speed)

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" x 1/8" Chain
- 1/2" x 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
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

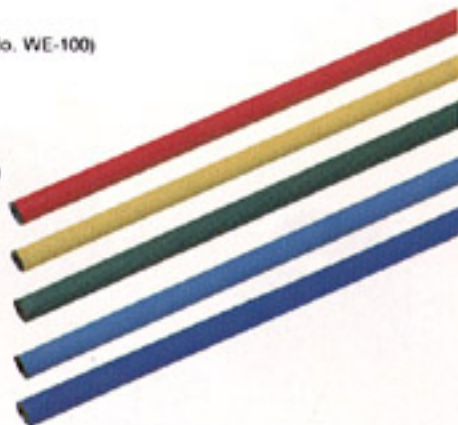
SPECIFICATIONS
Weight • 4.4 oz. (127 g) (Rear Only)
Material • Steel
Type • Vertical Drop Out



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" x 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" x 20 T.P.I.
- Cup Thread • English 1.37" x 24T./French 35 x 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

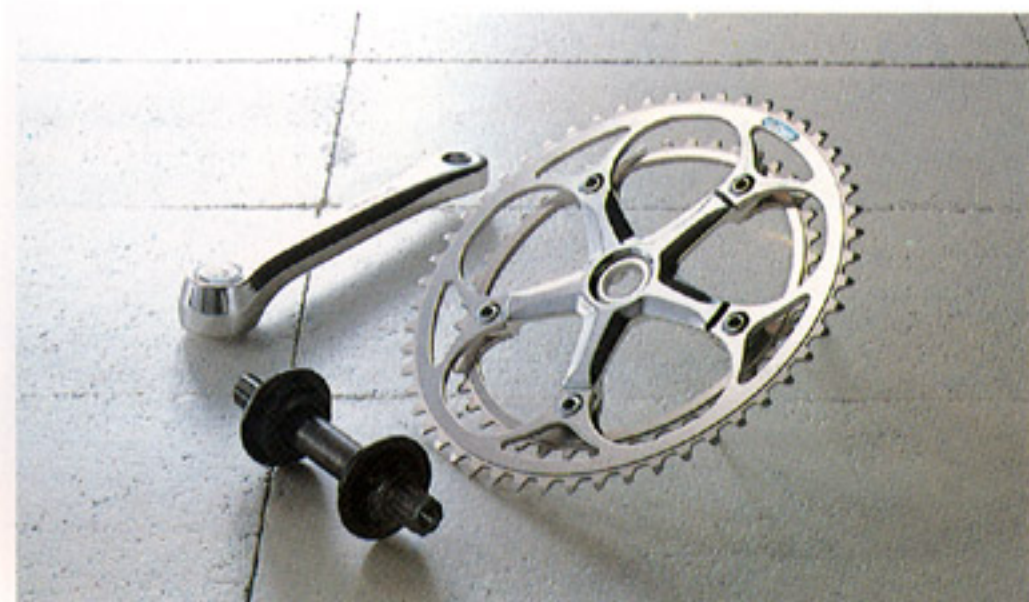
Model FC-AD22 (Double)
BB-SL31 (B. B. Parts)

SPECIFICATIONS

- Material • Light Alloy
- Type • Cotterless
- Chain Ring • 1/2" x 1/32" Chain
- Teeth • Inner 39T.—45T.
- Outer 48T.—53T.
- Twin Gear 42T.—52T.
- Crank Length • 6-11/16" (170mm.)
- Crank Thread • 9/16" x 20 T.P.I.
- Cup Thread • English 1.37" x 24T./French 35 x 1.0
- Features • Aerodynamic Design/New One Key Release Mechanism/W out 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" x 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 22.26°.

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

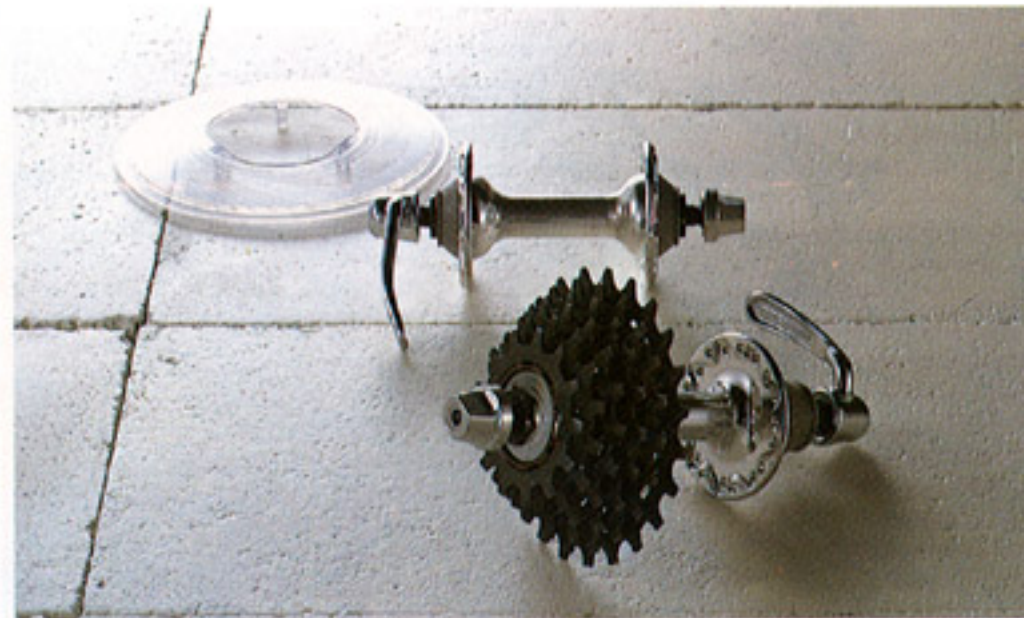
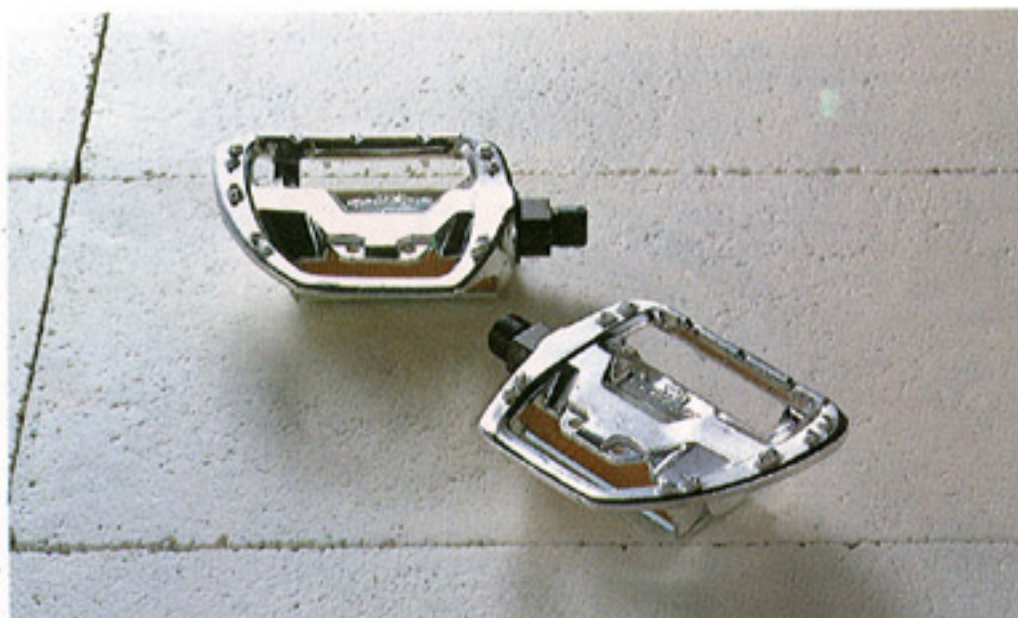
SPECIFICATIONS

- 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-AX30

CP-AX50

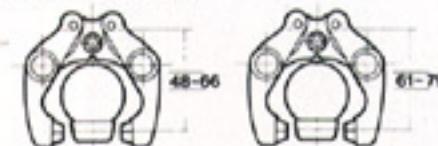




**SHIMANO ADAMAS AX Parapull Brake
Model BR-AD20**

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



**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



**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 • 1.18" (28.6mm)
- Features • Aerodynamic Design/Light Weight



**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



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



New Trap-Ease Mechanism

**SHIMANO ADAMAS AX Rear Derailleur
Model RD-AD10**

SPECIFICATIONS

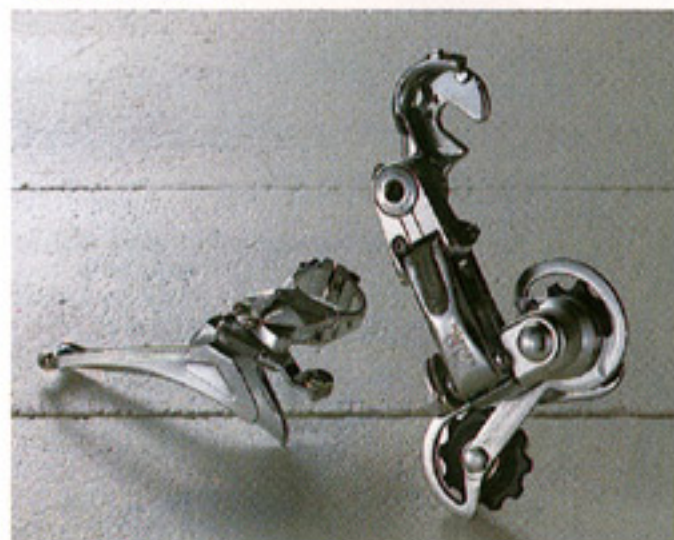
- Capacity • Front Difference: 13T, or less
- Rear Largest Sprocket: 28T, or less
- Weight • 10.0 oz. (283g), 11.3 oz. (319g) with Bracket
- Material • Light Alloy
- Features • Aerodynamic Design/Built in Pulley Tension Spring/Direct Cable Mechanism/Light Weight/New Positive Mechanism



**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 • 1.18" (28.6mm)
- Features • Aerodynamic Design/New Trap-Ease Mechanism/Indent Guide Mechanism/Inner End Guide



FF SYSTEM

FRONT FREEWHEELING

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.

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" x 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" x 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" x 3/32" Chain

Thread: BC 1.37" x 24 T.P.I.

Type	Standard Sprocket Combinations
FB5N (5-speed)	14T • 17T • 20T • 24T • 28T
FB6N (6-speed)	13T • 15T • 17T • 21T • 26T • 32T
	13T • 15T • 17T • 20T • 24T • 28T

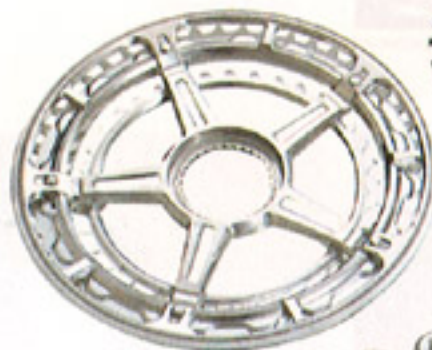
Uniglide Sprockets



*Can be used with POSTRON Fr. Rear Derailleur



Chain Protector for MF-FF61



Friction Freewheel

Model MF-FF50 (Wide)

SPECIFICATIONS

Use: FF System 5-speed Only

Chain Size: 1/2" x 3/32" Chain

Thread: BC 1.37" x 24 T.P.I.

Top Protector: White

Standard Sprocket Combinations:

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

Uniglide Sprockets



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.

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: 11.1oz. (316g.)/Short Cage
: 11.6oz. (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 Freehub (Model: MF-FF51, FF51)

NEW POSITRON

PPS
SYSTEM

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.) x 46.1" (1,170 mm.)

47.2" (1,200 mm.) x 50.0" (1,270 mm.)

57.1" (1,450 mm.) x 59.8" (1,520 mm.)

61.0" (1,550 mm.) x 63.8" (1,620 mm.)



AX 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, irrespective of class or use.

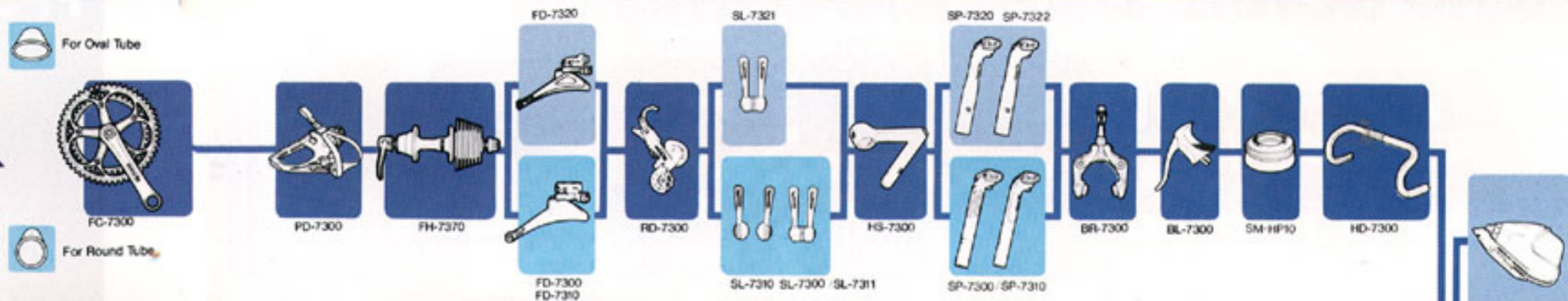
Furthermore, Shimano's aims have always been consistent: strength, lightness and research to decrease air resistance for a better bicycle. The cyclist enjoys a more comfortable and faster ride with efficient use of human energy. And these principles have been passed onto all our series where applicable. 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



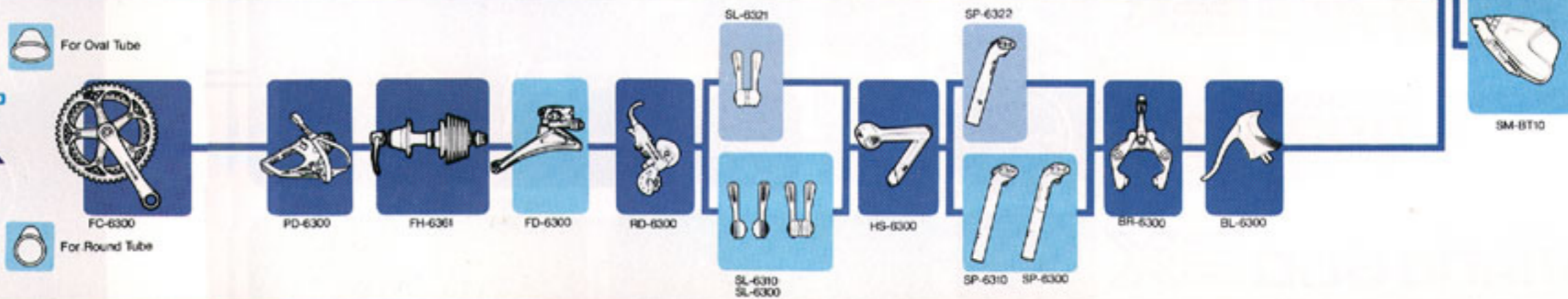
DURA-ACE
AX
SERIES



ROAD RACING ENSEMBLE



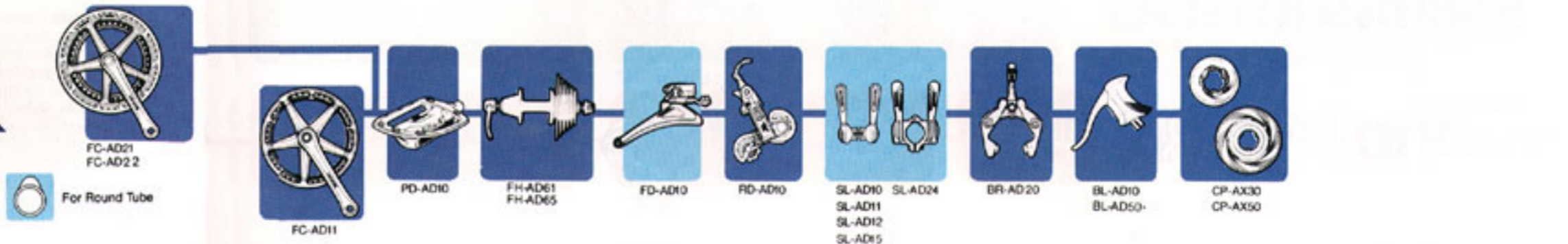
SHIMANO 600
AX
SERIES



ROAD & TOURING ENSEMBLE



adamas
AX
SERIES



AX 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.

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ROAD RACING ENSEMBLE



DURA-ACE
AX
SERIES



For Oval Tube



FC-7300



For Round Tube

ROAD RACING ENSEMBLE



SHIMANO 600
AX
SERIES



For Oval Tube



FC-6300



For Round Tube

ROAD & TOURING ENSEMBLE



adamas
AX
SERIES



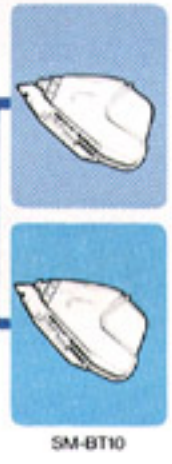
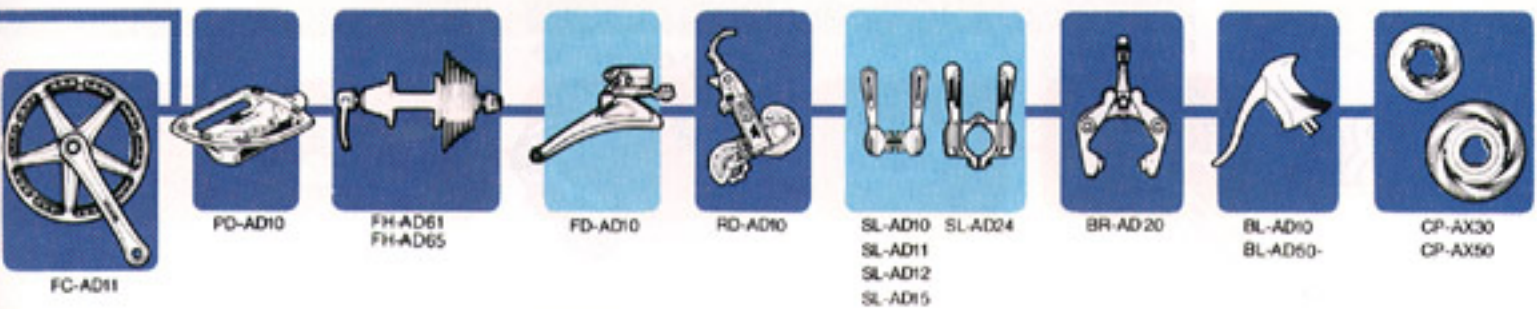
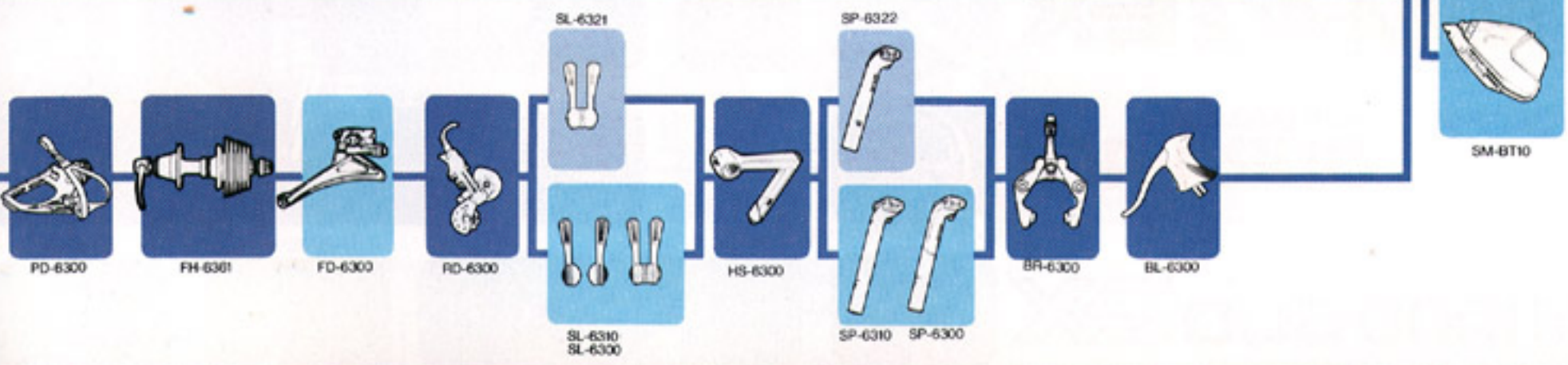
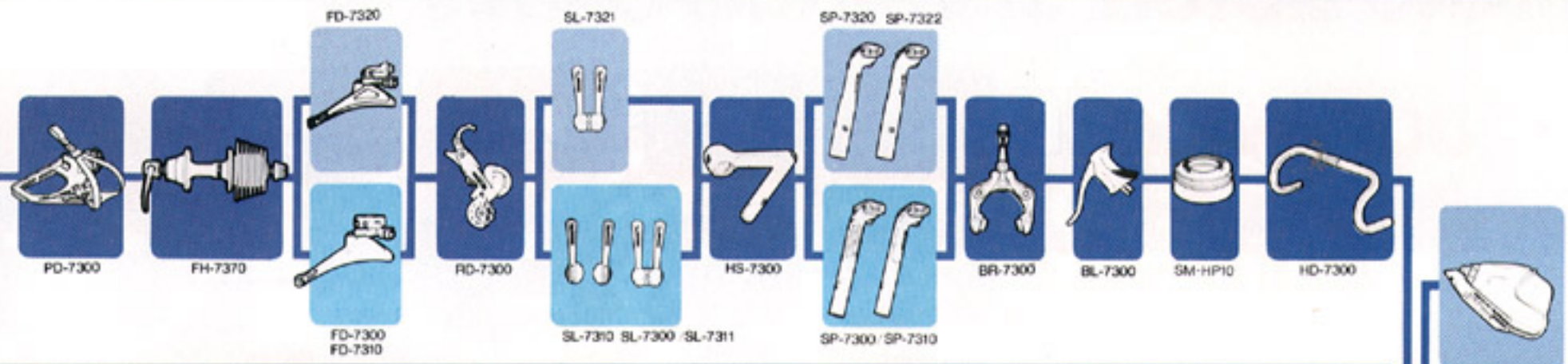
For Oval Tube



FC-AD21
FC-AD22

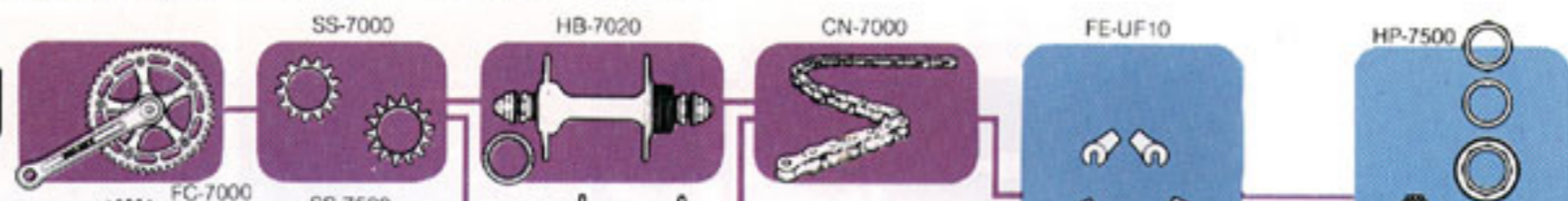


For Round Tube

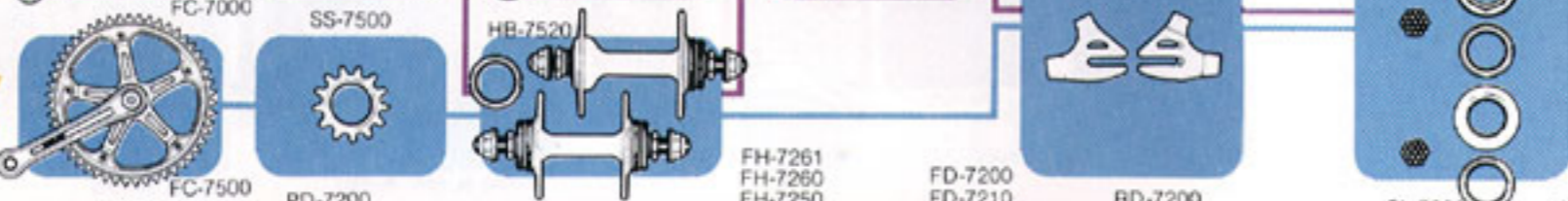


SHIMANO BICYCLE SYSTEM COMPONENTS

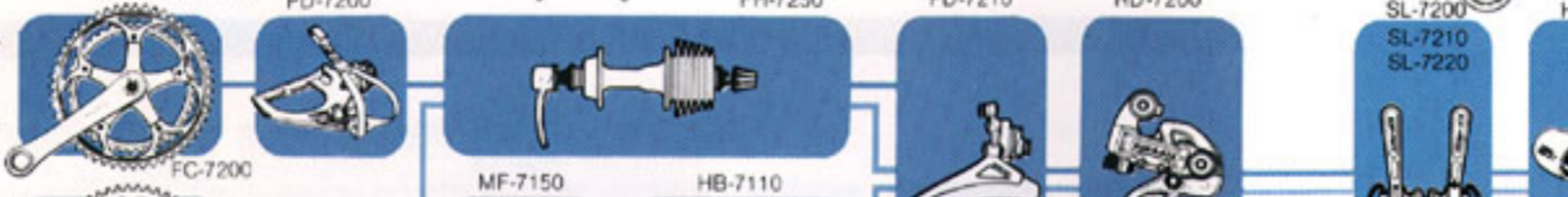
TRACK ENSEMBLE
DURA-ACE 10



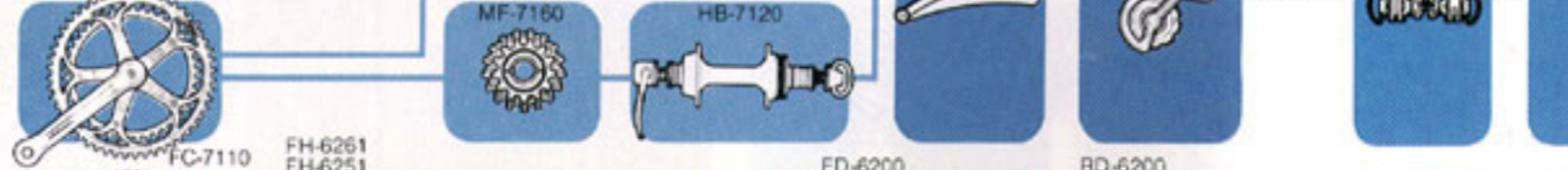
TRACK ENSEMBLE
DURA-ACE



ROAD ENSEMBLE
DURA-ACE EX



ROAD ENSEMBLE
DURA-ACE



ROAD & TOURING ENSEMBLE
SHIMANO 600 EX



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SHIMANO 600



TOURING COMPONENTS
SHIMANO DEORE

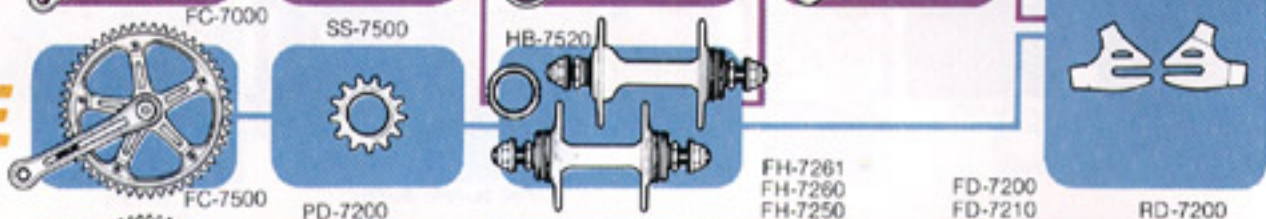


SHIMANO BICYCLE SYSTEM COMPONENTS

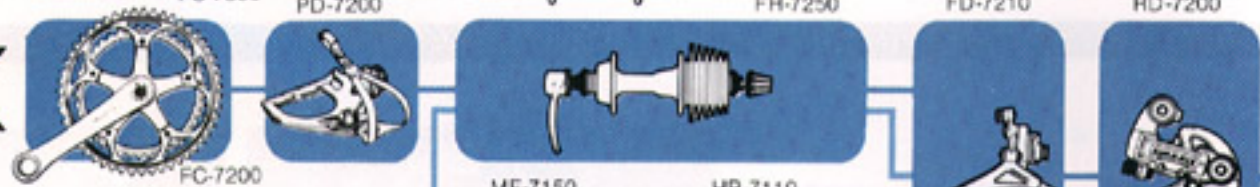
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DURA-ACE 10



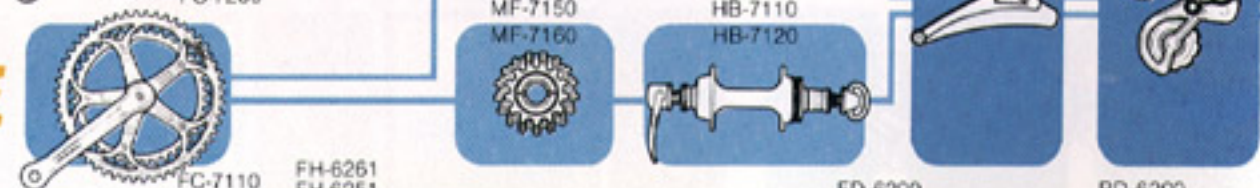
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DURA-ACE



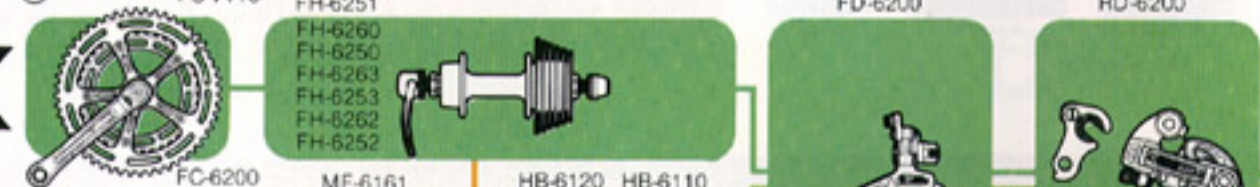
ROAD ENSEMBLE
DURA-ACE EX



ROAD ENSEMBLE
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ROAD & TOURING ENSEMBLE
SHIMANO 600 EX

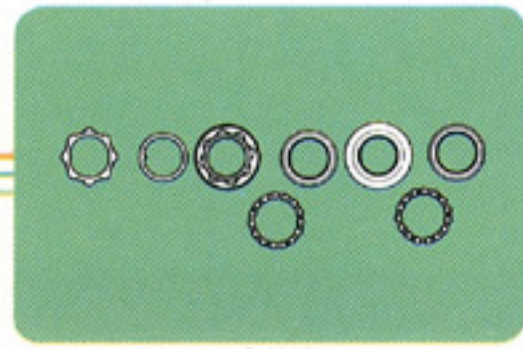
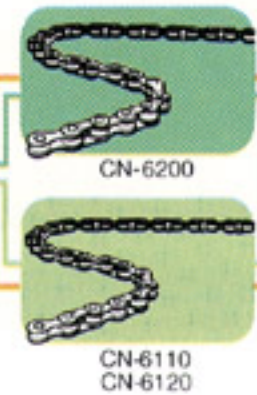
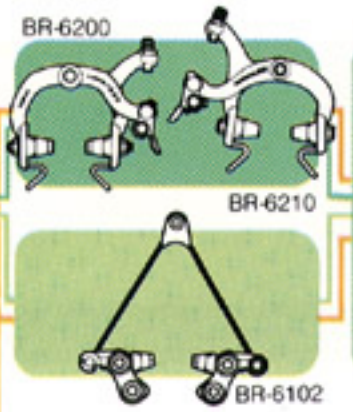
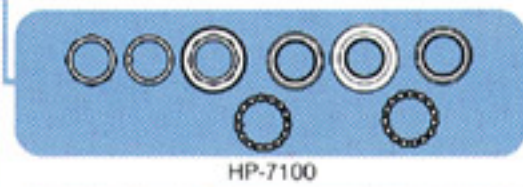
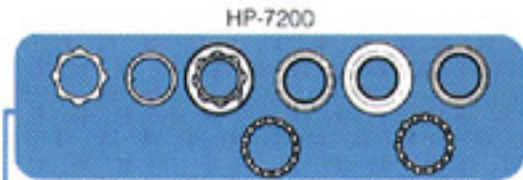
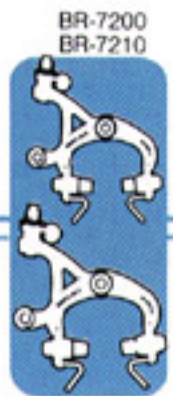
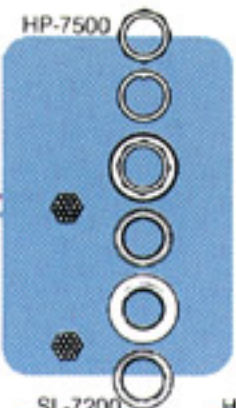


ROAD & TOURING ENSEMBLE
SHIMANO 600



TOURING COMPONENTS
SHIMANO DEORE







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TEL 750097798

SHIMANO (SINGAPORE) PTE. LTD.

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3-77 Omatsucho, Sakai, Osaka, Japan



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**BICYCLE
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