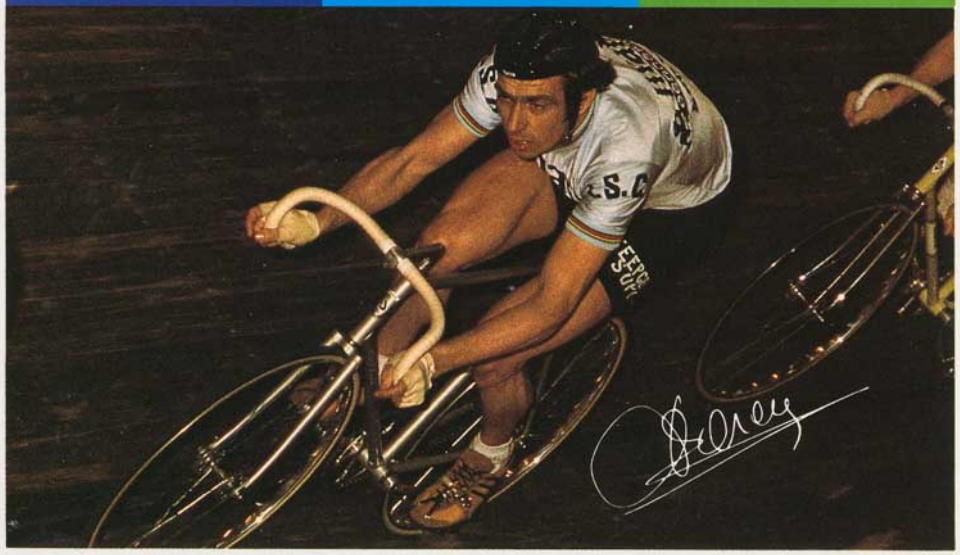
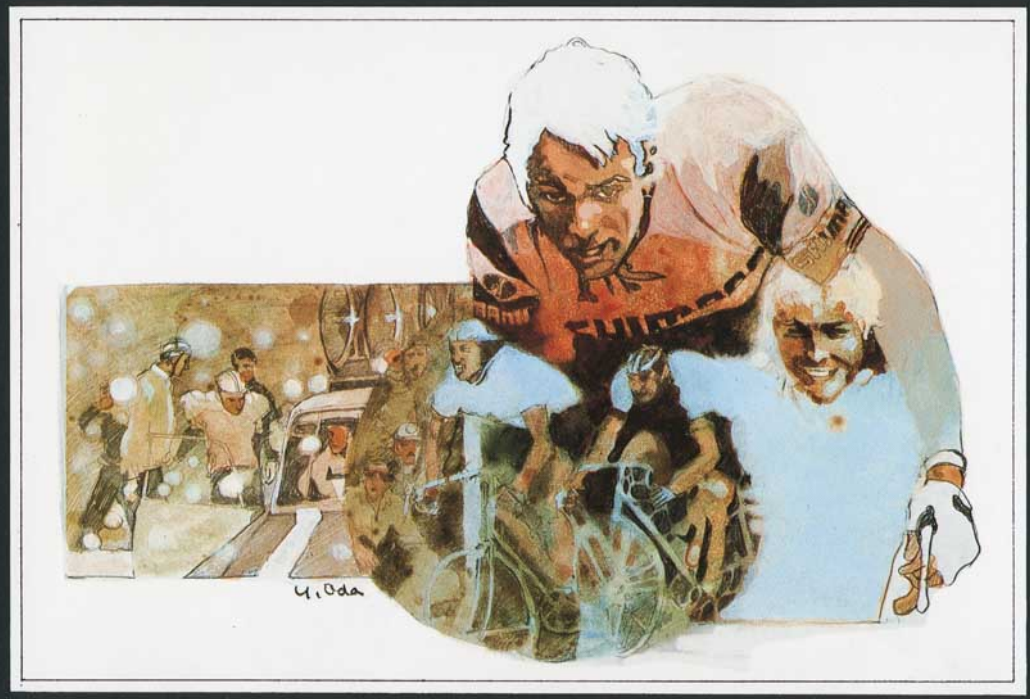
SHIMANO BICYCLE SYSTEM COMPONENTS



SHIMANO



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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.


SUGINO
DURA-ACE
DURA-ACE

EX SERIES — EXCITING FEATURES

Cassette Freehub

The EX Freewheel is a freehub unit incorporating a cassette sprocket assembly system. This has the considerable advantage of allowing the rider to choose the most suitable sprocket combination according to the speed desired, and also leg-power capacity. Overall weight and size reductions have been made—and durability improved.

Features of the "Cassette Freehub"

1. **Easy to exchange sprockets!**
2. **Multiple choice of cassette gear combinations—with fewer sprockets!**
3. **Weight reduction of the Freehub!**
   Conventional hub and freewheel (Over lock nut dimension: 4.96" (126mm.), 13T—18T. 6-speed) weigh 23.7oz. (673g.). In contrast, the Dura-Ace EX Freehub weighs 20.1oz. (571g.). This means 3.6oz. (102g.) lighter in weight.
4. **At last—11 teeth high gear combination is possible! (Dura-Ace EX Series only)**
   The freehub allows a reduction in the number of front chainwheel teeth and, also, a 12T combination is possible for Shimano-600 EX Series. Thus resulting in an overall weight reduction of the drive train.



Dura-Ace EX Freehub (6-speed)/High gear sprocket is threaded type—all others are cassette spline-type.



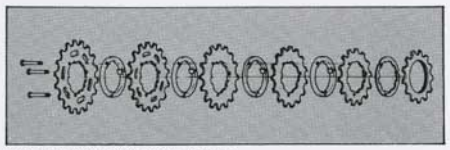
Spline-type cassette gear of Dura-Ace EX Freehub.



Shimano-600EX Freehub's unit-type sprockets.

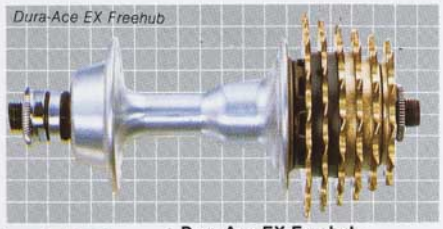
The structure of conventional freewheel sprockets has long posed difficulties for riders. Even when using the same tooth number sprocket, i.e. 15T, the rider needed both threaded sprockets and unthreaded, spline-type sprockets. Thus, sprockets could not be combined as desired unless quantities of both types were available. In contrast, the EX Series Cassette Freewheel incorporates a spline-type system which freely allows all kinds of gear combinations between second to low gears. Since these gears are tightly fastened by a threaded high gear sprocket, it is now possible to obtain any sprocket combination desired with a minimum of fuss.

5. **Sturdy design—Freehub structure exhibits minimal deflection!**
   Because the freehub is a combination of the hub and freewheel, we are able to move the 1/4" ball much closer to high gear. This move has markedly reduced deflection for both freewheel and hub, while increasing the durability of the hub axle.

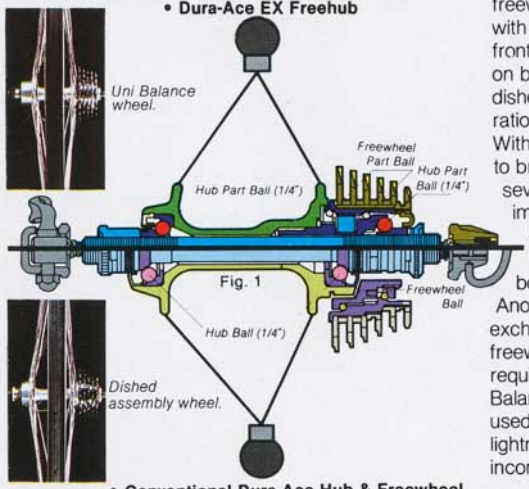


Shimano-600 EX Cassette Gears.

Uni Balance Mechanism



• **Dura-Ace EX Freehub**



• **Conventional Dura-Ace Hub & Freewheel**

Fig. 2 **Uni Balance** Amount of dish/2.7 mm. (0.11")

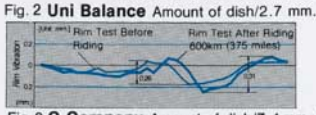
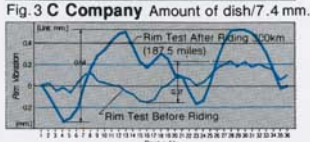


Fig. 3 **C Company** Amount of dish/7.4 mm. (0.29")



The above illustrates the difference in Vibration levels between a conventional dished assembly and the Uni Balance assembly, using 36 spoke wheels, when tested before and after riding. The result of the rim Vibration difference for the conventional rim assembly is 0.47mm (0.02") <Fig. 3>, while the Uni Balance is only 0.05mm (0.002") <Fig. 2>. Thus, the Uni Balance has solved the problem of rim Vibration so apparent in the conventional assembly, and exhibits incredible rigidity.

At Shimano, we tackled the long-outstanding problems of dished wheel assemblies and the inflexibility of changing 5-speed bikes to 6-speed; while still retaining conventional flange dimensions. The newly developed "Uni Balance" Mechanism is our answer and, we feel, will revolutionize accepted standards for multi-speed bicycles. The dished assembly of the multi-speed bicycle wheel has been with us since the conception of the freewheel. Ideally, the wheel rim should be in line with the center of the hub, as in the case of the front wheel. This allows equal distribution of tension on both left and right side spokes, unlike the dished assembly where there is an imbalance. (A ratio of 10: 6 between right and left side spokes.) With the dished assembly, spokes are quite liable to break whenever they are under constant or severe stress. Also, vertical and lateral vibrations impede smooth riding and sure braking. And, in general, riders have to rely on bicycle experts to make the critical adjustments between both left and right side spokes.

Another problem is when the rider wants to exchange a 5-speed freewheel for a 6-speed freewheel: to do this a whole new frame is required. With the arrival of the exciting new "Uni Balance" Mechanism, 5 and 6 speeds can be used on the same bicycle frame; strength and lightness of the bicycle is increased and dishing inconveniences are now a thing of the past!

Features of the "Uni Balance"

1. **Durability of spokes and wheel increased!**
2. **Easy to assemble!**
3. **Wheel adjustment made easier!**
4. **Six-speed freehub for a 5-speed frame!**
   The same frame can be utilized for both a 5-speed Freewheel and a 6-speed Freehub. (When installing a 6-speed freehub on a 5-speed frame, the dished assembly remains the same as that on a conventional 5-speed freewheel.) The considerable time-saving and convenience of this feature is an outstanding improvement.
5. **Lighter wheel!**
   By retaining the strength of a 36 hole conventional wheel, the Uni Balance utilizes fewer spokes—without any strength-loss—for a lighter wheel.

EX SERIES—EXCITING FEATURES

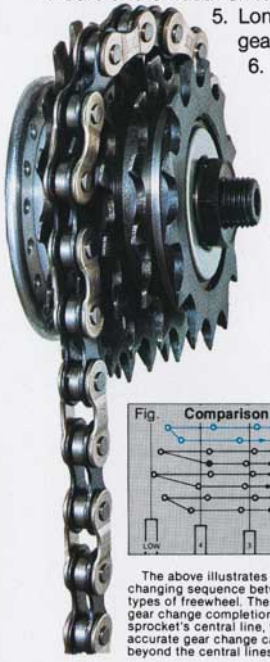
Uniglide Freewheel

The Uniglide Mechanism (UG Freewheel & UG Chain) has brought about an entirely progressive concept toward the gear-shifting efficiency of the multi-speed bicycle and is now installed on all EX Series equipped bicycles.

The teeth of the UG Freewheel are twisted to run parallel with the direction of the chain, when it is moving from high to low gear. And when shifting from low to high gear, the teeth are at cross angles to the chain's movement to prevent any slipping back. Smooth, sure and swift gear changes are now possible.

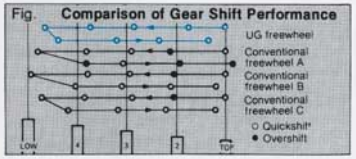
Features

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!



UG Freewheel & UG Chain

Fig. **Comparison of Gear Shift Performance**



The above illustrates a high to low and back again gear changing sequence between the UG Freewheel and 3 other types of freewheel. The white circles indicate the chain's gear change completion points. These are all prior to the sprocket's central line, the maximum point at which an accurate gear change can be made. The black circles are beyond the central lines and therefore indicate overshifts.

Trap-Ease Mechanism

Until recently, the pantograph mechanism, used on all conventional front derailleurs, was thought to be ideal. And for the high to low gear shift it was satisfactory. But the low to high gear change was prone to considerable mechanical difficulties. This occurred because the parallel movement of the derailleur caused the inner plate to force the chain onto the gear sprocket with a primarily lateral thrust. This, naturally, caused unnecessary friction and impaired an otherwise perfect gear change. Shimano searched for an ideal gear changing mechanism—and succeeded in developing the "Trap-Ease"

Now, the pantograph's awkward parallel movement has been replaced with the free "swing" motion of the Trap-Ease Mechanism, as seen in diagram 2. The longer travel of (b) over (a) gives the derailleur its trapezium shape—no two angles being the same. When shifting from low (small gear) to high (large gear), the swing allows the inner plate to lift the chain up and deposit it squarely on the gear sprocket teeth without any interference. The efficient movement of the "Trap-Ease" Mechanism means less force—and therefore a shorter stroke—is needed to shift the gear lever but still the equivalent power of a conventional front derailleur is produced. Thus we could widen the inside dimensions of the front derailleur plates, eliminating grating noises, through contact with the chain, and resulting in a much more enjoyable ride.

Fig. 1. Conventional Pantograph Mechanism

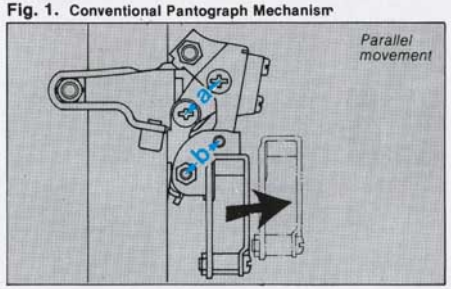
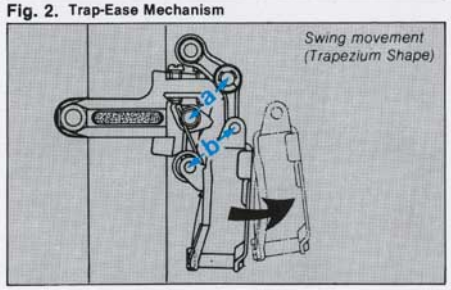
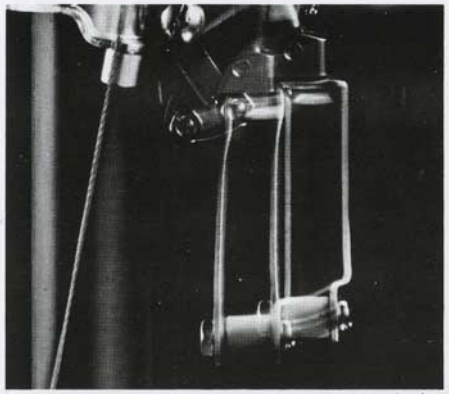


Fig. 2. Trap-Ease Mechanism



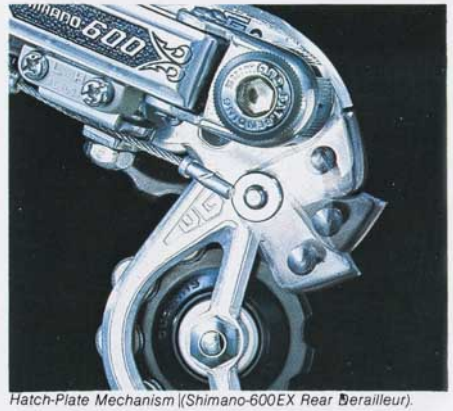


Parallel movement of the conventional pantograph mechanism.



Trapezium shaped swing motion of Trap-Ease Mechanism.

Hatch-Plate Mechanism



Hatch-Plate Mechanism (Shimano-600EX Rear Derailleur).

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.

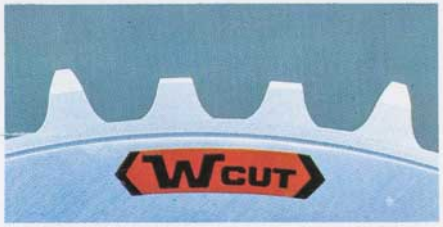
Hatch-Plate

The EX Rear Derailleur's Hatch-Plate replaces the missing left plate.

W cut Teeth Mechanism

When shifting the chain on a conventional front chainwheel from high to low, the effort required to lift it up on the gear teeth, while under a heavy load, causes great stress and wear on the chainwheel and other related parts.

We developed the W cut Chainwheel Teeth for a smoother gear changing operation. We simply shortened the length of two sprocket teeth located



Shortened W cut teeth (Shimano-600EX).



Rear side view of chain moving to low gear off W cut teeth.

almost behind the crank arm, and the two teeth directly opposite because they sustain the least amount of tension when cycling.

Now, the chain is easily released from the chainwheel in order to complete a smooth operation.



Rear side view of W cut Front Chainwheel (Dura-Ace EX).

One Key Release

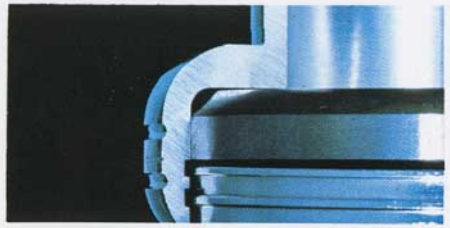
To disassemble the cotterless-type front chainwheel, a special tool plus monkey wrench are ordinarily used in a several-step operation. Shimano's One Key Release consists of one hexagon wrench key for detachment and of course, attachment—and all in one movement.



Hexagon wrench key (6 mm.) with Shimano-600EX Front Chainwheel (Model GC-400).

Sealed Mechanism

The Sealed Mechanism is yet another EX Series innovation. Although unseen, it is, nevertheless, vitally important for upgrading the efficiency of the bicycle. The "Sealed Mechanisms" protect all EX Series rotating parts against unwanted foreign objects. And the Dura-Ace EX Series Freehub also has a double-jointed seal to prevent water and dust invasion.



Sectional view of Shimano-600EX Rotating Head Part (Labyrinth seal).

Light Weight

Although the EX Series has incorporated a number of new mechanisms, these have, in fact, contributed to the overall weight reduction. For example: freewheel and hub are combined as one unit—the freehub: the rear derailleur is made without the left plate; and the head parts are made of aluminum.

The weight reduction of rotating parts plays another role than merely "lightening a bicycle". It also means an increased acceleration efficiency which requires only a light touch of the pedal to start, and allows the rider to pedal for many hours.

The light weight parts shown in our "System Components" EX Series are of a genuine lightness which only the thorough approach of Shimano could have devised.



Dura-Ace EX Road Ensemble.

One-Step Attachment

The cable fixed to the brake lever, used exclusively for the EX Series, is attachable and detachable with one simple movement. This is a great boost for easy maintenance.



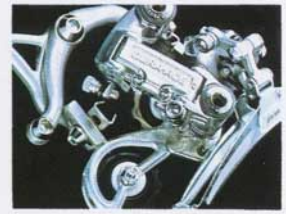
One-step cable attachment mechanism (Shimano-600EX Brake Lever)

Additional Features

Hexagon Release

Dura-Ace EX Series

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



Safety Crank Arm

Shimano-600EX Series

The Shimano-600 EX Series crank arm has been set back at the point near where it is attached to the chainwheel. This means the ankle is no longer liable to strike the crank arm with the likelihood of an accident.



Arabesque Pattern

Shimano-600EX Series

The Shimano-600 EX Series is artistically decorated with Arabesque patterns for a unique appearance.



SHIMANO SYSTEM COMPONENTS SPECIAL INNOVATIONS

10 10mm Pitch System

In the world of bicycle racing a split second can make all the difference. This means light-weight, but at the same time, strong components are as important as the rider's racing skills.

Many methods have been tried to make bicycles as light as possible; for example, reducing the chain wheel and other parts to their bare minimum, and even to the point of putting helium into the tires. However, extreme lightness often resulted in structural weakness. It has been impossible to reconcile such seemingly contradictory racing requirements as lightness and strength until now.

Shimano's engineers, after intensive research and tests, have successfully reduced the pitch of the chain from one half inch (12.7mm.) to 10mm. The new 10mm. pitch system reduces the overall weight and size of other drive train components, such as the chainwheel and rear sprocket without affecting the bicycle's durability.

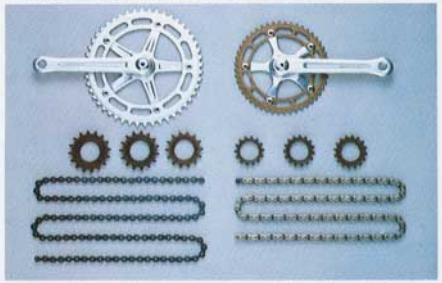


10mm and 12.7mm Comparison

For the past eighty years the chain pitch has been fixed at an industry standard of ½ inch (12.7mm.). No one ever attempted to alter it until Shimano recognised this 'blind spot' in the conventional concept of the bicycle. This revolutionary innovation was the result of Shimano's research and development on the basic elements of the bicycle.

Features of the 10mm. Pitch System

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



Dura-Ace *Dura-Ace 10*

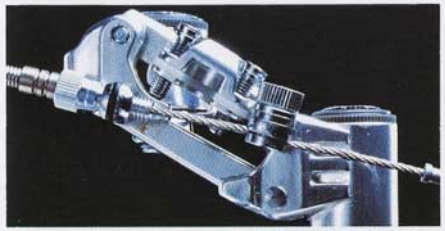
DURA-ACE 10—DURA-ACE Comparison Chart ＊Weight Comparison (Track Models)

	Dura-Ace 10	Dura-Ace	Saving
Right Hand Crank	8.5 oz. (239 g.)	9.8 oz. (277 g.)	1.3 oz (38 g.)
Chainwheel (49T)	2.2 oz. (63 g.)	4.1 oz. (116 g.)	1.9 oz. (53 g.)
Chain	11.6 oz. (330 g.)	11.8 oz. (335 g.)	0.2 oz. (5 g.)
Rear Hub W/Lock Ring	10.4 oz. (295 g.)	11.0 oz. (313 g.)	0.6 oz. (18 g.)
Rear Sprocket (14T)	0,8 oz. (22 g.)	1.4 oz. (38 g.)	0.6 oz. (16 g.)
TOTAL	33.5 oz. (949 g.)	38.1 oz. (1079 g.)	4.6 oz. (130 g.)

Synchro-Line Mechanism

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.

The Dura-Ace derailleur is smaller in size and weight; its links are shortened by 0.2" (5mm.) and it weighs only 6.14oz. (174g.).

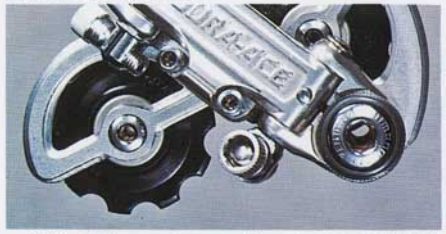


Low Gear Position.



High Gear Position.

All bolts on the Dura-Ace derailleur are either 3mm. or 6mm. hexagonal bolts for easier servicing and securer tightening.

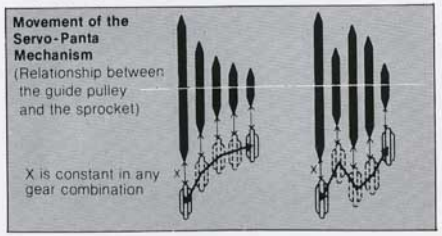


All the bolts are 3mm. or 6mm. hexagonal bolts.

Servo-Panta Mechanism

The rear derailleur is the most important part in a 10 speed bicycle. It transforms the cable's longitudinal motion into lateral motion, shifts the chain into the desired gear, and determines the most appropriate gear ratio for the particular gear change. 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. The chain is guided accurately, resulting in sure and precise speed changes. This is most easily recognized when selecting low gear while climbing a hill. All of Shimano's derailleurs utilize this innovative Servo-Panta Mechanism.





Centeron Mechanism

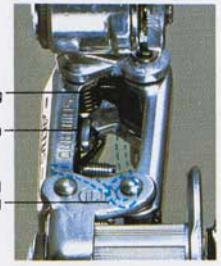
The Centeron Mechanism employs a unique and extremely effective method of guiding the rear derailleur to the desired gear sprocket. Instead of the guide spring controlling both left and right link plates directly as usual, we have developed a system whereby the guide spring makes direct contact only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



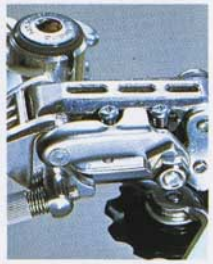
Free-play of the Rear Derailleur

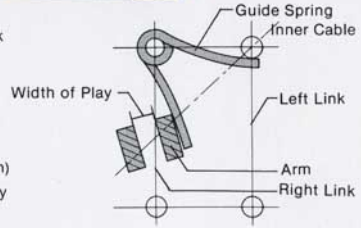


Free-play of the Shifting Lever









"Centeron Mechanism" functions as follows when gearshifting.

1. When the lever is pulled, the arm strikes the right link, and the links move toward low gear.
2. On releasing the lever the links possess free-play the width of the arm. (Illustration)
3. The tension, caused by the rotating chain, and the play, given to the links, function to automatically set the guide pulley in a straight line with the gear sprocket.

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.

Cassette Front Chainwheel

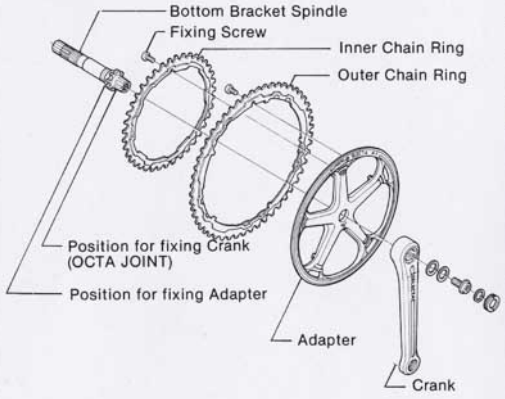
The Cassette Front Chainwheel requires only one screw to fasten each chain ring instead of the usual five. Chain rings are also slotted easily into position on the adapter for fast and efficient gear replacements.
In addition the new cassette system has allowed us to reduce the overall weight of the front chainwheel.

As a result, precision, durability and safety are remarkably increased while the gearshift operation is greatly improved.

Features

1. Easy to exchange sprockets.
2. High precision and durability.
3. Overall weight greatly reduced, without affecting durability, by using steel for the chain ring and light alloy for the adapter and crank.
4. The chain line is fixed by an exclusive design and exhibits minimal deflexion.
5. Just a turn is needed to attach and detach the chain protector (SELECTA-A TYPE).

Structure of the "SELECTA Cassette Front Chainwheel"





OCTA Joint Crank

This features the newly developed mechanism in which the octagonal Octa Joint system is used to lock the crank and the bottom bracket for increased durability and precision.



SHIMANO SYSTEM COMPONENTS SPECIAL INNOVATIONS

Uniglide Mechanism

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

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 heighten gearshift performance and won attention as a revolutionary development.

Uniglide Chain



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

Bicycle chains were originally designed to align the front chainwheel with a rear single speed sprocket and drive the rear wheel. However, the chain on multi-speed bicycles must be able not only to simply rotate but also move up-and-down and side-to-side to transmit the driving force. Moreover, reducing the friction of the chain against its related parts to an absolute minimum became of utmost importance to increase the efficiency of a 10-speed bicycle.

The outer plates of the Uniglide chain are widened to the level of the chainpin heads. This increased width speeds up gear engagement because the outerplate can engage the gear teeth as soon as the chainpin hits the gear. This eliminates the need for overshifting and improves gearshift efficiency. It also minimizes friction, the cause of irritating noise. The Uniglide chain has remarkable durability and doubles the service life of such components as the derailleur, front chainwheel and freewheel.

Uniglide Freewheel

Many attempts have been made to improve the freewheel sprocket teeth, but the shape of the sprocket teeth remained unchanged in a non-parallel plane in relation to the chain's movement during gear shifts.

The teeth of the UG freewheel have been beveled to an angle to accommodate the movement of the chain. When gears are being shifted from high to low gear, the chain moves parallel to the UG freewheel teeth, resulting in a surer, faster gear change. Conversely, when shifting from low gear to high, the chain moves in at a non-parallel angle to the teeth. The downward moving chain does not slip back onto the same sprocket and is smoothly transported to the next gear. With the "Twist" sprocket teeth now available, smooth, positive shifting can be enjoyed every time. Conventional freewheels allow chains to slip over the gear teeth, resulting in either inaccurate gear shifting or overshifting. However, with the UG freewheel, all the gearshift completion points come before the gear's center line. This means that the need to overshift is eliminated.



UG Teeth

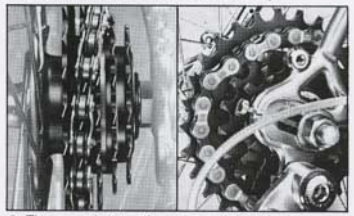


Conventional Teeth

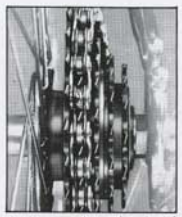
• Gearshift with a UG Freewheel (UG Chain Is Used)



1. The chain moves smoothly off the sprocket teeth and quickly moves onto the adjacent gear.



2. The sprocket teeth run parallel to the incoming chain and swiftly engage the chain links. The chain does not slip, so "overshifting" is not necessary to make a proper engagement.

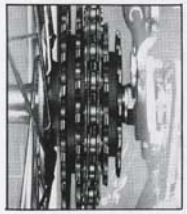


3. A smooth and natural gearshift is completed without undue stress on the chain.

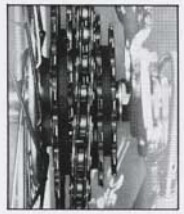


*When shifting from low to high gear, the teeth move in at an angle to the chain and engage the chain links securely.

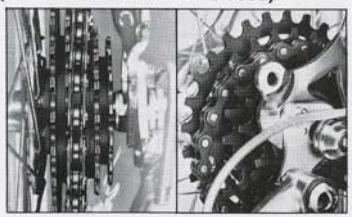
• Gearshift with a Conventional Freewheel (A Conventional Chain Is Used)



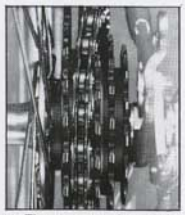
1. The chainpins hit the sprocket of the adjacent larger gear.



2. The chain does not move swiftly off the teeth which delays movement onto the next gear.



3. It is difficult for the sprocket teeth of the adjacent larger gear to catch the incoming chain links. The chain tends to slip over the sprocket instead of engaging the gear.



4. The gear teeth and the chain are under excessive strain resulting in an uneven gearshift and extra wear.

Positive Mechanism

Even with more and more people using both 5- and 10-speed multi-speed bicycles, such conventional shifting mechanisms have required considerable shifting practice to make smooth gear changes. Because of the difficulties involved, Shimano conducted a research program to develop a gear shifting mechanism which would enable everyone to shift gears easily, accurately and safely. The Positive Mechanism is the fruit of this research. The rear derailleur is equipped with the Positive Indexing Mechanism which so simplifies shifting that no special skill is needed. Gears always shift with a positive "click".



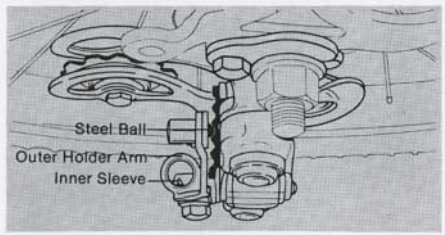


Positively into each gear





Positive Indexing Mechanism



Pre-Select Mechanism

The introduction of Shimano's Pre-Select Mechanism has changed the concept of gearshifting altogether. The rider can now shift gears while coasting or even when the bicycle is not in motion. Simply shift the lever into the desired



Pre-Select Mechanism (View of Interior)

gear, and when the bicycle rolls forward it will automatically shift into that gear. The Pre-Select Mechanism has made gearshifting completely independent of pedalling, making easy, positive and safe cycling possible under any circumstances.

Push-Pull Mechanism

In addition, Shimano's Push-Pull Mechanism has completely eliminated the common problem of wire stretching arising from continual gearshifting. And the two-way movement of the Push-Pull Mechanism has replaced the return spring of the derailleur for a smoother, easier and more stable operation.



Push-Pull Cable.

Comparison of Push-Pull and conventional Mechanisms

		H → L → H								
Rear Derailleur	Lever	1	2	3	4	5	4	3	2	1
Positron-II	Positron	2.6	2.5	2.2	2.4	2.5	2.5	2.6	3.0	(kg)
Conventional		4.5	4.8	5.4	6.5	0.9	1.2	1.4	1.6	(kg)

It can be seen from the above chart that the Positron mechanism maintains a constant pressure level. The conventional mechanism, however, goes to the extremes of too stiff pressure when moving from high to low and too weak pressure when moving from low to high.

Servo-Sensor Mechanism

The Servo-Sensor Mechanism is responsible for stabilizing the lateral movement of the rear derailleur. Most derailleurs are affected by a change in gear combinations, any deviation of the chain-line, the introduction of a new component

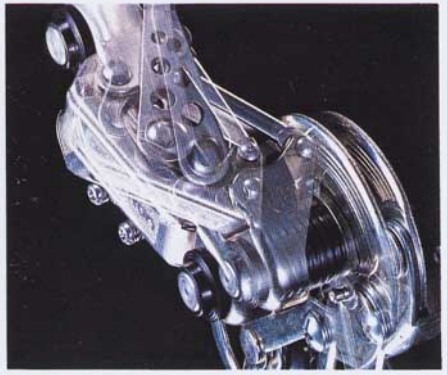


Servo-Sensor Arm

or a variety of other factors. These problems often cause the derailleur's lateral movement to deviate despite the use of a pantagraph system. Accuracy is lost and the derailleur's performance becomes slack.

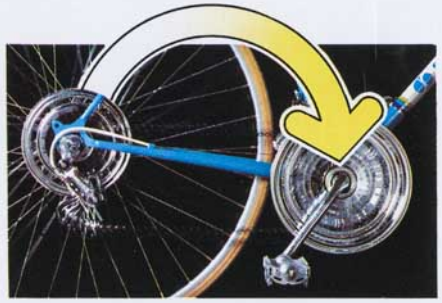
Shimano considered this troublesome problem and solved it by a remarkably simple but extremely effective mechanism: the Servo-Sensor. Consisting of an arm which is connected to a special fork end and slots into the derailleur body, the Servo Sensor, once properly adjusted, never deviates. Gearshifts are stabilized and can be relied upon time after time without fail.

The Servo-Sensor Mechanism makes Positron III the complete system.



Front Freewheeling Mechanism

Shimano's revolutionary gearing innovation utilizes a freewheel mechanism combined with the front chainwheel. Our engineers have overcome numerous problems to make gearshifting easier and safer. This mechanism has altered the requirement for pedalling and shifting a conventional bicycle.



Freewheel moves up Front.

With the FF System, the chain moves as long as the bicycle is moving, thus enabling gearshifting without pedalling. The difficulties caused by conventional derailleur bicycles in changing gears while climbing hills or going around curves are virtually non-existant in the FF System. Furthermore, the chain is subject to less strain while shifting.

Features of the FF System

1. Shifts Without Pedalling—
   Whether pedalling or just coasting, the rider can shift gears securely by a simple lever operation because the chain always keeps moving forward.
2. Shifts Easily Even on Inclines—
   Many riders on conventional bicycles have difficulties properly timing gearshifting with pedalling when going uphill. The FF System allows a rider to easily climb hills by simply shifting the lever from high to low gear without any coordination with the pedalling.
3. Gears Change Smoothly While Slowing Down or Coasting—
   As shifting can be done without putting pressure on the pedals, the shift itself will be easier and more precise. While coasting, the chain moves forward with uniform tension, so timing is unnecessary to execute a gear change. The result is unprecedented smoothness in shifting.
4. Shifts Easily into Low Gear before Stopping—
   Gear shifts can be made even when slowing down to a stop. Because the chain and the freewheel continue to rotate, gears can be changed by just shifting the lever. Thus you can shift from high to low gear while slowing down and be prepared for a quick, smooth start next time away.



Front Freewheeling mechanism.

5. Changes Gears with Just a Push of the Bicycle—
   Once a gear is pre-selected, a simple push forward will put the bicycle into the desired gear. This allows the rider to shift from high to low gear before mounting the bicycle, ensuring a smooth start.
6. Guarantees Safe Riding—
   Although the front chainwheel is freewheeling and the rear gear is fixed, if a pant cuff or something else gets caught up in the chain, the fixed rear gear will instantly start freewheeling, stopping the chain's movement. This feature makes riding much safer.

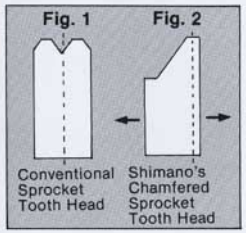
SHIMANO SYSTEM COMPONENTS SPECIAL INNOVATIONS

Chamfered Sprocket Teeth

To allow a better engagement, Shimano's tooth has been chamfered away, on the side nearest the larger gear, at the point where the conventional chain is notched. Its shifting point is located much closer to the top gear.

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.





Alternate Tooth Sprocket

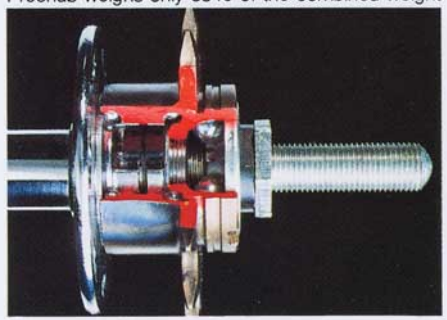
Shimano has removed every other tooth from the low gear sprocket, greatly reducing friction with the chain that interferes with smooth chain movement. The Alternate Tooth Sprocket thus enables a smooth gear change, especially when riding uphill and shifting a wide ratio cluster.





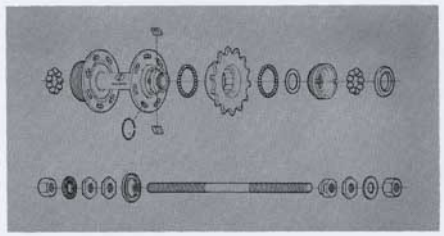
Freehub

The Freehub is so named because it combines the freewheel and hub into one component. It is stronger, smaller, lighter, and more economical than any conventional hub with freewheel. In addition, it eliminates assembly work. By combining the rear freewheel and hub into one body, the freehub unit has more strength than when the components are independently assembled. Also, it is much lighter and much more compact. The Freehub weighs only 63% of the combined weight



of a conventional hub and freewheel. Because the Freehub is a single unit, the conventional number of rear gear small sprocket teeth has been further reduced, resulting in a corresponding reduction of the number of front gear teeth, contributing to the overall weight reduction of the bicycle.

Shimano's new Freehub, by integrating the freewheel and the hub, has greatly improved strength and durability. It has also succeeded in eliminating disturbing lateral movement when loosening takes effect, resulting in even smoother rotation of the freewheel.



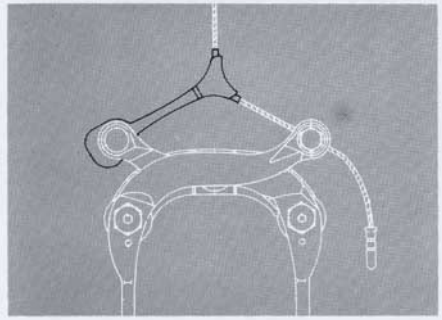
Link Mechanism

Shimano's Link Mechanism is a completely new component that combines the easy cable attachment of the side pull brake and the sure braking power of a center pull brake. This new "Link Type" brake solves the familiar problem of a centerpull caliper brake when the carrier assembly slips slightly out of position and only one brake functions.

The "Link Type" brake has been tested 40,000 times in a running tester and has passed actual performance tests on a tandem bicycle, thoroughly establishing its reliability.

The Link Mechanism can be attached to a 19" sports bicycle.



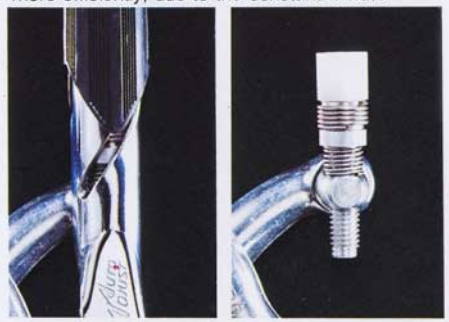


Auto Adjust Mechanism

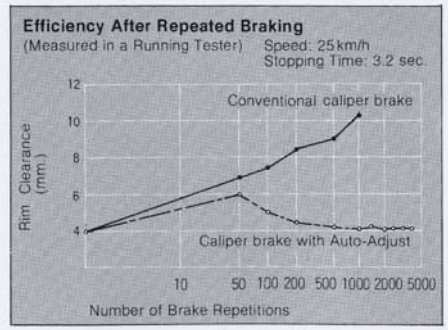
When brakes get worn and cables stretched, the rider grabs a handful of mushiness and the brake lever goes all the way to the handlebar.

Shimano's Auto Adjust brake mechanism compensates for worn out caliper or disc brake pads, as well as cable sloppiness. The Auto Adjust maintains the proper space between the brake pad and the brake surface (rim or disc).

A bike equipped with the Auto Adjust can stop more efficiently, due to the constant minute



adjustments made by the exclusive one way clutch. It's ideal for the person who doesn't like to tinker around making periodic adjustments, or who tends to forget the needed maintenance of his bicycle.

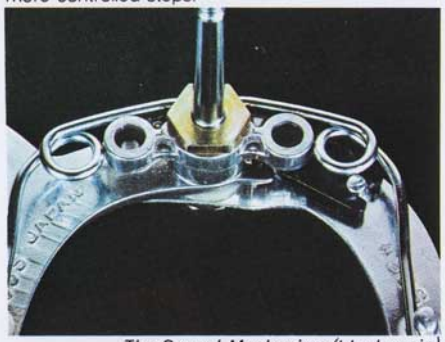


After initial adjustment, the auto-adjust is able to rectify its own clearance difference. The conventional brake steadily worsens and is soon in need of manual adjustment after 200 times.

Synpul Mechanism

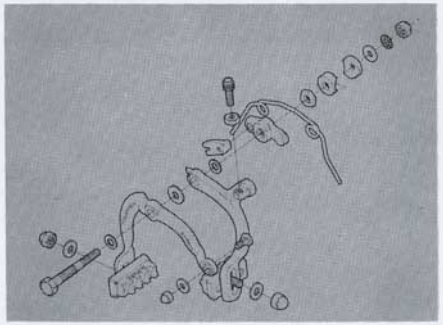
Side-pull caliper brakes are continually pulling to one side and requiring re-alignment. This problem is due to the design of the side pull arms which allows unequal force against the brake shoes.

Shimano's new "Synpul" design synchronizes the brake arms so that the same force from the rider's hand is distributed equally to the brake arms; and the brake shoes grip the wheel at the same time. Smooth, even braking means safer, more controlled stops.



The Synpul Mechanism (black resin).



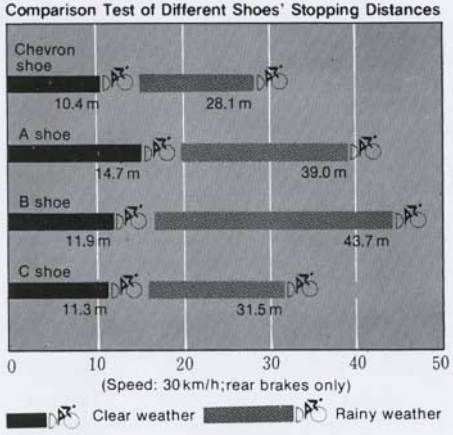


The Chevron Shoe Brake

Much research has gone into finding a suitable material which is longlasting and grips well in both fine and wet weather.

But Shimano found that taking care of these factors was not enough in itself. In wet weather water deposits are liable to build up in and around the brake shoe treads. Braking efficiency is impeded. To solve this problem we designed chevron shaped treads to spearhead their way through wet conditions. Now braking is much more reliable and safer in wet weather.

Comparison Test of Different Shoes' Stopping Distances





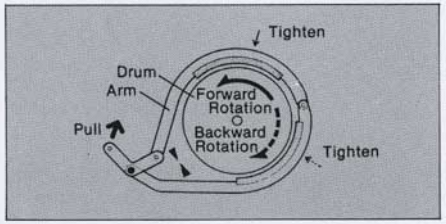
The ideally shaped Chevron Shoe —the result of Shimano's numerous brake test.

V-Brake Mechanism
—Drum-Type RADIAX Brake

At Shimano, we have conducted intensive research on the functions of brake components in junior sports bicycles and children's bicycles. Our engineers have closely examined conventional brake systems, such as the caliper, the band, the drum, the disc, the coaster and the hydraulic systems. We have been trying to develop a new brake system which synthesizes safety, durability, lightness and economy, elements seemingly contradictory to each other. Now we are glad to be able to introduce a new drum-type brake, — the "RADIAX".



V-Brake Mechanism.

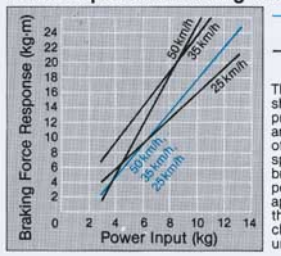


The V-Brake Mechanism's smooth braking retains its gripping power and remains safe even after many hours of use. It has made brake shoe maintenance virtually unnecessary. A bicycle equipped with a V-Brake Mechanism shows high braking performance on any road, in any weather.

NBM Brake Shoe

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

Power Input and Braking Response



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

Shimano studied this problem and came up with a material perfectly suited for road racing resulting in the NBM Brake Shoe.

The molybdenum additive is responsible for a material that is both heat resistant and much more durable. Also the treads have been redesigned for optimum gripping power without being too severe.

Because of these features, the braking properties of the material never alters appreciably. The rider can exercise perfect judgement when controlling speeds or stopping. Also, the noise factor is reduced considerably.



The new NBM Brake Shoe allows power input to equal response so that the rider is always in control of braking.

SYSTEM COMPONENTS CHART

The "System Components" concept forms the basis of all products developed at Shimano. As a leading manufacturer of components for over half-a-century, Shimano has been able to call upon its abundant experience and acquired technology in making numerous improvements to the bicycle. The reason behind this success story lies in the development of components as related parts rather than as individual parts. We examine all facets of the bicycle's function and the inter-relationships between components. As a result, we have developed many exciting innovations which are now in the process of revolutionizing the entire bicycle industry.

We have successfully incorporated our "System Components" philosophy into the development and marketing of bicycles throughout the world.

And for your convenience we have prepared the following "System Components" combination chart. Naturally we recommend that you use the listed combinations as they have been designed to work together in perfect harmony. However, unless specified, all components can be interchanged as desired.

We sincerely hope that this chart proves to be of invaluable assistance to you and your customers.



DURA-ACE 10 Track Model



DURA-ACE EX Road Model

ROAD RACING COMPONENTS

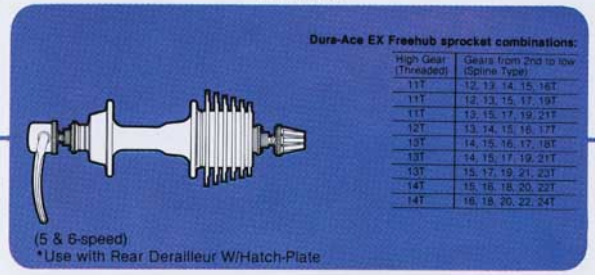
DURA-ACE EX Series

Front Chainwheel



Teeth: Inner 42~45T
Outer 50~53T

Freehub

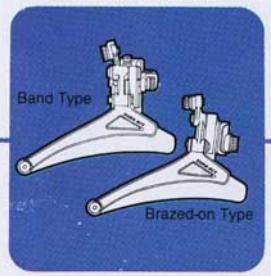


Dura-Ace EX Freehub sprocket combinations:

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

(5 & 6-speed)
*Use with Rear Derailleur W/Hatch-Plate

Front Derailleur



Rear Derailleur



With Uni Balance Freehub Only

DURA-ACE Series

Front Chainwheel



Teeth: Inner 39~48T, Outer 48~55T
Option: Extra Light Weight Chain Ring

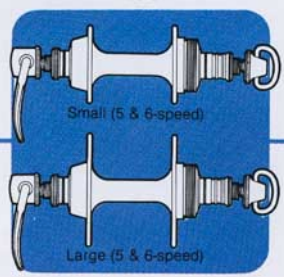
Multiple Freewheel



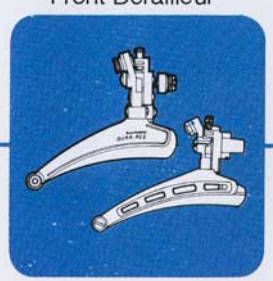
Standard Sprocket Combinations:

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

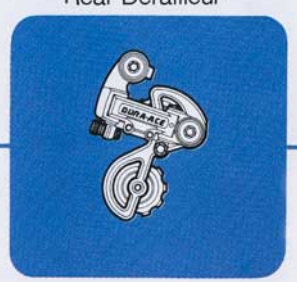
Hub



Front Derailleur



Rear Derailleur



TRACK RACING COMPONENTS

DURA-ACE 10 Series

Front Chainwheel



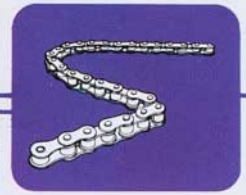
Sprocket



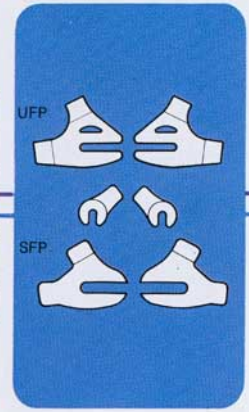
Hub



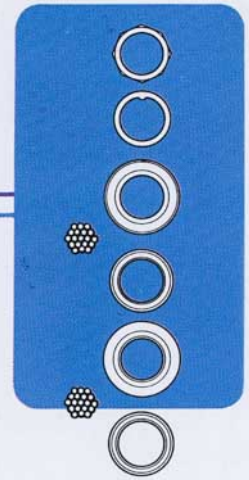
Chain



Fork Ends



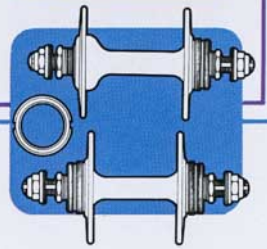
Head Parts



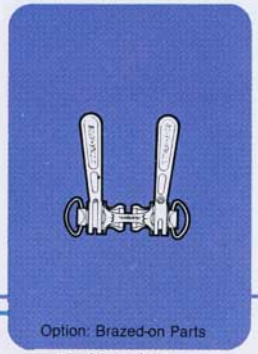
DURA-ACE Series







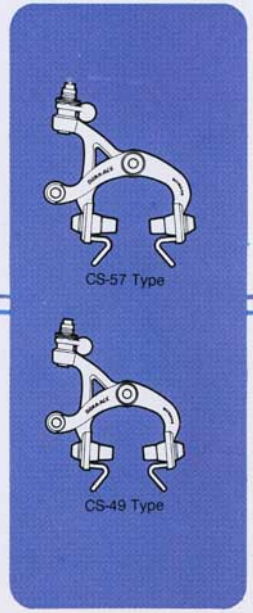
Shifting Lever



Shifting Lever



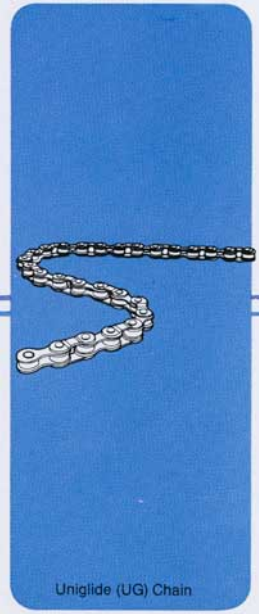
Brake



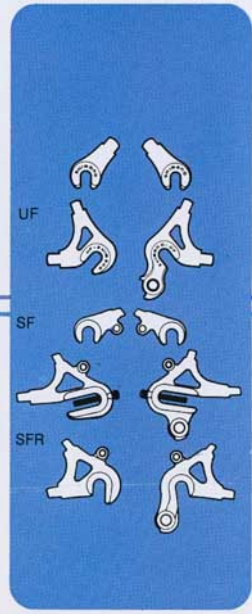
Brake Lever



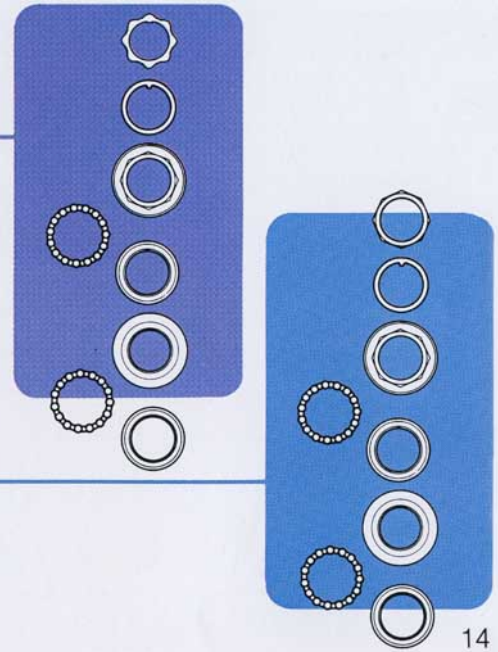
Chain



Fork Ends



Head Parts



ROAD & TOURING COMPONENTS

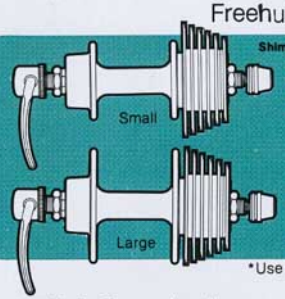
SHIMANO-600 EX Series

Front Chainwheel

Teeth:	GC-400	GC-410
Inner	39~48T	34~37T
Outer	48~55T	48~49T



Freehub



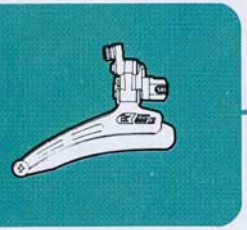
Shimano-600 EX Freehub sprocket combinations:

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

Silver & Black Gears (6 & 5-speed)

*Use with Rear Derailleur W/Hatch-Plate

Front Derailleur



Rear Derailleur



SHIMANO-600 Series

Front Chainwheel

Double & Triple Sprockets
Teeth: 30~53T



Multiple Freewheel

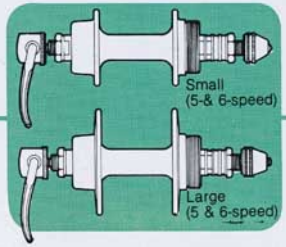
UG FREEWHEEL
Black & Silver



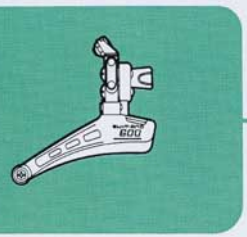
Standard Sprocket Combinations:

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

Hub



Front Derailleur



Rear Derailleur



NEW 10 SPEED COMPONENTS

ALTUS-LT / SELECTA-A

Front Chainwheel

Teeth:	GH-200	GH-210
Inner	39~42T	34~36T
Outer	52T	48T

Option: Protector (Light Alloy & Resin)

SELECTA-A



Freehub

FREEHUB-SQ/Small (5 & 6-speed)
Quick Release



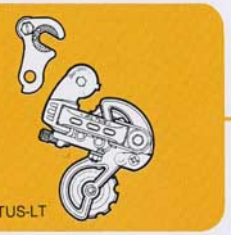
Teeth: Threaded Sprocket 13~15T
: Spline Sprocket 14~28T
*Use with Rear Derailleur W/Hatch-Plate

Front Derailleur



ALTUS-LT

Rear Derailleur



ALTUS-LT

ALTUS-ST / SELECTA-B

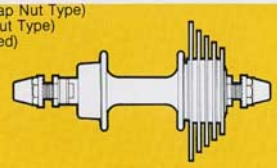
Teeth:	GH-220	GH-230
Inner	39~42T	34~36T
Outer	52T	48T

SELECTA-B



Freehub

FREEHUB-SK (Cap Nut Type)
FREEHUB-SN (Nut Type)
Small (5 & 6-speed)



*Available FH-5A, 5II, 6A, 6II

Teeth: Threaded Sprocket 13~15T
: Spline Sprocket 14~28T
*Use with Rear Derailleur W/Hatch-Plate

Front Derailleur



ALTUS-ST

Rear Derailleur



ALTUS-ST

Shifting Lever

Brake

Brake Lever

Chain

Fork Ends

Head Parts

Option: Brazed-on Parts

Shifting Lever

Brake

Brake Lever

Option:
Brazed-on Parts

SHIMANO-600 UG (Link Lock)
SHIMANO-600 UG (Silver)
SHIMANO-600 UG (Gold)

LF

PR

Shifting Lever

ALTUS-LT
STEM

ALTUS-LT
DOWN TUBE

*Use with Rear Derailleur W/Centeron Mechanism
*Available Single Type Lever

Shifting Lever

ALTUS-ST
STEM

ALTUS-ST
DOWN TUBE

*Use with Rear Derailleur W/Centeron Mechanism
*Available Single Type Lever

Brake

STANDARD COMPONENTS
- Sidepull Caliper
  TOURNEY (Auto-Adjust & Synpul)
  TOURNEY (Synpul)
- Centerpull Caliper
  SHIMANO-500 (Link)
  TOURNEY (Link)
  TOURNEY

Brake Lever

STANDARD COMPONENTS
DUAL EXTENSION LEVER-77
(DEL-77)
DUAL EXTENSION LEVER
HOODED LEVER

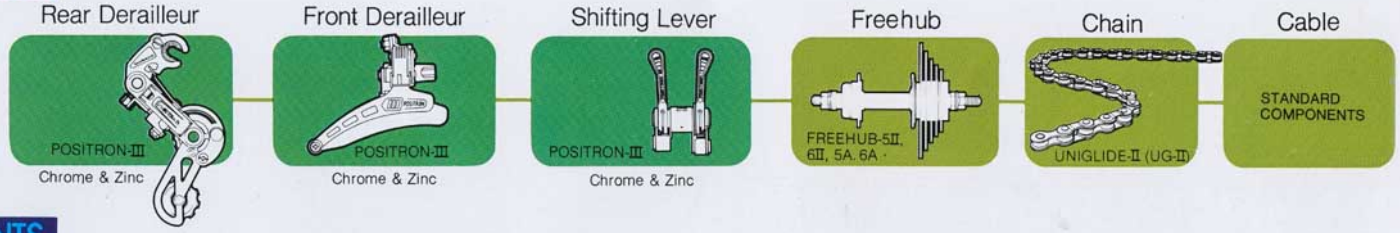
Chain

UNIGLIDE-II (UG-II)

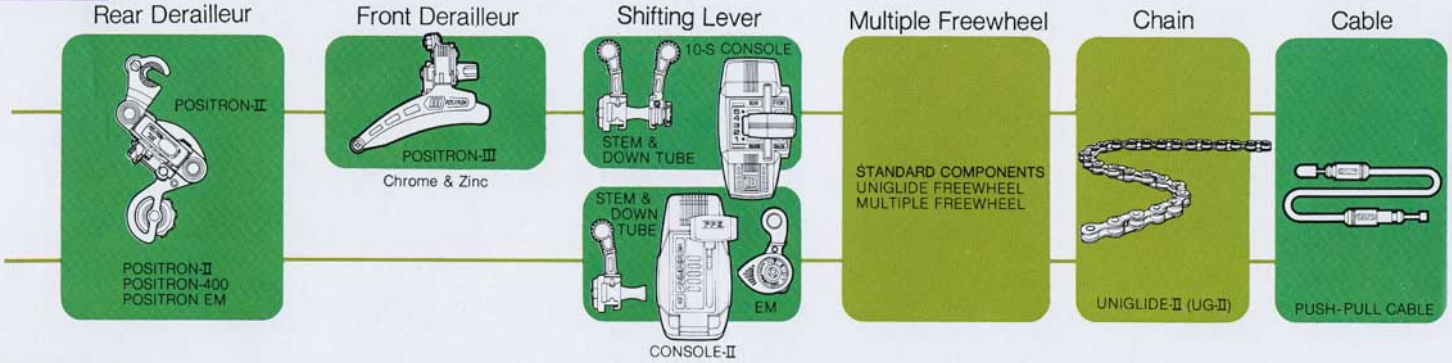
ALTUS SERIES SELECTA

NOTE:
* The chart illustrates ideal combinations with regard to product classifications. However, these components are interchangeable unless otherwise stated.
* Use the Altus shifting lever only with Altus rear derailleur. The Altus rear derailleur can be used separately but the "Centeron Mechanism" will not function.
* Use the Freehub (SQ, SK, SN and EX Series) only with the Shimano "Hatch-Plate" rear derailleur.

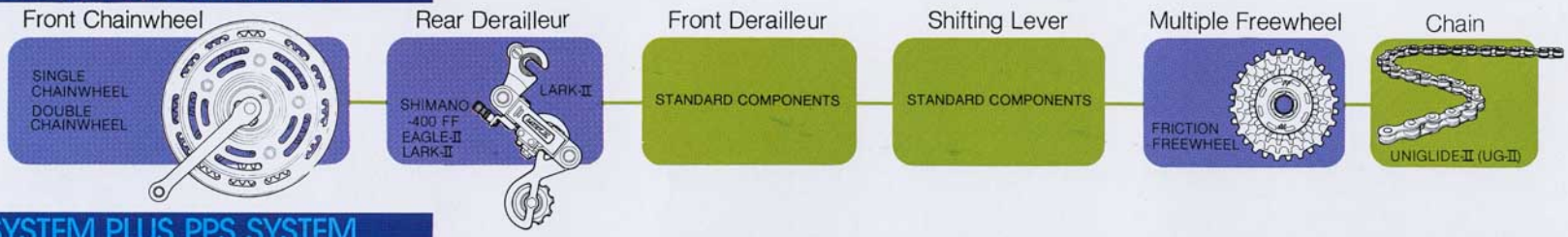
POSITRON-III SYSTEM COMPONENTS



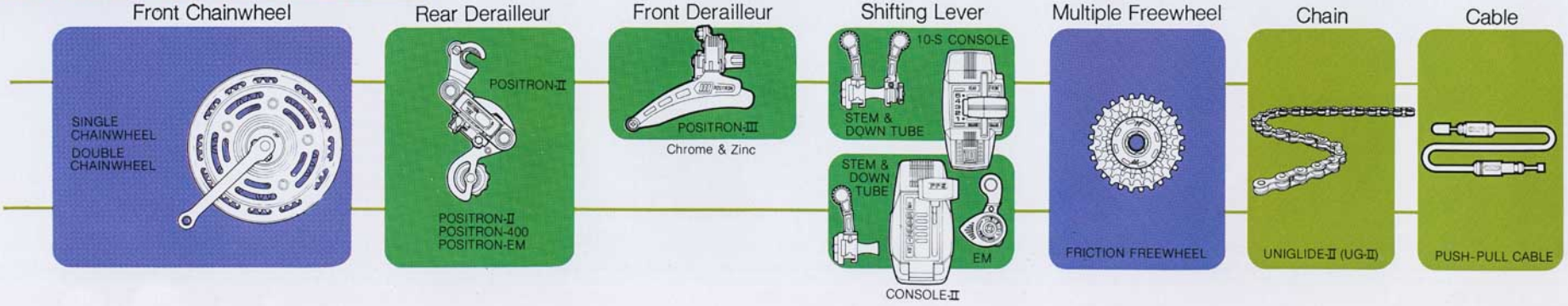
POSITRON-II SYSTEM COMPONENTS



FF SYSTEM COMPONENTS



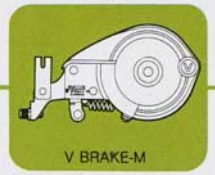
FF SYSTEM PLUS PPS SYSTEM



UNIQUE PRODUCTS

Front Chainwheel

OCTA-SS

Brake

V BRAKE-M

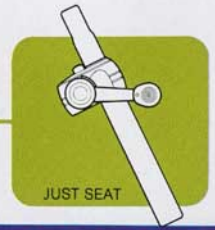
Freehub

FREEHUB-A

Brake Lever
SOFT LM LEVER

Grip (Black & White)
Lever (Black & White)


HANDLE LOCK


JUST SEAT

CHILDREN'S BICYCLE COMPONENTS

Front Chainwheel

SELECTA-C

Brake

V BRAKE-C (Front)
V BRAKE-C (Rear)

Freehub

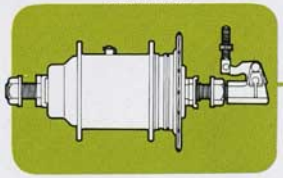
FREEHUB (Rear)
HUB (Front)
FREEHUB-C

Brake Lever

V BRAKE LEVER

3 SPEED COMPONENTS

3-SPEED HUB

GEAR HUB


TWIST GRIP CONTROL LEVER


SHIFTING LEVER


BRAKES

Brake

RADIAX FIN BRAKE

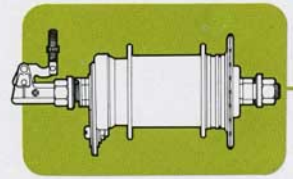
Hub

HUB

Brake Lever

DUAL EXTENSION LEVER-77 (DEL-77)

3-SPEED HUB WITH COASTER BRAKE

GEAR HUB


TWIST GRIP CONTROL LEVER


SHIFTING LEVER


5 & 10 SPEED COMPONENTS

Rear Derailleur


SHIMANO-RS Chrome
SHIMANO-RS Zinc
*With Centeron Mechanism

SHIMANO-500
SHIMANO-500 GS
SHIMANO-400
SHIMANO-400 GS
TITLIST
TITLIST GS
TOURNEY
TOURNEY GS
EAGLE-II
LARK-II
SHIMANO-100
LARK MINI

Front Derailleur
SHIMANO-500
SHIMANO-400
TITLIST
THUNDERBIRD-II
SHIMANO-FE

Shifting Lever


SHIMANO-LS (Stem)
SHIMANO-LE (Stem & Down Tube)
*Use with Rear Derailleur W/ Centeron Mechanism

QB-LEVER
QS-LEVER
ALMI-LEVER
FINGER-TIP
UNI-SHIFT
SUPER-SHIFTER

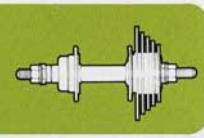
Freewheel

• Multiple Freehub
FREEHUB-6II
FREEHUB-6A
FREEHUB-5II
FREEHUB-5A

UG FREEWHEEL
MULTIPLE FREEWHEEL
SINGLE FREEWHEEL

• Single Freehub
FREEHUB-A (FH-A)
FREEHUB-C (FH-C)

Hub



LARGE HUB (QR)
LARGE HUB
SMALL HUB (QR)
SMALL HUB
STEEL HUB

Caliper Brake
• Sidepull Caliper
TOURNEY (Auto-Adjust/Synpul)
TOURNEY (Synpul)
• Centerpull Caliper
SHIMANO-500 (Link)
TOURNEY (Link)
TOURNEY

Brake Lever
DUAL EXTENSION LEVER-77 (DEL-77)
DUAL EXTENSION LEVER
HOODED LEVER
POPULAR LEVER
SOFT LM LEVER

Chain
UNIGLIDE-II (UG-II)



SHIMANO
DURA-ACE
10
System Campo Series

The Pitch Revolution That Has Changed The World Of Racing.....10mm Pitch Series.

Shimano's new Dura-Ace 10 Track System is the new standard among competitive bicycle components.

Dura-Ace 10 is the first major deviation from a standard that has existed in the bicycle industry since mass-production of bikes began some 100 years ago.

It was so simple; Shimano reduced the distance between the sprocket teeth from the old 1/2" to the new 10mm. dimension. Ten millimeter pitch allows the front chainwheel and the rear sprockets to be made smaller, and the chain shorter. The smaller size means less weight and more rigidity and when rotating parts are lightened acceleration is increased.

Now competitors on Dura-Ace 10 can climb hills faster, jump out of corners more quickly, and get the lead in the sprint.

Dura-Ace 10 track components are already the choice of the best racers in the world. John Nicholson, twice world professional sprint champion, rode to his titles on Dura-Ace 10. More and more racers are changing to the obvious advantages of using the lightest components in track racing—Dura-Ace 10.



DURA-ACE 10 SERIES TRACK ENSEMBLE

10mm Pitch Chaindriving System

Front Chainwheel

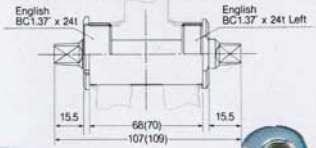
Model GA-110 (without Bottom Bracket Set)
GB-100 (Bottom Bracket Set)

DURA-ACE 10

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 ● 9/16" x 20t
Cup Thread ● English 1.37" x 24t, French 35 x 1.0, Italian 36 x 24t
Super Polished Ball Race

Spindle Length: [Unit: mm.]



10



Front & Rear Hubs with Lock Ring

Model HA-310

DURA-ACE 10

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.
Sproke Holes ● 28H, 32H, 36H
Lock Ring Thread
● BC32 x 24 T.P.I. (Left)
Super Polished Ball Race

10



Drilled Out Shaft



Chain

Model QA-100

DURA-ACE 10

SPECIFICATIONS

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

10



DURA-ACE 10—DURA-ACE Comparison Chart

* Weight Comparison (Track Models)

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

Sprocket for Track Hub

Model FA-210

DURA-ACE 10

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.)

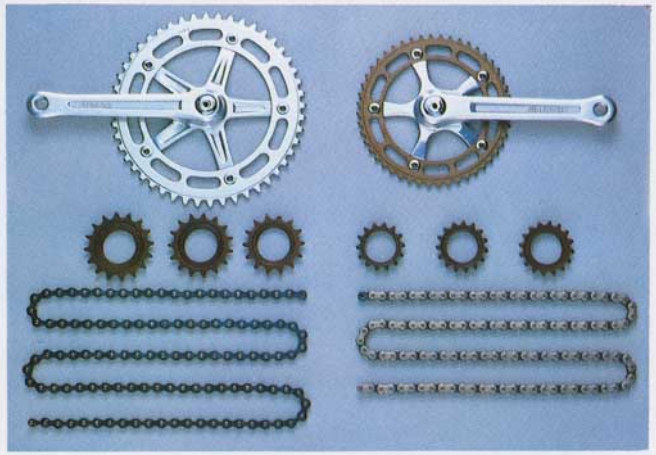
10



For Use with Dura-Ace 10 Track Hubs Only

For Use with Standard Dura-Ace Track Hubs Only

DURA-ACE 10—DURA-ACE Comparison Photo







SHIMANO
DURA-ACE
System Compo Series

The Racing Components Professionals Choose

When sprinting at top speed a 10th of a second equals about 15 feet...too big a gap to close against a good competitor. To shave off those fractions of a second the pro sprinter must use the lightest but strongest possible equipment.

Dura-Ace track products are constructed of "super duralumin 75S", an alloy so light and strong that it is rarely used for bicycle components because of its difficulty to form. Shimano's advanced metallurgical techniques, including the cold-forging process, have overcome the obstacles and produced the best track products available.

Dura-Ace Track means performing at your best.



DURA-ACE SERIES TRACK ENSEMBLE

Front Chainwheel

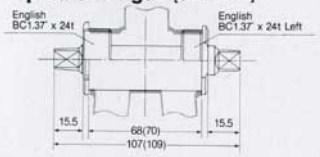
Model GA-100 (without Bottom Bracket Set)
GB-100 (Bottom Bracket Set)

DURA-ACE

SPECIFICATIONS

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

Spindle Length: [Unit: mm.]



Sprocket for Track Hub

Model FA-200

DURA-ACE

SPECIFICATIONS

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

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



Light Alloy

Steel



Front & Rear Hubs with Lock Ring

Model HA-300

DURA-ACE

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



Head Parts

Model UA-200

DURA-ACE

SPECIFICATIONS

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



Fork Ends

Model NC-100

SHIMANO-SFP

SPECIFICATIONS

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



Model NC-200

SHIMANO-UFP

SPECIFICATIONS

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

new



DURA-ACE EX Road Ensemble

THE NEW CONCEPT

For over half-a-century, Shimano has devoted itself to the production of bicycle components. Based on the abundant experience and technology acquired through the continuous innovation of bicycle parts, Shimano was able to create the "System Components" concept. Components which are made to work together in perfect harmony.

And now we, at Shimano, as a result of this enlightened policy, are pleased to introduce our latest system components success—the EX Series.



Dura-Ace EX Road Model

COMPONENTS

It was through our involvement with bicycle racing that we were able to succeed so perfectly in coordinating the necessary requisites of lightness and strength combined—and precision of parts. Many of the mechanisms incorporated in this series are revolutionary in their concept and are certain to spearhead the bicycle into a new era. The Dura-Ace EX Series and the 600 EX Series are now unveiled for the world of bicycling to appreciate—and to herald a new age for the bicycle!

SHIMANO 600 EX Road Ensemble



Shimano-600 EX Road Model

DURA-ACE EX SERIES ROAD ENSEMBLE

Rear Derailleur

Model DA-200

DURA-ACE EX

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 Steel (Guide Pulley Teeth)
- Type: ● Servo Panta Mechanism, Hatch Plate Mechanism, Without Left Plate, Hexagon Release, Synchro-Line Mechanism



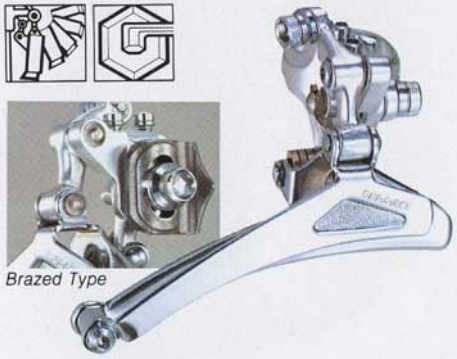
Front Derailleur

Model EA-210 (Brazed Type)
EA-200 (Band Type)

DURA-ACE EX

SPECIFICATIONS

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



Brazed Type

Shifting Lever

Model LA-110

DURA-ACE EX

SPECIFICATIONS

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



Brazed-on Parts

SEALED LIGHT WEIGHT

Brazed type only



Front Chainwheel

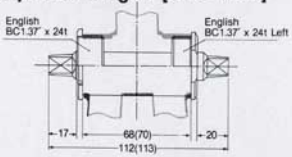
Model GA-300 (without Bottom Bracket Set)
GB-110 (Bottom Bracket Set)

DURA-ACE EX

SPECIFICATIONS

- Material: ● Light Alloy • Anodized Finish
- Type: ● Cotterless
- Chain Ring: ● 1/2" x 3/32" chain (2mm.)
- Teeth: ● Inner Chain Ring 42, 43, 44, 45T ● Outer Chain Ring 50, 51, 52, 53T
- Crank Lengths: ● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-7/8" (175mm.)

Spindle Length: [Unit: mm.]





W cut teeth

Available by request
- ● 6-19/32" (167.5mm.), 6-13/16" (172.5mm.)

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
Option: ● Super Polished Ball Race

W CUT





Freehub

Model HF-100 (Small Flange/6-speed)
HF-110 (Small Flange/5-speed)

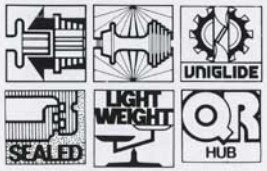
DURA-ACE EX

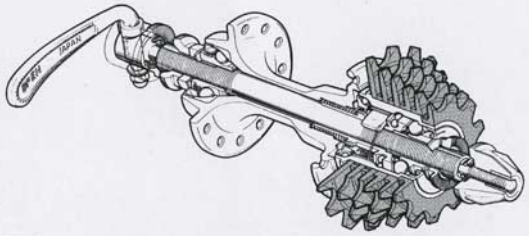
SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

		Weight	Over Lock Nut Dimensions	Amount of Dish
Front		7.4 oz. (210 g.)	4.33" (110 mm.)	
Rear (Except Cassette Gears)	5-speed	13.9 oz. (393 g.)	4.72" (120 mm.)	0.17" (2.95 mm.)
	6-speed	14.0 oz. (398 g.)	4.72" (120 mm.)	0.31" (7.8 mm.)
		14.0 oz. (403 g.)	4.96" (126 mm.)	0.19" (4.8 mm.)

Material ● Light Alloy • Anodized Finish (W/Light Alloy Adjusting Nut)
Sprocket ● Golden Finish
Teeth ● Threaded Sprocket 11T~14T
● Spline Sprocket 12T~26T
Spoke Holes ● 28H, 32H, 36H
Type ● Quick Release, Uni Balance Mechanism, Uniglide Freewheel, Cassette Freewheel, Sealed Mechanism (Double-Jointed Seal)
Use ● With EX Rear Derailleur Only





Dura-Ace EX Freehub sprocket combinations:

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

We offer all kinds of tooth sprocket possibilities: High gear (threaded sprockets), from 11T to 14T; other gears (spline-type), from 12T to 26T.



Head Parts

Model UA-110

DURA-ACE EX

SPECIFICATIONS

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





Caliper Brake

Model BA-200

DURA-ACE EX

SPECIFICATIONS

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

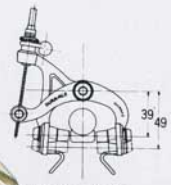
Model BA-220

DURA-ACE EX

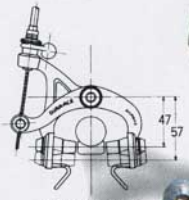
SPECIFICATIONS

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





CS-49 Type



CS-57 Type



Quick Release

Brake Lever

Model MA-200

DURA-ACE EX

SPECIFICATIONS

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







SHIMANO-600 EX SERIES ROAD & TOURING ENSE

Rear Derailleur

Model DC-230

SHIMANO-600 EX

SPECIFICATIONS

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

Arabesque Pattern Design



Shifting Lever

Model LB-630

SHIMANO-600 EX

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
Option ● Brazed-on parts (W/Sealed Mechanism)



Brazed-on Parts

Front Chainwheel

Model GC-400 (Double/without B.B. Set)
GC-410 (Double/without B.B. Set)
GB-210 (Bottom Bracket Set)

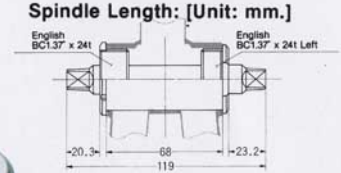
SHIMANO-600 EX

SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 3/32" (2mm.)
Teeth ● GC-400/Inner 39T~48T, Outer 48T~55T,
● GC-410/Inner 34T~37T, Outer 48T~49T.



Spindle Length: [Unit: mm.]



Crank Lengths
● GC-400/6-1/2" (165mm.), 6-3/4" (170mm.),
● GC-410/6-1/2" (165mm.)
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

Model GC-400



Model GC-410





Front Derailleur

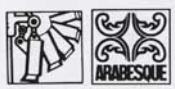
Model EC-630

SHIMANO-600 EX

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





Freehub

Model HF-350 (Silver/6-speed)
HF-360 (Silver/5-speed)
HF-300 (Black/6-speed)
HF-310 (Black/5-speed)

SHIMANO-600 EX (Small Flange)

Model HF-370 (Silver/6-speed)
HF-380 (Silver/5-speed)
HF-320 (Black/6-speed)
HF-330 (Black/5-speed)

SHIMANO-600 EX (Large Flange)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish •

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

- Material • Light Alloy • Buff Finish
- Sprocket • Silver Finish
- Option • Black Finish
- Teeth • Thread Sprocket 12T~15T
  • Spline Sprocket 13T~28T
- Spoke Holes • 36H
- Type • Quick Release, Uni Balance Mechanism, Uniglide Freewheel,Cassette Freewheel, Sealed Mechanism
- Use • With EX Rear Derailleur Only



Shimano-600 EX Freehub sprocket combinations:

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

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



Caliper Brake

Model BB-330

SHIMANO-600 EX

SPECIFICATIONS

- Weight • Front 5.6 oz. (159 g.)
  • Rear 5.5 oz. (157 g.)
- Material • Light Alloy • Anodized Finish
- Type • Side Pull with Quick Release and Tire Guide
- Size • A-A' (43 mm.~57 mm.)



Brake Lever

Model MB-230

SHIMANO-600 EX

SPECIFICATIONS

- Weight • 7.4 oz. (209 g.)/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
  • 23.8 mm.



Head Parts

Model UB-100

SHIMANO-600 EX

SPECIFICATIONS

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









SHIMANO
DURA-ACE
System Compo Series

Designed For The Business Of Road Racing.

The Dura-Ace Road Ensemble is more than just individual components assembled under one name; Dura-Ace is a total set of the finest racing equipment; each piece designed to work in perfect harmony with the other.

This coordinated engineering cannot be achieved when a bicycle is equipped with different parts from different manufacturers.

The Dura-Ace Road Ensemble is designed for the business of road racing. Shimano has refined Dura-Ace from its experience gained through sponsorship of professional cyclists, pro teams and top class amateurs.

Precision is the byword in the Dura-Ace division of Shimano. Skilled craftsmen personally handle each product, some requiring 40 to 50 steps in finishing and assembly. Close tolerances result in the smooth functioning of the Dura-Ace product, and also increase resistance to contamination by water, grit, and other foreign particles. Final touches to the Dura-Ace Road Ensemble include either a lustrous finish, or a corrosion-resistant black anodized finish.

The Dura-Ace Ensemble has been proven on the toughest road circuits in the world. It is designed for the business of racing.



DURA-ACE SERIES ROAD ENSEMBLE

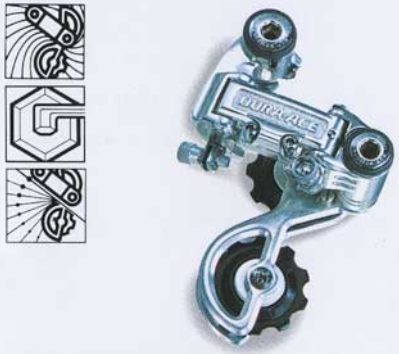
Rear Derailleur

Model DA-100

DURA-ACE

SPECIFICATIONS

Capacity ● Front Difference/13 Teeth or Less
● Rear Largest Sprocket/26 Teeth or Less
Weight ● 6.1 oz. (174 g.)
Material ● Light Alloy • Anodized Finish
Type ● Servo Panta Mechanism and Synchro-Line Mechanism.



Front Derailleur

Model EA-200

DURA-ACE

SPECIFICATIONS

Capacity ● 16 Teeth or Less
Weight ● 3.9 oz. (110 g.)
Material ● Light alloy • Anodized Finish (Body),
● Steel • Chromium Finish (Chain Guide)
Type ● Lower Inlet Type 1-1/8" Panta Mechanism



Model EA-100

DURA-ACE

SPECIFICATIONS

Capacity ● 16 Teeth or Less
Weight ● 3.9 oz. (110 g.)
Material ● Light Alloy • Anodized Finish (Body),
● Steel • Chromium Finish (Chain Guide)
Type ● Lower Inlet Type 1-1/8" Panta Mechanism



Shifting Lever

LIGHT WEIGHT SEALED

Brazed type only

Model LA-110

DURA-ACE EX

SPECIFICATIONS

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



new

Model LD-500

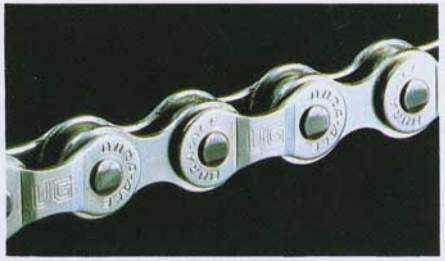
DURA-ACE

SPECIFICATIONS

Weight ● 5.6 oz. (160 g.)/Pair
Material ● Light Alloy • Black Anodized Finish
Use ● 10-speed
Attachment Position
● Bar-End
Type ● With Spiral Spring (Balance Spring)



UG (UNIGLIDE) chains are designed with the outer plates widened to the level of the chain pin heads. Because of this shape, the outer plates engage the gear teeth at the same time as the chain pins. This makes shifting faster, eliminates the need for overshifts, and improves overall shifting performance. In addition, bearing steel is used for the roller pins, and an ultra-hard surface treatment assures outstanding strength. With these innovations, the UG chain is truly an international choice among professionals.



Chain

Model QA-110

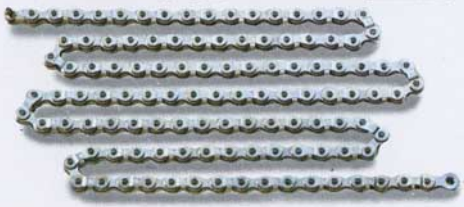
DURA-ACE UG

SPECIFICATIONS

Material ● Outer & Inner Plate/Steel. Link Pin/Bearing Steel • Special Surface Treatment, Bush/Chromium Molybdenum Steel
Surface Treatment
● Roller Link Plate/Nickel Finish, Pin Link Plate/Nickel Finish
Type ● Roller Chain
Information ● Special Chain Cutter available for UG Chain

new

UNIGLIDE



Cable Parts

Model KA-100

CABLE GUIDE

SPECIFICATIONS

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

Model KA-110

OUTER STOPPER

SPECIFICATIONS

Material Steel
Clamp Diameter
● 5/8"

Model KB-110

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



Brazed-on Parts

Model KA-300

CABLE GUIDE

SPECIFICATIONS

Material ● Steel

Model KA-310

OUTER STOPPER

SPECIFICATIONS

Material ● Steel

Model KA-320

LEVER AXLE

SPECIFICATIONS

Material ● Steel



DURA-ACE Black Series



Front Chainwheel

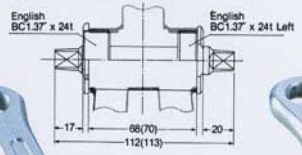
Model GA-200 (A Type/without B.B. Set)
GA-210 (B Type/without B.B. Set)
GB-100 (Bottom Bracket Set)

DURA-ACE

SPECIFICATIONS

Material • Light Alloy • Anodized Finish
Type • Cotterless
Chain Ring • 1/2" x 3/32" Chain (2mm.)
Teeth • B Type (Extra Light Weight Chain Ring)/Inner Chain Ring 42, 43, 44, 45T
Outer Chain Ring 50, 51, 52, 53T
A Type/Inner Chain Ring 39T~48T
Outer Chain Ring 48T~55T
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 • 9/16" x 20t
Cup Thread • English 1.37" x 24t French 35 x 1.0 Italian 36 x 24t
Material of Chain Ring
• B Type/Light Alloy • Extra Light Weight Chain Ring
A Type/Light Alloy
Option • Super Polished Ball Race

Spindle Length: [Unit: mm.]



Extra Light Weight Chain Ring

Multiple Freewheel

Model FA-100 (5-speed Gold)
FA-110 (6-speed Gold)

DURA-ACE

SPECIFICATIONS

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



Standard Sprocket Combinations

• 5-speed	13, 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

Light Alloy Hub

Model HA-100: Small Flange Hub

DURA-ACE

SPECIFICATIONS

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

QR HUB





Standard Chain Ring

Model HA-200: Large Flange Hub

DURA-ACE

SPECIFICATIONS

Weight • Front 9.2 oz. (260 g.)
• Rear/5-speed/11.6 oz. (330 g.)
• Rear/6-speed/11.8 oz. (335 g.)
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

QR HUB



SHIMANO DURA-ACE System Compo Series

Fork Ends

Model NB-100

SHIMANO-SF

SPECIFICATIONS

Weight • 8.8 oz. (250 g.)/ Including Front & Rear
Material • Steel
Type • Road Type
With Adjusting Bolt
Specially Ground Hub Connection Face

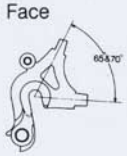


Model NB-120

SHIMANO-SFR

SPECIFICATIONS

Weight • 5.2 oz. (147 g.)/ Rear Only
Material • Steel
Type • Touring Type
Vertical Drop Out
Specially Ground Hub Connection Face







Model NB-200

SHIMANO-UF

SPECIFICATIONS

Weight • 5.7 oz. (161 g.)/ Including Front & Rear
Material • Steel
Type • Road Type
With Adjusting Bolt (2mm.)
Specially Ground Hub Connection Face







Head Parts

Model UA-100

DURA-ACE

SPECIFICATIONS

Material • Chromium Bearing Steel (Main Parts)
Type • Road Type
Polished Ball Race



Outer Band

Model KA-210

OUTER BAND

SPECIFICATIONS

Material • Steel
Clamp Diameter
• 1"



Pump Holder

Model KD-100

PUMP HOLDER

SPECIFICATIONS

Material • Steel
Clamp Diameter
• 1-1/8"



DURA-ACE Black Series









SHIMANO 600 SyscemCompoSeries

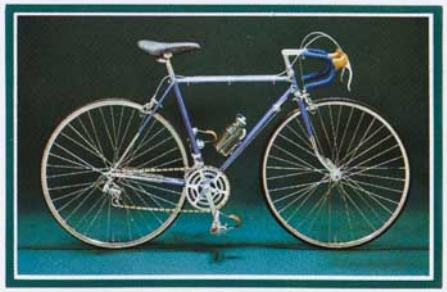
Built To Withstand The Demands Of Club Racing And The Rigors Of Touring

Recreational cycling requires reliable components which are light in weight, but rugged enough to perform under all types of road conditions. The Shimano-600 Series was created with these needs in mind. Special attention has been given to the design of the components to deliver the maximum in performance and reliability. Cold forging has been used to form those parts which must withstand maximum stress. Other parts, like the cages of the derailleurs, have been heat treated to a satin finish to reduce wear and increase the components' life.

No detail was overlooked in creating the 600 Series. The side pull caliper brakes are designed to allow for the mudguards of a touring bicycle. The cotterless crankset uses a three-pin design to allow the cyclist the choice of chainrings from 30 to 53 teeth.

The 600 Series gives the club cyclist many of the features of Dura-Ace, but at a reduced cost.

Good looking. Top performers. The Shimano-600 Series. For those cyclists who want the best out of their machines.



SHIMANO-600 SERIES ROAD & TOURING ENSEMBLE

Rear Derailleur

Model DC-200

SHIMANO-600

SPECIFICATIONS

Capacity • Front Difference/14 Teeth or Less
• Rear Largest Sprocket/28 Teeth or Less
Weight • 8.3 oz. (235 g.)
Material • Light Alloy • Anodized Finish (Body)
• Steel • Satin Nickel Finish (Cage Plate)
Type • Servo Panta Mechanism
Option • Adaptor



Model DC-210

SHIMANO-600GS

SPECIFICATIONS

Capacity • Front Difference/14 Teeth or Less
• Rear Largest Sprocket/34 Teeth or Less
Weight • 8.8 oz. (250 g.)
Material • Light Alloy • Anodized Finish (Body)
• Steel • Satin Nickel Finish (Cage Plate)
Type • Servo Panta Mechanism
Option • Adaptor



Front Derailleur

Model EC-600

SHIMANO-600

SPECIFICATIONS

Capacity • 14 Teeth or Less
Weight • 4.7 oz. (133 g.)
Material • Steel • Satin Nickel Finish (Body and Chain Guide)
• Light Alloy • Anodized Finish (Clamp)
Type • Lower Inlet Type 1-1/8" Panta Mechanism



Shifting Lever

Model LB-600

SHIMANO-600

SPECIFICATIONS

Weight • 3.6 oz. (103 g)
Material • Light Alloy
Type • One Way Clutch
Attachment Position
• Down Tube
Lever Clamp Diameter
• 1-1/8"

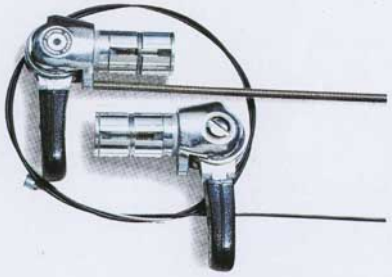


Model LD-500

SHIMANO-600

SPECIFICATIONS

Weight • 5.6 oz. (160 g.)/Pair
Material • Light Alloy • Anodized Finish
Attachment Position
• Bar-End
Type • With Spiral Spring (Balance Spring)



Model LB-180

QB-LEVER DX

SPECIFICATIONS

Weight • 3.1 oz. (88 g)
Material • Light Alloy
Type • Friction Type
Attachment Position
• Down Tube
Lever Clamp Diameter
• 1-1/8"



Cable Parts

Model KB-160

CABLE GUIDE

SPECIFICATIONS

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



Model KA-110

OUTER STOPPER

SPECIFICATIONS

Material • Steel
Clamp Diameter
• 5/8"



Model KB-110

OUTER STOPPER

SPECIFICATIONS

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



Brazed on Parts

Model KA-300

CABLE GUIDE

SPECIFICATIONS

Material • Steel



Model KA-310

OUTER STOPPER

SPECIFICATIONS

Material • Steel



Model KB-300

LEVER AXLE

SPECIFICATIONS

Material • Steel
Use • QB-Lever DX Only



Model KB-310

LEVER AXLE

SPECIFICATIONS

Material • Steel
Use • SHIMANO-600 Only



Front Chainwheel

Model GC-100 (Double/without B.B. Set)
GC-300 (Triple/without B.B. Set)
GB-200 (Bottom Bracket Set)

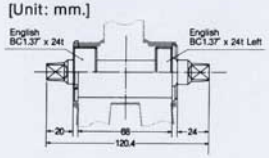
SHIMANO-600

SPECIFICATIONS

Material ● Duralumin • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 3/32" Chain (2mm.)
Teeth ● Double/30T~53T
Triple/Inner 30T~32T
Middle 42T~45T
Outer 48T~52T
Crank Lengths ● 6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread ● 9/16" x 20t
Cup Thread ● English 1.37" x 24t,
Franch 35 x 1.0, Italian 36 x 24t
Material of Chain Ring
● Light Alloy
Available by Request
● Triple Sprocket

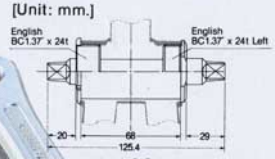
Spindle Length (Double):

[Unit: mm.]



Spindle Length (Triple):

[Unit: mm.]



GC-300

GC-100

Chain

Model QA-500

SHIMANO-600 UG (Link Lock)

SPECIFICATIONS

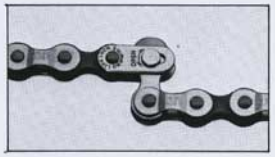
Material ● Steel
Surface Treatment
● Roller Link Plate/Black Finish
● Pin Link Plate/Satin Nickel Finish



Type ● Roller Chain
Link Lock Mechanism

Without using special tools, the LINK LOCK chain can be easily cut and removed, thanks to the revolutionary pin-removing device incorporated within the chain itself.





Bend the link.



Remove the pin.

Multiple Freewheel

Model FD-100 (Black/5-speed)
FD-200 (Black/6-speed)
FD-110 (Silver/5-speed)
FD-210 (Silver/6-speed)

SHIMANO-600UG

SPECIFICATIONS

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

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

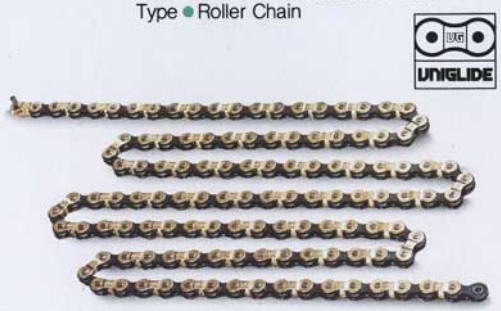


Model QA-400

SHIMANO-600UG

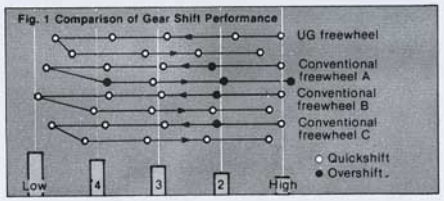
SPECIFICATIONS

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



Features of the UG Freewheel:

1. Sure and Smooth Gear Changes—
The teeth of the UG Freewheel are twisted to run parallel with the direction of the chain, when it is moving from high to low gear. This allows the chain to disengage the freewheel teeth without hindrance and to move in perfect alignment to the next gear. Conversely, when shifting from low to high gear, the teeth are at cross angles to the chain's movement, thereby eliminating the problem of the chain slipping back.

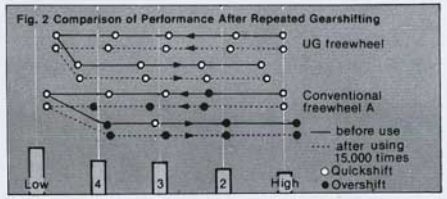


The above illustrates a high to low and back again gear changing sequence between the UG Freewheel and 3 other types of freewheel. The white circles indicate the chain's gear change completion points. These are all prior to the sprocket's central line, the maximum point at which an accurate gear change can be made. The black circles are beyond the central lines and therefore indicate overshifts.

2. Overshifting Eliminated—
Because gearshift completion points are all before the sprockets' central lines, see Fig. 1, overshifts are no longer necessary with the UG Freewheel. Also, because of the regular shifting pattern, the gear lever can achieve accurate gear changes each time by moving the prescribed distance between each completion point.

3. Accurate Shifting Even on Inclines—
Changing gears while climbing hills, especially with a close gear ratio, can be effected with utmost efficiency.

4. Longer, High Gear Performances—
Reduced friction means less wear on the gear teeth and thus prevents a decline in performance. Tests prove that the UG Freewheel maintains a consistently high performance even after repeated use.



The above illustrates the consistency of the UG Freewheel when compared with a conventional freewheel. As seen, by the time 15,000 shifts have been made the conventional freewheel requires to overshift constantly. However, the UG Freewheel continues to make accurate gearshifts.

Model QA-410

SHIMANO-600 UG

SPECIFICATIONS

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



Features of the Uniglide Chain:

1. Outstanding Gearshifting Performance—
The widened outer plates of the chain allow contact with the sprocket teeth at the same time as the chain pins for smooth engagement.

2. Quick and Sure Gearshifting—
Because of the resulting faster engagement, the UG Chain responds perfectly to the complex movement of multi-speed bicycles.

3. Overshifting Eliminated—
The UG Chain completes each shift so precisely, the need to overshift is eliminated.

4. Sure and Smooth Shifting on Inclines—
Even when climbing hills under great tension, the chain still maintains a high performance.

5. Quiet Gear Changes—
The quickness of the gear change cuts down the amount of friction and thus the level of irritating noise is considerably reduced.

6. Doubles the Service Life of the Drive Train—
The speed and accuracy of the UG Chain in changing gears minimizes overall friction and helps double the life of all related parts.



Unused UG Chain



Unused Conventional Chain



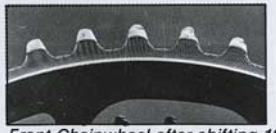
UG Chain after shifting 10,000 times.



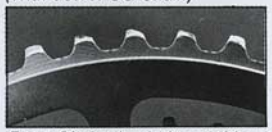
Conventional Chain after shifting 10,000 times.



Unused Front Chainwheel



Front Chainwheel after shifting 10,000 times. (With use of UG Chain)



Front Chainwheel after shifting 10,000 times. (With use of Conventional Chain).

7. More Stable Deflection—
A stable deflection is necessary for the ease with which the chain effects its lateral movement. The Uniglide Chain is able to achieve this necessary stability for gearchanges over an extended period of time, far in excess of a conventional chain whose performance soon deteriorates.

Light Alloy Hub

Model HB-100 (Large Flange HUB)

SHIMANO-600

SPECIFICATIONS

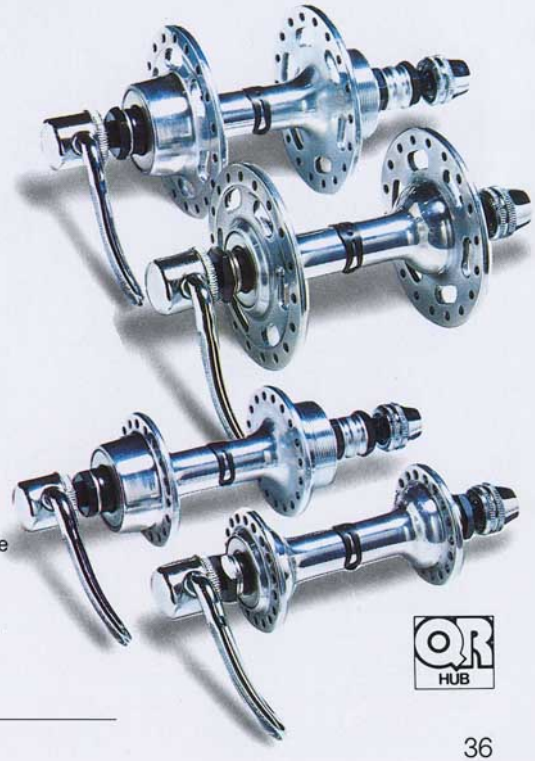
Weight ● Front 9.7 oz. (275 g.)
● Rear 12.4 oz. (350 g.)/5-speed
12.5 oz. (355 g.)/6-speed

Model HB-200 (Small Flange HUB)

SHIMANO-600

SPECIFICATIONS

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



Caliper Brake

Model BB-300

SHIMANO-600

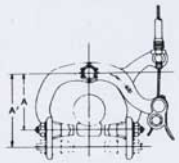
SPECIFICATIONS

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

QR BRAKE







Model BB-400

SHIMANO-600

SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Center Pull with Link Mechanism

Type	A-A′	Weight (Pair)
CC-62	47mm.—62mm.	12.6 oz. (360 g.)
CC-75	57mm.—75mm.	12.95 oz. (370 g.)







Model BE-100

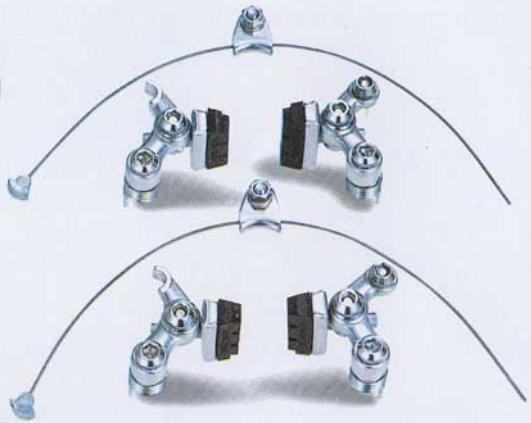
SHIMANO-600

SPECIFICATIONS

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







Outer Band

Model KA-210

OUTER BAND

SPECIFICATIONS

Material ● Steel
Clamp Diameter ● 1″



Brake Lever

Model MB-200

SHIMANO-600

SPECIFICATIONS

Weight ● 7.4 oz. (220 g.)/Pair (Including Rubber Cover)
Material ● Light Alloy • Anodized Finish
Type ● Hooded Lever with Rubber Cover
Drilled Out Finish
Lever Clamp Diameter ● 23.8mm.



Model MB-210

SHIMANO-600

SPECIFICATIONS

Weight ● 7.5 oz. (212 g.)/Pair (Including Rubber cover)
Material ● Light Alloy • Anodized Finish
Type ● Hooded Lever with Quick Release and Rubber Cover
Lever Clamp Diameter ● 23.8mm.



QR BRAKE LEVER

SHIMANO 600 System Compo Series

Fork Ends



Model ND-100

SHIMANO-LF

SPECIFICATIONS

Weight ● 8.2 oz. (235 g.)/Including Front & Rear
Material ● Steel
Option ● Axle Stopper Set



Model NF-100

SHIMANO-PR

SPECIFICATIONS

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



Model WE-100

COLOR OUTER CASING

SPECIFICATIONS

Color ● Red, Yellow, Green, Blue, Dark Blue



Shimano World Racers '79

Competing the World Over—At the Highest Levels!

Patric Sercu (Belgium) rides for top European Team Superia, and is one of the most well-known racers in the world. Riding since 1959, Sercu (34) has an impressive record both on the track and in road racing. As an amateur, he won an Olympic gold medal in the 1000m held in Tokyo, 1964. And in 1963 he was world sprint champion. Turning professional in 1965, he won the world sprint championships in 1967 and 1969. In all, Sercu has won 52 titles in sprint and 6-day races, 15 of which were European titles. During the 1977/78 season, Patrick Sercu and his partner Eddie Merckx won the 6-day race title a total of 6 times. An all-round racer, Sercu is also well known as a road racer with important wins and stage victories, including "Tour de France", to his credit.



Patric Sercu (Belgium)

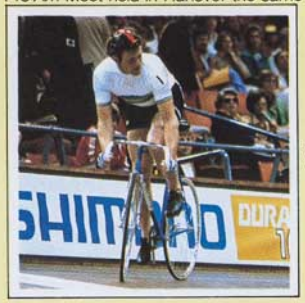
Recently, Patrick Sercu has become involved in Demi-Fond racing where he is making a new name for himself.

Ferdi Van den Haute (Belgium) is one of the leading racers on the Superia Team. Prior to turning professional in 1976, he enjoyed a successful career as an amateur in which he was 7 times Belgium champion at various track events. In his first year as a professional, he won 8 road championships, including the prestigious "Tour de Spain" and the "Tour de Sardinia".
This was followed in 1977 by 5 more titles, and in 1978 another 8 championships. Among these were the classic "Gent-Wevelgem" race, and 2 stages of the "Tour de Spain". Ferdi Van den Haute (27) also won the Point race on the "Tour de Spain" to crown a very successful year.



Fredi Van den Haute (Belgium)

John Nicholson (Australia) was the first racer ever to ride Dura-Ace 10mm pitch and win a world title. First in 1975, he won the World Professional Sprint Championship, and then again in 1976. Having won a silver medal in the Munich Olympics (1972), and gold medals in two Commonwealth Games, Nicholson turned professional in 1974. His greatest ride was confirming superiority over the all-time great Daniel Morelon in the Pro-Am Meet held in Hanover the same year.



John Nicholson (Australia)

At present, John Nicholson (29) is in the process of making a comeback after severe injuries sustained while racing in his native Australia.

Herman Van Springel (Belgium) rides for the renowned professional Superia Team. The 35 year old rider made his debut in 1960 and has since built up an impressive road record.
His 22 championship wins include such classics as the Bordeaux-Paris race—4 times in 1970/74/75 and 78—along with the Tour de Lombardie in 1968. Other top-line performances are 2nd placings in the World Championships (1968) and the Giro de Italy.
A consistent performer, he is always among the top points winners in the annual classic race championships held in Europe.



Herman Van Springel (Belgium)

Cees Stam (Holland) rides for the Bode Shimano Team. Over the years, Cees has proved himself to be one of the world's most consistent Motor-Paced racers. First in 1970, the flying Dutchman won the World Amateur Motor-Paced (Demi-Fond) championship. Then, when professional, he won the world championship in 1973, 1974 and 1977. Stam's remarkable record contains 87 victories as a professional and includes European Championships in 1974 and 1976.
In 1974 the Shimano sponsored racer easily smashed the World Hour Time record.

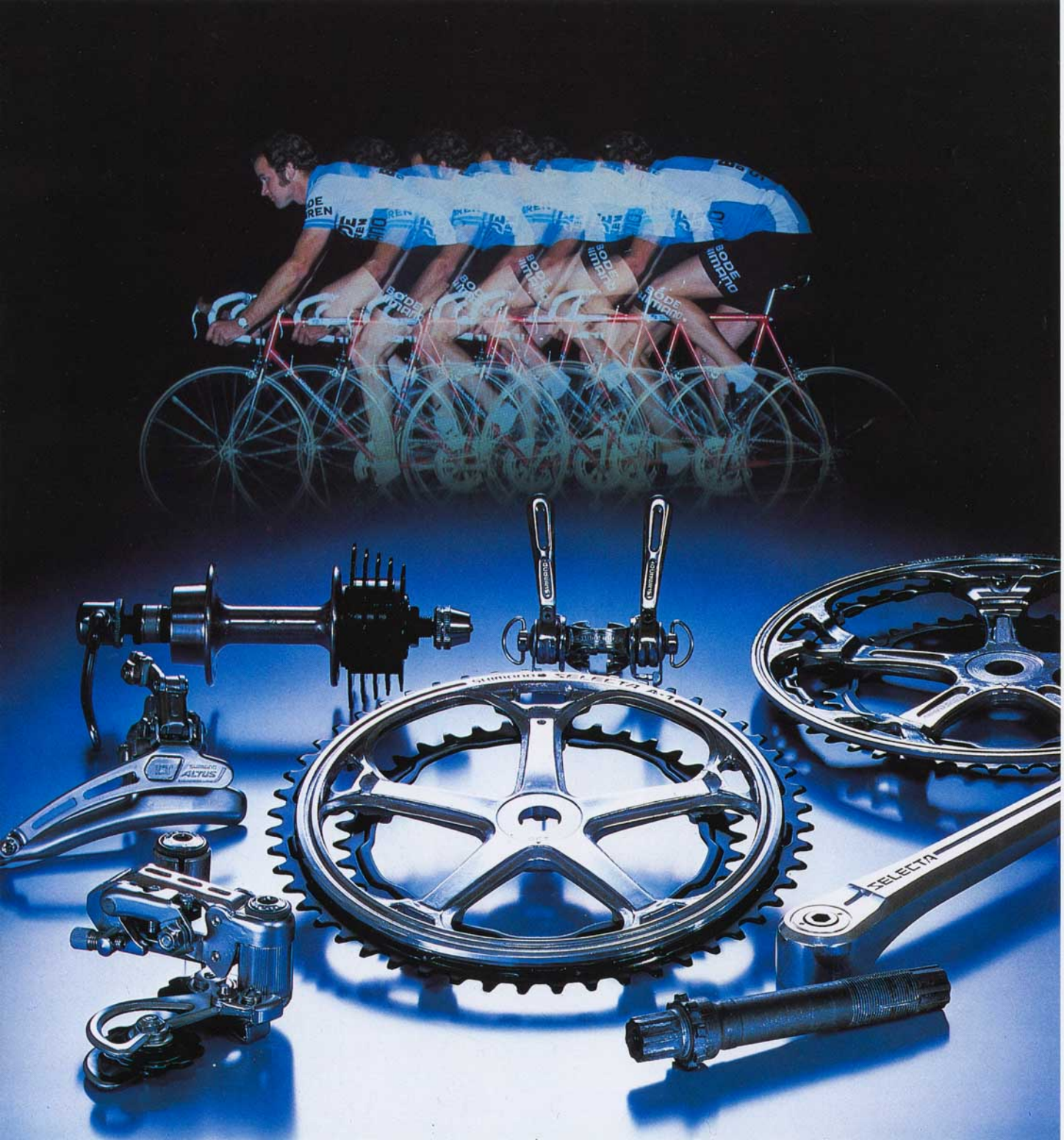


Cees Stam (Holland)

Ueli Sutter (Switzerland) celebrated turning professional in 1975 by winning the "Lausanne Grand Prix". In 1976, the Shimano rider won the "International Criteriom of Embrack" and was overall 2nd in the 1977 "Tour de Switzerland". As one of Switzerland's leading racers, the 32 year old Ueli Sutter has recorded over 30 championship wins during his career.



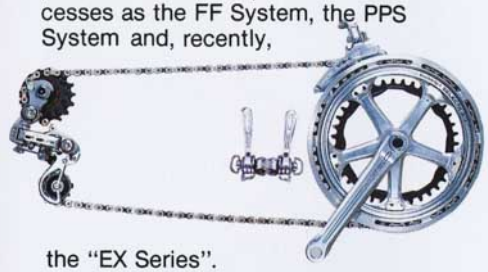
Ueli Sutter (Switzerland)



ALTUS SERIES SELECTA

The Ideal Gearshifting System! High shifting performance plus outstanding strength

At Shimano, we have constantly examined the integrated functions of the bicycle's drive train and braking system. This thorough research has been responsible for some of the bicycle's most progressive improvements. Gearshifting performances, especially, have seen vast changes. And our "System Components" philosophy, whereby all components are made to work together in perfect unison, has produced such successes as the FF System, the PPS System and, recently,



the "EX Series".

Recognising that the gearshift system plays the most important role in the development of the modern multi-speed bicycle, we have given this area a great deal of attention in order to bring the consumer easier, smoother and more accurate gearshifts.

The ALTUS REAR DERAILLEUR is another of our innovations designed to make cycling a more pleasure experience.

The secret of this system is an incredibly innovative device which we have called the CENTERON MECHANISM. It solves virtually all former problems of gearshifting.

Along with the ALTUS, we have also developed an entirely new front chainwheel system called the SELECTA. The Shimano "ALTUS/SELECTA" Series provides an excellent gearshifting system which will make the bicycle a real pleasure to ride in this modern age.

SHIMANO ALTUS/SELECTA SERIES

Rear Derailleur

Model DH-110

SHIMANO ALTUS-LT

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
Rear Largest Sprocket/30 Teeth or Less
(*30T: Use Shimano Products Only)
Weight: 9.2 oz. (262 g.)/Except Bracket
Material: Light Alloy/Bracket Body, Outer Link
: Steel/Others
Type: Servo Panta Mechanism,
Centeron Mechanism
and Hatch-Plate
Mechanism



Model DH-100

SHIMANO ALTUS-ST

SPECIFICATIONS

Capacity: Front difference/13 Teeth or Less
Rear Largest Sprocket/30 Teeth or Less
(*30T: Use Shimano Products Only)
Weight: 10.7 oz. (303 g.)/With Bracket
Material: Light Alloy/Bracket Body
: Steel/Others
Type: Servo Panta
Mechanism, Centeron
Mechanism and Hatch-
Plate Mechanism
Available by Request:
Brazed-on Type



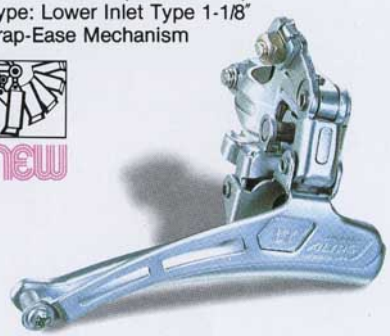
Front Derailleur

Model EF-110

SHIMANO ALTUS-LT

SPECIFICATIONS

Capacity: 14 Teeth or Less
Weight: 4.3 oz. (122 g.)
Material: Light Alloy (Body)
: Steel (Chain Guide)
Type: Lower Inlet Type 1-1/8″
Trap-Ease Mechanism



Model EF-100

SHIMANO ALTUS-ST

SPECIFICATIONS

Capacity: 14 Teeth or Less
Weight: 4.3 oz. (122 g.)
Material: Light Alloy (Body)
: Steel (Chain Guide)
Type: Lower Inlet Type 1-1/8″
Trap-Ease Mechanism



Shifting Lever

Model LF-110 (Band Type)
Model LF-160 (Brazed-on Type)

SHIMANO ALTUS-LT DOWN TUBE

SPECIFICATIONS

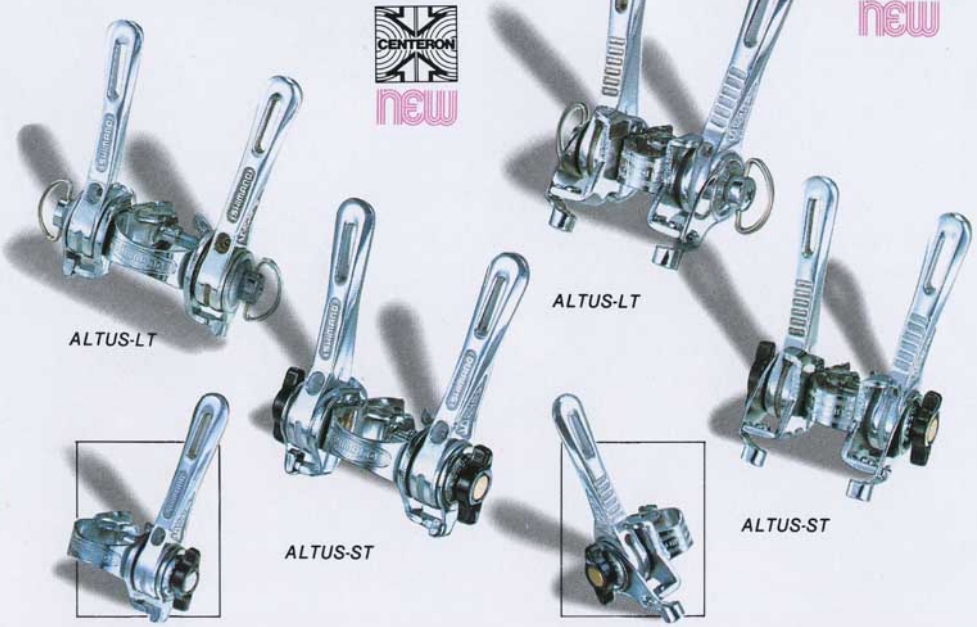
Weight: 3.0 oz. (85 g.)/Band Type
: 1.7 oz. (46.8 g.)/Brazed-on Type

Model LF-100 (Band Type)
Model LF-150 (Brazed-on Type)

SHIMANO ALTUS-LT DOWN TUBE

SPECIFICATIONS

Weight: 3.0 oz. (84 g.)/Band Type
: 1.6 oz. (45.8 g.)/Brazed-on Type
Material: Light Alloy, Steel
Type: Friction Type
Attachment Position: Down Tube
Lever Clamp Diameter: 1-1/8″
Centeron Mechanism
Use: Shimano ALTUS Rear Derailleur with
Centeron Mechanism Only



Model LC-460

SHIMANO ALTUS-ST STEM

SPECIFICATIONS

Weight: 3.3 oz. (94 g.)

Model LC-450

SHIMANO ALTUS-ST STEM

SPECIFICATIONS

Weight: 3.3 oz. (93 g.)
Material: Light Alloy, Steel
Type: Friction Type
Attachment Position: Handle Stem
Lever Clamp Diameter: 7/8″
Centeron Mechanism
Use: Shimano ALTUS Rear Derailleur with
Centeron Mechanism Only

Front Chainwheel

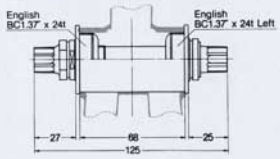
Model GH-200 (Double/without B.B. Set)
GH-210 (Double/without B.B. Set)
GB-410 (Bottom Bracket Set)

SHIMANO SELECTA-A

SPECIFICATIONS

Material: Light Alloy • Anodized Finish (Adaptor & Crank)
: Steel • Gold or Black Finish (Chain Ring)
Type: Cotterless
Chain Ring: 1/2" x 3/32" (2mm.)
Teeth: GH-200 (A-1 Type)/Inner 39T~42T, Outer 52T
: GH-210 (A-2 Type)/Inner 34T~36T, Outer 48T
Crank Lengths: 6-1/' (165mm.), 6-3/4" (170m/m)
Crank Thread: 9/16" x 20t
Cup Thread: English 1.37" x 24t, French 35 x 1.0, Italian 36 x 24t
Cassette Type Front Chainwheel, W cut Mechanism, One Key Release Mechanism, Safety Crank Arm and Octa Joint Crank

Spindle Length: [Unit: mm.]



Front Chainwheel

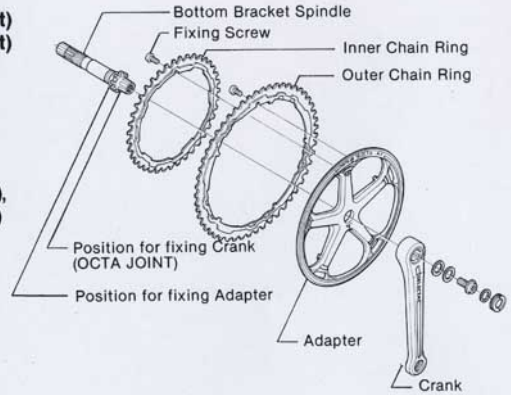
Model GH-220 (Double/without B.B. Set)
GH-230 (Double/without B.B. Set)
GB-410 (Bottom Bracket Set)

SHIMANO SELECTA-B

with Chain Protector

SPECIFICATIONS

Material: Light Alloy • Anodized Finish (Adaptor with Chain Protector & Crank),
: Steel • Black Finish (Chain Ring)
Type: Cotterless
Chain Ring: 1/2" x 3/32" (2mm.)
Teeth: GH-220 (B-1 Type)/
Inner 39T~42T, Outer 52T
: GH-230 (B-2 Type)/
Inner 34T~36T, Outer 48T
Crank Lengths: 6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread: 9/16" x 20t
Cup Thread: English 1.37" x 24t, French 35 x 1.0, Italian 36 x 24t
Cassette Type Front Chainwheel, W cut Mechanism, One Key Release Mechanism, Safety Crank Arm and Octa Joint Crank



Freehub (Small Flange)

Model HF-400 (6-speed/Quick Release)
HF-410 (5-speed/Quick Release)

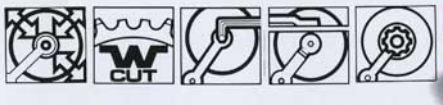
FREEHUB-SQ (FH-SQ)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish:

		Weight	Over Lock Nut Dimensions	Amount Dish
Front		8.6 oz. (245 g.)	3.94' (100 mm.)	
Rear (Except Cassette Gears)	5-speed	14.3 oz. (405 g.)	4.72' (120 mm.)	0.07' (1.75 mm.)
		14.6 oz. (415 g.)	4.88' (124 mm.)	0' (0 mm.)
	6-speed	14.6 oz. (413 g.)	4.72' (120 mm.)	0.28' (7.05 mm.)
		14.6 oz. (415 g.)	4.88' (124 mm.)	0.21' (5.3 mm.)

Material: Light Alloy • Barrel Finish
Sprocket: Black Finish
Teeth: Threaded Sprocket 13T~15T
Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Quick Release, Uni Balance Mechanism, Uniglide Freewheel, Cassette Freewheel, Sealed Mechanism
Use: With Hatch-Plate Rear Derailleur



new





A-Type



B-Type



new





Chain Protector

Model GP-300 (for A-1 Type/Resin)
GP-310 (for A-2 Type/Resin)
GP-350 (for A-1 Type/Alloy)
GP-360 (for A-2 Type/Alloy)





Freehub (Small Flange)

Model HF-800 (6-speed/Cap Nut)
HF-810 (5-speed/Cap Nut)
Model HF-820 (6-speed/Nut)
HF-830 (5-speed/Nut)

FREEHUB-SK FREEHUB-SN

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish:

		Weight FH-SK	Weight FH-SN	Over Lock Nut Dimensions	Amount of Dish
Front		6.7 oz. (190 g.)	6.3 oz. (180 g.)	3.94" (100 mm.)	—
Rear (Except Cassette Gears)	5-speed	13.6 oz. (386 g.)	12.8 oz. (364 g.)	4.88" (124 mm.)	0" (0 mm.)
	6-speed	13.6 oz. (386 g.)	12.8 oz. (364 g.)	4.88" (124 mm.)	0.21" (5.3 mm.)

Material: Light Alloy • Buff Finish
Sprocket: Black Finish
Teeth: Threaded Sprocket 13T~15T
Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Uni Balance Mechanism, Uniglide Freewheel, Cassette Freewheel, Sealed Mechanism
Use: With Hatch-Plate Rear Derailleur

UNIGLIDE
SEALED
new



Freehub-SK





Freehub-SN

Multiple Freehub

Model HF-700 (6-speed/Small Flange)

FREEHUB-6II (FH-6II)

Model HF-710 (6-speed/Small Flange)

FREEHUB-5II (FH-5II)

SPECIFICATIONS

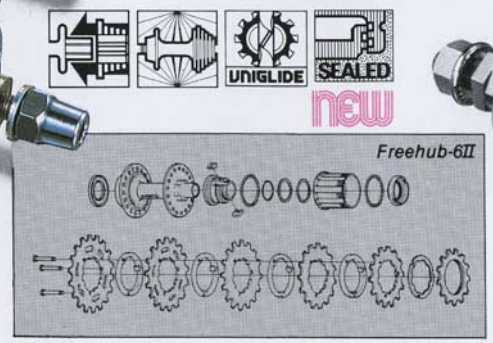
Material: Steel
Sprocket: Black Finish
Over Lock Nut Dimensions • Amount of Dish:

		Over Lock Nut Dimension	Amount of Dish
Front		3.94" (100 mm)	
Rear (Except Cassette Gears)	6-speed	4.88" (124 mm)	0.21" (5.3 mm)
	5-speed	4.88" (124 mm)	0" (0 mm)

Teeth: Thread Sprocket 13T~15T
: Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Cassette Freewheel, Uni Balance Mechanism, Uniglide Freewheel, Sealed Mechanism
Use: With Exclusive Rear Derailleur (SHIMANO-RS, ALTUS) Only



UNIGLIDE
SEALED
new



Freehub-6II

Model HF-600 (6-speed/Small Flange)

FREEHUB-6A(FH-6A)

Model HF-610 (5-speed/Small Flange)

FREEHUB-5A(FH-5A)

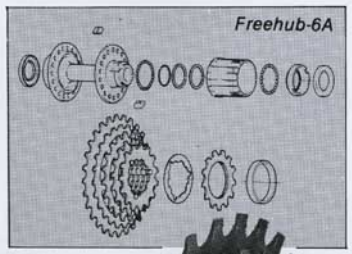
SPECIFICATIONS

Material: Steel
Sprocket: Black Finish
Over Lock Nut Dimensions • Amount of Dish:

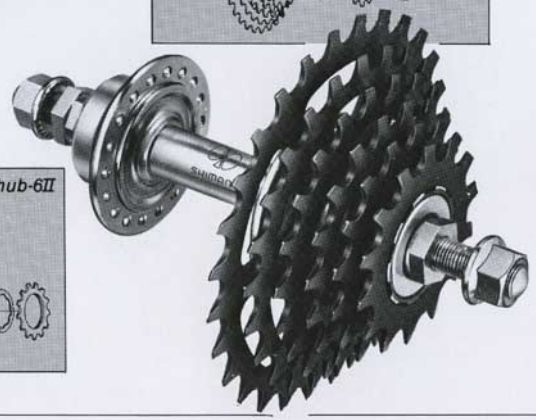
		Over Lock Nut Dimension	Amount of Dish
Front		3.94" (100 mm)	
Rear (Except Cassette Gears)	6-speed	4.88" (124 mm)	0.21" (5.3 mm)
	5-speed	4.88" (124 mm)	0" (0 mm)

Teeth: Thread Sprocket 13T~15T
: Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Uni Balance Mechanism, Uniglide Freewheel, Sealed Mechanism
Use: With Exclusive Rear Derailleur (SHIMANO-RS, ALTUS) Only

UNIGLIDE
SEALED
new



Freehub-6A



PROTECTOR

Model PF-200 (For 26")

FREEHUB PROTECTOR

SPECIFICATIONS

Diameter: 5" (127mm.)
Material: Steel & Resin
Use: Small Flange Hub 36H
Use Range: Low Sprocket 24T~28T



Model PF-150

FREEHUB PROTECTOR

SPECIFICATIONS

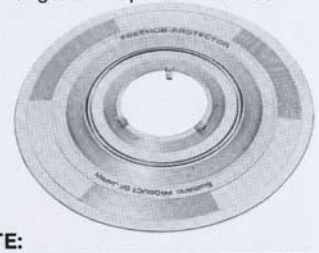
Diameter: 5.4" (137)
Material: Resin
Use Range: Low Sprocket 24T~26T

Model PF-130

FREEHUB PROTECTOR

SPECIFICATIONS

Diameter: 7-1/2" (190mm.)
Material: Resin
Use Range: Low Sprocket 28T~30T



NOTE:

- The chart illustrates ideal combinations with regard to product classifications. However, these components are interchangeable unless otherwise stated.
- Use the Altus shifting lever only with Altus rear derailleur. The Altus rear derailleur can be used separately but the "Centeron Mechanism" will not function.
- Use the Freehub (SQ, SK, SN) only with the Shimano "Hatch-Plate" rear derailleur.



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.

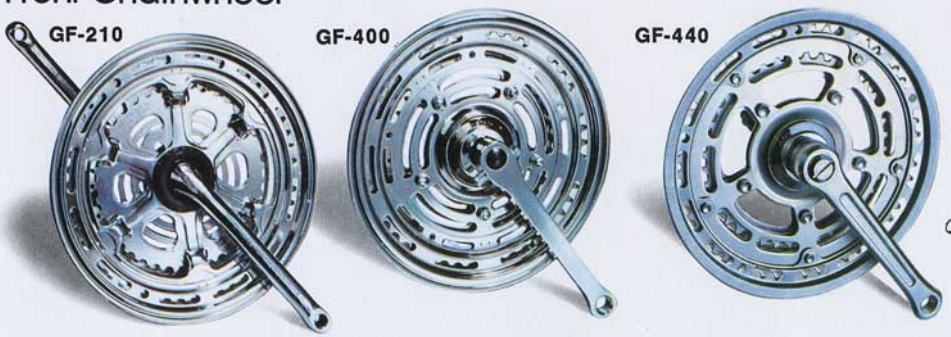
The FF System is the result of Shimano's research on the problems of 10-speed gear-changes. The 10-speed bicycle has gained prominence as a recreational and transportational vehicle. Both young and old enjoy the convenience of multi-speeds, but many new riders have difficulty shifting correctly.

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

FRONT FREEWHEELING
FF
SYSTEM

FF SYSTEM

Front Chainwheel



For One-piece Crank
DOUBLE CHAINWHEEL
Model GF-210
INTEGER
SPECIFICATIONS
Use: FF System Only
Material: Steel
Standard Sprocket Teeth:
Inner Chain Ring 39T
Outer Chain Ring 52T
Chain Ring: 1/2″x 3/32″ Chain (2mm.)
Without Bottom Bracket Set and Crank
available SINGLE CHAINWHEEL

Bottom Bracket Set
(Freewheel Mechanism)
Model GG-100
SPECIFICATIONS
Type: One-Piece Crank
Material: Steel

For Three-Piece Crank
DOUBLE CHAINWHEEL
Model GF-400
SPECIFICATIONS
Use: FF System Only
Material: Steel
Standard Sprocket Teeth:
36T-48T • 40T-52T
Chain Ring: 1/2″ x 3/32″ Chain (2mm.)
Without Bottom Bracket Set and Crank

DOUBLE CHAINWHEEL
Model GF-410
INTEGER
SPECIFICATIONS
Use: FF System Only
Material: Steel
Standard Sprocket Teeth:
Inner Chain Ring 39T
Outer Chain Ring 52T
Chain Ring: 1/2″ x 3/32″ Chain (2mm.)
Without Bottom Bracket Set and Crank

DOUBLE CHAINWHEEL
Model GF-420
SPECIFICATIONS
Use: FF System Only
Material: Steel
Standard Sprocket Teeth:
Inner Chain Ring 40T
Outer Chain Ring 52T
Chain Ring: 1/2″ x 3/32″ Chain (2mm.)
Without Bottom Bracket Set and Crank

DOUBLE CHAINWHEEL
Model GF-440
SPECIFICATIONS
Use: FF System Only
Material: Outer Chain Ring/Light Alloy, Inner Chain Ring & Protector/Steel
Standard Sprocket Teeth: Inner Chain Ring 40T
Outer Chain Ring 52T
Chain Ring: 1/2″ x 3/32″ Chain (2mm.)
Without Bottom Bracket Set & Crank
available SINGLE CHAINWHEEL

Bottom Bracket Set & Crank
Model GG-200, GG-210
SPECIFICATIONS
Type: Three-Piece Crank, Cottered
Crank Length: 6-1/2″ (165mm.)
Cup Thread: 1.37″ x 24 T.P.I.
Material of Crank:
Steel (Model GG-200)
Light Alloy(Model GG-210)



Model GG-320
SPECIFICATIONS
Type: Three-Piece Crank, Cotterless
Crank Length: 6-1/2″ (165mm.)
Cup Thread: 1.37″ x 24 T.P.I.
Material of Crank: Light Alloy
Spindle Taper Angle: 3 Degrees



Bottom Bracket Set & OCTA Joint Crank
Model GG-420
SPECIFICATIONS
Crank Length 6-1/2″ (165mm.), 6.7″ (170mm.)
Cup Thread 1.37″ x 24T.P.I.
Material of Crank: Light Alloy
OCTA Joint Crank

new



Rear Derailleur
Model DC-400F
SHIMANO-400FF
SPECIFICATIONS
Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 11.1oz. (315g.)
Material: Light Alloy and Steel
Type: Servo Panta Mechanism with Pre-Select



Model DE-100F
EAGLE-II

Model DD-100F
LARK-II

*See Page 50

Model FF-300
UNIGLIDE FRICTION FREEWHEEL
SPECIFICATIONS
Use: FF System Only
Standard Sprocket: 1/2″ x 3/32″ Chain (2mm.)
Thread: 1.37″ x 24 T.P.I.
Standard Sprocket Combinations:

5-speed	14, 17, 20, 24, 28T
	14, 17, 21, 26, 32T

UNIGLIDE



NEW POSITRON
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.

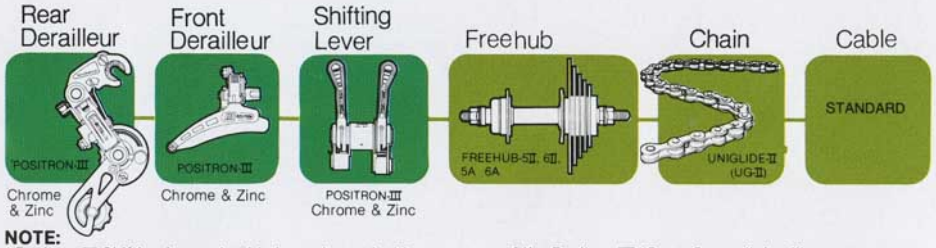
The all new PPS (Positive Pre-Select) System is the perfect answer, to trouble-free multi-speed cycling.

POSITRON
PRE-SELECT

PPS SYSTEM

POSITRON-III SYSTEM COMPONENTS

Positron-III is based on an entirely new concept of using the Positive Mechanism in the shifting lever instead of in the rear derailleur. This has allowed the use of the economically viable conventional pull cable. With the derailleur body streamlined for further cost effectiveness. Also featured is the new "Servo-Sensor Mechanism" located in the rear derailleur which stabilizes each gear change. Once set, gearshifts can be made with utmost reliability. Positron-III is a gearshifting system which anyone, beginner or otherwise, can operate easily, surely and safely.



NOTE:
* Positron-III Shifting Lever should always be wed with Positron-III Rear Derailleur.
* Positron-III Shifting Lever should only be used with a Shimano Freehub because of gearshift pitch differences with other models.
* In order to obtain top performance and long durability of the Positron-III "Servo-Sensor" derailleur, we strongly recommend the use of the Uniglide Chain.
* Gearshifts directly from top to low gear should be made in two stages (1st to 3rd and then to 5th or 6th) for completely reliable results.
* Positron-III is not suitable for use with FF System.

POSITRON-II SYSTEM COMPONENTS

Positron-II features Shimano's original Positive Mechanism situated in the rear derailleur. This system is still the best of its kind when it comes to pre-selection of gears. The use of the push-pull cable ensures a constant pressure level at all times for accurate gearshifts and longer service life.



NOTE:
* Positron-II is not interchangeable with Positron-III
* Positron-II used with FF System is a perfect combination.

POSITRON-III

Rear Derailleur

Model EE-200

POSITRON-III Chrome

Use: Positron-III Shifting Lever
Capacity: Front Difference/
13 Teeth or Less
: Rear Largest Sprocket/
30 Teeth or Less (FH-5A. 6A. 6II),
28 Teeth or Less (FH-5II)
Weight: 11.6 oz. (330g)
Material: Steel • Chromium Finish
Type: Servo Sensor Mechanism and Pre-Select Mechanism



new

Model EE-210

POSITRON-III Zinc

Use: Positron-III Shifting Lever
Capacity: Front Difference/
13 Teeth or Less
: Rear Largest Sprocket/
30 Teeth or Less (FH-5A. 6A. 6II),
28 Teeth or Less (FH-5II)
Weight: 11.6 oz. (330g)
Material: Steel • Zinc Finish
Type: Servo Sensor Mechanism and Pre-Select Mechanism



new

Front Derailleur

Model DG-400

POSITRON-III Chrome

Use: Positron-III Shifting Lever and Positron 10-S Console Lever
Capacity: 14 Teeth or Less
Weight: 6.1 oz. (173g)
Material: Steel • Chromium Finish
Type: Pre-Select Mechanism and Trap-Ease Mechanism Lower
Inlet Type 1-1/8"



new

Model DG-410

POSITRON-III Zinc

Use: Positron-III Shifting Lever
Capacity: Front Difference/
14 Teeth or Less
: Rear Largest Sprocket/
28 Teeth or Less
Weight: 6.1 oz. (173g)
Material: Steel • Zinc Finish
Type: Servo Sensor Mechanism and Pre-Select Mechanism



new

Shifting Lever

Model LG-200

POSITRON-III Chrome

Use: Positron-III Rear Derailleur Only
Material: Resin and Steel
Type: Positive Mechanism with Casing
: Double Lever
Attachment Position: Handle Stem
Lever Clamp Diameter: 7/8"



Model LG-210

POSITRON-III Zinc

Use: Positron-III Rear Derailleur Only
Material: Resin and Steel
Type: Positive Mechanism
: Double Lever
Attachment Position: Handle Stem
Lever Clamp Diameter: 7/8"



Freehub

Model HF-700 (Small Flange/6-speed)

FREEHUB-6II (FH-6II)

Model HF-710 (Small Flange/5-speed)

FREEHUB-5II (FH-5II)

See Page 55



Model HF-600 (Small Flange/6-speed)

FREEHUB-6A (FH-6A)

Model HF-710 (Small Flange/5-speed)

FREEHUB-5A (FH-5A)

See Page 55



POSITRON-II

Rear Derailleur

Model DG-200

POSITRON-II

SPECIFICATIONS

Use: PPS System Only
Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 10.9 oz. (310 g.)
Material: Steel
Type: Positive Mechanism with Pre-Select Mechanism and Servo Panta Mechanism



Model DG-300

POSITRON-400

SPECIFICATIONS

Use: PPS System Only
Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket /28 Teeth or Less
Weight: 11.3 oz. (320 g.)
Material: Light Alloy • Steel
Type: Positive Mechanism with Pre-Select Mechanism and Servo Panta Mechanism



Model DG-210

POSITRON-EM

SPECIFICATIONS

Use: PPS System & FF System Only
: POSITRON-EM Lever Only
Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/32 Teeth or Less
Weight: 10.9 oz. (310 g.)
Material: Steel
Type: Positive Mechanism with Pre-Select Mechanism and Servo Panta Mechanism



Shifting Lever

Model LE-420

POSITRON 10-S CONSOLE

SPECIFICATIONS

Use: With PPS System 10-speed Only
Material: Resin (Body)
Weight: 13.1 oz. (370 g.)
Type: Click
: Double Function Single Lever (With Inner Clutch)
Attachment Position: Top Tube
Lever Clamp Diameter: 1″

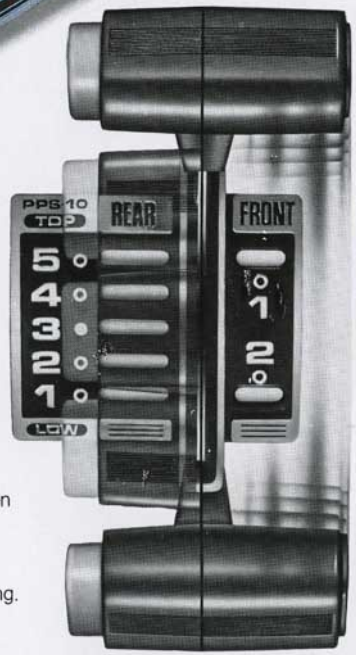




Assembly Conditions:
The Positron 10-s console lever consists of the Positron-II and the Positron 400 for the rear derailleur; and the Positron Front Derailleur for the front derailleur.

Features of PPS-10s:

1. Conventional console levers could change gears only with the rear derailleur, but the PPS-10s can change gears both with the front and rear derailleur.
2. Shifting gears with the 10-speed console lever is a simple operation. The rear derailleur gear change is made in the normal way as with a conventional lever. The front derailleur gear change is made by simply pushing a lever knob, positioned on the lever handle, when shifting. All gear shifting is within easy reach of the rider's hand, so there is no more dangerous groping for the shift lever while riding. Complete safety is ensured at all times.





POSITRON Rear Derailleur



POSITRON Front Derailleur

Shifting Lever

Model LE-410

POSITRON CONSOLE-II

SPECIFICATIONS

Use: PPS System Only
Material: Resin (Body)
Type: Click
: Single Lever
Attachment Position: Top Tube
Lever Clamp Diameter: 1″



Model LD-600

POSITRON-EM

SPECIFICATIONS

Use: PPS System Only
: POSITRON-EM Rear Derailleur Only
Type: Friction Type
Attachment Position: Handle-Bar
Lever Clamp Diameter: ϕ22.2mm.

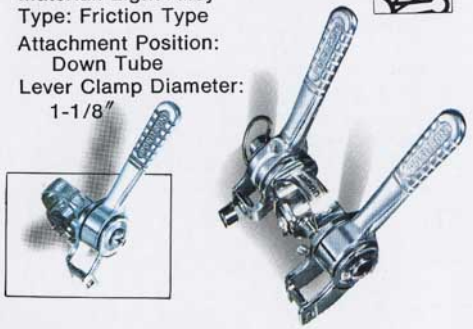


Model LB-700

POSITRON DOWN TUBE

SPECIFICATIONS

Use: PPS System Only
Material: Light Alloy
Type: Friction Type
Attachment Position: Down Tube
Lever Clamp Diameter: 1-1/8″



Model LC-410

POSITRON STEM

SPECIFICATIONS

Use: PPS System Only
Material: Resin
Type: Friction Type
Attachment Position: Handle Stem
Lever Clamp Diameter: 7/8″



Cable

PUSH-PULL CABLE



SHIMANO rear derailleur

REAR DERAILLEUR

The Centeron Mechanism has been standardized and equipped on the RS Rear Derailleur and LS and LE Shifting Levers. The result is a natural and quiet gearshift without any of the problems normally associated with multi-speed bicycles. The Centeron Mechanism is a unique method of centering the chain on the sprockets by using the natural force of the chain's tension. A special arm attached to the rear derailleur and synchronized with the shifting lever allows the chain enough latitude to follow a natural line when making a gear change. This is sufficient to center the chain on the chosen sprocket without time-consuming fine-lever adjustment.

Rear Derailleur

Model DH-500

SHIMANO-RS Chrome

Model DH-510

SHIMANO-RS Zinc

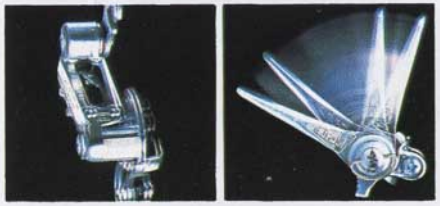
SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 10.9 oz. (308g.)
Material: Steel
Type: Servo Panta Mechanism, Centeron Mechanism
Use: Uni Balance Freehub



Features:

1. Shimano's new Centeron Mechanism uses chain tension to automatically center each gear change!
2. Immediate gearshifting response!
3. Durability increased because of reduced friction!
4. Irritating noises minimized for quieter and smoother gear changes!
5. Fine lever adjustment is no longer required after gear changes!
6. Reliable and accurate gear changes!



NOTE:
* Use the Shimano LS and LE Shifting Levers only with Shimano RS Rear Derailleur.
* The RS Rear Derailleur can be used separately but the Centeron Mechanism will not function.

Shifting Lever

Model LC-600

SHIMANO-LE

Model LF-200

SHIMANO-LS

See Page 53



SHIMANO-LS *SHIMANO-LE*

Model DC-100

SHIMANO-500

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 10.6 oz. (300 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism



Model DC-110

SHIMANO-500GS

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 11.5 oz. (325 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism



Model DC-400

SHIMANO-400

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 10.5 oz. (298 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism



Model DC-410

SHIMANO-400GS

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 10.3 oz. (292 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism



Model DB-600

TITLIST

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 8.3 oz. (235 g.)
Material: Light Alloy (Body), Steel (Cage Plate)
Type: Servo Panta Mechanism



Model DB-610

TITLIST-GS

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 8.8 oz. (250 g.)
Material: Light Alloy (Body), Steel (Cage Plate)
Type: Servo Panta Mechanism



Model DB-400

TOURNEY

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Weight: 10.5 oz. (298 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism



Model DB-410

TOURNEY-GS

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 10.3 oz. (292 g.)
Material: Light Alloy • Steel
Type: Servo Panta Mechanism

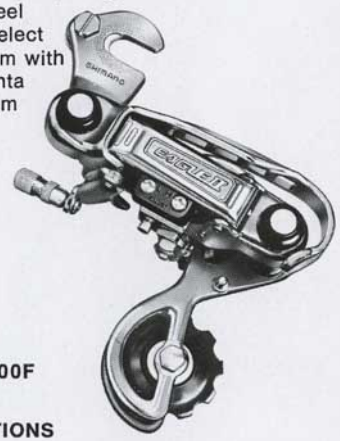


Model DE-100F

EAGLE-II

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 12.3 oz. (350 g.)
Material: Steel
Type: Pre-Select Mechanism with Servo Panta Mechanism



Model DD-100F

LARK-II

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 10.5 oz. (298 g.)
Material: Steel
Type: Pre-Select Mechanism with Servo Panta Mechanism



Model DD-510

SKY LARK

SPECIFICATIONS

Capacity: Front Difference/14 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Weight: 10.3 oz. (292 g.)
Material: Steel
Type: Servo Panta Mechanism

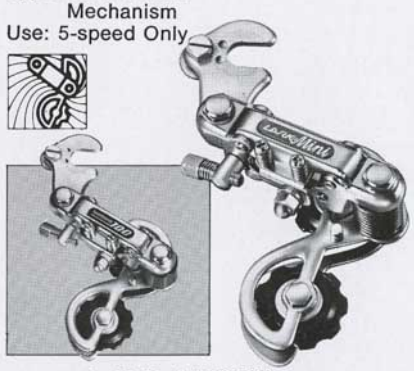


Model DD-400

LARK-MINI

SPECIFICATIONS

Capacity: Rear Largest Sprocket/28 Teeth or Less
Weight: 6.6 oz. (187 g.)
Material: Steel
Type: Servo Panta Mechanism
Use: 5-speed Only



SHIMANO-100 (Model DC-300)

SHIMANO front derailleur

FRONT DERAILLEUR

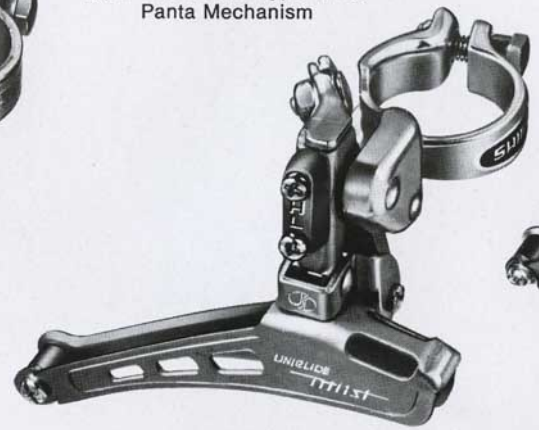
Model EC-500
SHIMANO-500
SPECIFICATIONS
Capacity: 14 Teeth or Less
Weight: 5.6 oz. (160 g.)
Material: Steel • Satin Nickel Finish
Type: Lower Inlet Type 1″, 1-1/8″
Panta Mechanism



Model EC-400
SHIMANO-400
SPECIFICATIONS
Capacity: 14 Teeth or Less
Weight: 5.6 oz. (160 g.)
Material: Steel
Type: Lower Inlet Type 1″, 1-1/8″
Panta Mechanism



Model EB-200
TITLIST
SPECIFICATIONS
Capacity: 14 Teeth or Less
Weight: 4.7 oz. (133 g.)
Material: Steel • Satin Nickel Finish (Body and Chain Guide)
Light Alloy • Anodized Finish (Clamp)
Type: Lower Inlet Type 1-1/8″
Panta Mechanism

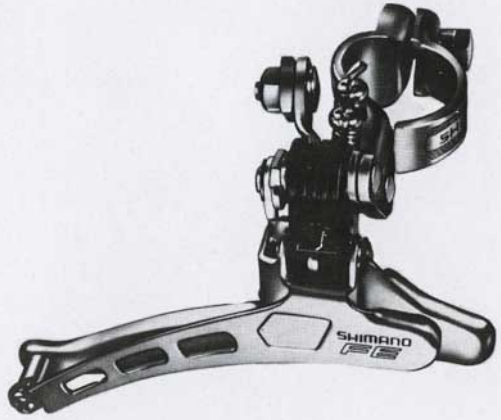


Model ED-300
THUNDER BIRD-II
SPECIFICATIONS
Capacity: 16 Teeth or Less
Weight: 6.3 oz. (179 g.)
Material: Steel
Type: Lower Inlet Type 1″, 1-1/8″
Panta Mechanism



Model ED-400
SHIMANO-FE Chrome
Model ED-410
SHIMANO-FE Zinc
SPECIFICATIONS
Capacity: 14 Teeth or Less
Weight: 6.1 oz. (173 g.)
Material: Steel
Type: Lower Inlet Type 1″, 1-1/8″
Panta Mechanism and Trap-Ease Mechanism

new





FREEWHEEL

Model FG-100

UNIGLIDE FREEWHEEL

SPECIFICATIONS

Material • Surface Treatment:
Steel • Black Finish/Satin Nickel Finish
Standard Sprocket: 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



Features of the UG Freewheel:

1. The newly innovated "Twist" sprocket teeth engage the chain's movement accurately by guiding the chain correctly into position. This results in a surer, faster gear change.
2. Because the gear teeth engage the chain quickly and surely, the need for overshifting is eliminated.
3. The chain does not slip over the gear teeth, and irritating noise is eliminated. Quiet and smooth gearshifting can be enjoyed.
4. Even when climbing uphill, accurate speed changes are now possible.



Model FC-300 (Standard)

MULTIPLE FREEWHEEL

SPECIFICATIONS

Standard Sprocket: 1/2″ x 3/32″ Chain
1/2″ x 1/8″ Chain
(3B1•4B1)
Thread: 1.37″ x 24T.P.I.

STANDARD TYPE

Type	Standard Sprocket Combinations
3B1	16T · 19T · 24T
4B1	15T · 17T · 20T · 24T
4B2	15T · 17T · 20T · 24T
5BS	15T · 17T · 19T · 21T · 24T
5BS-NT	14T · 17T · 19T · 21T · 24T
5BW	14T · 17T · 20T · 24T · 28T
5BC	14T · 16T · 18T · 20T · 22T

GOLD TYPE

Type	Standard Sprocket Combinations
5BW GOLD	14T · 17T · 20T · 24T · 28T
5AUS GOLD	14T · 17T · 22T · 28AT · 34AT

(A: Alternate Tooth Sprocket)

ALTERNATE TOOTH SPROCKET TYPE

Type	Standard Sprocket Combinations
5AW	14T · 17T · 20T · 24T · 28AT
5AUW	14T · 17T · 21T · 26AT · 32AT
5AUS	14T · 17T · 22T · 28AT · 34AT

(A: Alternate Tooth Sprocket)



Model FB-100

SINGLE FREEWHEEL

SPECIFICATIONS

Thread: 1.37″ x 24 T. P. I.

Sprocket:

1/2″ x 1/8″ x 16 teeth	1/2″ x 1/8″ x 20 teeth
1/2″ x 1/8″ x 18 teeth	1/2″ x 1/8″ x 21 teeth
1/2″ x 1/8″ x 19 teeth	

SHIMANO uniglide chain

UNIGLIDE CHAIN

SHIMANO shifting lever

MULTI-

The Revolutionary Chain that Shifts Better in Every Way——— Uniglide Chain



Model QA-200

UNIGLIDE-II (UG-II)

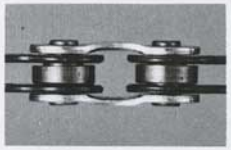
SPECIFICATIONS

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

● Quick: Sure Gearshifting: No Need to Overshift

The outerplates of the Uniglide chain have been widened, making gear engagement easier and faster. It also keeps the Uniglide chain from slipping over the teeth of the desired gear, so that overshifting is completely unnecessary.

Uniglide Chain





1. The chain moves smoothly off the sprocket and quickly onto the next larger gear.



2. The widened outerplate enables the chainpins to hit the gear teeth at the same time the teeth of the larger gear hit the outerplate.



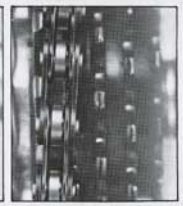
3. The chain quickly and surely engages the sprocket teeth, so no overshifting is needed.

Conventional Chain

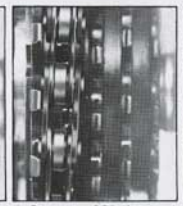




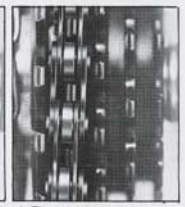
1. The chain moves awkwardly off the teeth, delaying contact with the next gear.



2. The outerplate rests on the adjacent larger gear teeth.



3. Because of friction between the outerplate and gear, the chain slips, necessitating an overshift.



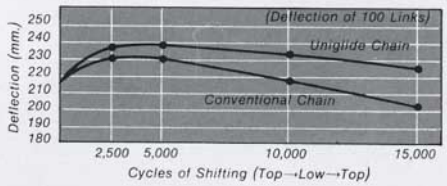
4. The uneven gear change puts unwarranted wear and tear on the chain and sprockets.

The Uniglide chain is designed expressly for increasing the efficiency and response of a multi-speed bicycle chain. It was developed on Shimano's "System Component" principle. The UG chain's many innovative features created excitement throughout the bicycle industry as a brand new chain to meet the needs of the multi-speed bicycle age.

● Stable Deflection

Stable deflection is indispensable if the chain is to respond to the complex gear movements of multi-speed bicycles. Graph 1 below shows the deflection results of a UG chain and a conventional chain after repeated shifts. Generally, deflection is stable after shifting 2,500 times, while after 5,000 shifts deflection decreases, impeding the lateral motion necessary for shifting. As can be seen in the graph, the deflection of a Uniglide chain is much smaller than that of a conventional chain producing a gearshift performance which is extremely stable.

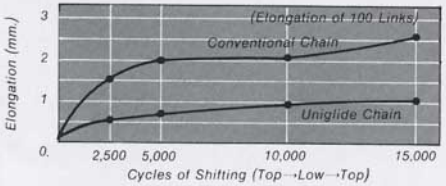
Graph. 1: Deflection of Chain After Repeated Gear Shifts



● Minimal Elongation

The extent of chain elongation from gearshifting has a pronounced effect on the service life of a chain. As shown in Graph 2, the Uniglide chain stretches only half as much as a conventional chain, more than doubling its durability.

Graph. 2: Elongation of Chain After Repeated Gear Shifts



Model LC-600

SHIMANO-LS

SPECIFICATIONS

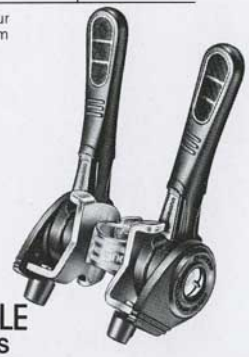
Material: Resin
Type: Friction
: Centeron Mechanism
Use: Rear Derailleur with Centeron Mechanism Only

	Attachment Position	Clamp Diameter
Double Lever Single Lever	Handle Stem	7/8"

*Use with Rear Derailleur W/Centeron Mechanism

CENTERON

new



Model LF-200

SHIMANO-LE

SPECIFICATIONS

Material: Light Alloy
Type: Friction Type
: Centeron Mechanism
Use: Rear Derailleur with Centeron Mechanism Only

	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8"
	Handle Stem	7/8"
Single Lever	Down Tube	1-1/8"
	Handle Stem	7/8"

*Use with Rear Derailleur W/Centeron Mechanism

CENTERON

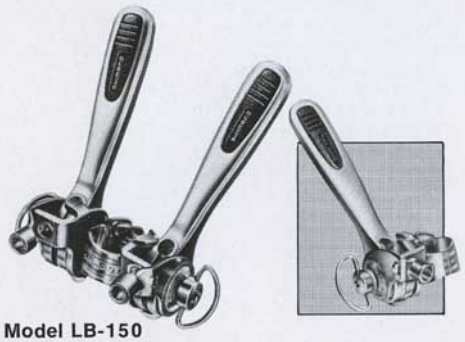
new



SPEED SHIFTING LEVER

Model LB-160
QB-LEVER
SPECIFICATIONS
Material: Light Alloy
Type: Friction Type

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″
Single Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



Model LB-170
QP-LEVER
SPECIFICATIONS
Material: Resin
Type: Friction Type

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″
Single Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



Model LB-400
FINGER-TIP
SPECIFICATIONS
Material: Light Alloy
Type: With Spiral Spring (Balance Spring)

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



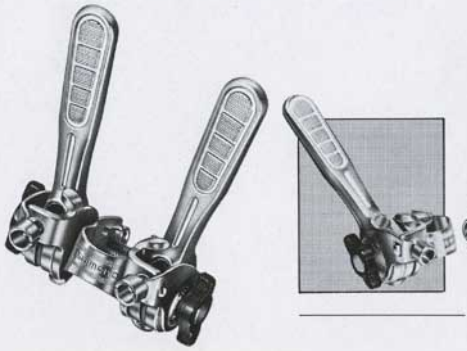
Model LB-300
SUPER SHIFTER
SPECIFICATIONS
Material: Light Alloy
Type: One Way Clutch

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



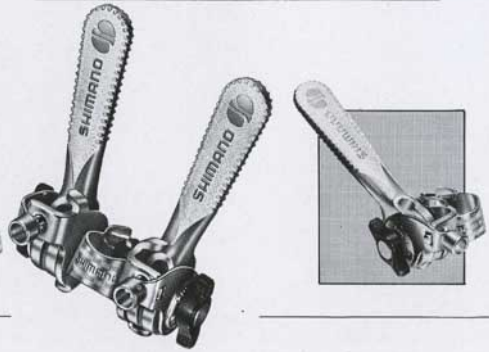
Model LB-150
QS-LEVER
SPECIFICATIONS
Material: Light Alloy
Type: Friction Type

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″
Single Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



Model LB-100
ALMI-LEVER
SPECIFICATIONS
Material: Light Alloy
Type: Friction Type

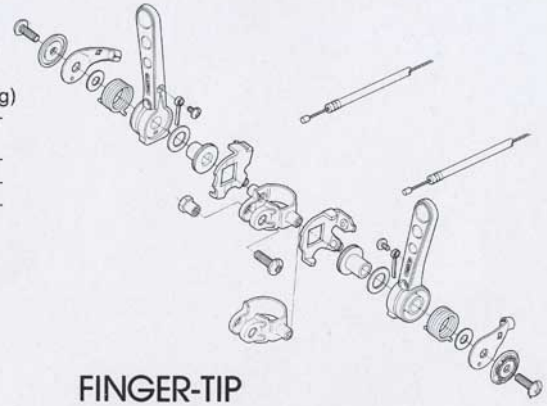
Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″
Single Lever	Down Tube	1-1/8″
	Handle Stem	0.833″



Model LB-200
UNI-SHIFT
SPECIFICATIONS
Material: Light Alloy
Type: One Way Clutch (With Spiral Spring)

Type	Attachment Position	Clamp Diameter
Double Lever	Down Tube	1-1/8″
	Handle Stem	0.833″





FINGER-TIP
The lever with the spiral spring is epoch-making with its function of offsetting the derailleur spring resistance. The lever is operated easily, effectively and swiftly.

SHIMANO freehub

Single FREEHUB

The Freehub is so named because it combines the freewheel and hub into one component. It is stronger, smaller, lighter, and more economical than any conventional hub with freewheel. In addition, it eliminates assembly work. By combining the rear freewheel and hub into one body, the freehub unit has more strength than when the components are independently assembled. Also, it is much lighter and more compact. The Freehub weighs only 63% of the combined weight of a conventional hub and freewheel. Because the freehub is a single unit, the conventional number of rear gear small sprocket teeth has been further reduced, resulting in a corresponding reduction of the number of front gear teeth, contributing to the overall weight reduction of the bicycle.

Shimano's new Freehub, by integrating the freewheel and the hub, has improved strength and durability manifold. It has also succeeded in eliminating disturbing lateral movement, when loosening takes effect, resulting in even smoother rotation of the freewheel.

Features of the Type-C Freehub

1. Weighs only 470g.
2. An ideal size for children's bicycles.
3. Can be fitted with gears with less teeth (14T), making a smaller front gear assembly possible.
4. High strength at a reasonable price.
5. Elimination of assembly work.
6. "For children's use" is clearly marked on the product.

Model HE-400

FREEHUB-C (FH-C)

SPECIFICATIONS

Material: Steel
Type: Small Flange Hub
Weight: 16.9 oz. (480 g.)
Over Lock Nut Dimensions: 4.5″ (114mm.)
Spoke Holes: 20H, 28H,
Sprocket Combinations: 14T
Standard Sprocket: 1/2″ x 1/8″ Chain

Features of the Type-A Freehub

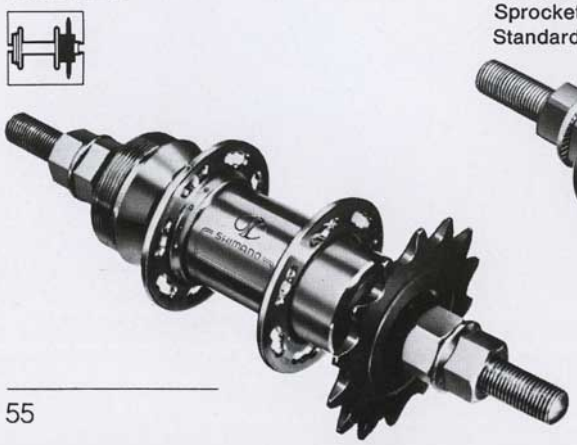
1. Weight reduction of about 27%.
2. Enhanced compactness, following the trend towards more compact bicycles.
3. Can be fitted with gears with fewer teeth, making a smaller front gear assembly possible.
4. Assures light and smooth rotation, as there are no screws to come loose.
5. Increased strength and safety.
6. More economical. 30% less material is used, and no assembly work is necessary.

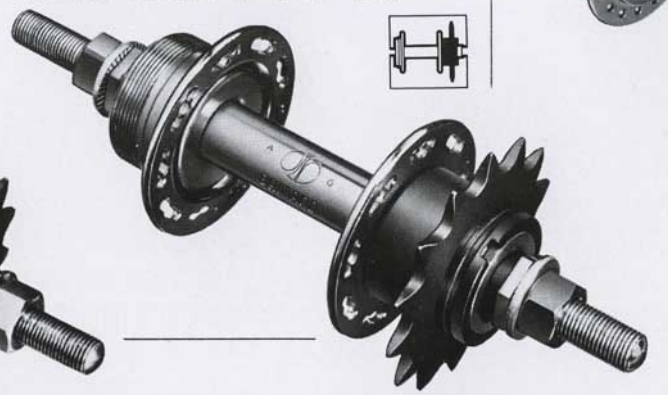
Model HE-300

FREEHUB-A (FH-A)

SPECIFICATIONS

Material: Steel
Type: Small Flange Hub
Weight: 16.9 oz. (480 g.)
Over Lock Nut Dimension: 4.5″ (114mm.)
Spoke Holes: 20H, 28H, 36H
Sprocket Combinations: 14T, 18T
Standard Sprocket: 1/2″ x 1/8″ Chain





SHIMANO freehub

Multiple FREEHUB

Multiple Freehub

Model HF-700 (6-speed/Small Flange)

FREEHUB-6II (FH-6II)

Model HF-710 (6-speed/Small Flange)

FREEHUB-5II (FH-5II)

SPECIFICATIONS

Material: Steel
Sprocket: Black Finish
Over Lock Nut Dimensions • Amount of Dish:

		Over Lock Nut Dimension	Amount of Dish
Front		3.94″ (100 mm)	
Rear (Except Cassette Gears)	6-speed	4.88″ (124 mm)	0.21″ (5.3 mm)
	5-speed	4.88″ (124 mm)	0″ (0 mm)

Teeth: Thread Sprocket 13T~15T
: Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Cassette Freewheel, Uni Balance Mechanism, Uniglide Freewheel, Sealed Mechanism
Use: With Exclusive Rear Derailleur (SHIMANO-RS, ALTUS) Only

UNIGLIDE new

Model HF-600 (6-speed/Small Flange)

FREEHUB-6A (FH-6A)

Model HF-610 (5-speed/Small Flange)

FREEHUB-5A (FH-5A)

SPECIFICATIONS

Material: Steel
Sprocket: Black Finish
Over Lock Nut Dimensions • Amount of Dish:

		Over Lock Nut Dimension	Amount of Dish
Front		3.94″ (100 mm)	
Rear (Except Cassette Gears)	6-speed	4.88″ (124 mm)	0.21″ (5.3 mm)
	5-speed	4.88″ (124 mm)	0″ (0 mm)

Teeth: Thread Sprocket 13T~15T
: Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Uni Balance Mechanism, Uniglide Freewheel, Sealed Mechanism
Use: With Exclusive Rear Derailleur (SHIMANO-RS, ALTUS) Only

UNIGLIDE new



*Use FREEHUB-6II, 5II, 6A and 5A with the exclusive rear derailleur (SHIMANO-RS etc.).

SHIMANO hub Small & Large

HUB

Model HC-210

SMALL FLANGE HUB WITH QUICK RELEASE

SPECIFICATIONS

Weight: Front 8.3 oz. (235 g.),
: Rear 12.3 oz. (350 g.)
Material: Light Alloy
Type: Quick Release
Thread: 1.37″ x 24 T.P.I.
Over Lock Nut Dimensions:
Front 3.78″ (96mm),
Rear 4.88″ (124mm.)
Spoke Holes: 36H

Model HC-200

SMALL FLANGE HUB

SPECIFICATIONS

Weight: Front 6.3 oz. (180 g.),
: Rear 10.9 oz .(310 g.)
Material: Light Alloy
Type: Solid Axle Type with Hub Nut
Thread: 1.37″ x 24 T.P.I.
Over Lock Nut Dimensions:
Front 3.66″ (93mm.), Rear 4.88″ (124mm.)
Spoke Holes: 36H

Model HC-110

LARGE FLANGE HUB WITH QUICK RELEASE

SPECIFICATIONS

Weight: Front 9.5 oz. (270 g.),
: Rear 12.7 oz. (360 g.)
Material: Light Alloy
Type: Quick Release
Thread: 1.37″ x 24 T.P.I.
Over Lock Nut Dimensions:
Front 3.78″ (96mm.), Rear 4.88″ (124mm.)
Spoke Holes: 36H

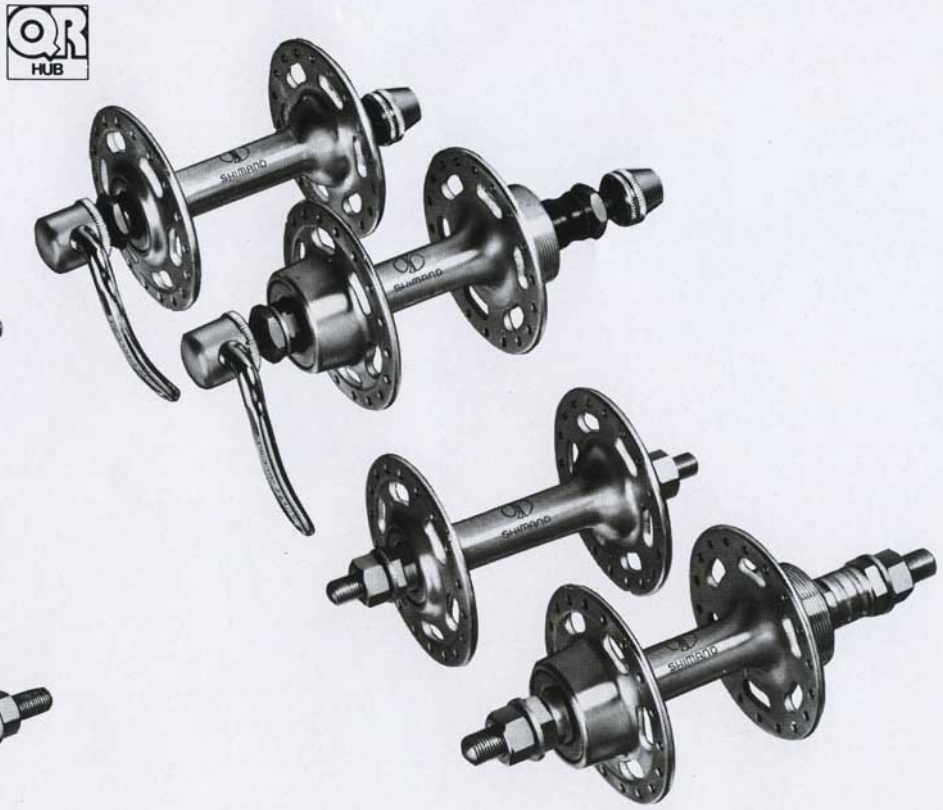
Model HC-100

LARGE FLANGE HUB

SPECIFICATIONS

Weight: Front 7.4 oz. (210 g.)
: Rear 11.6 oz. (330 g.)
Material: Light Alloy
Type: Solid Axle Type with Hub Nut
Thread: 1.37″ x 24 T.P.I.
Over Lock Nut Dimensions:
Front 3.66″ (93mm.), Rear 4.88″ (124mm.)
Spoke Holes: 36H





Model HD-100

STEEL HUB

SPECIFICATIONS

Weight: 25.0 oz. (710 g.)/Pair
Material: Steel
Type: Solid Axle Type with Hub Nut
Over Lock Nut Dimensions:
Front 3.66″ (93mm.), Rear 4.88″ (124mm.)
Spoke Holes: 28H , 36H



SHIMANO caliper brake

CALIPER BRAKE & BRAKE LEVER

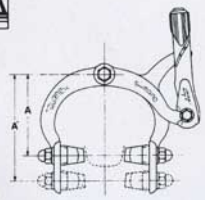
Sidepull Caliper

Model BB-240
TOURNEY
SPECIFICATIONS

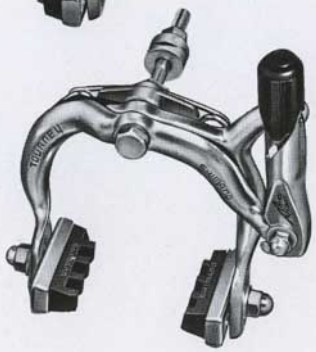
Material: Light Alloy
Type: Side Pull Auto Adjust with Synpul Mechanism

Type	A-A′	Weight (Pair)
CS-S72A	54mm.—72mm.	12.0 oz. (341 g.)
CS-S79A	61mm.—79mm.	12.4 oz. (351 g.)
CS-S88A	70mm.—88mm.	12.7 oz. (361 g.)







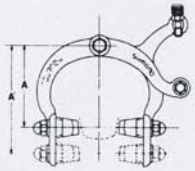


Model BB-260
TOURNEY (with Quick Release)
Model BB-230
TOURNEY
SPECIFICATIONS

Material: Light Alloy
Type: Side Pull with Synpul Mechanism

Type	A-A′	Weight (Pair)
CS-S72	54mm.—72mm.	10.6 oz. (301 g.)
CS-S79	61mm.—79mm.	11.0 oz. (311 g.)
CS-S88	70mm.—88mm.	11.5 oz. (325 g.)









Model BB-260

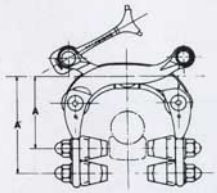
Centerpull Caliper

Model BB-500
SHIMANO-500
SPECIFICATIONS

Material: Light Alloy
Type: Center Pull with Quick Release and Link Mechanism

Type	A-A′	Weight (Pair)
CC-L62	47mm.—62mm.	13.3 oz. (376 g.)
CC-L75	57mm.—75mm.	13.8 oz. (390 g.)







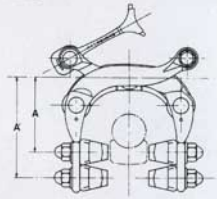


Model BB-120
TOURNEY
SPECIFICATIONS

Material: Light Alloy
Type: Center Pull with Quick Release and Link Mechanism

Type	A-A′	Weight (Pair)
CC-L62	47mm.—62mm.	13.3 oz. (378 g.)
CC-L75	57mm.—75mm.	13.8 oz. (392 g.)









Brake Lever

Model BB-100

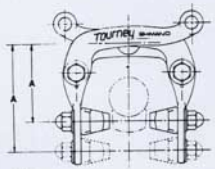
TOURNEY

SPECIFICATIONS

Material: Light Alloy
Type: Center Pull

Type	A-A′	Weight (Pair)
CC-62	47mm.—62mm.	12.7 oz. (360 g.)
CC-75	57mm.—75mm.	13.1 oz. (370 g.)









Model MB-120

DUAL EXTENSION LEVER 77 (DEL-77)

SPECIFICATIONS

Material: Light Alloy & Steel
Weight: 17.1 oz. (484 g.)/Pair
Lever Clamp Diameter: 22.2mm, 23.8mm



Model MB-110

DUAL EXTENSION LEVER

SPECIFICATIONS

Material: Light Alloy
Lever Clamp Diameter: 22.2mm., 23.8mm.



Model MB-100

HOODED LEVER

SPECIFICATIONS

Material: Light Alloy
Lever Clamp Diameter: 22.2mm., 23.8mm.



Model MS-100

SOFT LM LEVER

SPECIFICATIONS

Weight: Brake Lever 4.5 oz. (128 g.)/Pair
Grip 4.4 oz. (124 g.)/Pair
Material: Brake Lever/Steel • Resin
Grip/Resin



Model MD-100

POPULAR LEVER

SPECIFICATIONS

Material: Light Alloy
Lever Clamp Diameter: 22.2mm.



Model MC-100

V-BRAKE LEVER

SPECIFICATIONS

Material: Resin
Lever Clamp Diameter: 22.2mm.



SHIMANO radiax fin brake

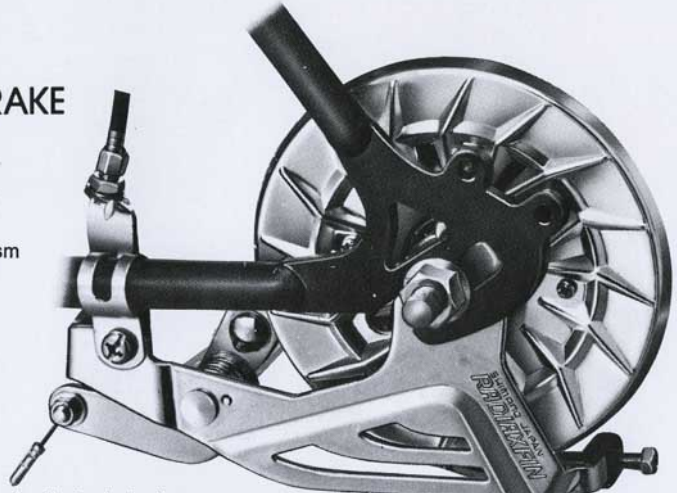
RADIAX BRAKE

Model BF-100

RADIAX FIN BRAKE

SPECIFICATIONS

Weight: 20.8oz. (590g.)
Material: Body/Steel
: Radiating Fin/
Light Alloy
Type: V-Brake Mechanism

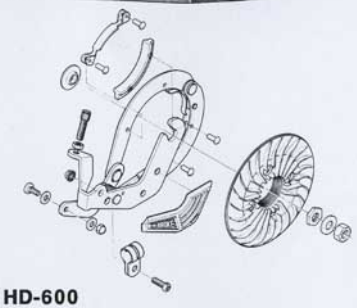


The RADIAX is a drum brake that adapts the braking system from the V-Brake Mechanism.

Features:

1. Suitable For All Kinds of Weather—
It has been said that a caliper brake loses braking performance in wet weather, making riding hazardous. The RADIAX gives good performance even in rain.
2. Sure Braking When Rolling Backwards—
RADIAX has succeeded in securing the same amount of braking efficiency when rolling backwards (backward rotation) as when moving forwards.
3. Radiating Fins Added for Cooling Effect—
The radiating fins were developed to prevent the heat-fade phenomenon and, at the same time, to provide safety and easy cycling when coasting downhill or long distance riding. Furthermore, they extend the lifetime of the brakes.





Model HD-600

HUB (For RADIAX FIN Brake)

SPECIFICATIONS

Use: Drum Brake RADIAX Only
Weight: 16.9 oz. (480 g.)
Material: Steel
Type: Small Flange Hub
Over Lock Nut Dimensions:
4.88″ (124mm.), 5.00″ (127mm)
Spoke Holes: 28H, 36H



SHIMANO coaster brake

COASTER BRAKE

Model CC-100

MIGHTY MITE

Economical Coaster Brake with lightweight and compact design.
Safe and easy to operate for children weighing less than 70 pounds.

SPECIFICATIONS

Weight: 21.0 oz. (595 g.)
Teeth: 14T, 15T, 16T, 17T, 18T, 19T, 20T
Over Lock Nut Dimension: 4.29″ (109mm
Sprocket: 1/2″ x 1/8″ Chain
Spoke Holes: 20H
24H, 28H
Riders Weight:
70 lb. or less
Wheel: 20″ or
less



Coaster Brake Black Type

Model CD-100

COASTER BRAKE D-TYPE

SPECIFICATIONS

Weight: 30.0 oz. (850 g.)
Teeth: 14T, 15T, 16T, 18T, 19T, 20T
Over Lock Nut Dimension: 4.29″ (109mm.)
Sprocket: 1/2″ x 1/8″ Chain
Spoke Holes: 20H, 24H, 28H, 36H
Black Finish Available





SHIMANO
motocross
components

MOTOCROSS COMPONENTS



Bobby Encinas. Captain of Shimano Motocross Team. All American Champion.

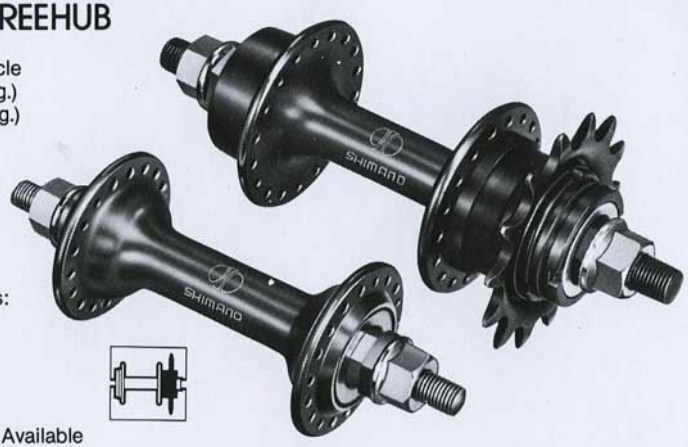
Freehub

Model HF-500

MOTOCROSS FREEHUB

SPECIFICATIONS

Use: With Motocross Bicycle
Weight: Front 6.3 oz. (180 g.)
: Rear 13.9 oz. (395 g.)
Material: Light Alloy
Color • Surface Treatment:
Silver • Buff Finish
Gold • Anodized Finish
Red • Anodized Finish
Blue • Anodized Finish
Type; Small Flange Hub
Over Lock Nut Dimensions:
Front 3.66" (93mm.)
Rear 4.33" (110mm.)
Spoke Holes: 36H
Sprocket Combinations:
14T
13T, 15T, 16T, 17T, 18T Available
Standard Sprocket: 1/2" x 1/8" Chain



Front Hub

Model HD-400

STEEL SEMI-LARGE FLANGE HUB

SPECIFICATIONS

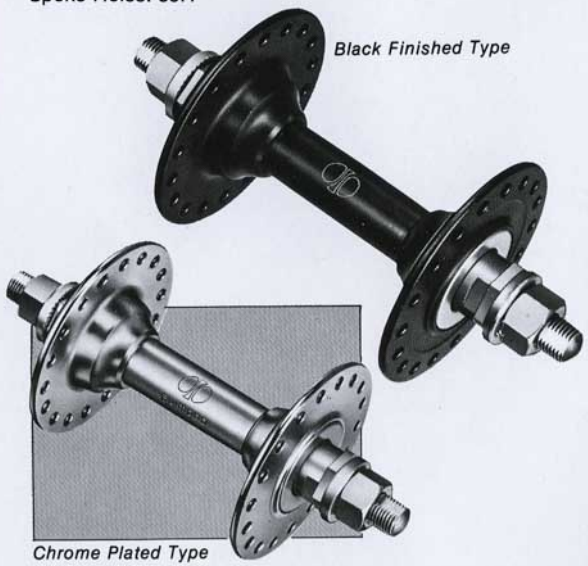
Use: With Motocross Bicycle
Weight: 12.7 oz. (360 g.)
Material: Steel
Surface Treatment: Black Finish or Chrome Plated
Type: Solid Axle with Hub Nut
Axle Thread • Material: 3/8" x 26t • High Carbon Steel
Over Lock Nut Dimension: Rear 3.78" (96mm.)
Spoke Size: 105G (#12, #13)
Spoke Holes: 36H

Model HD-410

STEEL LARGE FLANGE HUB

SPECIFICATIONS

Use: With Motocross Bicycle
Weight: 14.1 oz. (400 g.)
Material: Steel
Surface Treatment: Black Finish or Chrome Plated
Type: Solid Axle with Hub Nut
Axle Thread • Material: 3/8" x 26t • High Carbon Steel
Over Lock Nut Dimension: Rear 3.78" (96mm.)
Spoke Size: 120G (#11, #12)
Spoke Holes: 36H



Black Finished Type

Chrome Plated Type



Black Finished Type

Chrome Plated Type

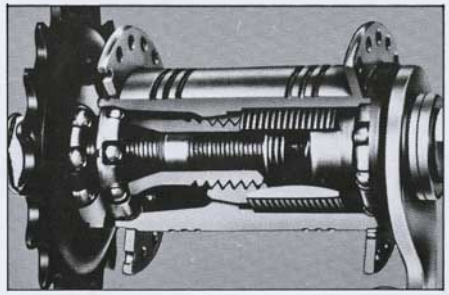
Coaster Brake

Model CB-400

SMALL FLANGE COASTER BRAKE

SPECIFICATIONS

Use: With Motocross Bicycle
Weight: 29.4 oz. (833 g.)
Material: Steel
Surface Treatment: Black Finish or Chrome Plated
Axle Thread • Material: 3/8″ x 24t • High Carbon Steel/Heat Treated
Teeth: 14T, 15T, 16T, 17T, 18T, 19T, 20T
Over Lock Nut Dimension: 4.29″ (109mm.)
Sprocket: 1/2″ x 1/8″ Chain
Spoke Size: 105G (#12, #13)
Spoke Holes: 36H



Sectional View of Coaster Brake



Black Finished Type



Chrome Plated Type

Model CB-410

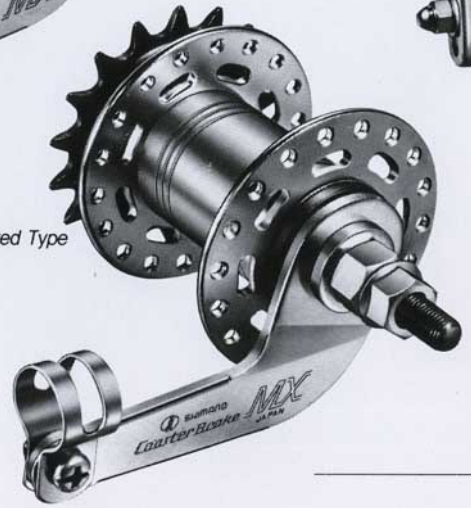
LARGE FLANGE COASTER BRAKE

SPECIFICATIONS

Use: With Motocross Bicycle
Weight: 32.0 oz. (908 g.)
Material: Steel
Surface Treatment: Black Finish or Chrome Plated
Axle Thread • Material: 3/8″ x 24t • High Carbon Steel/Heat Treated
Teeth: 14T, 15T, 16T, 17T, 18T, 19T, 20T
Over Lock Nut Dimension: 4.29″ (109mm.)
Sprocket: 1/2″ x 1/8″ Chain
Spoke Size: 120G (#11, #12)
Spoke Holes: 36H



Black Finished Type



Chrome Plated Type

Rear Sidepull Caliper Brake

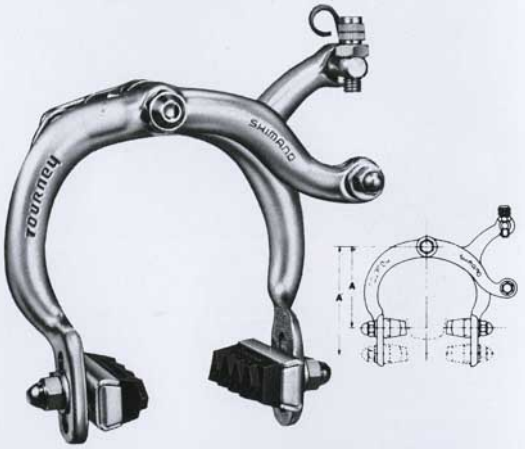
Model BB-250

TOURNEY

SPECIFICATIONS

Use: With Motocross Bicycle
Material: Light Alloy
Type: Sidepull with Quick Release and Synpul Mechanism

Type	A-A′	Weight (Rear)
CS-S88	70mm-88mm	6.2 oz. (175 g.)





Quick Release Mechanism

Chainwheel

Model JT-100

TAKAGI TOU-MX-B

Three Piece Aluminum crank

SPECIFICATIONS

Material: Super Duralumin • Alumite Finish (Crank & Chainwheel) Steel • Chromium or Alumite Finish (Spider)
Teeth: 39-48T
Crank Length: 6-1/2″ (165mm.).
6-3/4″ (170mm.)



Chainwheel

Model JT-110

TAKAGI B-TYPE

5-Pin Type Interchangeable Sprockets

SPECIFICATIONS

Material: Duralumin • Alumite Finish<Silver or Black> (Chainwheel) Steel • Chromium Finish <Silver of Black> (Spider)
Teeth: 39-48T
*Gear ratio can be changed according to the course conditions without removing crank.

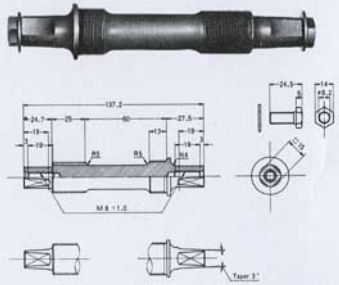


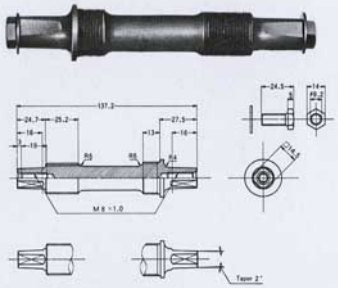
Bottom Bracket Parts

Model JT-320 (Paper 2°)
JT-325 (Taper 3°)

TAKAGI B.B. AXLE

Conversion Shaft for One Piece Crank Hanger Lug





Bottom Bracket Parts

Model JT-310

TAKAGE Model 120-P

For One Piece Crank

SPECIFICATIONS

Cup thread: 24 or 28 threads



Chainwheel

Model JT-120

TAKAGI S-TYPE

Standard Type

SPECIFICATIONS

Material: Duralumin • Alumite Finish <Silver or Black> or Steel • Chromium Finish <Silver or Black>
Teeth: 36-42T



One-piece Crank

Model JT-300

TAKAGI MX-TYPE (Cr-Mo)

SPECIFICATIONS

Material: Chromium Molybdenum Steel Chromium Finish <Silver or Black>
Crank Length: 6-3/4″ (170mm.).
6.9″ (175mm.)
Bracket's Shell Width: 68mm.
Crank Thread: 1/2″ x 20T





SHIMANO unique products

UNIQUE PRODUCTS

Model UL-100

HANDLE LOCK

SPECIFICATIONS

Weight: 10.6oz (300g)
Material: Steel • Resin
Option: Bracelet Type Keyholder





Option: Bracelet type keyholder

The Shimano Handle Lock is a brand new model designed to lock the bicycle by fixing the fork head tube in any one of 3 positions.

Features of the Handle Lock:

- There are 3 handle locking positions from which the rider can choose the most suitable, as seen in diagram 1. And the bicycle cannot be ridden when locked because the handlebar is fixed in one position.
2. When the bicycle is locked, the handlebar remains steady allowing easy loading of the basket.
3. The bicycle can be easily wheeled out of a crowded parking area because the lock does not interfere with the movement of the wheels.



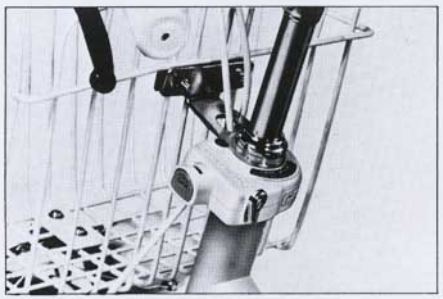
Fig. 1

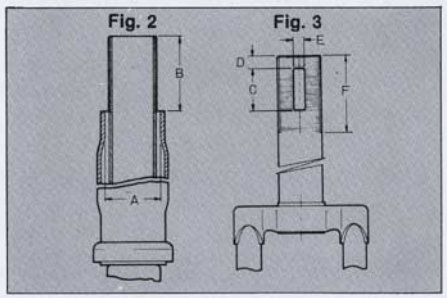
Assembly Conditions:

To assemble the Handle Lock to a bicycle, the following alterations and exact dimensions are necessary. (Fig. 2, 3, 4)

		Assembly Conditions
Head tube inside diameter	A	ø30 +0.15 −0 mm (DIA. 1.181 +0.0059 −0 ins.)
Fork head tube		B.C. 1 x 24 T.P.I. Inside diameter 22.2 +0.15 −0.02 mm (DIA. 0.874 +0.0055 −0.0007 in.)
*Protrusion of fork head tube from head tube's upper end	B	36 +1 −0 mm (1.417 +0.0393 −0 ins.)
		39 +1 −0 mm (1.535 +0.0393 −0 ins.) with Bracket for basket
Rectangle slit of fork head tube	C	22 +1 −0 mm (0.866 +0.0787 −0 in.)
	D	5 +0.3 −0 mm (0.196 +0.0196 −0 in.)
	E	6 +0.1 −0 mm (0.236 +0.0039 −0 in.)
Thread length of fork head tube	F	over 40 mm (1.574 ins.)
Extension of head tube upper end from top tube	G	over 15 mm (0.590 in.)

*Fork head tube should be assembled with lower cone, ball retainer and lower cup.



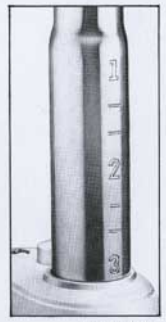


Model NJ-100

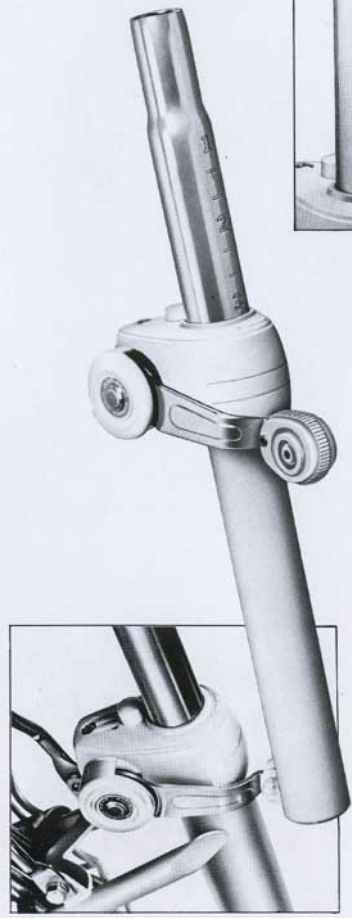
JUST SEAT

SPECIFICATIONS

Weight: 18.3oz (520g)
Material: Steel • Resin
Others: Equipped with Indicator/ Adjust Stroke 4.3″ (110mm)



Indicator



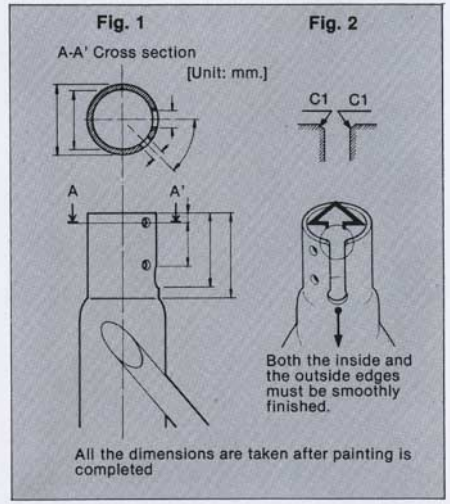
Shimano's Just Seat is an original seatpost that can be adjusted at a touch to whatever height the rider chooses.

Features of the Just Seat:

1. The saddle can be raised or lowered at a touch with an easy seat-adjust lever control. The rider can quickly take a correct riding posture.
2. Since the saddle can be easily raised or lowered, the whole family can utilize the same bike.
3. The Just Seat is equipped with an indicator which shows the height of the saddle. The rider can easily readjust the height after someone else has ridden the bicycle.
4. Simply raise the lever, and the seatpost lifts up on its own accord. This is possible because the built-in spring automatically pushes up the saddle. So even a child can control the height of the saddle.
5. A stopper attached to the seatpost prevents the saddle from wobbling while the rider is controlling its height.

Assembly Conditions:

To fit the Just Seat, the following alterations and exact dimensions are necessary.



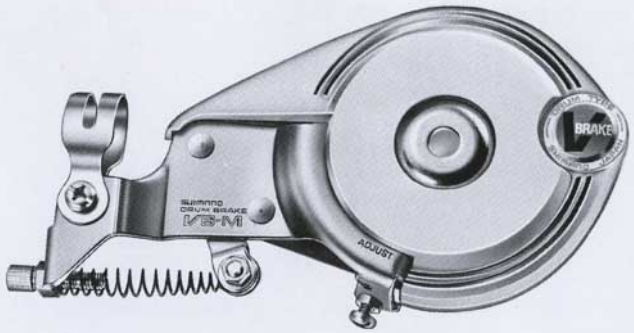
Model BV-200

V-BRAKE M

SPECIFICATIONS

Weight: 12.5oz (355g)
Material: Steel
Type: V-Brake Mechanism

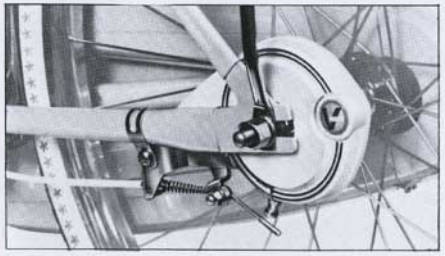


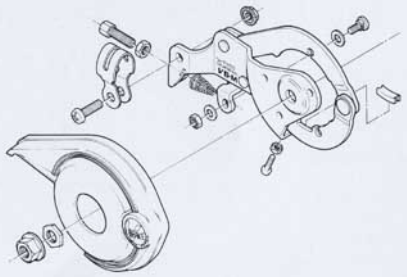


The V-Brake M, a compact brake designed for mini-cycles, is another offspring of our outstanding V-Brake mechanism.

Features of the V-Brake M:

1. Stands Up to All Kinds of Weather— It has been pointed out that a caplier brake noticeably lowers braking performance in rain. The V-Brake M displays high performance even in wet weather, guaranteeing the rider safe bicycling at all times.
2. Sure Braking When Rolling Backwards— The V-Brake secures high performance, since it is equipped with an arm functioning to tighten the drum, thus causing the bike to stop immediately.
3. Compensates for Weak Grip— The V-Brake M's new mechanism produces strong braking power compensating for the weak grip of women and children.
4. Compact and Light Weight— The V-Brake M is small and light, while exhibiting





Model HE-310

FREEHUB (For V-Brake M)

SPECIFICATIONS

Weight: 18.3oz (520g)
Material: Steel
Type: Small Flange Freehub
Over Lock Nut Dimension: 4.69″ (119mm)
Spoke Holes: 28H, 36H

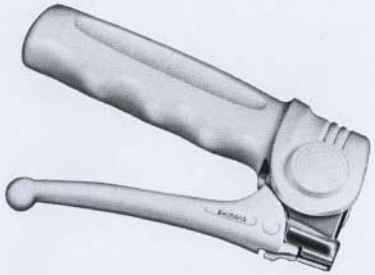


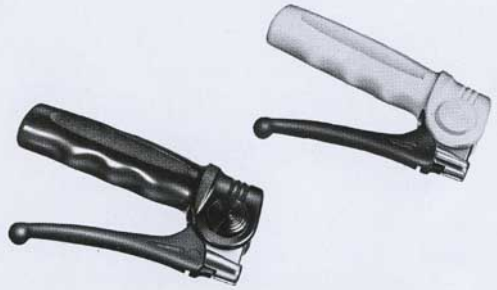
Model MS-100

SOFT LM LEVER

SPECIFICATIONS

Weight: Brake Lever 5.0oz (128g)/Pair
Grip 4.9oz. (124g)/Pair
Material: Brake Lever/Steel • Resin
Grip/Resin

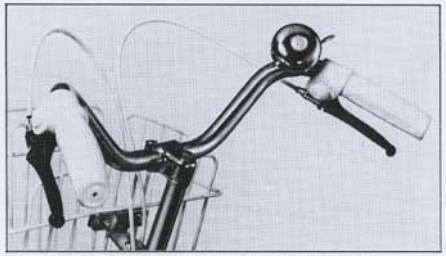




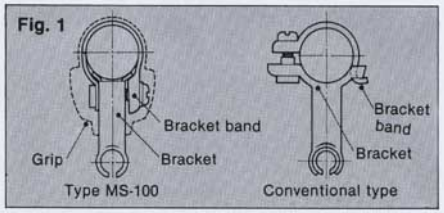
The Soft LM levers (MS-100) are soft-touch braking levers for flat handlebars. They embody major improvements of conventional braking levers which the rider will find very comfortable and safe to use.

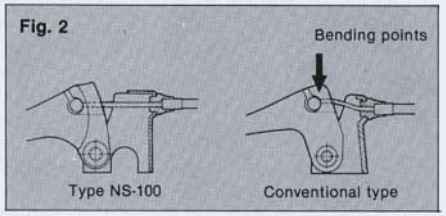
Features of the Soft LM Lever:

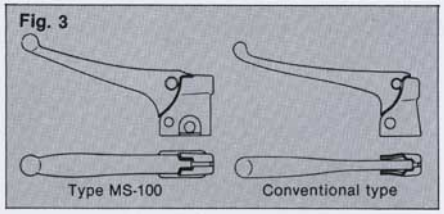
1. The lever comes as a set with the grip. The grip's cover encloses protruding mounting bolts, nuts, mounting bands and rivets. The LM levers minimize bare metal exposure to improve lever handling safety.



2. The lever is fixed inside the bracket, and, as a result, minimizes bare metal exposure. (Fig. 1)
3. The grips are made of a soft and elastic material that absorbs vibrations from the road so that none reaches the rider's hands.
4. Since the levers are made of resin, they are able to slide smoothly over the wire ends, protecting them from damage. This lengthens the service life of the wires. (Fig. 2)
5. The lever ends are spherical for safety, and the levers have been widened to give a better hold, resulting in surer braking every time. (Fig. 3)







Front Chainwheel

Model GH-100 (without Bottom Brocket Set)
GB-400 (Bottom Bracket Set & Crank)

OCTA-SS

SPECIFICATIONS
Material: Steel
Weight: 10.8oz. (305g.)
Type: Cotterless, OCTA Joint Type
Teeth: 34T
Crank Length: 6-1/2" (165 mm.)
Spindle Length: 4.9" (124.5 mm.)
Taper: 1 Degree

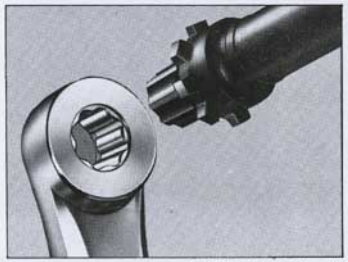






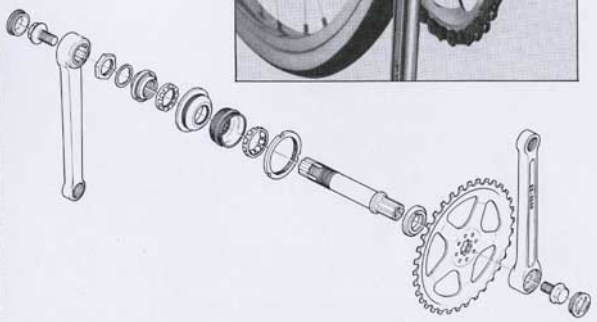
The OCTA-SS Front Chainwheel is a high precision and extremely durable product thanks to Shimano's advanced cold forging techniques. A cotterless crank has been incorporated in the front chainwheel especially for mini-cycles. In addition we have applied the octagonal "Octa Joint" to the crank. Designed to make assembly and disassembly as easy as possible, and maintenance easy to perform.

Features:
1. High precision
2. Easy-to-assemble because of the octagonal tapering joint system for locking the crank and shaft.
3. The Safety Crank Arm prevents ankle from hitting the crank.
4. Chain line always stays fixed.



OCTA Joint Crank





Rear Derailleur

Model DD-400
LARK-MINI
Use: PPS System Only
: POSITRON-EM Rear Derailleur Only

Model DC-300
SHIMANO-100
Use: PPS System Only
: POSITRON-EM Rear Derailleur Only

*See Page 56





SHIMANO-100 (Model DC-300)

Freehub

Model HE-300
FREEHUB-A (FH-A)
*See Page 55



Freewheel

Model FB-100
SINGLE FREEWHEEL
*See Page 52



PPS SYSTEM

Rear Derailleur

Model DG-200
POSITRON-II

Model DG-210
POSITRON-EM
*See Page 46









Shifting Lever

Model LE-410
POSITRON CONSOLE-II

Model LD-600
POSITRON-EM
*See Page 48





Cable

PUSH-PULL CABLE



SHIMANO children's bicycle

CHILDREN'S BICYCLE COMPONENTS

Model BV-100

V-BRAKE C (REAR)

SPECIFICATIONS

Weight: 8.5 oz. (240 g.)
Material: Steel
Type: V-Brake Mechanism



Features of the V-Brake C:

1. Especially designed for children's bicycles, the V-Brake C generates strong braking power with little force applied on the lever.
2. The V-Brake C displays the same braking efficiency whether the bicycle is moving forwards or backwards.
3. Bad weather has almost no effect on the braking efficiency of the V-Brake C. The V-Brake C works just as well in wet conditions as in good.
4. The V-Brake C is compact and light.

Model MC-100

V-BRAKE LEVER

SPECIFICATIONS

* See Page 58

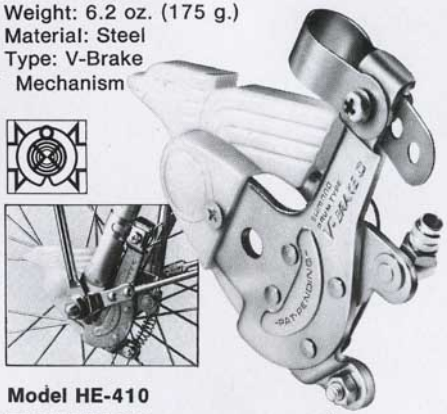


Model BV-100

V-BRAKE C (FRONT)

SPECIFICATIONS

Weight: 6.2 oz. (175 g.)
Material: Steel
Type: V-Brake Mechanism



Model HE-410

FREEHUB (For V-Brake C Rear)

SPECIFICATIONS

Weight: 17.3 oz. (490 g.)
Material: Steel
Type: Small Flange Free Hub
Over Lock Nut Dimension: 4.69″ (119mm.)
Spoke Holes: 20H, 28H



Model HE-410

HUB (For V-Brake C Front)

SPECIFICATIONS

Weight: 8.5 oz. (240 g.)
Material: Steel
Type: Small Flange Hub
Over Lock Nut Dimension: 3.43″ (87mm.), 3.66″ (93mm.)
Spoke Holes: 20H, 28H



Front Chainwheel

Model GH-300 (without Bottom Bracket Set)
GB-430 (Bottom Bracket Set)

SHIMANO SELECTA-C

SPECIFICATIONS

Material: Crank/Light Alloy
: Sprocket/Steel
Weight: 27.0oz. (770g.)
Type: Cotterless
Chain Ring • 1/2″ x 3/32″
Teeth: 28T, 32T
Crank Lengths: 4-1/2″ (114 mm.), 4″ (104 mm.)
Spindle Length: 5.55″ (141 mm.)
Crank Thread: 9/16″ x 20t
Cup Thread: English 1.37″ x 24t

new





We have especially developed the Selecta C for children's bicycles. High precision and durability is attained from the Octa Joint Crank which is made from our superior cold forging technique. We have also incorporated the Safety Crank Arm made from aluminum. Thus, light pedalling and safe cycling can be assured at all times.

Features:

1. Lighter pedalling
2. The Safety Arm Crank prevents ankle from hitting the crank.
3. Easy-to-assemble because of the Octa Joint System
4. Safe cotterless type with no projections.

Model HE-400

FREEHUB-C (FH-C)

SPECIFICATIONS

Material: Steel
Type: Small Flange Hub
Weight: 16.9 oz. (480 g.)
Over Lock Nut Dimensions: 4.5″ (114mm.)
Spoke Holes: 20H, 28H,
Sprocket Combinations: 14T
Standard Sprocket: 1/2″ x 1/8″ Chain

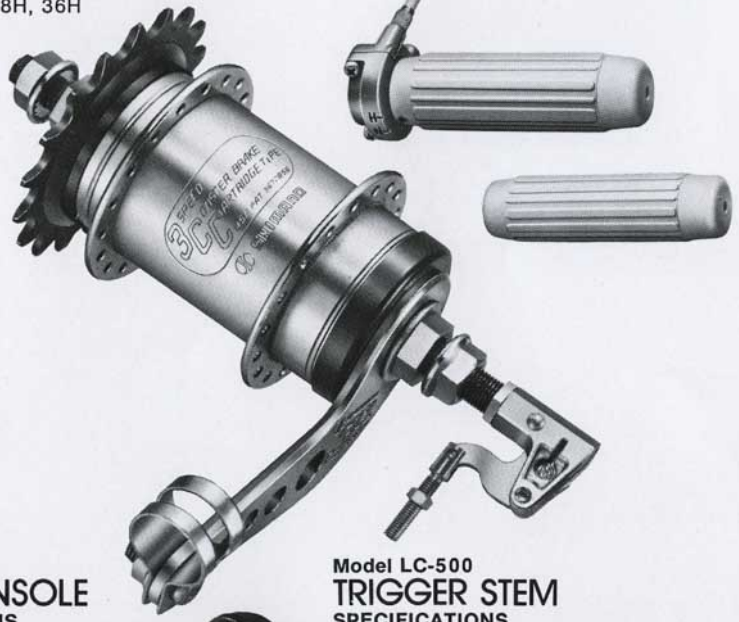


SHIMANO hub gear HUB GEAR & LEVER

Model TB-100
THREE SPEED HUB
SPECIFICATIONS
Weight: 38.8 oz. (1,100 g.)
Teeth: 14, 15, 16, 18, 19, 20T
Gear Ratio: (H)1:1.33/(N) 1:1/(L) 1:0.75
Over Lock Nut Dimension: 4.5″ (114mm.)
Sprocket: 1/2″ x 1/8″ Chain
Spoke Holes: 28H, 36H



Model TC-100
THREE SPEED HUB WITH COASTER BRAKE
SPECIFICATIONS
Weight: 46.6 oz. (1,320 g.)
Teeth: 14, 15, 16, 18, 19, 20T
Gear Ratio: (H) 1:1.33/(N) 1:1/(L) 1:0.75
Over Lock Nut Dimension: 4.7″ (120mm.)
Sprocket: 1/2″ x 1/8″ Chain
Spoke Holes: 28H, 36H



Model LD-300
TWIST GRIP CONTROL LEVER
SPECIFICATIONS
Use: Three Speed Hub Only
Attachment Position: Handle Bar-End

Model LD-200
TRIGGER LEVER
SPECIFICATIONS
Use: Three Speed Hub Only
Attachment Position: Handle Bar



Model LE-150
STEM CONSOLE
SPECIFICATIONS
Use: Three Speed Hub Only
Material: Resin (Body)
Type: Click
: Single Lever
: Pre-Select Mechanism
Attachment Position:
Top of Handle Stem



Model LC-500
TRIGGER STEM
SPECIFICATIONS
Use: Three Speed Hub Only
Attachment Position: Handle Stem



SHIMANO spoke protector SPOKE

Model PB-100
SPOKE PROTECTOR
SPECIFICATIONS
Diameter: 4-1/2″ (110mm.)
Material: Steel
Use Range: Low Sprocket 24 Teeth or Less



Model PB-150
SPOKE PROTECTOR
SPECIFICATIONS
Diameter: 5.4″ (137mm.)
Material: Steel
Use Range: Low Sprocket 26 or 28 Teeth



Model PB-130
SPOKE PROTECTOR
SPECIFICATIONS
Diameter: 7-1/2″ (190mm.)
Material: Steel
Use Range: Low Sprocket 26 or 28 Teeth

Model PB-140
SPOKE PROTECTOR
SPECIFICATIONS
Diameter: 8-1/2″ (215mm.)
Material: Steel
Use Range: Low Sprocket 32 or 34 Teeth



PROTECTOR

SHIMANO cable CABLE

Model PC-110

UG SPOKE PROTECTOR

SPECIFICATIONS

Diameter: 5.4″ (140mm.)
Material: Light Alloy
Use Range: Low Sprocket 22 or 24 Teeth



Model PC-150

UG SPOKE PROTECTOR

SPECIFICATIONS

Diameter: 6.3″ (160mm.)
Material: Light Alloy
Use Range: Low Sprocket 26 or 28 Teeth

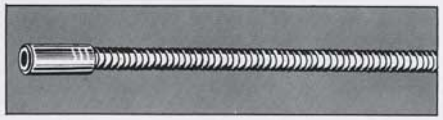


Outer Casings and Inner Cables

Model WC-100

STAINLESS OUTER CASING WITH BOTH CAPS

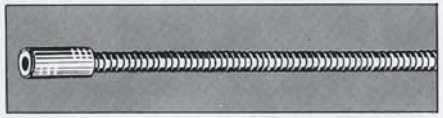
Length: 6.7″(170mm.), 11.0″(280mm.)



Model WC-110

STAINLESS OUTER CASING WITH ONE CAP

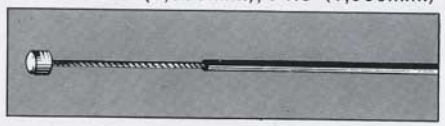
Length: 23.6″(600mm.), 24.8″(630mm.), 26.4″(670mm.)



Model WL-100

COATED INNER CABLE (φ1.2mm)

Length: 52.0″(1,320mm.), 53.5″(1,360mm.), 55.1″(1,400mm.), 70.9″(1,800mm.), 72.8″(1,850mm.), 74.8″(1,900mm.)



Model WB-100 (with Both Caps)
Model WB-110 (with One Cap)

OUTER CASING

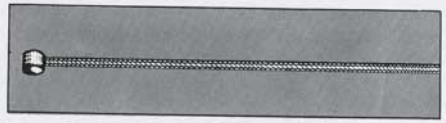
Length: 6.7″ (170mm.), 7.1″ (180mm.), 9.8″ (250mm.), 11.0″ (280mm.)/With Both Caps
11.8″ (300mm.), 13.2″ (335mm.), 14.2″ (360mm.), 20.9″ (530mm.), 37.4″ (950mm.), 39.4″ (1000mm.), 40.6″ (1,030mm.), 53.5″ (1,360mm.), 55.1″ (1400mm.), 57.1″ (1450mm.), 59.1″ (1500mm.)/With One Cap



Model WK-110

INNER CABLE (φ1.2mm)

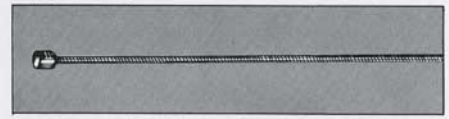
Length: 26.4″ (670mm.), 29.5″ (750mm.), 40.6″ (1,030mm.), 41.7″ (1,060mm.), 44.1″ (1,120mm.), 46.5″ (1,180mm.), 48.0″ (1,220mm.), 53.5″ (1,360mm.), 61.0″ (1,550mm.), 63.0″ (1600mm.), 65.0″ (1,650mm.)



Model WJ-100

INNER CABLE (φ1.2mm)

Length: 26.4″ (670mm.), 29.5″ (750mm.), 40.6″ (1,030mm.), 41.7″ (1,060mm.), 44.1″ (1,120mm.), 46.5″ (1,180mm.), 48.0″ (1,220mm.), 53.5″ (1,360mm.), 61.0″ (1,550mm.), 63.0″ (1600mm.), 65.0″ (1,650mm.)

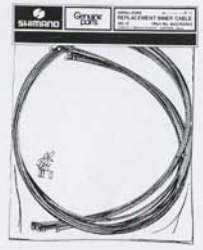


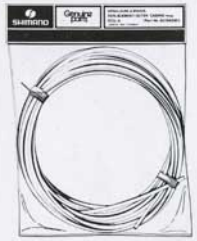
Universal Cables

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② 

③ 

④ 

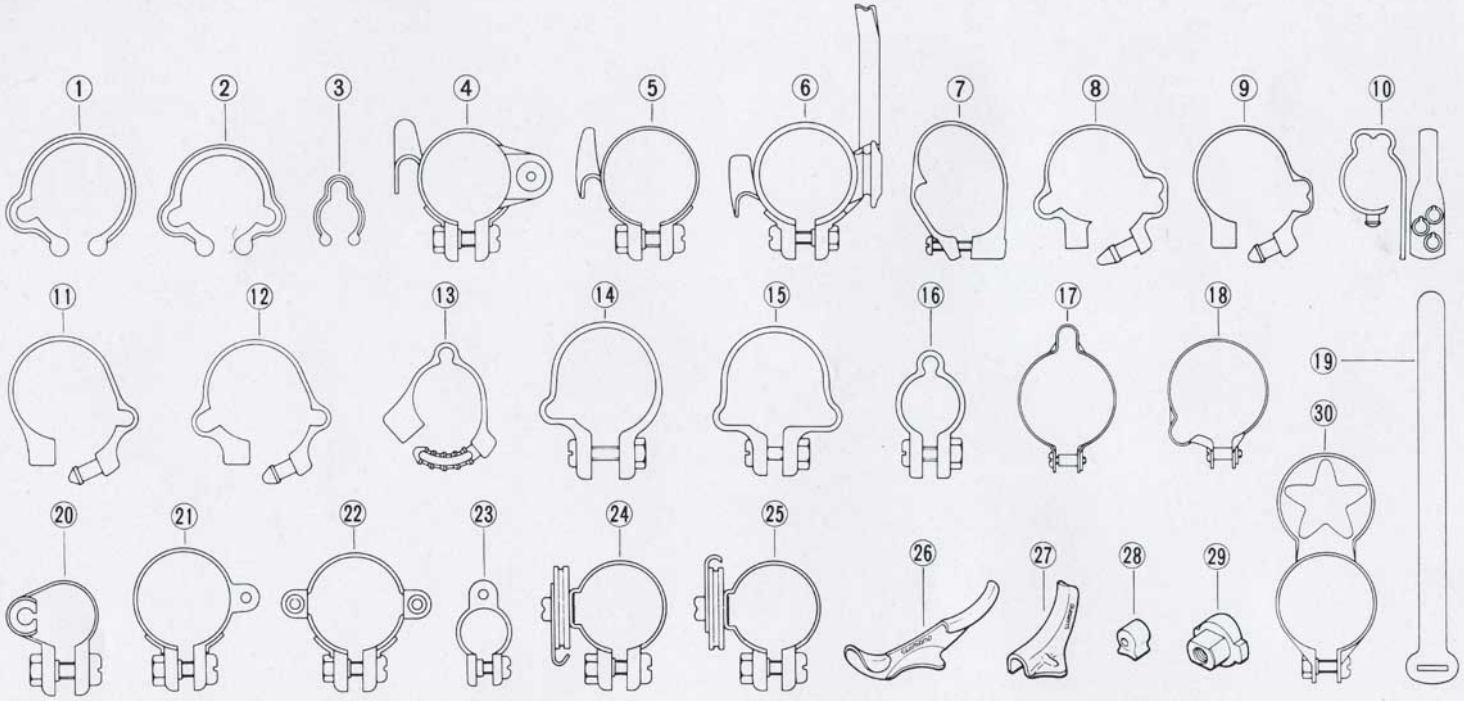
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Item	Model No.	Description	Usage
1	WT-130	Universal Spare Cable Set Shape of Cable End —⊖ φ1.2mm.	Console Lever
2	WT-110	Universal Spare Cable Set Shape of Cable End —⊏ φ1.2mm.	5 & 10 Speed Shifting Lever
3	WT-140	Universal Spare Cable Shape of Double Cable End ⊏—⊖ φ1.2mm.	All SHIMANO Shifting Levers
4	WU-110	Universal Spare Cable Shape of Double Cable End ⊖—⊏ φ1.6mm.	All SHIMANO Brake Levers Except DURA-ACE and SHIMANO-600
5	WV-100 WV-110	Universal Outer Casing (White) Universal Outer Casing (Black)	All Cables Except DURA-ACE and SHIMANO-600

SHIMANO outer band

OUTER BAND



Item No.	Part No.	Description	
1	6201070	Outer Clip	28.6 mm (1-1/8")
	6201071	Outer Clip (Black)	28.6 mm (1-1/8")
	6201050	Outer Clip	25.4 mm (1")
	6201051	Outer Clip (Black)	25.4 mm (1")
2	6201080	Outer Clip	28.6 mm (1-1/8")
	6201081	Outer Clip (Black)	28.6 mm (1-1/8")
	6201060	Outer Clip	25.4 mm (1")
	6201061	Outer Clip (Black)	25.4 mm (1")
3	6201040	Outer Clip	22.2 mm (7/8")
	6201041	Outer Clip (Black)	22.2 mm (7/8")
	6201030	Outer Clip	19.0 mm (3/4")
	6201031	Outer Clip (Black)	19.0 mm (3/4")
	6201020	Outer Clip	15.9 mm (5/8")
	6201021	Outer Clip (Black)	15.9 mm (5/8")
	6201010	Outer Clip	12.7 mm (1/2")
	6201011	Outer Clip (Black)	12.7 mm (1/2")
4	6229110-1	Cable Guide	28.6 mm (1-1/8")
5	6229010-1	Cable Guide	28.6 mm (1-1/8")
6	6229111-1	Cable Guide for DURA-ACE	28.6 mm (1-1/8")
7	8319032	Outer Band for Brake	25.4 mm (1")

Item No.	Part No.	Description	
7	8319034	Outer Band for Brake (Black)	25.4 mm (1")
8	6871101	Outer Band for Positron	25.4 mm (1")
	6871103	Outer Band for Positron (Black)	25.4 mm (1")
	6871201	Outer Band for Positron	28.6 mm (1-1/8")
	6871203	Outer Band for Positron (Black)	28.6 mm (1-1/8")
9	6871100	Outer Band for Positron	25.4 mm (1")
	6871102	Outer Band for Positron (Black)	25.4 mm (1")
	6871200	Outer Band for Positron	28.6 mm (1-1/8")
	6871202	Outer Band for Positron (Black)	28.6 mm (1-1/8")
10	6871300	Outer Band for Positron	ø15, 16, 17.5 mm
	6871301	Outer Band for Positron (Black)	ø15, 16, 17.5 mm
	6871302	Outer Band for Positron	ø19, 22.2 mm
	6871303	Outer Band for Positron (Black)	ø19, 22.2 mm
11	6921400	Outer Band for PPS System	28.6 mm (1-1/8")
	6921402	Outer Band for PPS System (Black)	28.6 mm (1-1/8")
	6921500	Outer Band for PPS System	25.4 mm (1")
	6921502	Outer Band for PPS System (Black)	25.4 mm (1")
12	6921401	Outer Band for PPS System	28.6 mm (1-1/8")
	6921403	Outer Band for PPS System (Black)	28.6 mm (1-1/8")
	6921501	Outer Band for PPS System	25.4 mm (1")

Item No.	Part No.	Description	
12	6921503	Outer Band for PPS System (Black)	25.4 mm (1")
13	6921700	Outer Band for PPS System	19.0 mm (3/4")
	6921701	Outer Band for PPS System (Black)	19.0 mm (3/4")
	6921600	Outer Band for PPS System	15.9 mm (5/8")
	6921601	Outer Band for PPS System (Black)	15.9 mm (5/8")
	6921800	Outer Band for PPS System	12.7 mm (1/2")
	6921801	Outer Band for PPS System (Black)	12.7 mm (1/2")
	6923900	Outer Band for PPS System	17.5 mm (11/16")
	6923901	Outer Band for PPS System (Black)	17.5 mm (11/16")
14	6929022	Hose Band for PPS System (Black)	25.4 mm (1")
15	6929020	Hose Band for PPS System	28.6 mm (1-1/8")
	6929021	Hose Band for PPS System (Black)	28.6 mm (1-1/8")
	6929029	Hose Band for PPS System (Black)	25.4 mm (1")
16	6929027	Hose Band for PPS System (Black)	19.0 mm (3/4")
	6929026	Hose Band for PPS System (Black)	15.9 mm (5/8")
	6929025	Hose Band for PPS System (Black)	12.7 mm (1/2")
17	8559003-2	Outer Band for DURA-ACE & 600 Brake	25.4 mm (1")
18	8559003-1	Outer Band for DURA-ACE & 600 Brake	25.4 mm (1")
19	6110501	Alumi Band	150 mm (5.9")
	6110500	Alumi Band	115 mm (4.52")

Item No.	Part No.	Description	
19	6110600	Alumi Band	80.0 mm (3.14")
20	6119005-2	Stopper Band	28.6 mm (1-1/8")
	6119006-2	Stopper Band	25.4 mm (1")
	6119010-1	Stopper Band	19.0 mm (3/4")
	6119011-1	Stopper Band	17.5 mm (11/16")
	6439044-1	Stopper Band	15.9 mm (5/8")
	6439045-1	Stopper Band	12.7 mm (1/2")
21	6229106-1	Outer Stopper	28.6 mm (1-1/8")
22	6229107-1	Outer Stopper	28.6 mm (1-1/8")
23	6229116	Outer Stopper	15.9 mm (5/8")
	6229117	Outer Stopper for DURA-ACE	15.9 mm (5/8")
24	6119001	Guide Roller	28.6 mm (1-1/8")
25	6119002	Guide Roller	25.4 mm (1")
26	6204010	Front Cable Guide for Brazed Axle	
27	6204020	Rear Cable Guide for Brazed Axle	
28	6205010	Outer Stopper for Brazed Axle	
29	6812100	Brazed Axle for DURA-ACE	
	6242700	Brazed Axle for SHIMANO-600	
30	6819005	Pump Holder	28.6 mm (1-1/8")

SHIMANO special tool

SPECIAL TOOL

Model XB-420
Exclusive Tool for EX Series Head Parts



Model XA-200
Freehub Removal Tool for EX Series Only



Model XB-520
Freehub Removal Tool (Except EX Series)



Model XB-620
Front Chainwheel Screw Peg Spanner for EX Series Only



Model XB-630
Hexagon Wrench Key for One Key Release Mechanism (6mm. x 130mm.)

Model XA-150
Model XB-100
Hexagon Wrench Keys



Model XB-310
Plier for Three Speed Hub Snap Ring Removal



Model XA-110
Spanner for DURA-ACE Hubs
Width: 13mm., 14mm.



Model XA-140
Chainwheel Screw Peg Spanner (For DURA-ACE Only)



Model XA-100
DURA-ACE Multiple Freewheel Removal Tool

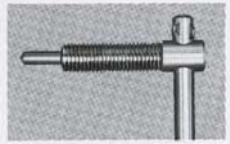


Model XA-130
Cotterless Crank Extractor



Model XC-100
Chain Cutter (For Both UG Chain and Ordinary Chain)





Option: Spare Chain Cutting Arrow (Spindle)

Model XA-180 (For 10mm. Chain)
Model XB-500 (For 1/2″ Chain) Rear Sprocket Removal Tool



Model XB-400
Three Spanners Set for Spindle and Head Parts



Option: Hanger Cup Hook Bolt

Model XB-200
Boss Type Multiple Freewheel Removal Tool



Model XB-320
Tool for Removing Ball Cup for Three Speed Hub



Model XB-220
B-Type Multiple Freewheel Removal Tool



Model XB-600
Single Freewheel . Removal Tool



Model XA-160
(5mm. Key x 8mm. Hole)
T-Type Wrench with Wrench key

Model XA-170
(6mm. Key x 10mm. Hole)



Model XB-300
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake; and Coaster Brake
Width: 15mm., 17mm.



Model XC-200
Drum Removal Tool for RADIAX FIN Brake



Model XC-300
Front Chainwheel Removal Tool for FF System (One Piece Crank)

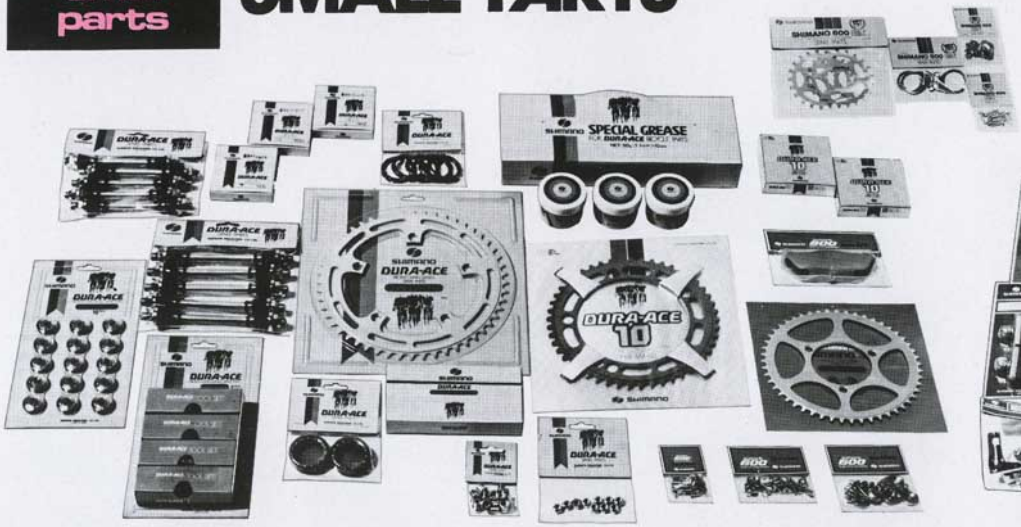


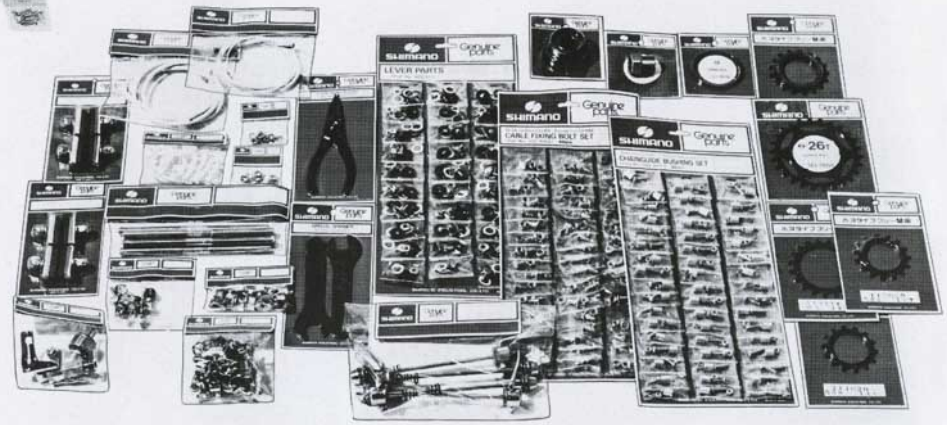
Model XA-120
DURA-ACE Grease
1.76 oz. (50 g.)
17.6 oz. (500 g.)



SHIMANO small parts

SMALL PARTS



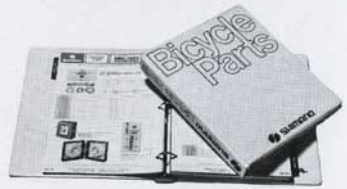


Item	Package Style	Contents	Q'ty
Sprocket for Front Chainwheel	Blister Packed	Sprocket	1
Brake Shoe Set	Blister Packed	Brake Shoe Complete (left)	2
		Brake Shoe Complete (right)	2
Outer Band Set for Caliper Brake	Polyester Bag with Header	Outer Band	3
		Bolt	3
		Nut	3
Complete Quick Release Unit for Front Hub (Over Lock Nut Dimension: 100mm)	Polyester Bag with Header	Hub Axle Set	5
		Quick Release Set	5
Complete Quick Release Unit for Rear Hub (Over Lock Nut Dimension: 120mm/ 5-speed, 126mm/6-speed)	Polyester Bag with Header	Hub Axle Set	5
		Quick Release Set	5
Rubber Cover Set for Brake Lever	Polyester Bag with Header	Rubber Cover Set	2
Crank Arm Dust Cap for Front Chainwheel	Blister Packed	Crank Arm Dust Cap	15
Adjusting Bolt, Nut and Spring for Fork End	Polyester Bag with Header	Adjusting Bolt	2
		Nut	2
		Spring	2
Ball Retainer for Head Parts	Special Polyester Case	Ball Retainer	2
Ball Retainer for Bottom Bracket	Blister Packed	Ball Retainer	20
Bottom Bracket Spindle Set for Front Chainwheel	Package	Spindle	1
		Ball Retainer	2
		L.H. Adjustable Cap	1
		Lock Ring	1
		R.H.Fixed Cap	1
		Spindle Bolt	2
		Spindle Washer	2
Crank Set for Front Chainwheel	Package	Left Crank Arm	1
		Right Crank Arm	1
		Crank Arm Dust Cap	2
		Chainwheel Fixing Bolt	5
		Chainwheel Fixing Nut	5

Item	Package Style	Contents	Q'ty
Lever Parts	Card	Wing screw	30
		Spring Washer	30
		Non-Turn Washer	30
		Pressure Plate	30
		Washer	60
Pulley Set for Rear Derailleur	Card	Pulley Bushing	30
		Pulley	30
		Pulley Cap	60
Cable Fixing Bolt Set for Rear Derailleur	Card	Cable Fixing Bolt	50
		Cable Fixing Washer	50
		Cable Fixing Nut	50
Adapter Screw Set for Rear Derailleur	Card	Adapter Nut	50
		Adapter Screw	50
Derailleur Cap Set	Card	Derailleur Cap	100
Cable Fixing Bolt Set	Card	Cable Fixing Bolt	50
		Cable Fixing Nut	50
		Cable Fixing Washer	50
Chain Guide Bushing Set	Card	Chain Guide Spacer Bolt	50
		Chain Guide Spacer	50
		Toothed Lock Washer	50
		Nut	50
Brake Shoe Set for Caliper Brake	Card	Brake Shoe Complete (left)	10
		Brake Shoe Complete (right)	10
Cable Anchor Set for Side Pull Caliper Brake (Tourney)	Card	Cable Anchor Bolt	50
		Washer	50
		Cap Nut	50

Item	Package Style	Contents	Q'ty
Cable Carrier Set for Center Pull Caliper Brake (Tourney)	Card	Cable Anchor Bolt	50
		Cable Carrier	50
		Cable Anchor Washer	50
		Cable Anchor Nut	50
Outer Band Set for Caliper Brake(Tourney)	Card	Outer Band	60
		Screw	60
Outer Clip Set for Caliper Brake	Card	Outer Clip	60
Bell Crank Set for Three-Speed Hub	Card	Bell Crank	20
		Bell Crank Lock Nut	20
Three-Speed Hub Axle	Polyester Bag with Header	Three-Speed Hub Axle	1
Tension Spring for Rear Derailleur	Polyester Bag with Header	P-Tension Spring	1
		B-Tension Spring	1
Wing Nut for Hub	Polyester Bag with Header	Wing Nut for Front Hub BC 5/16"	2
		Wing Nut for Rear Hub BC 3/8"	2
Complete Quick Release Unit for Hub Over Lock Nut Dimension: 96mm (Front) 124mm (Rear)	Polyester Bag	Complete Quick Release Unit (Front or Rear)	10
Hub Axle Set	Polyester Bag	Hub Axle Set (Front or Rear)	10
Sprocket for Multiple Freewheel	Vacuum Packed	Sprocket	1

- We have a complete line of small parts for DURA-ACE, 600 Series and all other Shimano products.
- Only a limited sample of our entire range is shown here.
- Please refer to the "Shimano Bicycle Parts" catalog which contains the complete line of Shimano parts.





DURA-ACE 10 Track Ensemble



DURA-ACE EX Road Ensemble



SHIMANO-600 EX Road & Touring Ensemble



DURA-ACE Track Ensemble



DURA-ACE Road Ensemble



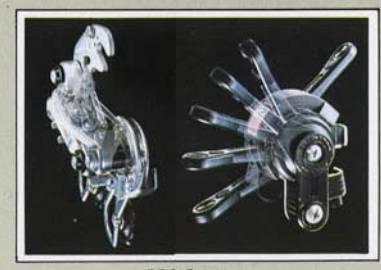
SHIMANO-600 Road & Touring Ensemble



ALTUS/SELECTA Series



FF System



PPS System

PROFILE OF SHIMANO

Shimano Industrial Co., Ltd., was established in 1921. In the succeeding 56 years Shimano has expanded into an International Company with a world-wide sales network and it has now diversified into three major divisions: the bicycle component division, the fishing tackle division and the cold forging division.

The bicycle component division has concentrated on developing such vital components as gearshift systems, brake systems, freewheels and hubs. At the present time its products are sold in 60 different countries including the United States and Europe, as well as to the Japanese domestic market.

Shimano's ever-advancing technology and ability to develop new products have brought it a high reputation for innovation and reliability in the bicycle industry. Shimano has established itself as the leading bicycle component manufacturer in the world and commands the overwhelming share of the world market.

Shimano opened its fishing tackle division in 1970 and produces equipment such as fibre-glass rods, reels and fishing coolers. Here again Shimano has won a great deal of support in the fishing industry and among anglers for the high qualify and originality of their products. With the growth of fishing as a recreational sport the division has seen its business grow quickly, and is now a leading manufacturer in that field.

Shimano's cold forging division utilizes the Company's well equipped facilities and advanced technology to produce cold forged products to meet the demands not only of the bicycle industry, but also of the automobile, electrical and agricultural machinery industries.

Research and Development

Marketing and research are required to satisfy existing and future demand and to continue the creation of high quality products. Shimano's marketing research network covers every area of the world, including the United States and Europe, so that Shimano can immediately assess changing market trends. Such research is not limited to just detecting market trends, it also deals with basic research problems requiring expert knowledge of many diverse fields, including human engineering and medicine. Our engineers put themselves in the consumers place when applying their know-how to the development of new products.

Shimano's strict quality control is another essential that guarantees the high quality of its products. Shimano's Quality Control Division has independent authority to oversee each step of the manufacturing process from the first stage of development all the way through to production, using its own strictly set standards. An additional specialised checking mechanism critically scrutinizes all the products again at the assembly line before they ever emerge on the commercial market, guaranteeing customers the high quality they have come to expect of Shimano.

Production Facilities

Shimano has four factories, three in Japan and one in Singapore. The main factory is located in Sakai, Japan. It plays an important role as the research center for product development, as well as being the main production plant. It also serves as the headquarters for the different factories and the co-ordination center for all the overseas Shimano offices.

In 1970 the Shimonoseki factory in western Japan started operations producing coaster brakes and three speed hubs for export.

In 1974 Shimano established its first overseas plant in Singapore to produce bicycle components for the overseas market. Situated in a free port and in a favorable location from which to conduct trade with South East Asian countries, the Singapore factory is expected to experience rapid growth in the near future.

In 1971, Shimano-Adachi Co., Ltd., was established in Tokyo.

Shimano is growing vigorously, supported by close co-operation between its plants, producing a total of $3^1/_2$ million units a month. Shimano's dramatic technological innovations and heavy investments in equipment have modernised its large scale production facilities, reducing costs, upgrading the quality of its products and speeding up production. All factors leading to its competitive position in the world market.

Shimano's cold forging facilities are the most important of all their divisions. With its highly sophisticated equipment and technology, Shimano enjoys a reputation as a pioneer of the cold forging process in Japan and one of the top ranking companies in this line in the world.

Management System Control

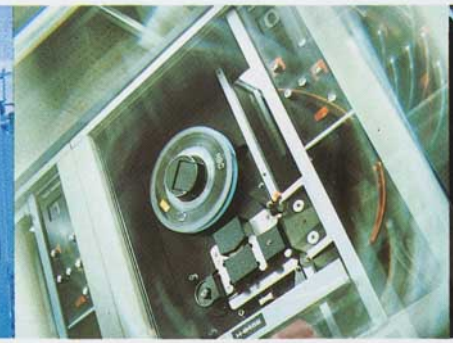
Thanks to Shimano's dynamic management control it has been able to implement a philosphy that actively promotes business while maintaining strict control over finances.

Sound management policies have given the company a healthy financial position in spite of the world-wide recession. By maintaining self-capitalisation at around 50% and keeping careful control of the break-even point over periods of market recession, Shimano has been able to keep developing new products and opening up new markets.

Shimano concentrates upon making quality products available at reasonable prices by raising its management efficiency over everything from production to sales, resulting in increased customer satisfaction and confidence in its products.








World-Wide Organization

Products with the Shimano trade mark have spread to most parts of the world and are now being enjoyed by people in over sixty countries. 'Shimano International' continues to develop markets throughout the world, with a marketing strategy that assesses and then responds to differing local needs.

In 1965 the Shimano American Corporation was established in New York to take care of all sales activities in the United States. In 1974 the Shimano Sales Corporation was founded in Los Angeles to complement Shimano American.

To meet growing European demand, Shimano Europe was established in 1973 in Dusseldorf, West Germany. It not only provides goods satisfying particular European needs but also is the center for the sales and marketing of Shimano products in Africa and the Middle East.

The strategy for Shimano's marketing activities abroad is not to sell to the world products meant for Japanese domestic use, but to sell internationally-ranked products that closely correspond to the diverse, particular needs of each country.

Already an international enterprise, Shimano will continue to search for new marketing possibilities and actively carry on its overseas activities.

Business Achievements

As a member of the Stock Exchange, Shimano has always been aware of its social responsibilities and has made its utmost effort to conduct sound business practices and obtain good returns.

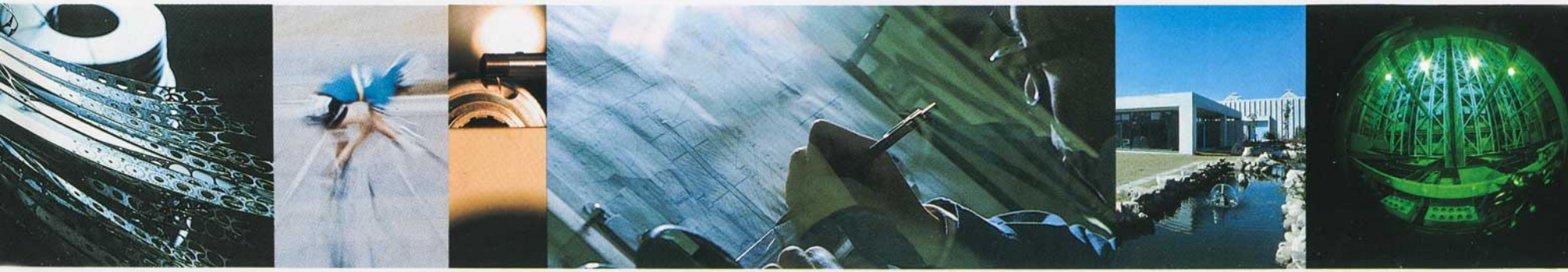
Even when Japan's economy was still suffering from the aftermath of the oil crisis, Shimano succeeded in continuing to pay the same 20% dividend to its stockholders as it had since the dividends were set in November 1964. Shimano is 48.6% self-capitalised and has a floating capital ratio of 151.1%. The financial stability these figures indicate are further reflected in the rising value of Shimano shares in the stock market.

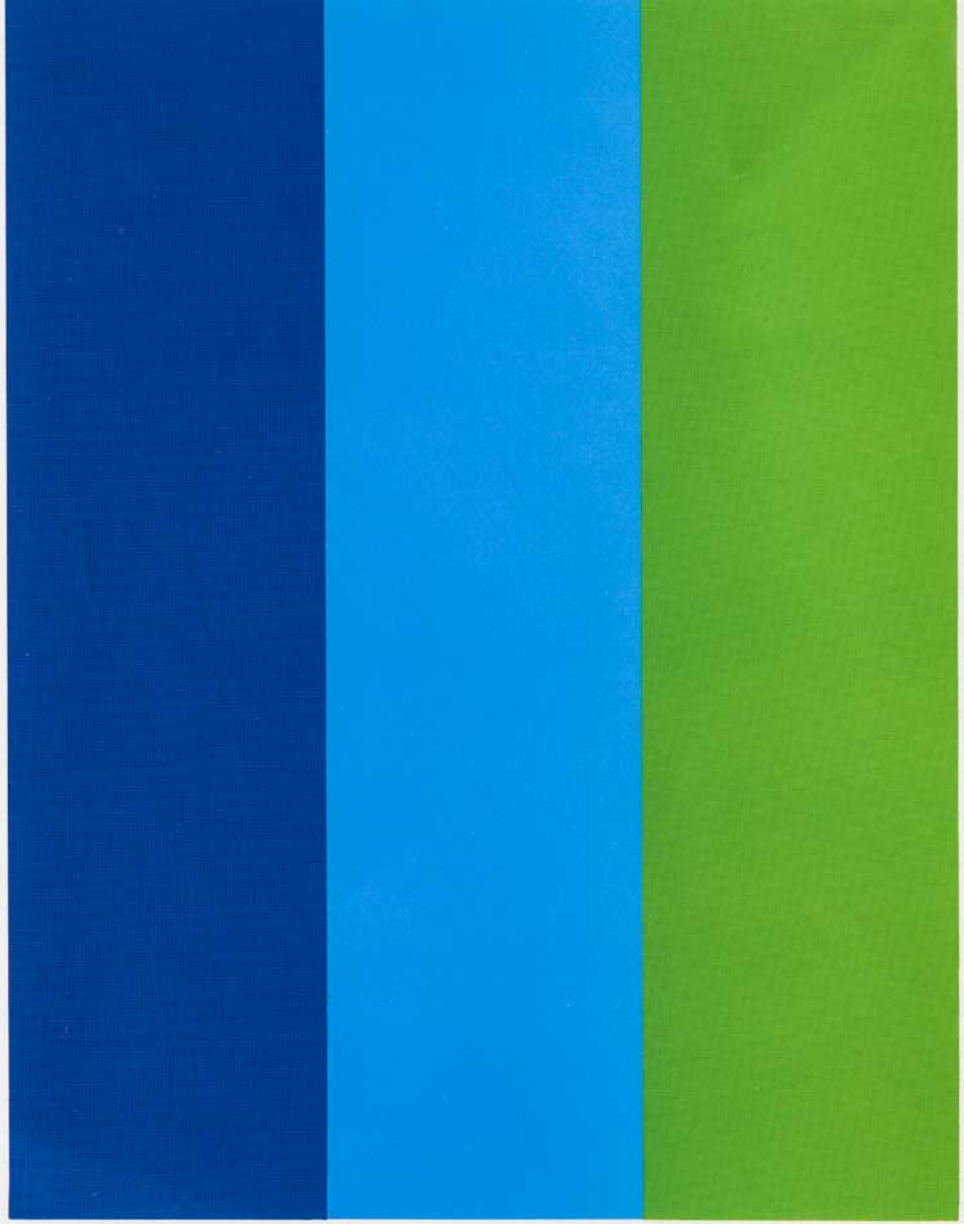
Such results have been achieved by Shimano's continuous efforts to increase management efficiency and strengthen the organisation of the firm. Prestigious domestic and foreign economic journalists have always ranked Shimano among the top business enterprises.

Shimano continues to draw increasing attention around the World.

SHIMANO INDUSTRIAL CO., LTD.

Established: February, 1921
Capital: ¥1,932,612,000 (about $6,442,000)
Number of Employees: 778
Head Office and Main Plant:
Shimano Industrial Co., Ltd.
3-77 Oimatsucho, Sakai, Osaka, Japan
TELEX: 5374-757 SIMANO J
Total Area: 46,651 sq. meters
Plant: 24,823 sq meters
American Office:
Shimano American Corporation
1133 Avenue of the Americas, New York, New York 10036
TEL: (212) 586-2350
TELEX: 127902 SHIMANO NYK
Shimano Sales Corporation
9259 San Fernando Road, Sun Valley, California 91352
TEL: (213) 767-7777
TELEX: 662433 SHIMANO LSA
European Office:
Shimano (Europa) GmbH.
4 Düsseldorf 1, Hüttenstrasse 5, West Germany
TEL: 372007/08
TELEX: 8587249 SEGH D
Singapore Plant:
Shimano (Singapore) Pte. Ltd.
No. 20, Benoi Sector, Jurong Town, Singapore 22
TEL: 654777
TELEX: 23328 RS 23328
Tokyo Office:
Shimano Industrial Co., Ltd.
1-17-17 Omori-Minami, Ohtaku, Tokyo, Japan
Nagoya Office
Shimano Industrial Co., Ltd.
2-37-1 Otobashidori, Nakagawaku, Nagoya, Japan
Shimonoseki Plant:
Simano Yamaguchi Co., Ltd.
1414 Higashishinden, Ozukicho, Shimonoseki, Yamaguchi, Japan
Total Area: 128,706 sq. meters
Plant: 20,530 sq. meters
Tokyo Plant:
Shimano Adachi Co., Ltd.
1-50-26 Ogimachi, Adachiku, Tokyo, Japan
Total Area: 317 sq. meters
Service Centers (Fishing Tackle):
Sapporo, Sendai, Tokyo, Nagoya, Tokushima, Fukuoka, Hiroshima, Osaka
NFT:
Nippon Fishing Tackle Co., Ltd.
2-37-5 Kamiuma, Setagayaku, Tokyo, Japan





SHIMANO

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SHIMANO (EUROPA) GmbH.
4 Düsseldorf 1, Hüttenstrasse 5, West Germany
TEL: 372007/08

SHIMANO (SINGAPORE) PTE. LTD.
No. 20, Benoi Sector, Jurong Town, Singapore 22
TEL: 654777

SHIMANO INDUSTRIAL CO., LTD.
3-77 Oimatsucho, Sakai, Osaka, Japan

Specifications are subject to change without notice.

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