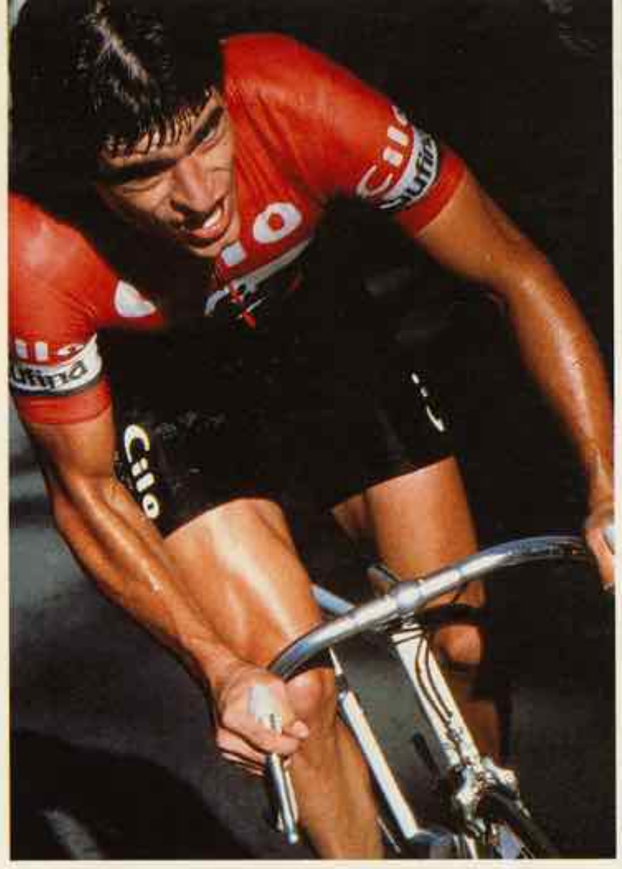


SHIMANO BICYCLE SYSTEM COMPONENTS



SHIMANO

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.





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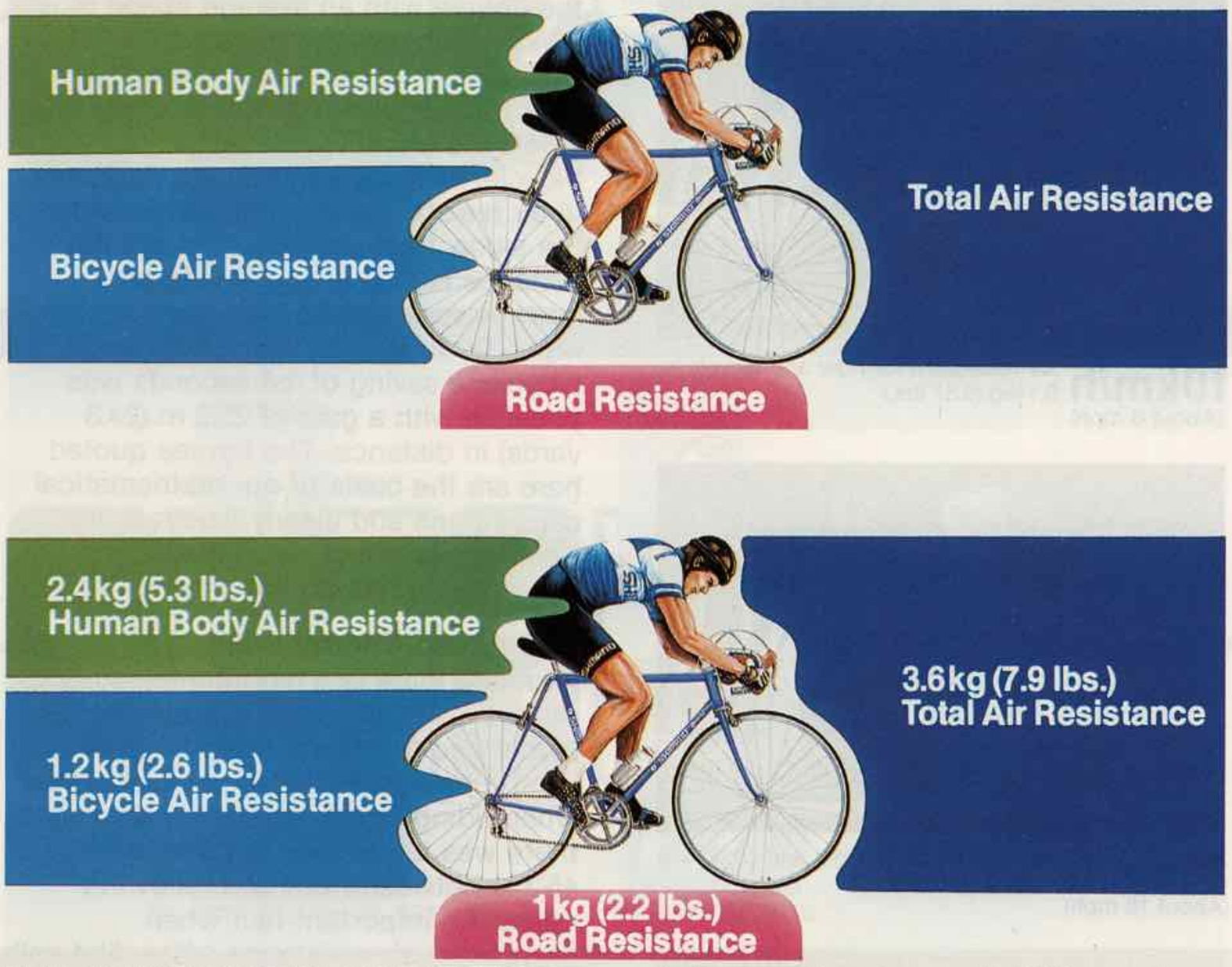
Shimano's Aerodynamic System Components

Many improvements have occurred to the bicycle and its components in the course of a 200 year history. The first most notable improvement to the modern bicycle was the invention of the derailleur which made cycling a much more comfortable exercise.
The second historical innovation came about through the introduction of new metals which made possible lighter weight bicycles. In further efforts to lighten bicycles, the bicycle industry drilled out components to save even as little as one gram. The industry also attempted to reduce weight by changing the bicycle's specifications, as in the case with Shimano's 10mm pitch system for track bicycles. In addition, many other forms of progressive development were achieved through mechanical improvements which enhanced performance.

The Aerodynamic Era
Now another breakthrough of historical dimensions has revolutionized the bicycle industry—the aerodynamic bicycle. The whole bicycle's effectiveness is completely restructured to provide energy efficient cycling never before accomplished. The past great achievements in the bicycle's structure were identified by the contribution they made to comfort and speed. These elements took up most of the bicycle industry's time and effort in trying to improve the bicycle. By concentrating on reducing human effort, in the case of the derailleur, and increasing power output, in the case of light weight components, the industry considered these to be the most important areas for improvement.
Recently, however, Shimano through intensive wind tunnel tests and related research identified another area in need of much improvement—air resistance. Air resistance is now the biggest obstacle that stands in the way of the bicycle's progress with road resistance having already been dealt with by making progressively lighter components. By overcoming air resistance, the rider is able to win races and break time trial records, and most important all categories of cyclists benefit from the extra comfort derived from using energy more productively. This area was long neglected in the bicycle's development and now Shimano has researched and implemented the means to combat air resistance through aerodynamic components to suit all cyclists.
This achievement signifies another great landmark in the 200 years of the bicycle's history. 1980 will long be remembered as the beginning of an exciting new era of improvement for the bicycle and Shimano is proud to have pioneered the aerodynamic system components concept which will drastically improve cycling for cyclists the world over.

Aerodynamics—And A New Era is Upon Us

Riding Resistance Breakdown



Riding resistance consists of road resistance and air resistance. Of these two air resistance represents the biggest obstacle with human body resistance accounting for 2.39kg (5.27 lbs.) and bicycle air resistance for 1.22kg (2.69 lbs.) when riding at a speed of 50km per hour (31.05 mph). Shimano's intensive research into this important area has greatly improved performance through our new aerodynamic components.

Air Resistance remains the same in each case.

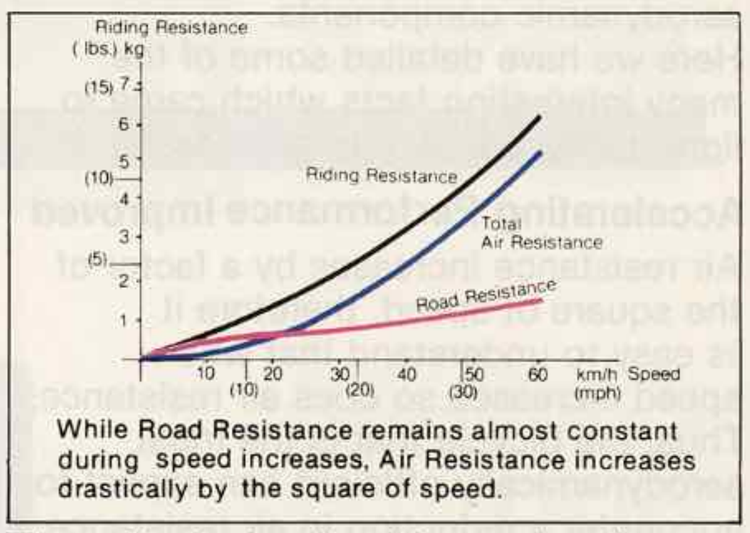
When in a "no wind" situation, a rider pedaling at 30 km per hour encounters the same amount of air resistance as a rider cycling at 10 km per hour into a head wind of 20 km per hour (Or, in a "no wind" situation, a rider pedaling at 30 mph encounters the same amount of air resistance as a rider cycling at 10 mph into a head wind of 20 mph.)
Thus, air resistance must be overcome to improve the rider's performance and provide a more comfortable ride. Shimano's research has centered around this problem resulting in new aerodynamic components for all cyclists.



Bicycle Speed	30 km/h	20 km/h	10 km/h
Head Winds	No Wind	10 km/h	20 km/h
Air Resistance	1.3 kg (Air Resistance remains the same in each case)		
Road Resistance	Remains almost constant at less than 1 kg.		

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

When riding a bicycle, there are two major obstacles which impede the bicycle's progress. One is road resistance and the other is air resistance. All land forms of transportation—cars, motor bikes, etc.—are affected by this dual problem and in particular by air resistance. Shimano's research into this subject revealed just how much air resistance is a factor in restricting the bicycle's forward momentum, especially when compared with road resistance. As seen in the chart below, road resistance remains a fairly constant factor at 1 kg (2.2 lbs.), even when speed is drastically increased. On the other hand, the faster the speed, the greater air resistance becomes.
For example, when riding at 50 km per hour (31.1 mph), road resistance is 1 kg (2.2 lbs.) while air resistance climbs to 3.6 kg (7.9 lbs.). Riding resistance totals 4.6 kg (10.1 lbs.) with air resistance more than three times the total of road resistance.



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

Thus, the faster the rider cycles, the more he is impeded by air resistance and the more energy he has to burn up to maintain high speeds. When seen in practical terms, a rider who under perfect conditions propels a bicycle at 50 km per hour would also use the same amount of energy to propel the bicycle at 30 km per hour into a head wind of 20 km per hour. (Or, in a "no wind" situation, a rider pedaling at 30 mph encounters the same amount of air resistance as a rider cycling at 10 mph into a head wind of 20 mph.)
These conditions apply not only to road racers, but also to the regular 10-speed bicycle rider who also has to deal with the tiring effects of air resistance. The results of Shimano's tests are therefore crucial to road and track racers along with 10-speed touring and leisure riders.

Air Resistance

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

In the history of bicycles, there have been many major improvements which benefitted not only racers but also ordinary riders. Among these developments was the discovery of the derailleur which made cycling much more comfortable. This was followed in more recent times by lightweight components which made the bicycle less cumbersome and even more efficient to ride.

The search to improve the bicycle continues and now the newest stage in the bicycle's evolution has arrived with the introduction of Shimano's aerodynamic components.

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

Accelerating Performance Improved

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

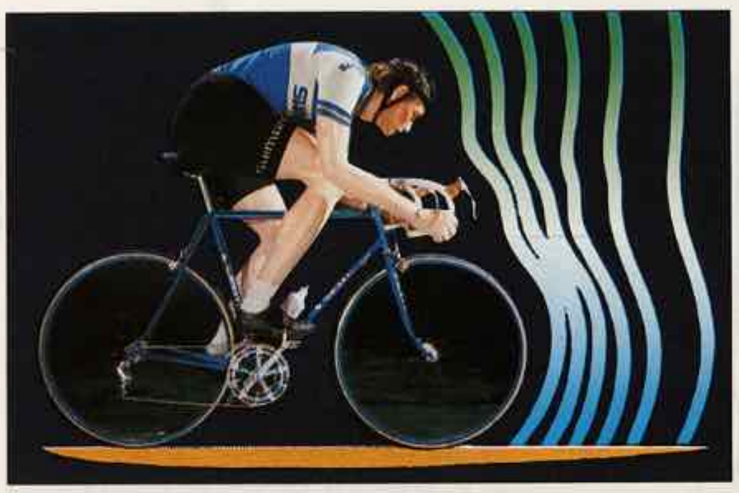
Maximum Speed Increased

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

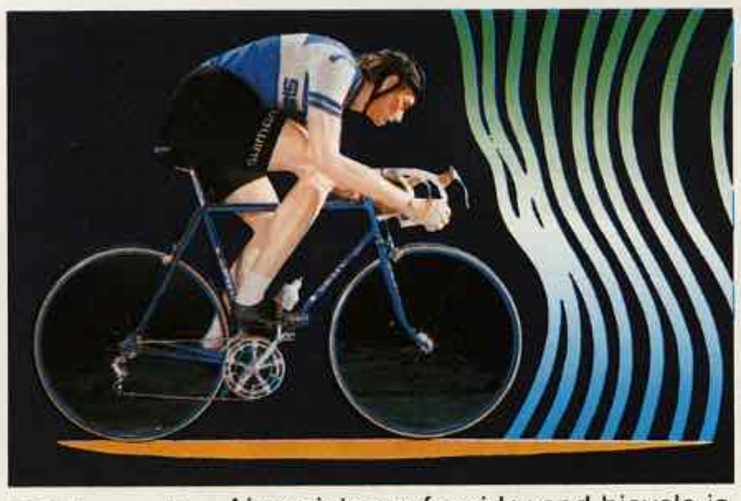
Wind tunnel tests demonstrate how air resistance builds up with speed.



10km/h (About 6 mph) Air resistance for rider and bicycle is 0.14kg (0.31 lbs.)



30km/h (About 18 mph) Air resistance for rider and bicycle is 1.30kg (2.87 lbs.)



50km/h (About 31 mph) Air resistance for rider and bicycle is 3.61kg (7.96 lbs.)



50km/h (About 31 mph) Measuring bicycle and rider separately

Human Body Air Resistance 2.39kg (5.27 lbs.)

Bicycle Air Resistance 1.22kg (2.69 lbs.)

Decreased Energy Loss

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

Conclusion

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

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

Shimano thoroughly researched aerodynamic components to bring the best of modern technology to all bicycles.

Shimano's Results: A combined aerodynamic package of function, lightness and durability applied through our system components concept.

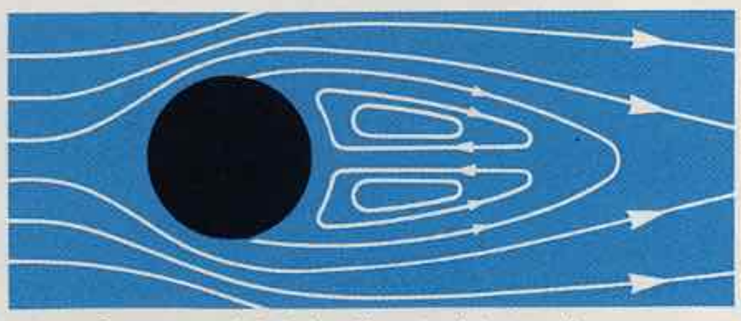
$$D = \frac{1}{2}\rho \cdot Cd \cdot S \cdot V^2$$

D = Air Resistance Value
ρ = Air Density
Cd = Drag Coefficient
S = Frontal Area
V = Speed

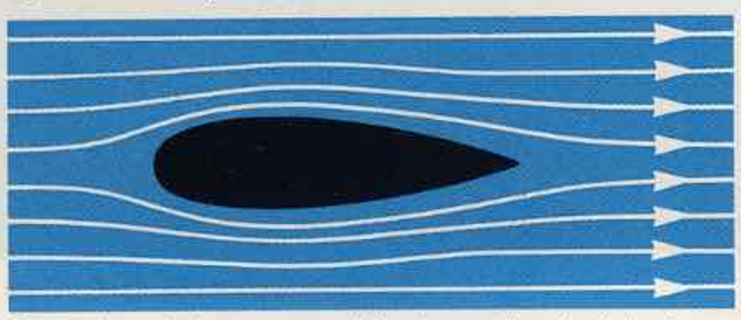
Air resistance is the drag an object exhibits when moving through air. Whether air resistance is large or small can be measured by applying the above equation.
"ρ" is air density, a fixed condition, and "v" is speed, a variable. Under these circumstances, the elements that decrease air resistance are "CD", drag coefficient, and "S", frontal area.
The factors affecting "CD", the drag coefficient, are: "shape resistance", relative to the shape of an object, "viscosity resistance", relative to the surface type of an object, and "induced resistance" relative to the edges of an object. All of the above properties are important elements in decreasing air resistance. "S", the frontal area, is the amount of total area facing the wind head-on.
In general, the smaller the frontal area, the more aerodynamically efficient the object.

Decreasing Shape Resistance

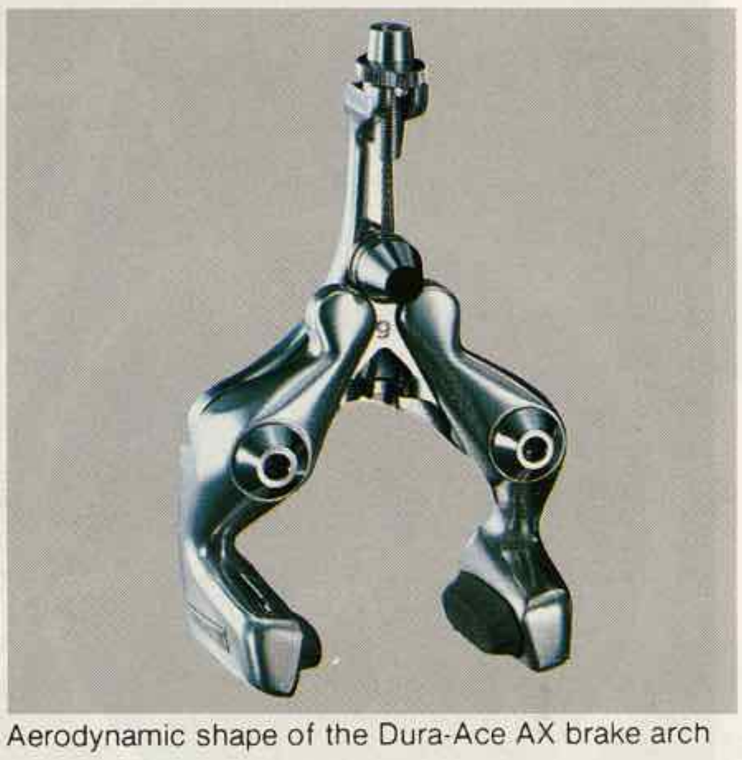
Shape resistance is a form of air resistance relative to the shape of an object. An ideal shape is one that allows an air stream to flow smoothly and continuously from one end to the other. When an air stream hits an object, in addition to surface or eddying flow, air pressure differences occur between the front and the rear, with air pressure most noticeable at the rear.
The reason why a streamlined shape is ideally aerodynamic is because the air



Wind Stream which is directed toward a cylindrical object disturbs air flow.



Smooth wind stream with streamlined object.

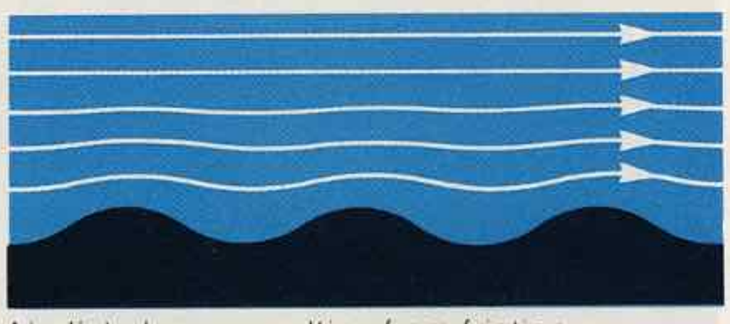


Aerodynamic shape of the Dura-Ace AX brake arch

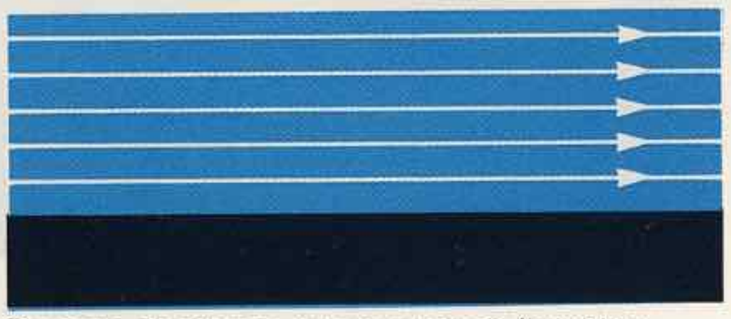
stream runs smoothly across it from front to rear without any air pressure build up occurring at the rear.
Shimano's aerodynamic system components took shape resistance very much into account to improve overall design.
All components, the AX brake body, the brake lever, DD pedal, gears, crank and seat pillar were designed with aerodynamic shapes created from extensive wind tunnel tests and outside field testing.

Decreasing Viscosity Resistance

Viscosity resistance is also known as surface friction resistance. When an object trys to go through viscous gases, friction, which occurs between the gas and the object, causes resistance.



Air disturbance resulting from friction resistance.



Smooth air stream due to surface finishing.



Dura-Ace AX Front Hub which has buff almite finish.

In fact, the reason why an airplane's wings and body are designed with a completely smooth, streamlined surface is not so much for the asthetic aspect but for decreasing viscous resistance as much as possible.
Shimano's aerodynamic system components use, wherever possible, a super-high level finishing treatment which can be seen in the buff almite finish. In another effort to diminish viscous resistance, we try not to put decals on our products but rather stamp-print our components.

Decreasing Induced Resistance

Most objects have edges. When an air stream hits this area, an eddying flow builds up and resistance occurs. To decrease induced resistance, it is necessary to eliminate all protrusions and corners by rounding them off into streamlined shapes.
The inner cable's end and head part's fairing cover, which are part of Shimano's aerodynamic program, were designed to reduce induced resistance.



Front Derailleur Cable End Attachment used on Dura-Ace AX, Shimano 600 AX and Adamas AX

Decreasing Frontal Area Resistance
Frontal area represents the square meter total of an object facing into the wind. Increase or decrease in air resistance is in direct proportion to frontal area surface. This means if the frontal area's total square meterage is decreased by half, then air resistance also becomes half.
When it is windy or speed increases, the rider reflexively takes up a crouching position over the handle bars. This is an automatic effort to decrease frontal area exposure to oncoming wind.
The same theory applies to Shimano's aerodynamic components. For example, the front derailleur was designed with a lateral link mechanism to decrease frontal area. And throughout our aerodynamic component series, wherever possible, frontal area has been reduced.



Dura-Ace AX Aerodynamic Shape alongside conventional Seat Pillar

In addition to aerodynamic properties, Shimano also achieved lighter weight components with increased durability. Wind tunnel tests and data related to air resistance were analysed for the prime functions of the bicycle such as riding stability against winds and other phases of the bicycle's operation.
We developed our products based on ideas conceived through our original Shimano System Components concept.



aerodynamic bicycle



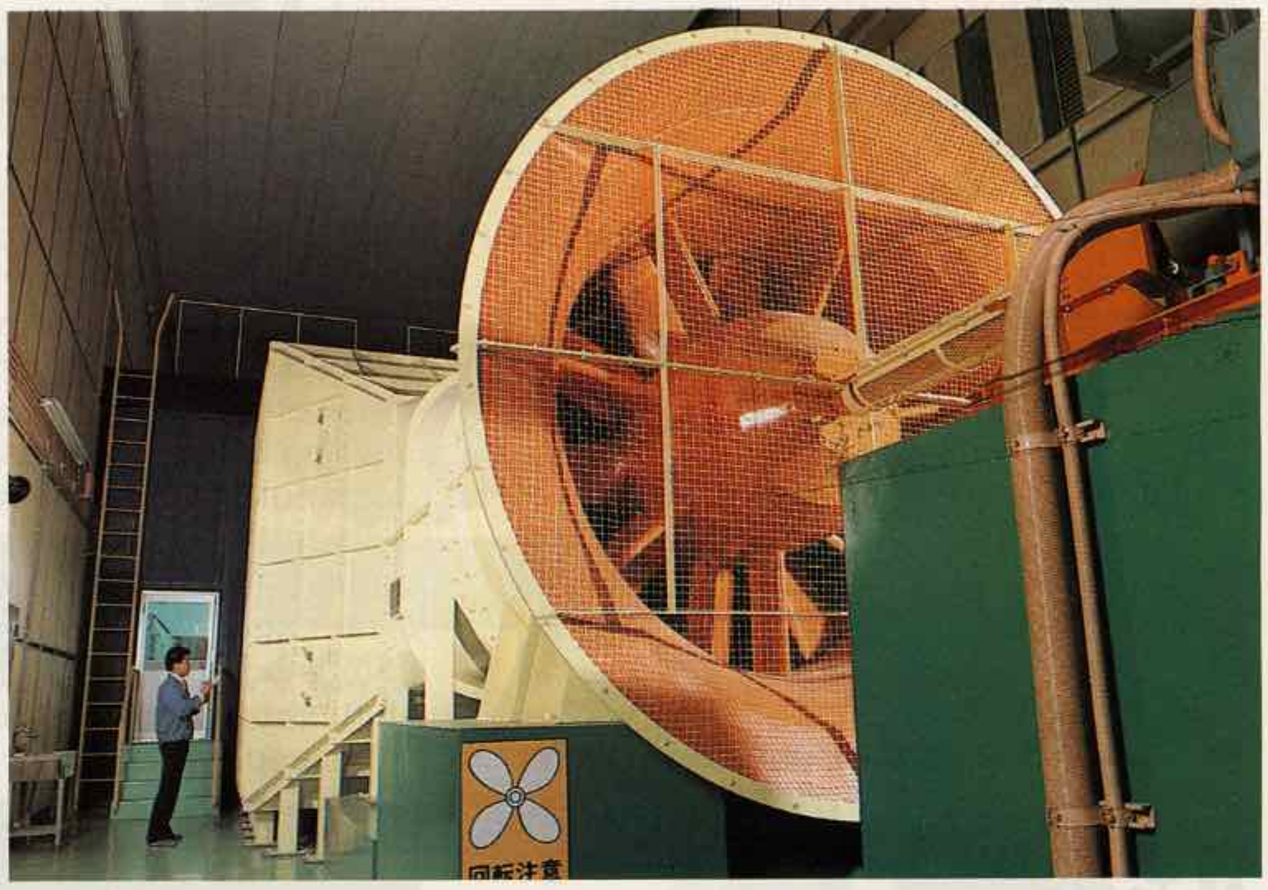
conventional bicycle

Aerodynamic Principles create new bicycling concepts.

Shimano reduced air resistance by an amazing 21.7%.

We arrived at our percentage evaluations by running identical wind tunnel tests on both conventional and aerodynamic components. Under 50 km per hour (31.05 mph) conditions, components were separated into four groups, as shown below. Each group was tested individually by taking an air resistance reading with conventional components. Comparisons were made by replacing conventional components one at a time with aerodynamic components. In the case of our front derailleur, the comparative figure showed the aerodynamic product to exhibit a decrease of 30.6 percent in air resistance—the equivalent of an 11 g (0.39 oz.) reduction. However, to give a clearer indication of this figure's impact on the total bicycle, we based our calculations on the 1.22 kg (2.69 lbs.) bicycle air resistance figure. Thus, the front derailleur's total percentage decrease is 0.65 percent. By applying this method to all our components and totaling the results, we arrived at a final percentage saving of 21.7 percent. Because of the nature of these tests, this figure represents a mathematical decrease based on the 1.22 kg (2.69 lbs.) bicycle air resistance figure registered at 50 km per hour (31.05 mph). Through these tests, however, Shimano was able to prove just how much air resistance can be decreased and how important aerodynamic components are to the performance of the bicycle.
(To see our actual bicycle comparison test results, please turn to page 14.)





Shimano's Bicycle Comparison Test: Fully equipped aerodynamic bicycle showed a reduction of 20.6% air resistance!

Shimano carried out wind tunnel tests in the biggest facility of its kind in Japan at the Japanese Car Research Institute Foundation, at Tsukuba City in Ibaraki Prefecture. We compared an aerodynamic bicycle fitted with Shimano's aerodynamic components, and a conventional round-tubed frame bicycle with regular components. The result was a decrease of 20.6% in air resistance. Also stability and operating tests were carried out on the effects of side winds on the straight and when cornering to ensure data was perfect in every detail.

The highly significant reduction of 20.6% opens up the way to another major era in the bicycle's development—Aerodynamics!



SHIMANO AERODYNAMIC SERIES FEATURES: DRIVE TRAIN MECHANISMS

W-cut Mechanism

All AX Series

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

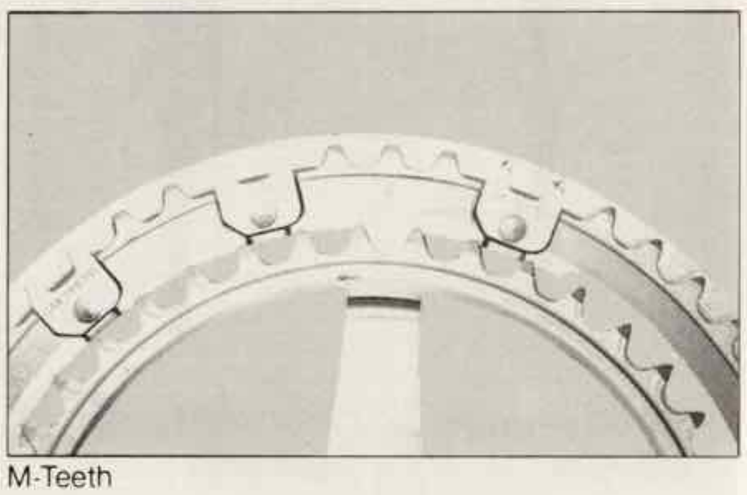


Gear shift on W-cut Teeth

M-Teeth

Shimano ADAMAS AX

The M-Teeth on the front chainwheel have added another dimension to the smoothness of gear changes. Now the low to high gear change is also as efficient as the W-cut Teeth's change making a perfect combination. Made of heat-treated steel, durability is increased to take the wear and tear of constant gear shifts.

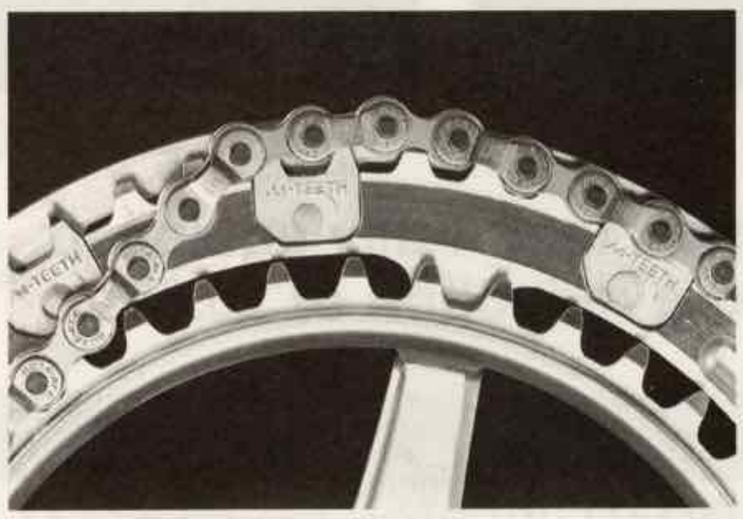


M-Teeth

Twin Gear

Shimano Adamas AX, Shimano INTEGER AX

The Twin Gear Front Chainwheel was developed by Shimano with outer and inner gears as a single unit. And gear teeth perfectly aligned for improved gear changes.
The reason behind Shimano's decision to align the outer and inner chain ring teeth stems from the fact that when shifting from low to high gears, off the W-cut Teeth, the chain rides up onto the outer gear. Because the chain links are equidistant from each other, there are few points where engagement can actually take place. It was here that Shimano decided to concentrate; the distances between the teeth on the outer and inner chain rings, and the distance between the chain rings themselves. The research resulted in the Twin Gear System where teeth are aligned at ideal changing points between top and low gears. Now when shifting to the outer gear, the chain does not catch the teeth tops impeding a smooth change. Because of the perfect alignment, the chain makes a clear engagement every time. When combined with the W-cut and M-Teeth, shifting performance is even more enhanced.



The Chain on Front Chainwheel with aligned large and small gears.



The Chain, on Front Chainwheel without aligned large and small gears, slips on the teeth.

Safety Crank Arm

All AX Series

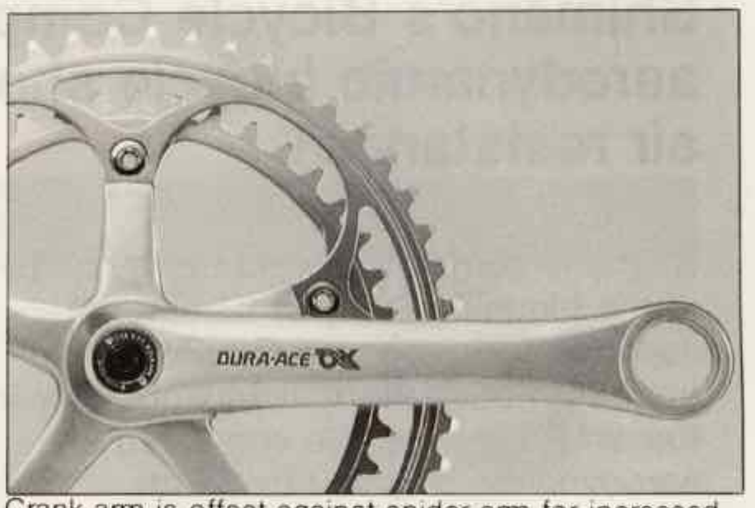
In order to increase strength and reduce the likelihood of the ankle being struck, we shortened the crank axle and reshaped the crank arm. A perfect safety feature.



Offset Crank Arm

Dura-Ace AX, Shimano 600 AX

By repositioning the crank arm in relation to the front chainwheel spider arms, we could strengthen the structure drastically. The secret was to build it into the chainwheel making one integral unit. This allowed us to shorten the crank axle for reduced chainwheel flexibility.
Along with improving durability, the DD Pedal's performance has also been greatly improved. Pedaling power is directly transformed into driving power and the bicycle's overall performance is heightened.



Crank arm is offset against spider arm for increased durability.

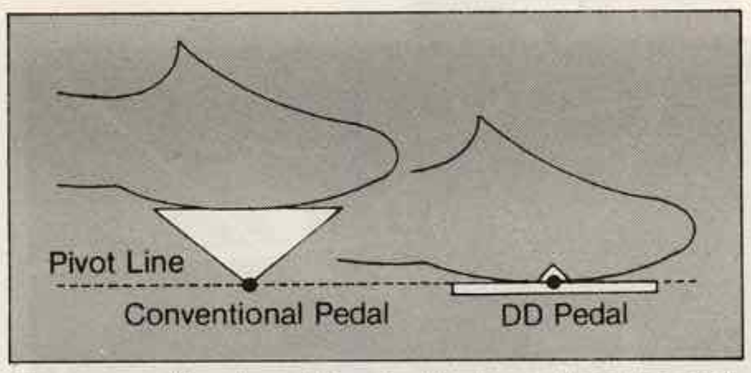
DD Pedal

Dura-Ace AX, Shimano 600 AX

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

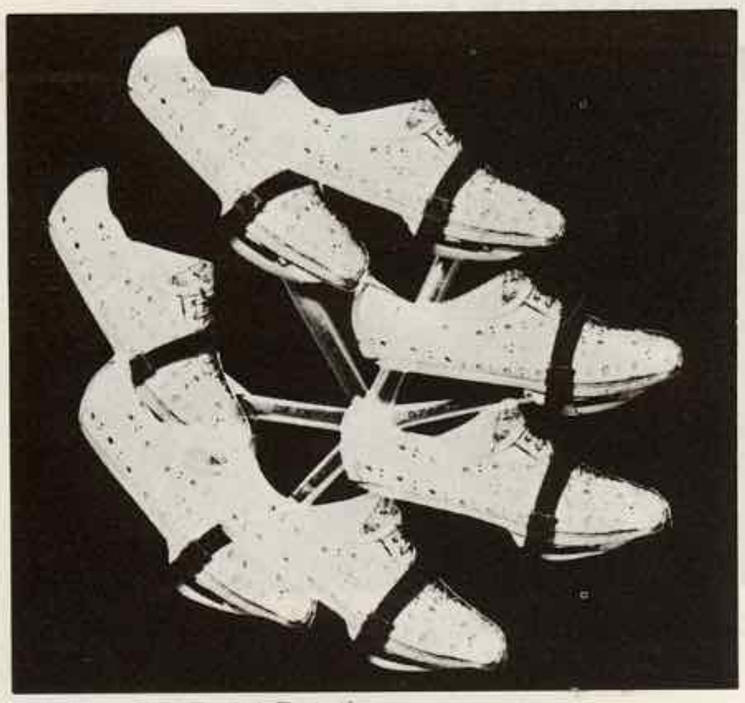
When Shimano closely examined the conventional pedal, it soon became apparent that because the axle is lower than the pedal body, energy was easily dissipated trying to keep the pedal steady. This meant the rider was forced to use valuable energy "ankling" instead of concentrating soley on rotating the pedals.
In contrast, the DD Pedal's axle connects to the crank arm slightly above the pedal body. Now the pedal platform is on the same level as the axle. The pedal always maintains a stable position allowing full rider pedaling power to drive the chainwheel—and the bicycle. A tremendous improvement in performance.





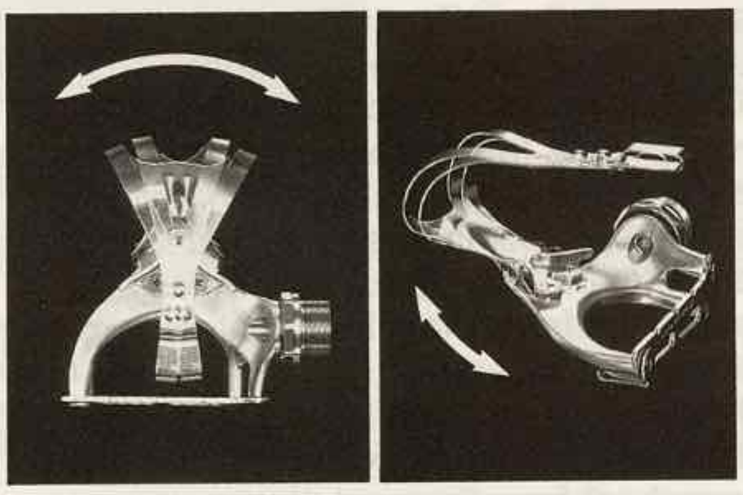
The conventional pedal's pivot is lower than the platform so that power input is dissipated maintaining pedal stability when pedaling.

In comparison, the DD Pedal is much more stable-with full power centered on the pedal axle for maximum driving force.



Effective DD Pedal Rotation

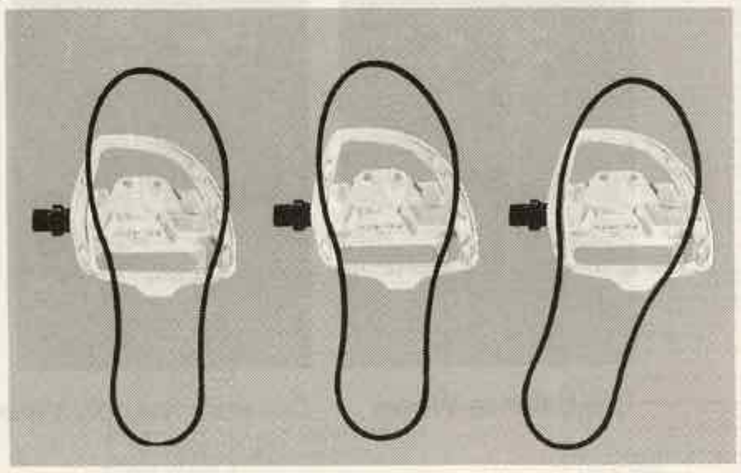
The position of the DD Pedal has also lowered the center-of-gravity for both rider and bicycle. This means bicycle stability is increased and, in keeping with Shimano's aerodynamic policy, air resistance is lessened.

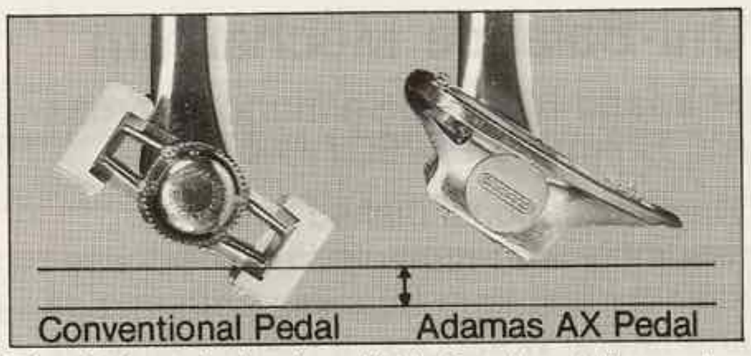


DD Pedal
The toe-clip adjusts back and forth by 10mm (0.39"), and also laterally to obtain the most comfortable setting.

Adamas AX Pedal
Shimano Adamas AX

Shimano's policy of utilizing aerodynamic design has manifested itself in the new Adamas AX Pedal which greatly reduces air resistance. Although only one side of the platform can be used, compared to both sides on a conventional platform, the specially weighted design always keeps the correct platform side facing upwards. This unique platform was designed by using the principles of biotechnology to shape it to the sole of the rider's shoe for any pedaling position. In addition, special spikes have been located to prevent slipping.
Another great feature is that road clearance, when cornering while pedaling, is increased over the conventional pedal.





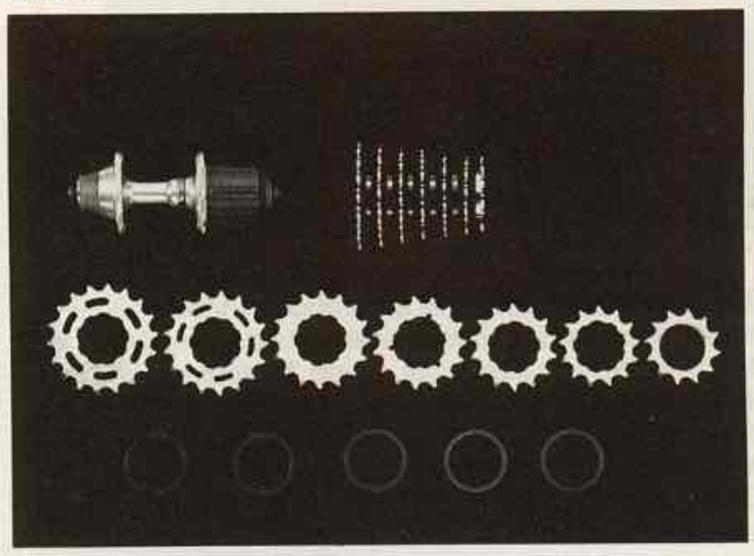
The platform design is suitable for all pedaling and riding styles.

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

Toe clip and toe strap are easily assembled with reflectors on front and back.

Cassette Freehub
All AX Series

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



Top gear is threaded style with second onwards spline type.

Uni-Balance Mechanism

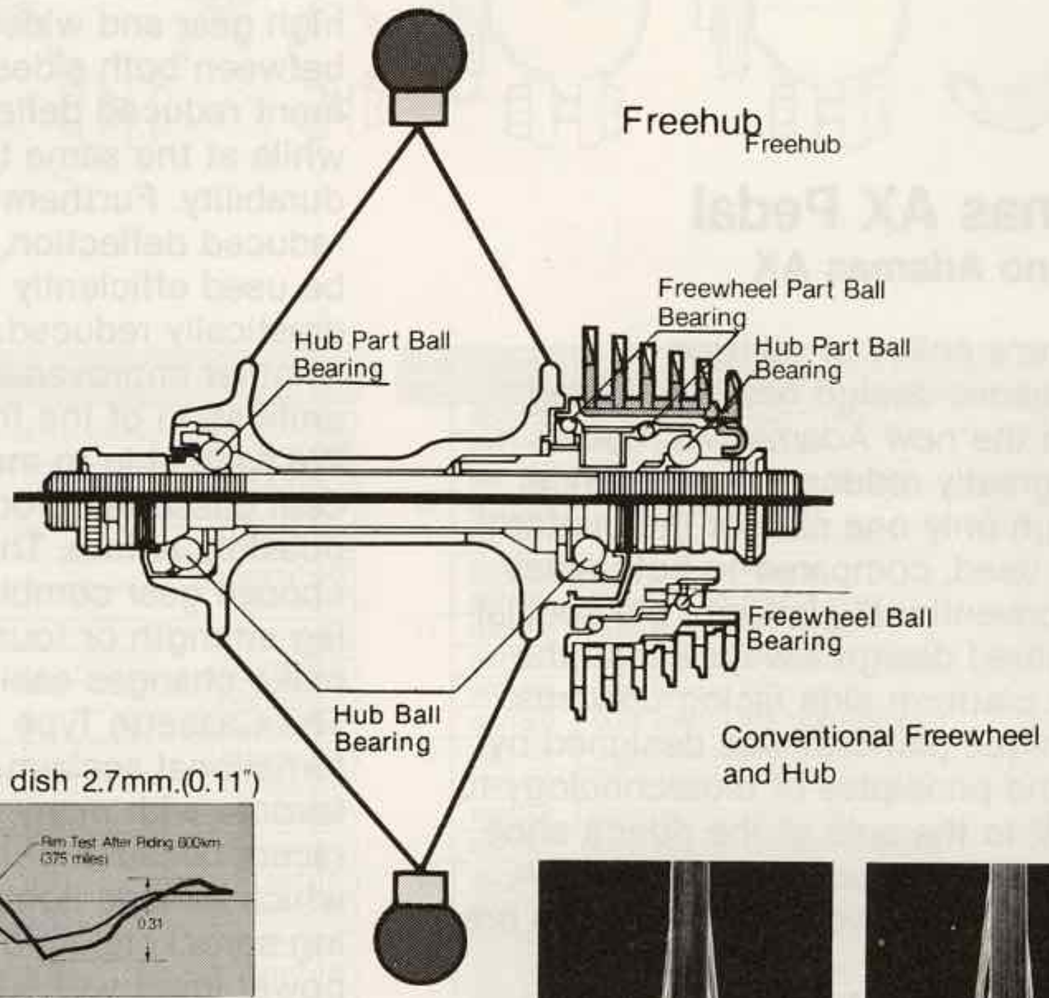
Shimano 600 AX, Shimano Adamas AX, Shimano DIRECTION-6 AX

The conventional dished wheel assembly with multiple freewheel was seen by Shimano to cause both vertical and lateral vibrations; a major cause of damage to both spokes and the rim. (The ratio of spoke tension on right and left side spokes causes an imbalance of 10:6. This is because the center of the hub and frame do not align with each other due to the multiple freewheel's positioning.)

The dished assembly, with its obvious demerits has been used for a long period. Not until Shimano tackled this long outstanding problem was a solution discovered. With the development of the Uni-Balance Mechanism, equal distribution of tension on both right and left side spokes was made possible. We were able to reduce the dish substantially while still keeping the usual distance between flanges.

The Uni-Balance Mechanism was responsible for improving durability of spokes and the rim along with solving vertical problems due to imbalance. In addition braking performance has also benefited from the inherent stability of the wheel assembly.

Another big problem solved was when the rider wanted to exchange a 5-speed freewheel for a 6-speed, it was necessary to change the frame also. Now, the Uni-Balance allows 5 and 6-speed freewheels to be used on the same frame.



Conventional Freewheel and Hub

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

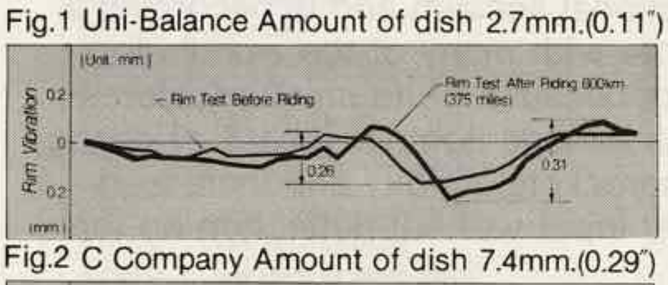
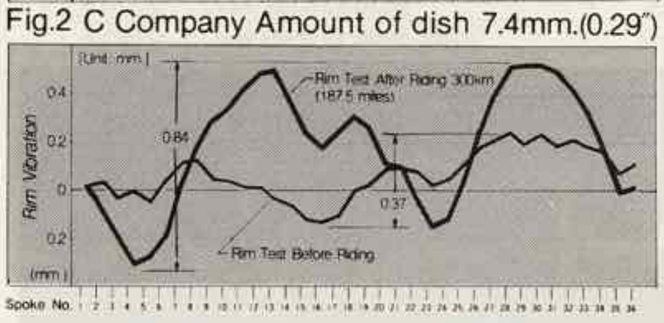
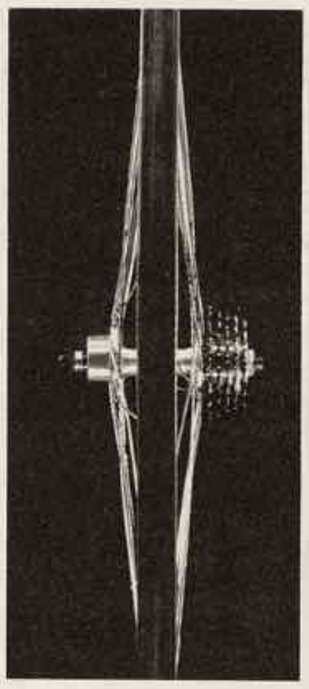


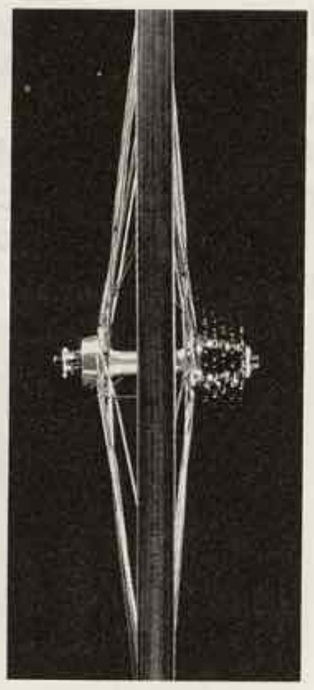
Fig.2 C Company Amount of dish 7.4mm.(0.29")



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. 2], while the Uni Balance is only 0.05mm (0.002") [Fig. 1]. Thus, the Uni-Balance has solved the problem of rim Vibration so apparent in the conventional assembly, and exhibits incredible rigidity.



Uni-Balance Wheel



Dished Assembly Wheel

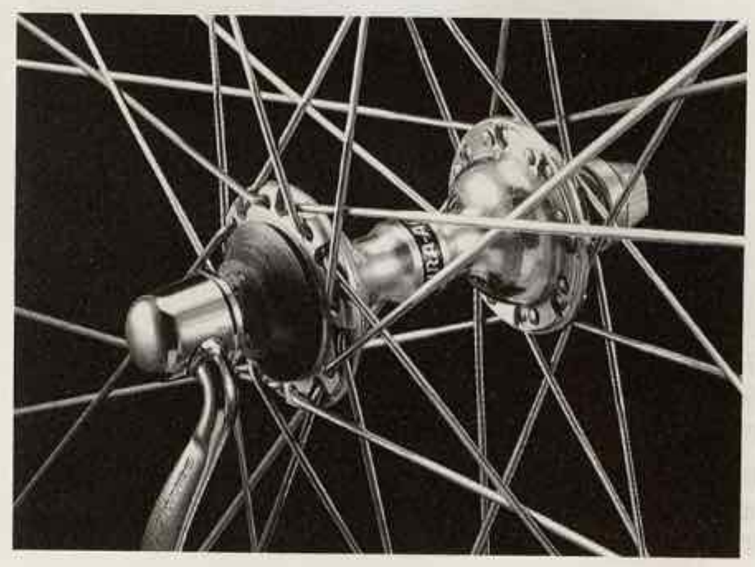
Direction-6 Mechanism

All AX Series

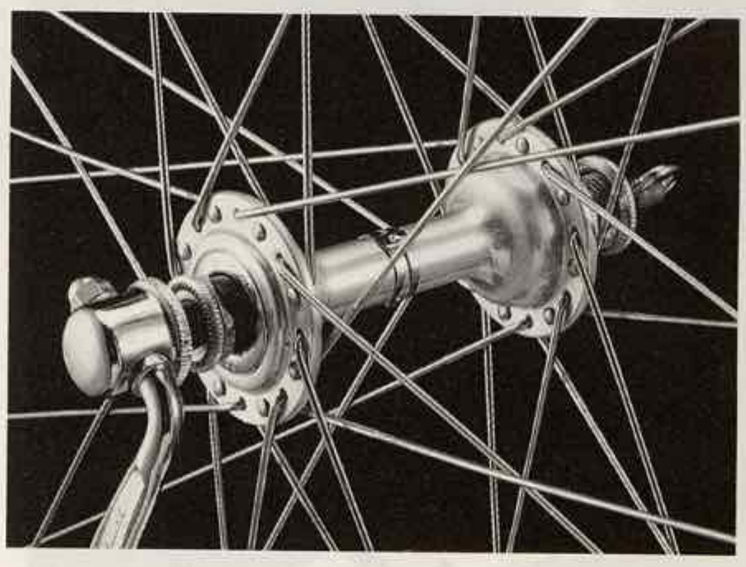
Rim assembly on a wheel is one of the most troublesome chores associated with the bicycle, needing time and skill. The Direction-6 Hub has greatly alleviated this problem with its specially designed flanges. Each spoke hole is designed to face the spoke in the correct direction with every other hole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

Another feature is the increase in spoke width assembly of 12% compared to conventional models. Also, the cross over system allows almost equal tension on each spoke thereby increasing vertical and lateral strength substantially. (20% increase for lateral force and 10% for vertical force according to Shimano data.)

Direction-6 is not only a great boost for racing efficiency but also a great benefit to touring.



Direction-6 Hub Rim Assembly



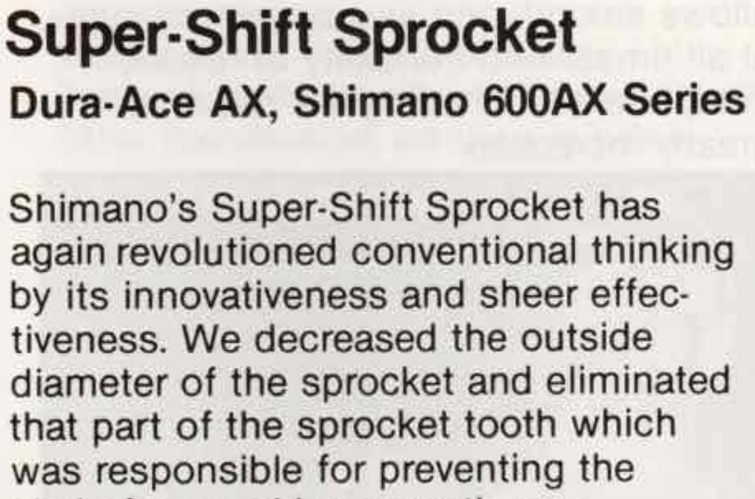
Conventional Hub Rim Assembly

Super-Shift Sprocket

Dura-Ace AX, Shimano 600AX Series

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

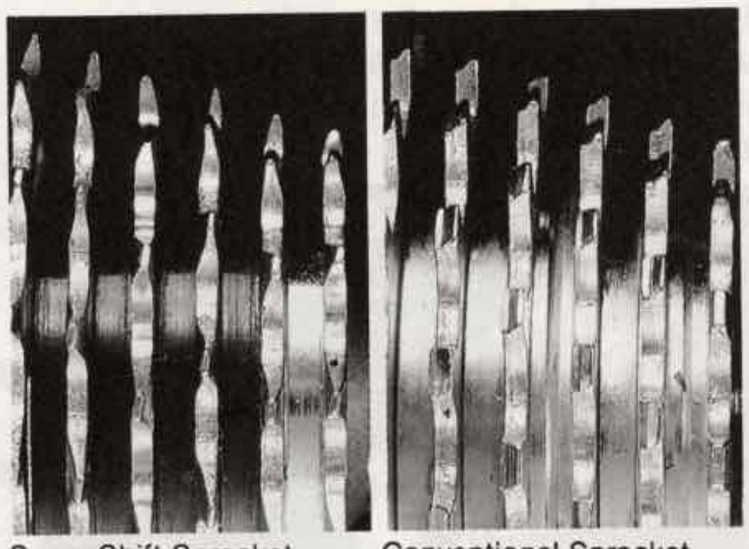
By using Super-Shift Sprockets on the conventional UG Freewheel, we were able to improve performance to a much higher level. In addition, we designed a new teeth formation assembly, the alignment system.



Wave form shaped teeth

This allows the teeth to be closer to low side gears and high side gears in alternating sequence. As a result, the low to high and high to low gear changes are greatly speeded up. Further the Super-Shift Sprockets are responsible for improved shifting lever performance with no need for fine-tuning. Also pedaling power remains constant when shifting instead of slowing down as with conventional systems.

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

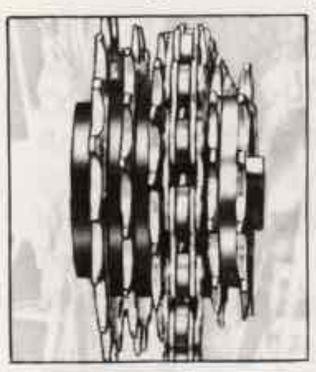


Super-Shift Sprocket | Conventional Sprocket Teeth

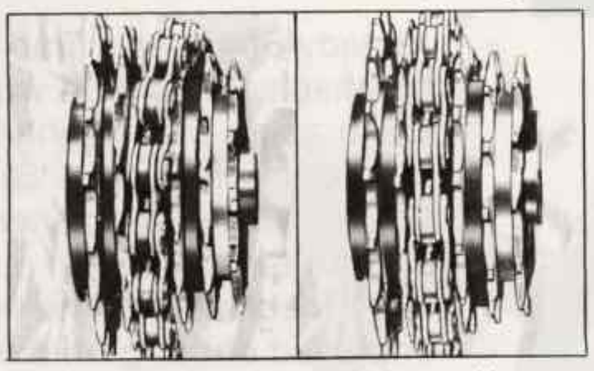


When removing sprockets, as seen in photograph, use the double wrap sprocket turning chain for easier operation.

• Shifting with Super-Shift Gear Freewheel (using UG Chain)



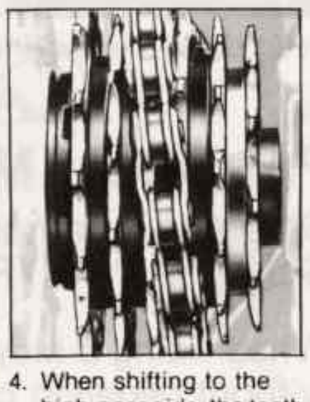
1. The chain is released smoothly and quickly from the gear teeth and is led easily onto the next gear without hindrance.



2. The teeth, located near the high gear side with Wave form shape receive the chain quickly without any slippage.

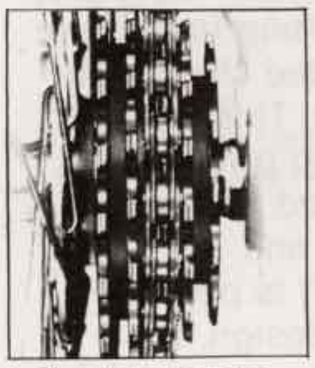


3. Smooth and reliable shifting can be done without stress on the chain.

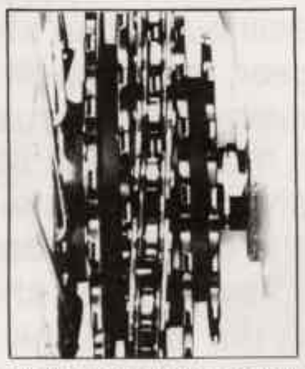


4. When shifting to the high gear side, the teeth which are inclined toward the low gear side, due to the Wave form shape, guide the chain links into position before releasing them onto the next gear.

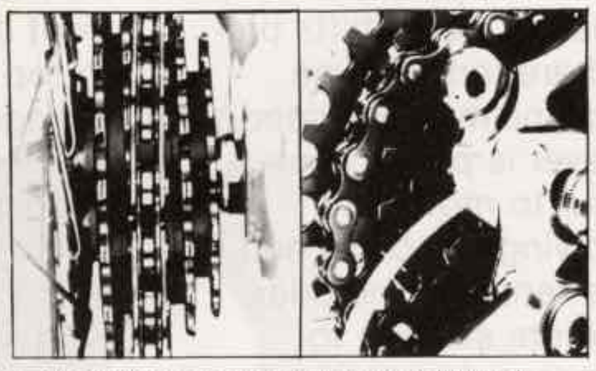
• Shifting with conventional Freewheel (Using conventional chain)



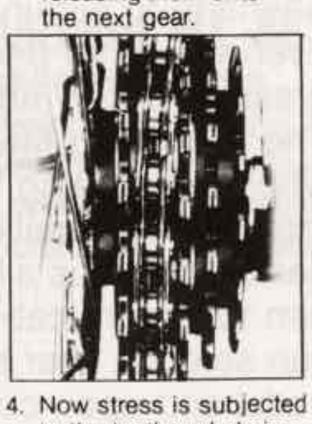
1. The chain pin makes contact with the adjoining large gear teeth.



2. The timing of the gear change is delayed because the chain cannot detach from the gear cleanly.



3. The adjoining large gear teeth are diagonally opposed to the oncoming chain causing it to slip on the teeth.



4. Now stress is subjected to the teeth and chain and shifting as a result becomes unstable with considerable wear.

Super Finish Treatment

Dura-Ace AX Series

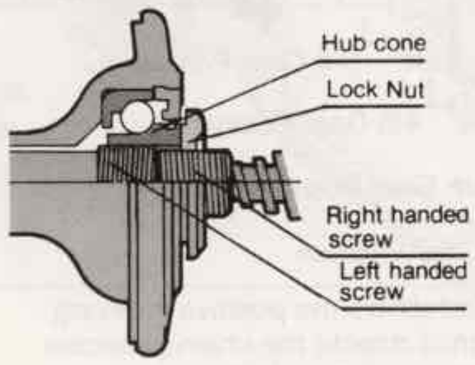
Our new Super Finish Treatment is used on the ball race section of the hub. And the resulting increase in rotating performance and durability is an outstanding improvement.

The Super Finish Treatment, a highly technical process, was found to be far superior to conventional finishes. Because of this technique, we could achieve maximum surface precision, symmetrical durability and set new standards for product finishing of the highest quality.

Special Front Hub Structure

Dura-Ace AX

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



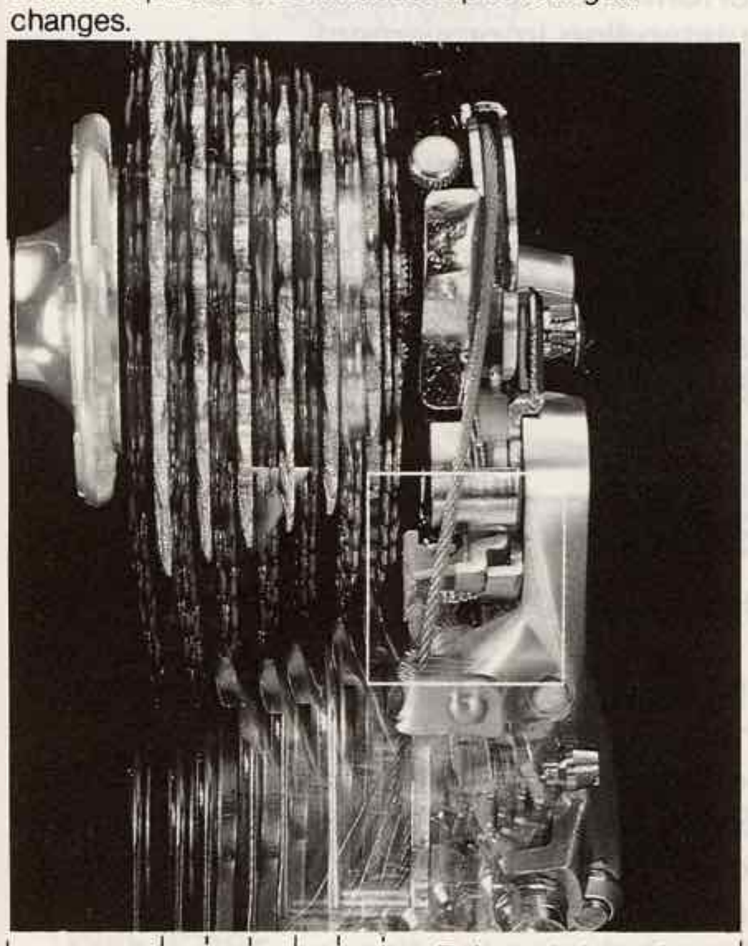
Special Front Hub Axle Structure

SHIFTING MECHANISMS

New Positive Mechanism
All AX Series

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

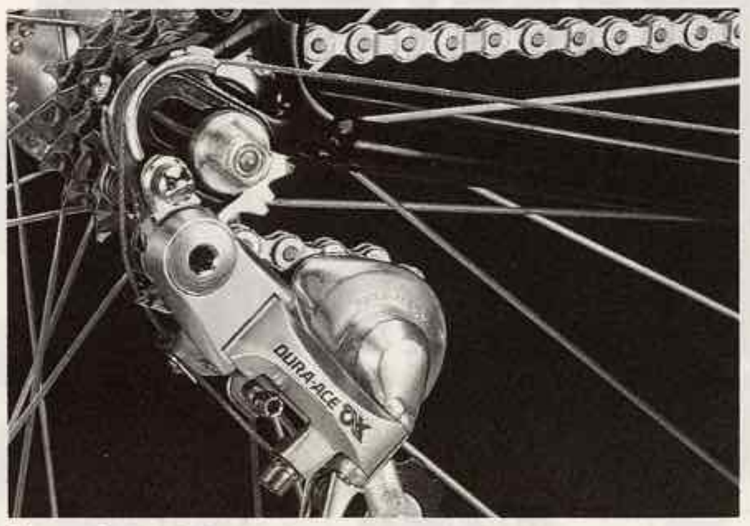
The built in Positive Indexing Mechanism of the rear derailleur provides continuous top to low gear changes.



The rear derailleur follows the positive indexing mechanism and thus directs the chain's precise movements as seen in above photograph.

Direct Cable Mechanism
All AX Series

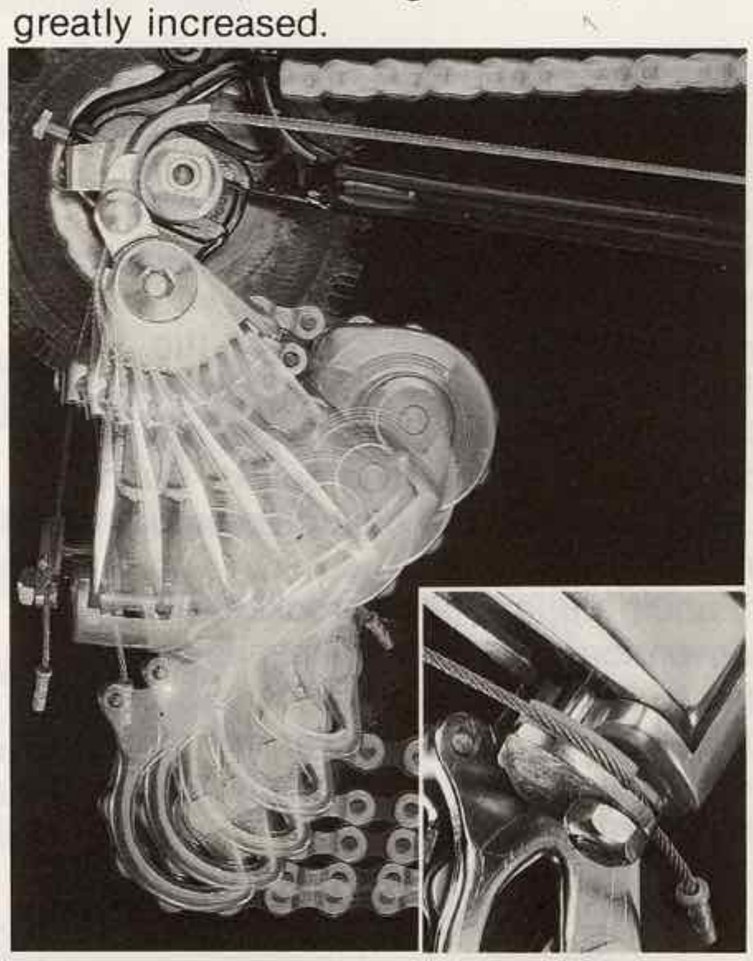
A constant aim of our development planning has been to examine even the least likely areas of power loss. It was found that the outer cable was responsible for a slight loss in force and response, so we tackled the problem of disposing of the outer cable. We joined the inner cable to the rear derailleur,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



Direct Cable Mechanism

Pre-Select Mechanism
Shimano Adamas AX, Shimano POSITRON AX

When riding a bicycle, to shift down without pedaling causes undue stress on the freewheel, chain and rear derailleur. This clearly obstructs a smooth gear change operation. The Pre-Select Mechanism was developed by Shimano to eliminate this problem.
Even when not pedaling, gear shifts progress smoothly and are tension-free.
The Pre-Select Mechanism is activated when the shifting lever is pulled causing the rear derailleur to move backwards thus allowing the cable end arm to absorb cable tension. The rider can select a gear before starting to pedal and upon commencing, the shift will take place. Irrespective of circumstances, the Pre-Select Mechanism allows smooth and steady gear changes at all times. And durability of related components, including the cable, is greatly increased.



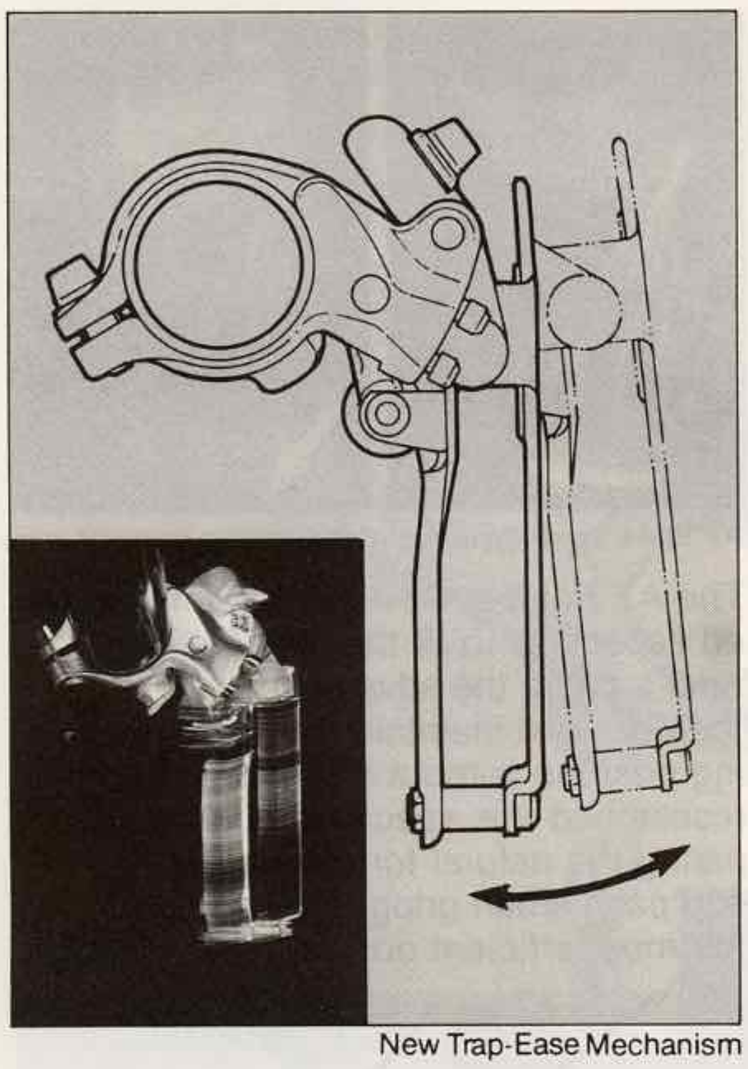
Pre-Select Mechanism and Rear Derailleur's Movement

Cable End Arm

New Trap-Ease Mechanism with lateral link design
Dura-Ace AX, Shimano 600 AX, Shimano Adamas AX

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

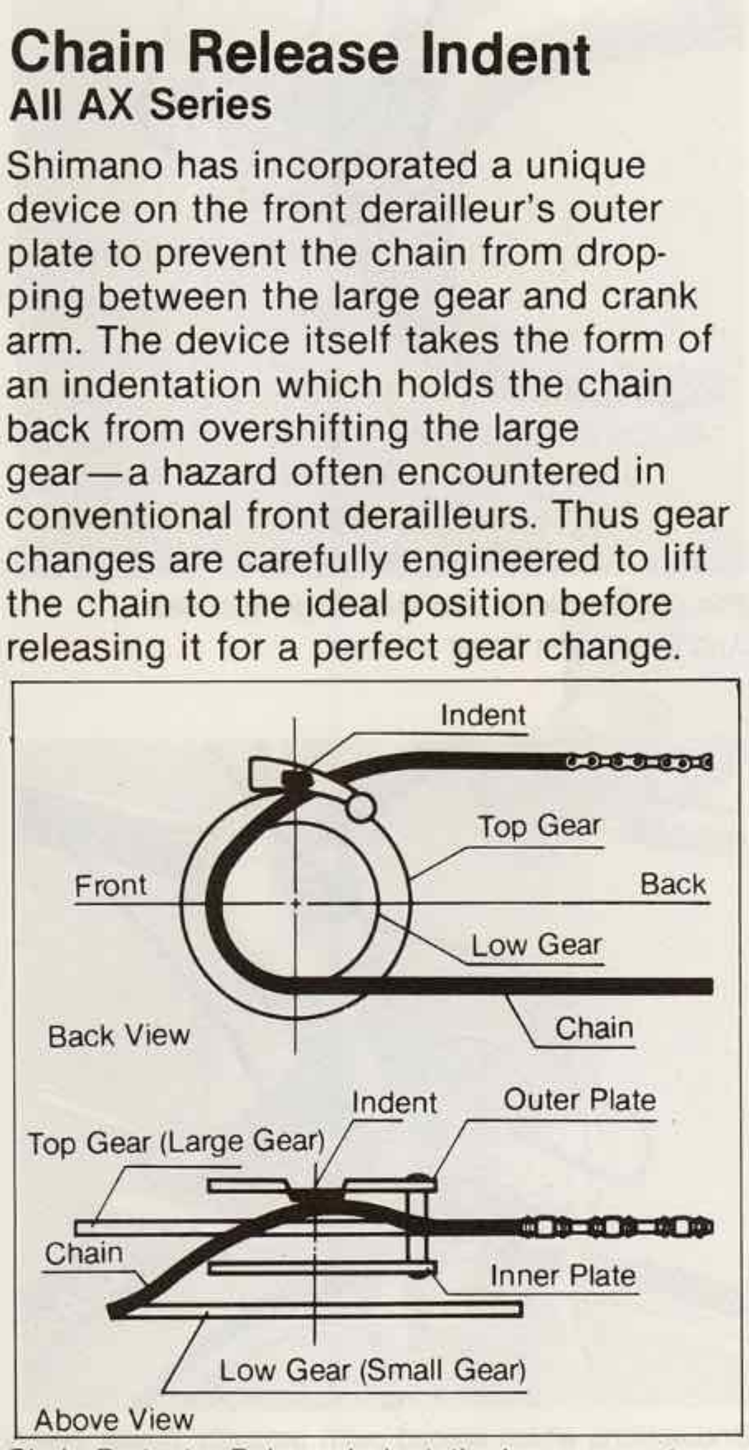
BRAKING MECHANISMS



New Trap-Ease Mechanism

Chain Release Indent
All AX Series

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

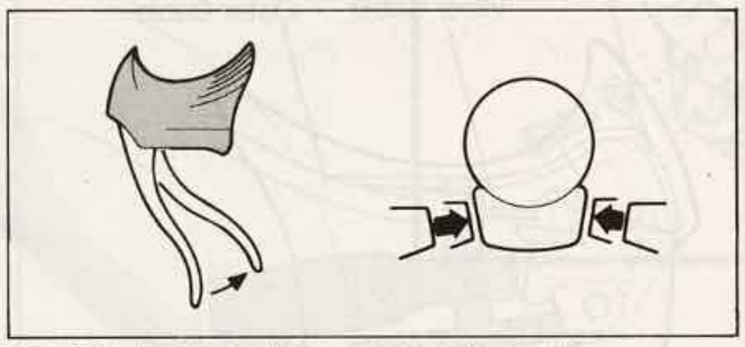


Chain Protector Release Indentation's movement

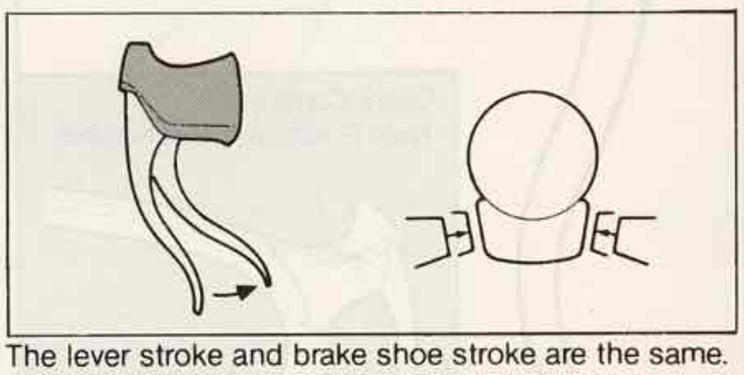
New Para-Pull Mechanism
All AX Series

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

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

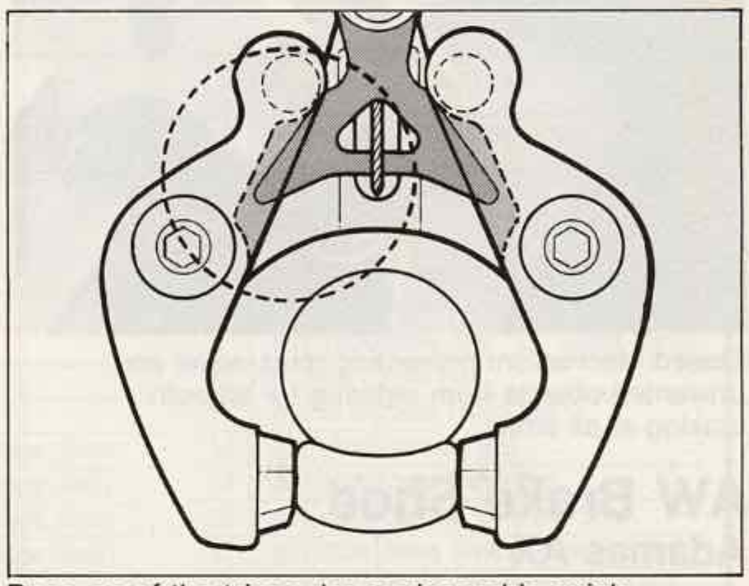


The first touch on the brake lever is quickly transmitted to the brake shoes which move toward the rim.

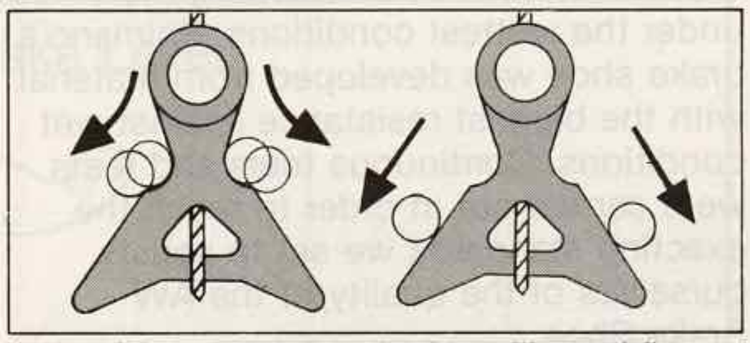


The lever stroke and brake shoe stroke are the same.

These two innovative features allow the rider to control exactly the amount of speed required by means of the ideal positioning of brake shoes and their operation.
Another feature is unbalanced braking to one side has been eliminated because the design of the brake arm arch interior follows the parabolic movement provided by the lower section of the triangular carrier. Thus, any bias to one side is immediately balanced by the special geometry of the related parts.
The assembly angle of the brake shoe holder, so essential for braking input, was decided upon by researching the frame's offset angle along with the most suitable brake shoe assembly angle.

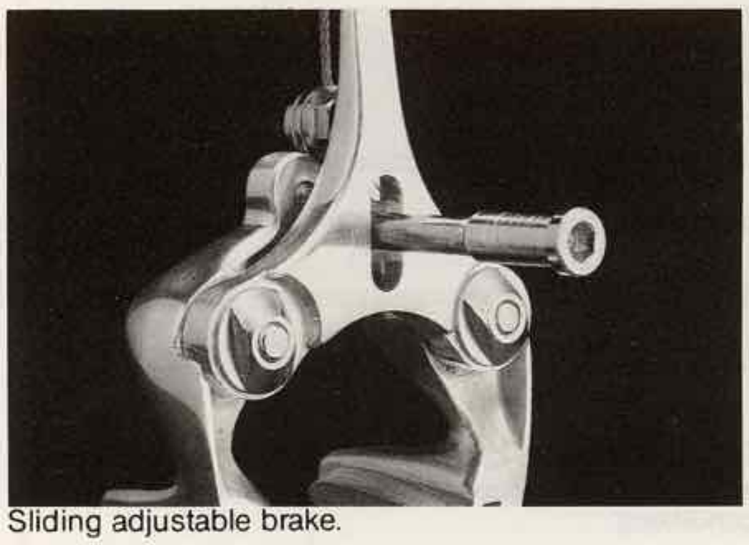


Because of the triangular carrier arch's quick transmission mechanism, the quick release mechanism is unnecessary.

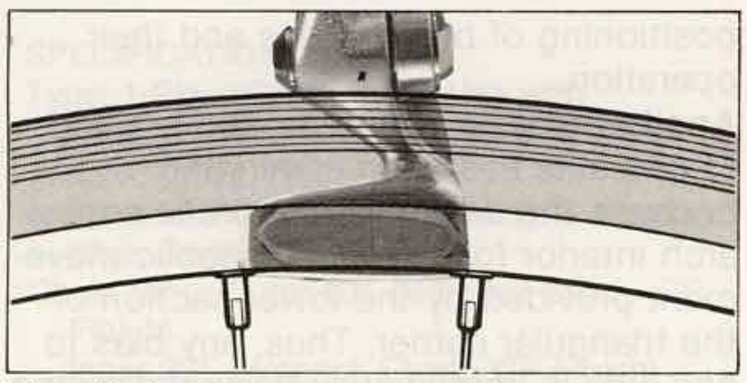


Arch quick **response** mechanism with specially designed triangular carrier.

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

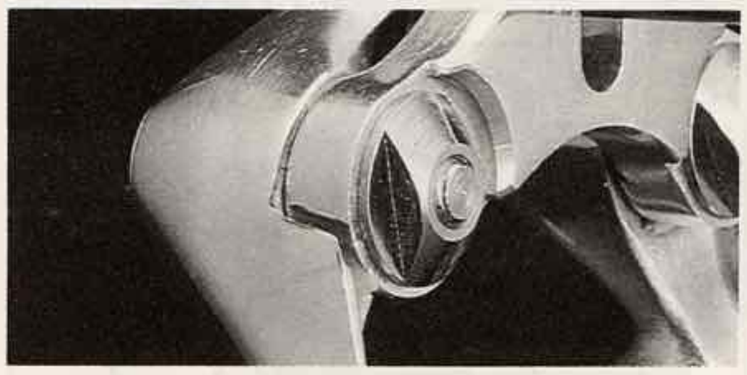


Sliding adjustable brake.



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

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

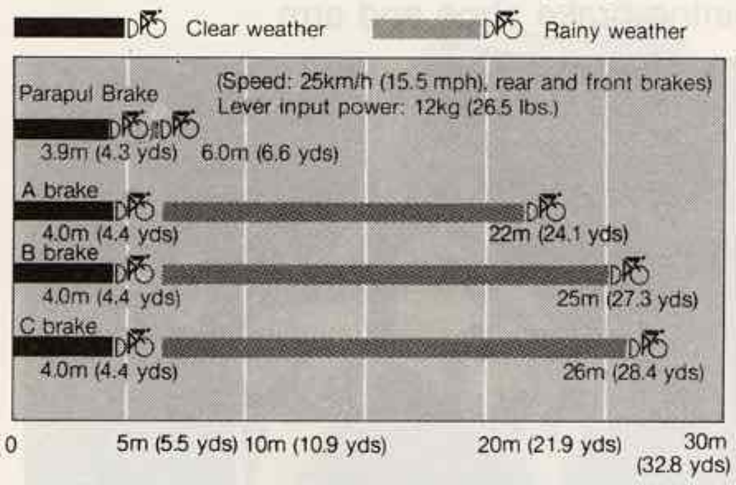


Sealed Mechanism preventing mud, water and unwanted objects from entering for smooth braking at all times.

AW Brake Shoe
Adamas AX

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

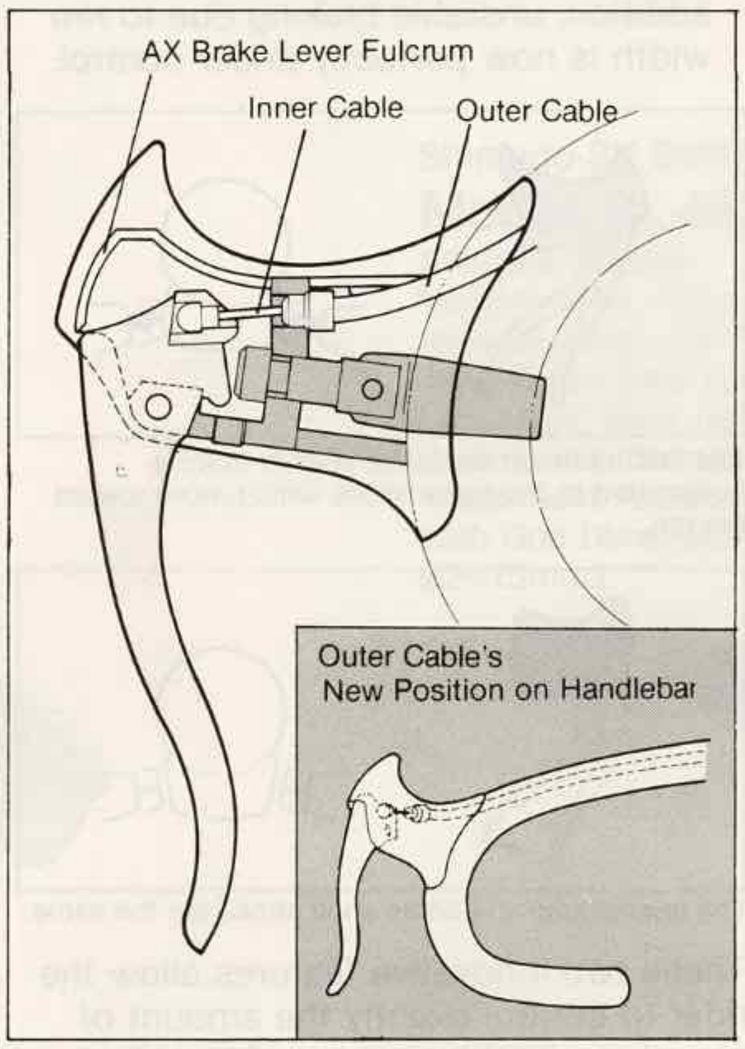
Comparison Test of Different Brakes' Stopping Distance

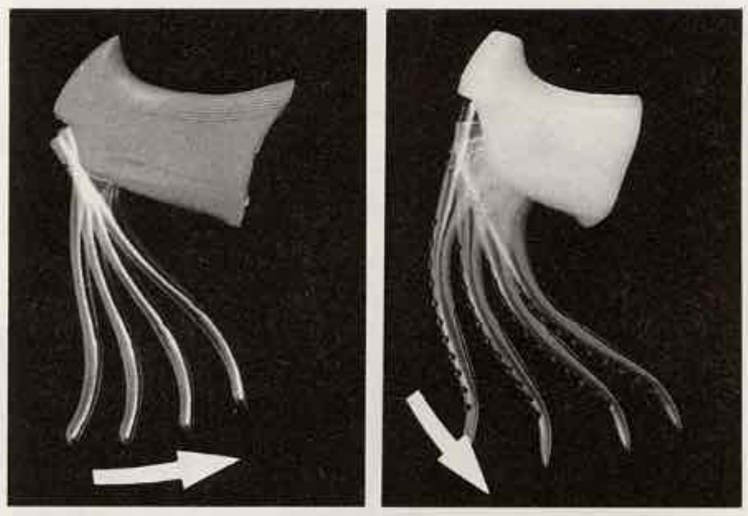


Comparison tests between AW brake shoe and conventional brake shoe for braking distances in wet conditions.

AX Brake Lever
All AX Series

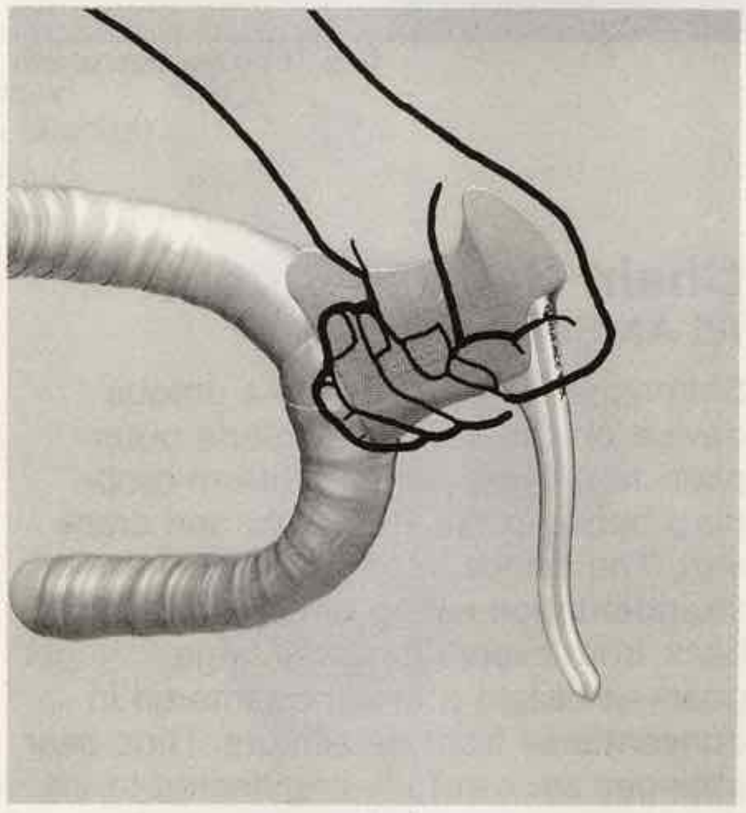
In developing a brake lever suitable for today's modern cyclist we first closely examined the function of the original lever familiar to most people. To work effectively, the brake lever transfers power from a rider's grip to the cable. From our tests, we could find that ordinary brake levers required power input in excess of actual braking output. This meant that the rider was forced to find extra power when braking; an exercise both wasteful of energy and extremely tiring for long-distance touring.
Our solutions, which we incorporated in the AX Brake Lever, were to position the brake lever fulcrum in a more forward setting than before for increased leverage. To build the outer cable into a groove situated in the tubing. And to increase the pulling angle of the inner cable by 90%.
These features have all contributed in making the brake lever's operation more power efficient without using excessive energy, a great boon to long distance tourers, and as a result safer and more reliable.
The outer cable's new position on the handlebar improves appearance and, as part of our "Aerodynamics" policy, contributes to the overall reduction in air resistance.
All these innovative features are found only on Shimano's AX Brake Lever.



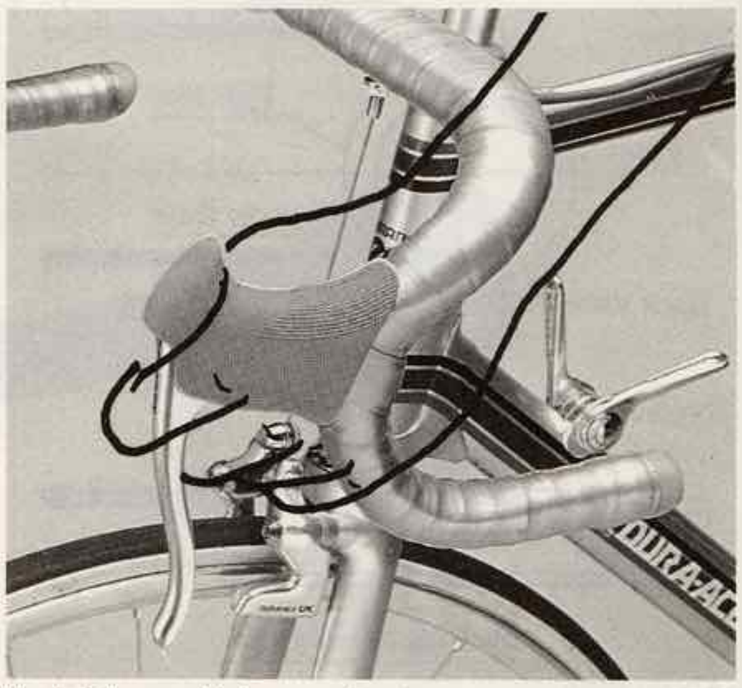


AX Brake Lever Action — Ordinary Brake Lever Action

The AX Bracket Cover has been designed especially to fit the shape of the rider's palm, the advantage being that the rider can maintain the same gripping position without tiring. Shimano researched this special shape by comparing the natural form taken by fingers and palm when gripping and utilizing the most efficient position in the design



The thumb, middle and third finger grooves.
And in between finger notches.

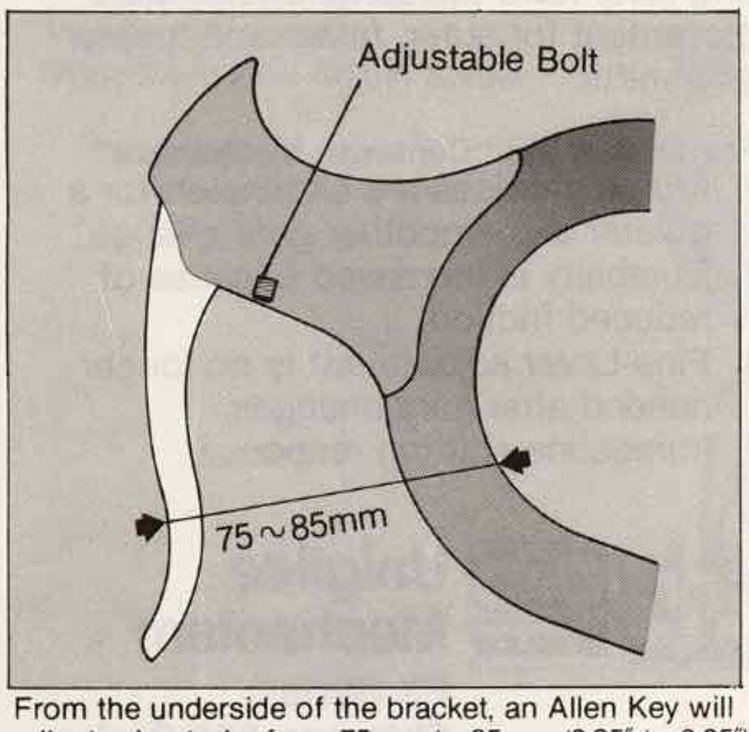


Undulations which spread palm pressure power evenly.

Additional Features

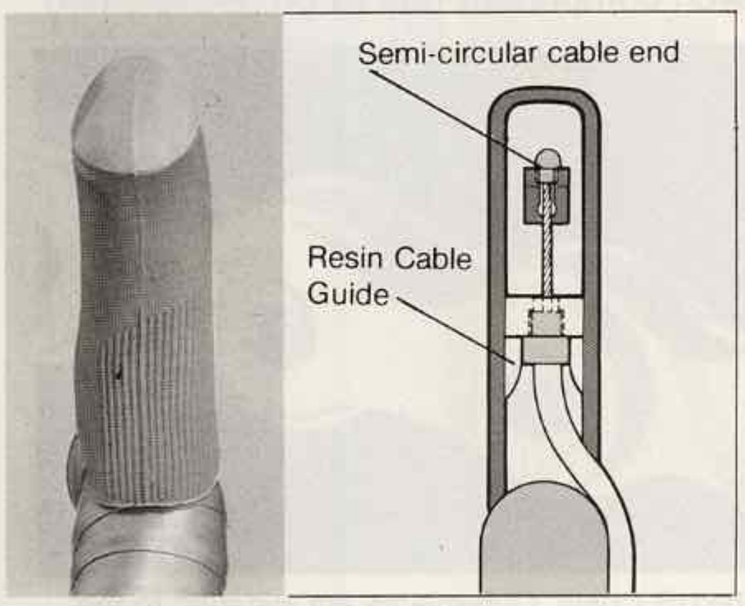
of our Bracket Cover. Now the hand and bracket act as one unit with an increase in power efficiency. The grooved design allows palm and fingers to slot easily and comfortably into the most natural gripping position. The result; the hand and bracket are so joined to form a streamlined unit thus reducing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

Taking a close look at tne brake lever stroke, we ascertained that about 80mm constituted the ideal distance for optimum power response. However, the wider stroke distance employed in present brake levers has persisted because of the mechanics of the brake body and lever. By overhauling the design, Shimano's Brake Lever now allows the rider to adjust gripping stroke between 75—85mm (2.95″—3.35″) for perfect braking response.



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

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



One Key Release

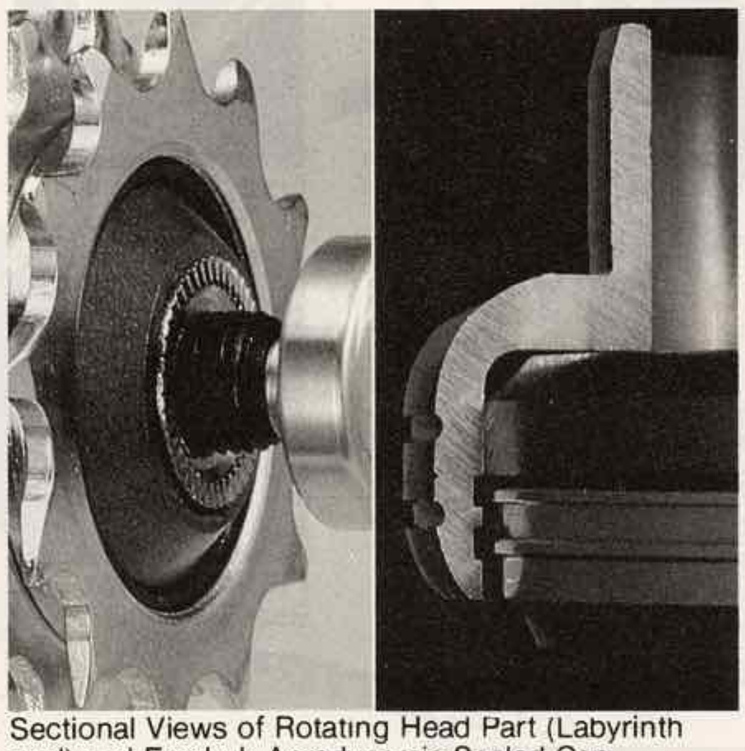
Dura-Ace AX, Shimano 600 AX

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 Dura-Ace AX Front Chainwheel.

Sealed Mechanism

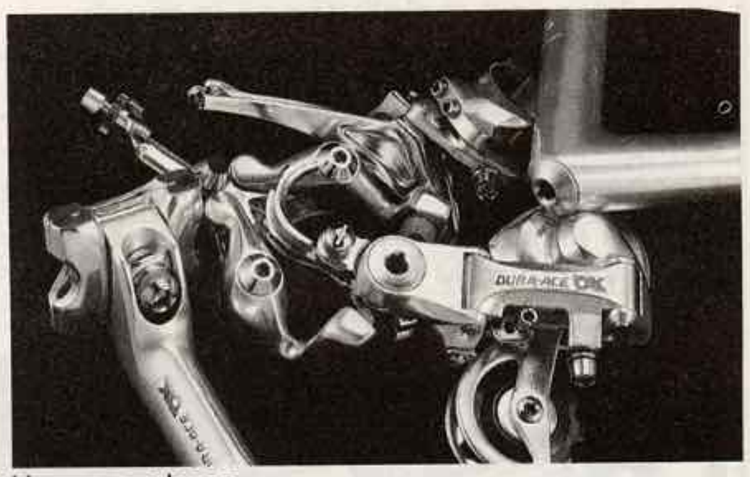
Altogether, we have incorporated numerous innovative and useful mechanisms into our AX Series.
The Sealed Mechanism is another of our ideas which we introduced to the DD Pedal, Freehub, Rear Derailler and Brake Springs to prevent revolving and exposed parts from water, dust and foreign particle invasion.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


Sectional Views of Rotating Head Part (Labyrinth seal) and Freehub Aerodynamic Sealed Cap.

Hexagon Release

Dura-Ace AX

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



Hexagon release

Light weight

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

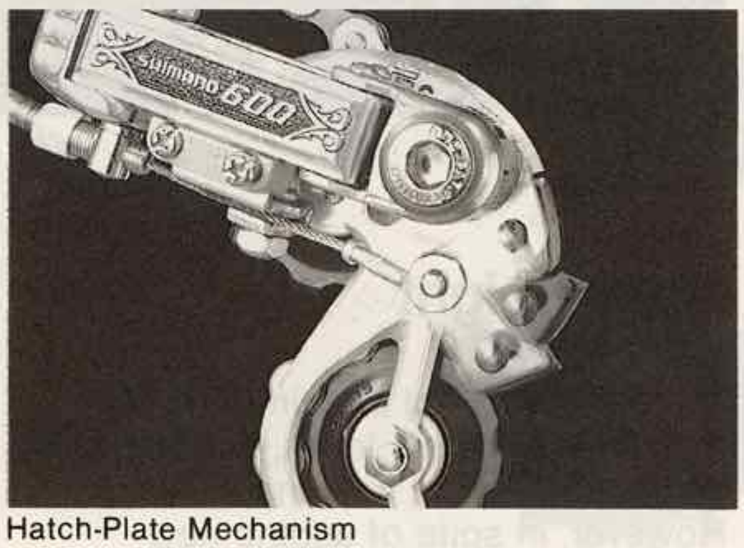

Dura-Ace AX Road Ensemble.

SHIMANO SYSTEM COMPONENTS SPECIAL INNOVATIONS

Hatch-Plate Mechanism
EX Series, Deore

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

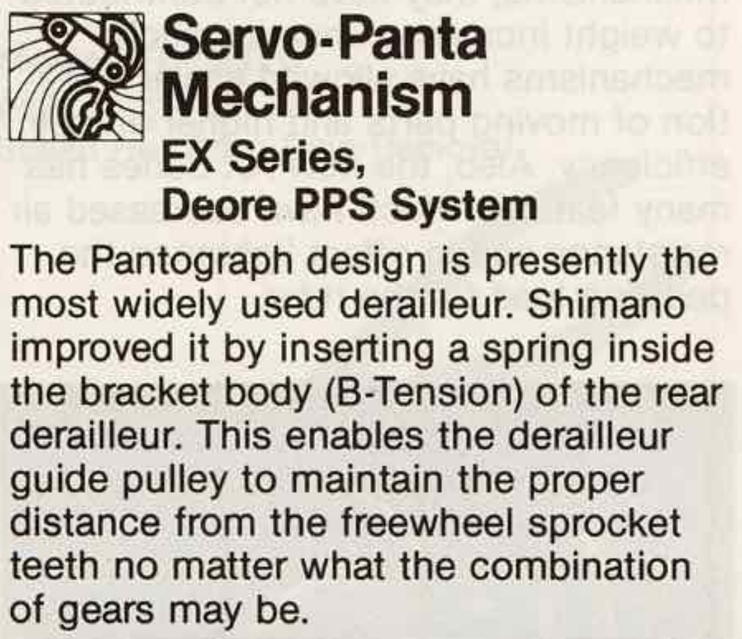
Easier assembly and disassembly is possibler and maintenance is much easier to carry out. Also, the elimination of the left plate has resulted in a lighter component. The Hatch-Plate Mechanism rear derailleur is suitable for use on any multi-speed bicycle—and is made especially for a bicycle equipped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



Hatch-Plate Mechanism

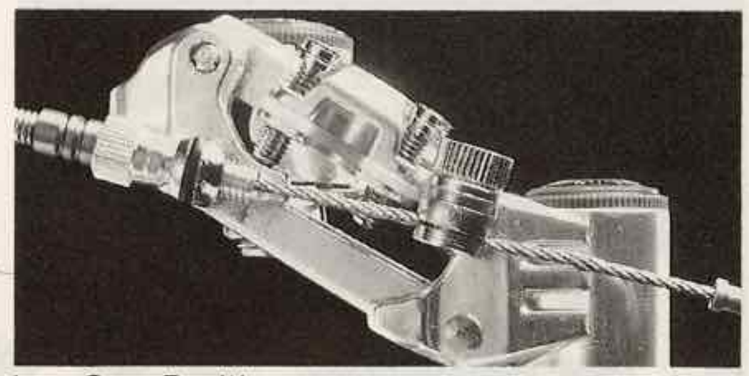
Servo-Panta Mechanism
EX Series, Deore PPS System

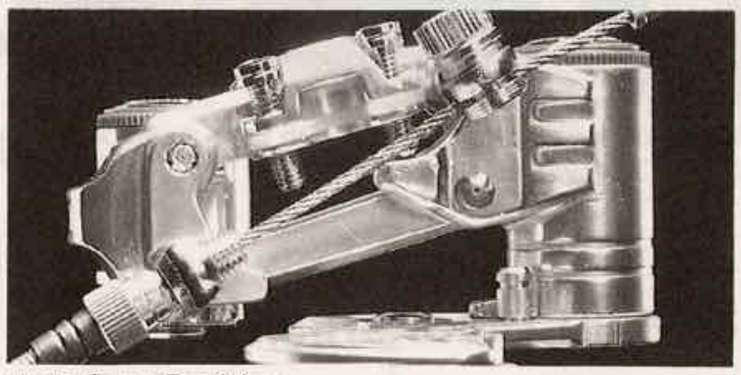
The Pantograph design is presently the most widely used derailleur. Shimano improved it by inserting a spring inside the bracket body (B-Tension) of the rear derailleur. This enables the derailleur guide pulley to maintain the proper distance from the freewheel sprocket teeth no matter what the combination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



Synchro-Line Mechanism
Dura-Ace EX

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

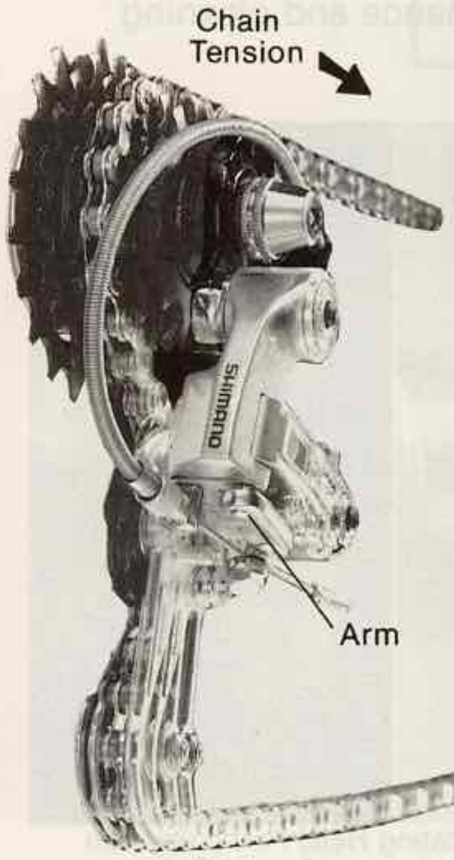

Low Gear Position


High Gear Position

Centeron Mechanism
Deore

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

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 Shifting Lever

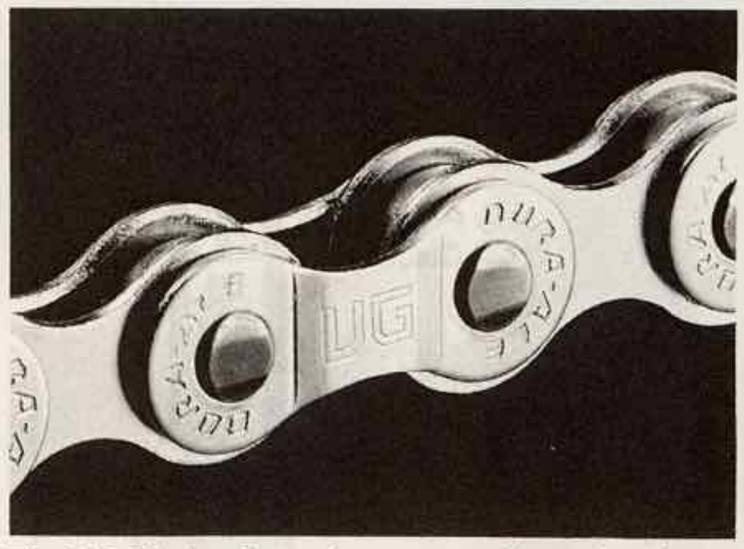

Free-play of the Rear Derailleur

Features of the "Centeron Mechanism"

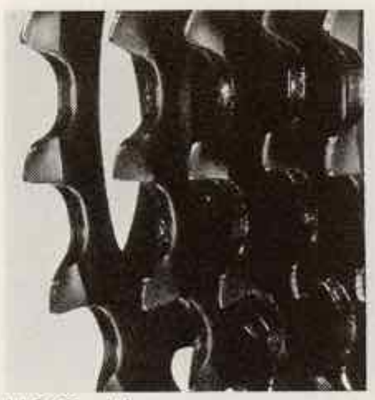
1. Irritating noises are eliminated for a quieter and smoother gear change.
2. Durability is increased because of reduced friction.
3. Fine-Lever adjustment is no longer needed after gear changes.
4. Immediate shifting response.

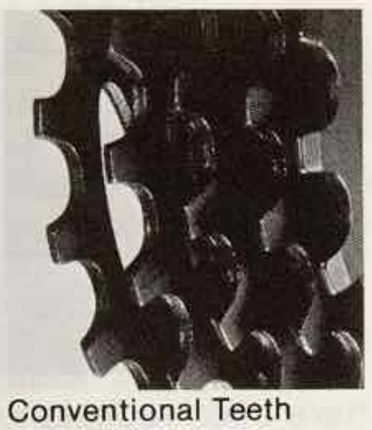
Uniglide Mechanism
EX Series, Shimano 600 Series

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



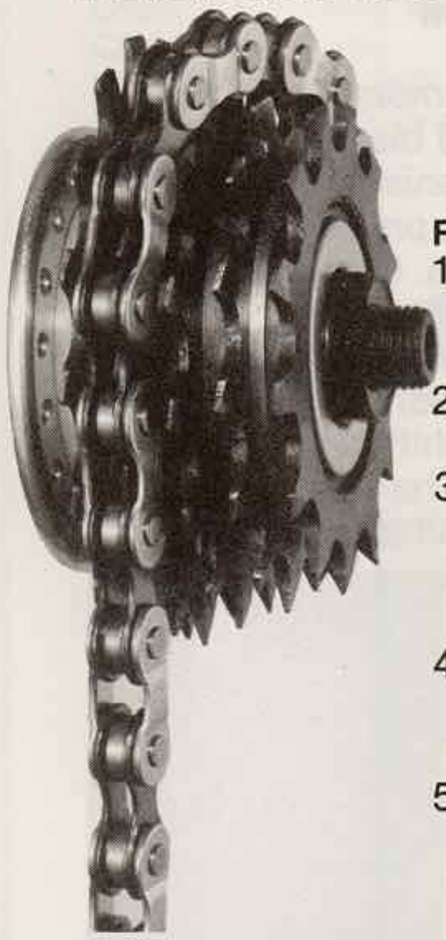
The UG Chain. Outerplates are widened to the level of chainpin heads.


UG Teeth


Conventional Teeth

and the individual part seen as it relates to the whole.

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

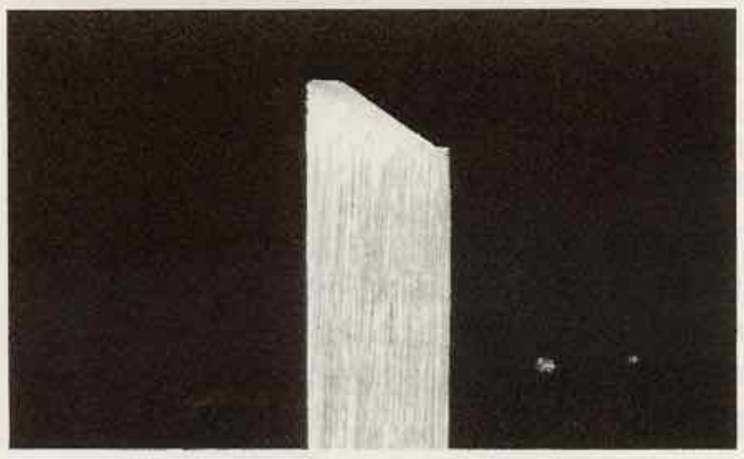


Features
1. Sure and smnooth gearshifting performance!
2. Overshifts eliminated!
3. Irritating noises eliminated and durability increased!
4. 5Longlasting, high gearshifting efficiency!
5. Immediate shifting response!

Chamfered Sprocket Teeth

Dura-Ace Road

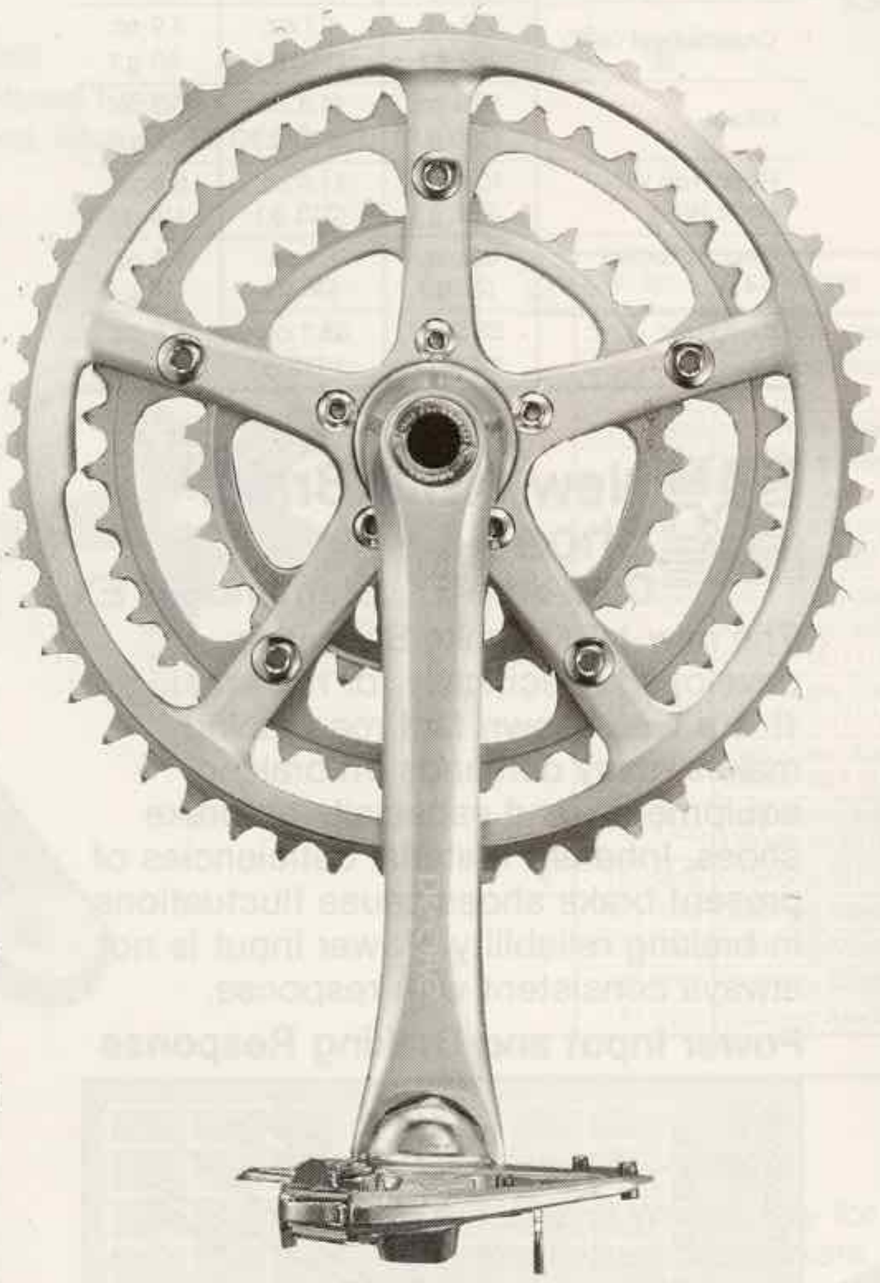
Whether the chain is changing up or down, the chamfered teeth are designed to offer the best possible engagement. The result is a surer, faster gear change every time.



Triple-gear Sprocket with 18-Speed Capability

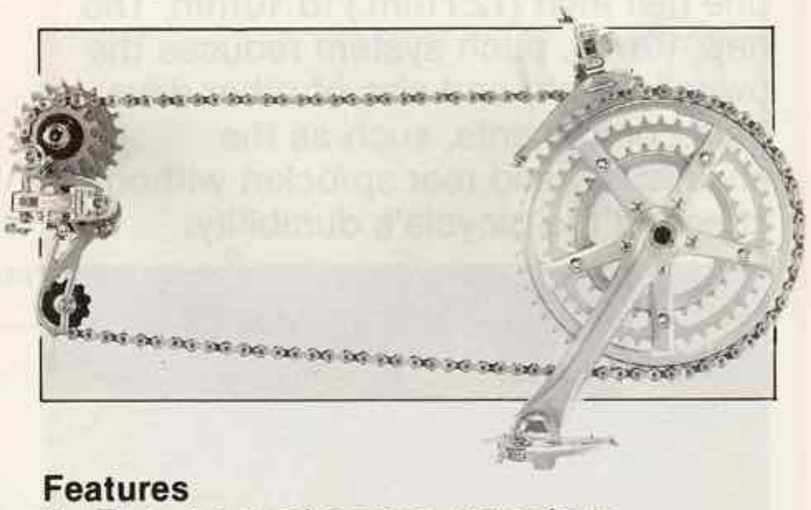
Deore

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



Not so with the DEORE chainwheel system. Shimano has applied its system component approach to the problem, developing a true 18-speed system that maintains the same spiandle length as the Conventional Mode (12.15mm). At any time, the double-chainwheel DEORE front chainwheel can be converted to a triple-chainwheel system, without changing the 119mm spindle.

And, more important, this can be done with greatly reduced alignment and noise problems.



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

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)

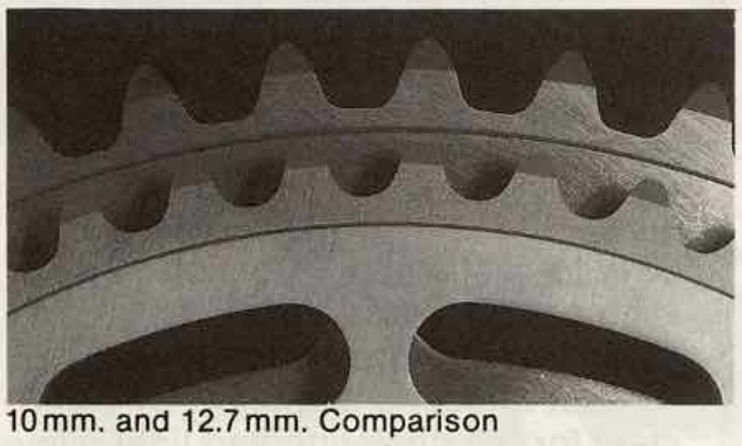
10mm Pitch System

Dura-Ace 10 Series

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.

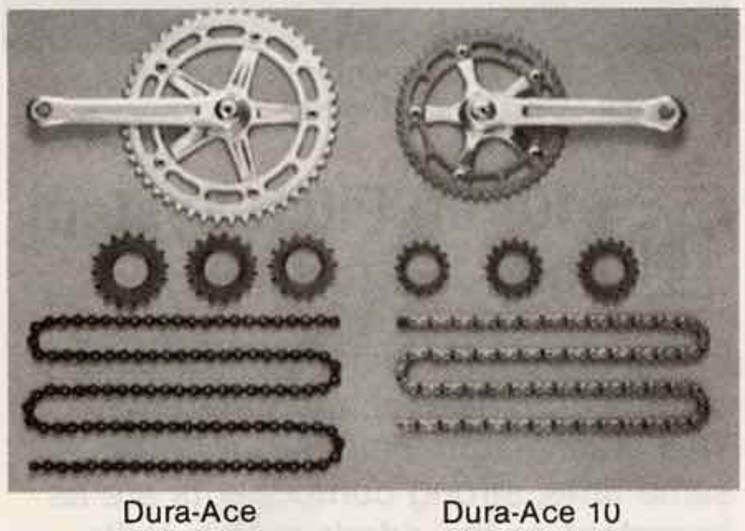


10mm. and 12.7mm. Comparison

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.



Dura-Ace Dura-Ace 10

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. Redction Deflection—
   The 10mm. pitch's smalelr 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 sheels, less effort is wasted.

DURA-ACE 10—DURA-ACE Comparison Chart

• Weight Comparison (Track Models)

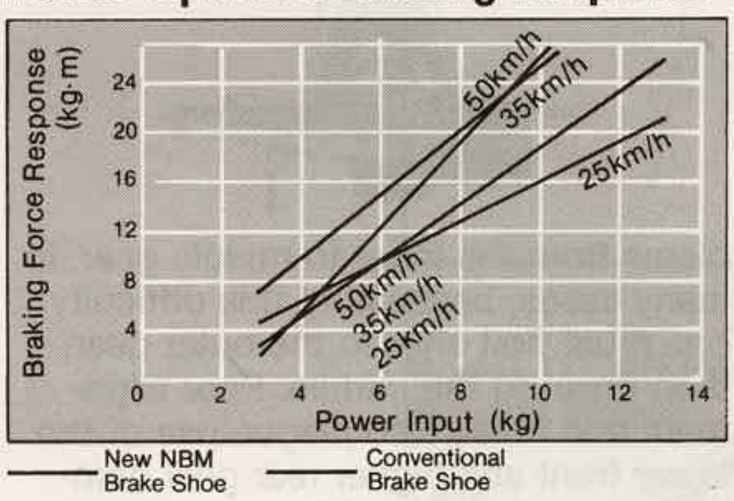
	Dura-Ace 10	Dura-Ace	Saving
Right Hand Crank	8.5 oz. (239 g.)	9.8 oz. (277 g.)	1.3 oz. (38 g.)
Chainwheel (49T)	2.2 oz. (63 g.)	4.1 oz. (116 g.)	1.9 oz. 53 g.)
Chain	11.6 oz. (330 g.)	11.8 oz. (335 g.)	0.2 oz. (5 g.)
Rear Hub W/ Lock Ring	10.4 oz. (295 g.)	11.0 oz. (313 g.)	0.6 oz. (18 g.)
Rear Sprocket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

New NBM Brake Shoe

Dura-Ace EX, Shimano600 EX

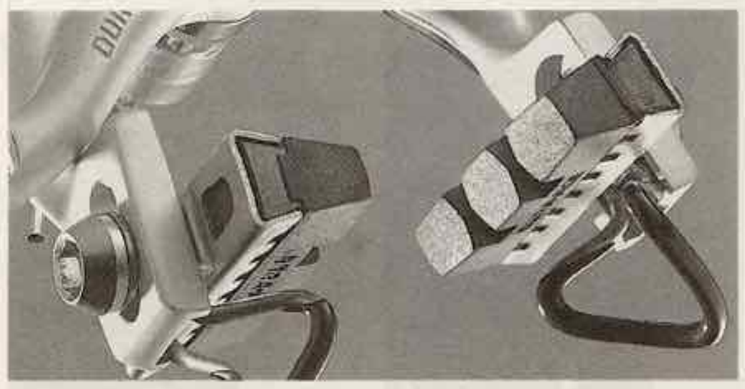
The new NBM Brake Shoe was developed specifically for road racing. It is a well known fact road racing makes many demands on braking equipment—and especially on brake shoes. Inherent material deficiencies of present brake shoes cause fluctuations in braking reliability. Power input is not always consistent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

Power Input and Braking Response



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

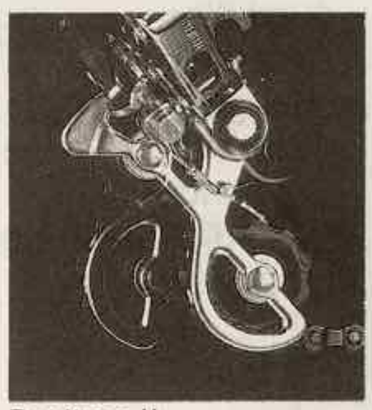
Shimano studied this problem and came up with a material perfectly suited for road resultingh in the NBM Brake Shoe.
The molybdenum additive is responsible for a material that is both heat resistant and much more durable. Also the treads have been redesigned for optimum gripping power without being too 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.



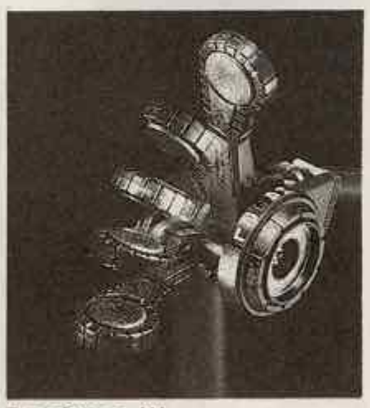
Positive Mechanism

PPS System

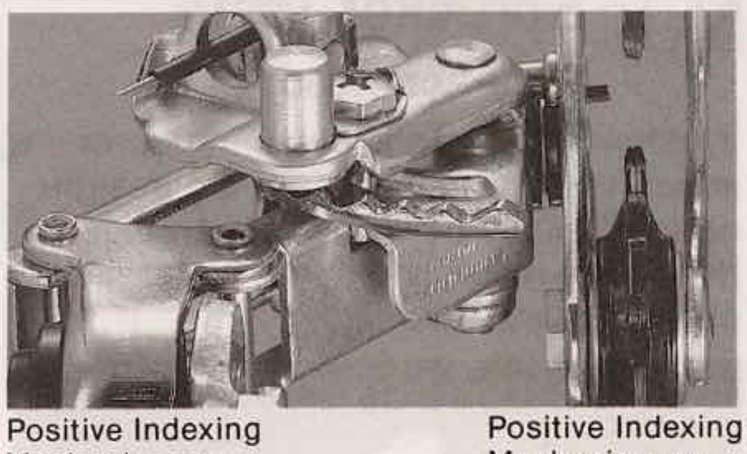
Even with more and more people using both 5- and 10-speed bicycles, conventional shifting mechanism have required considerable shifting practice to make smooth gear changes. Because of the difficulties involved, Shimano conducted a research program to develop a gear shifting mechanism which would enable everyone to shift gears easly, accurately and safely. The Positive Mechanism is the fruit of this research.



Positron-II Rear Derailleur



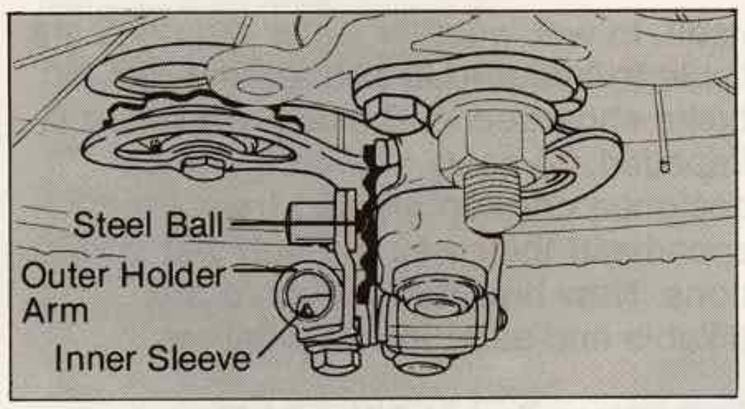
Positron-III Shifting Lever



Positive Indexing Mechanism on Positron-II Rear Derailleur

Positive Indexing Mechanism on Positron-III Shifting Lever

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".



Comparison of Push-Pull and conventional Mechanism

		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 or too stiff pressure when moving from high to low and too weak pressure when moving from low to high.

Pre-Select Mechanism
PPS System

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 gear, and when the bicycle rolls



Pre-Select Mechanism on Positron-II Rear Derailleur

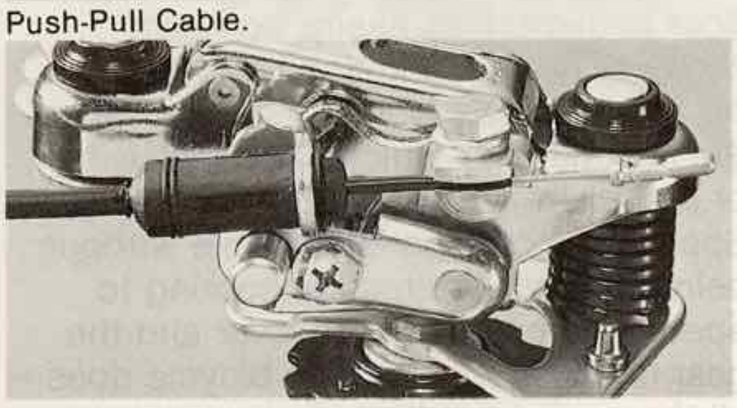

Pre-Select Mechanism on Positron Front Derailleur

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
PPS System

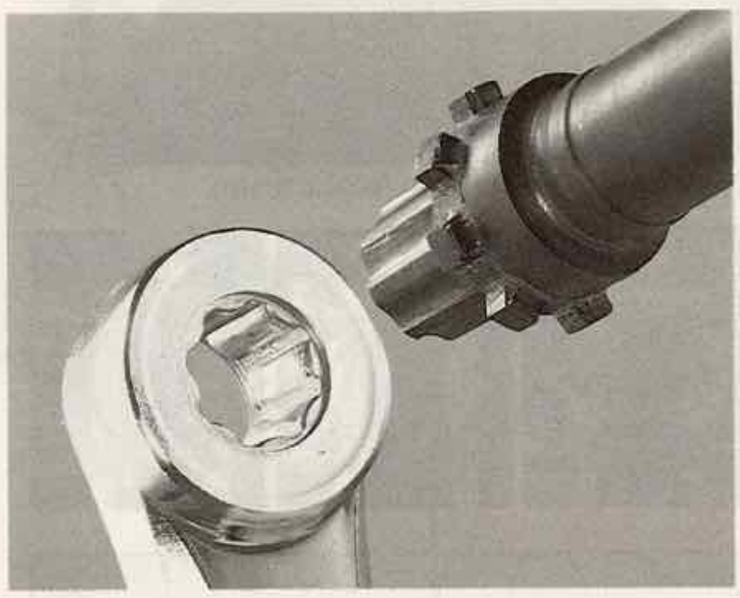
In addition, Shimano's Push-Pull Mechanism has completely eliminated the common problem of wire stretching arising from continual gearshifting. And the two-way movement of the Push-Pull Mechanism has replaced the return spring of the derailleur for a smoother, easier and more stable operation.


Push-Pull Cable.



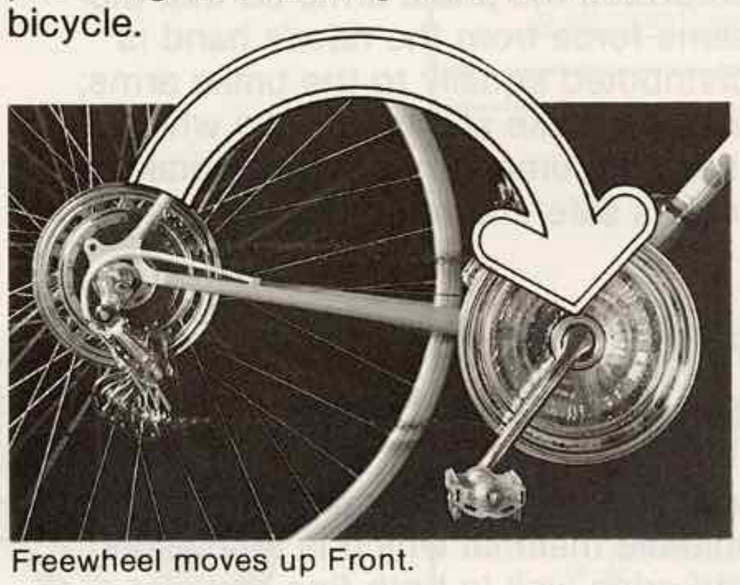
OCTA Joint Crank

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.



Front Freewheeling Mechanism
FF System

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.

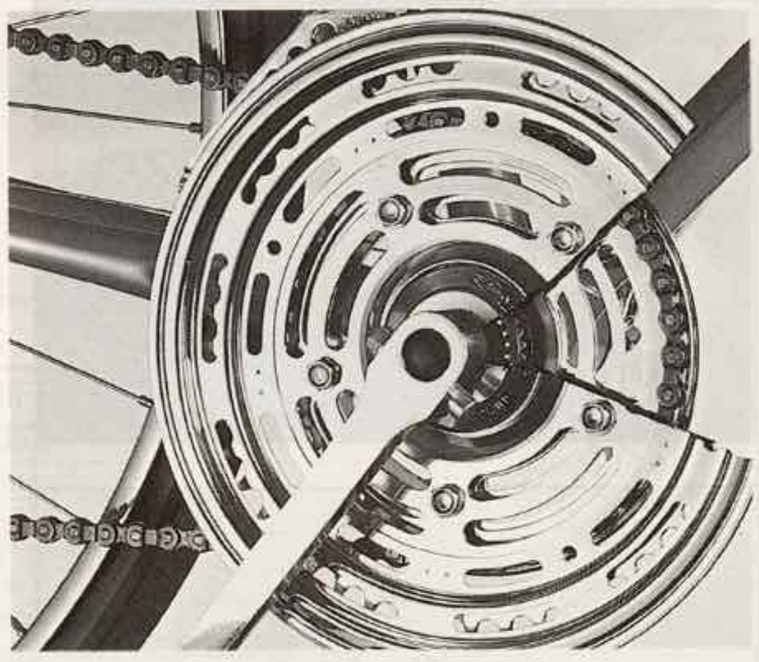

Freewheel moves up Front.

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.

Featured 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.



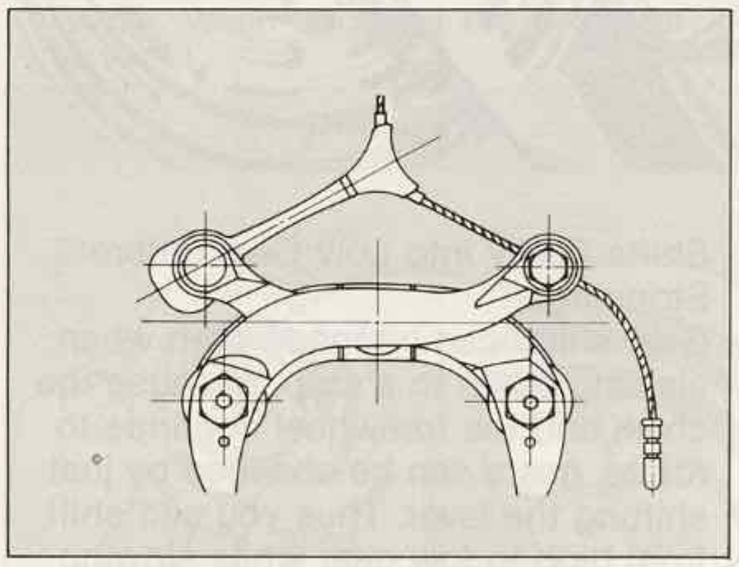
4. Shifts Easily into Low Gear before Stopping—
   Gear shifts can be made even when slowing down to a stop. Because the chain and the freewheel continue to rotate, gears can be changed by just shifting the lever. Thus you can shift from high to low gear while slowing down and be prepared for a quick, smooth start next time away.
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.

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 "Lin 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.

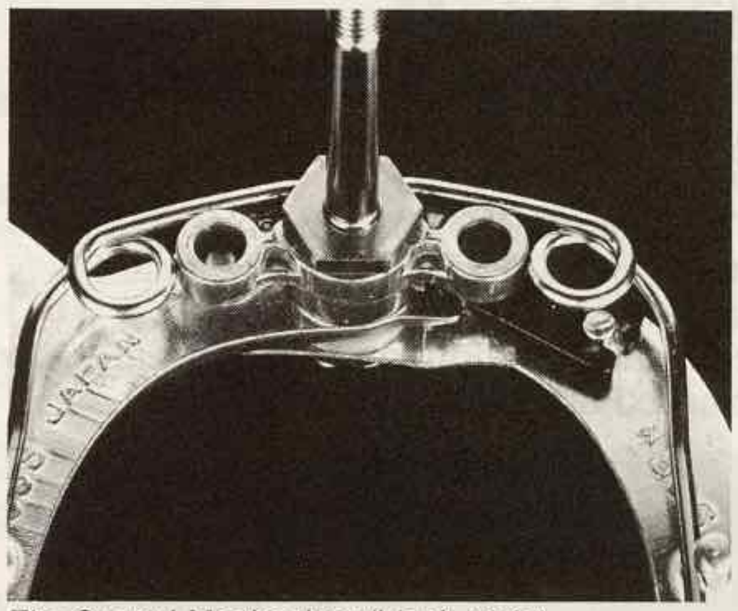


The "Link Type" brake has been tested 40,000 times in a running tester and has passed actual performance tests on a tandem bicycle, thoroughly establishing is reliability.

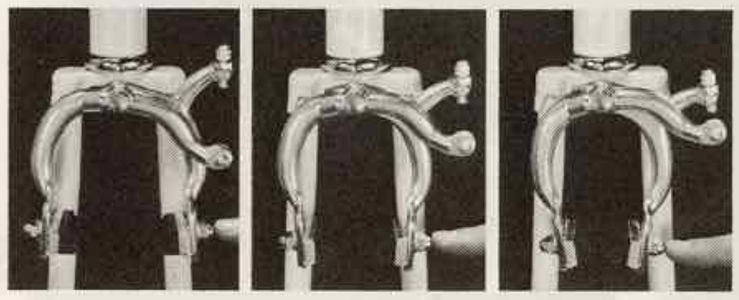
The Link Mechanism can be attached to a 19° sports bicycle.

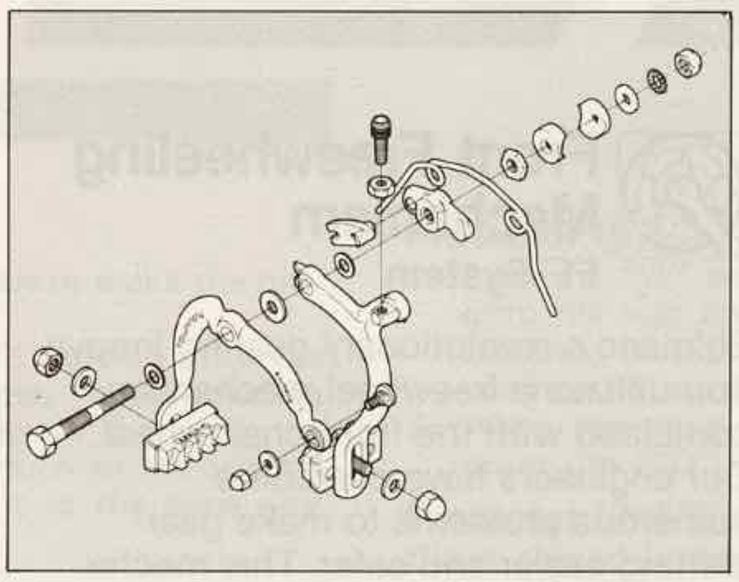
Synpul Mechanism

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



The Synpul Mechanism (black resin).





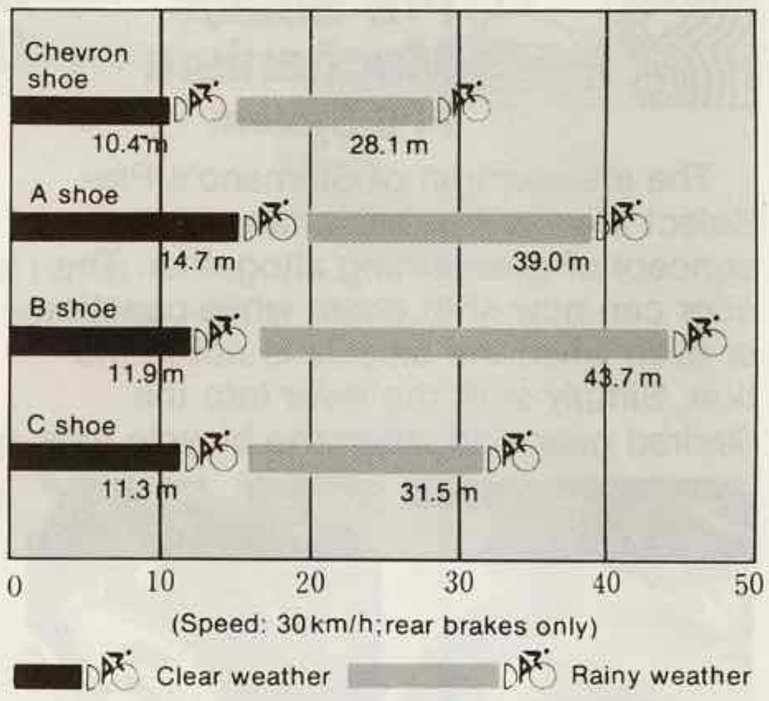
Shimano's new "Synpul" design synchronizes the brake arms so that the same force from the rider's hand is distributed equally to the brake arms; and the brake shoes grip the wheel at the same time. Smooth, even braking means safer, more contrrolled stops.

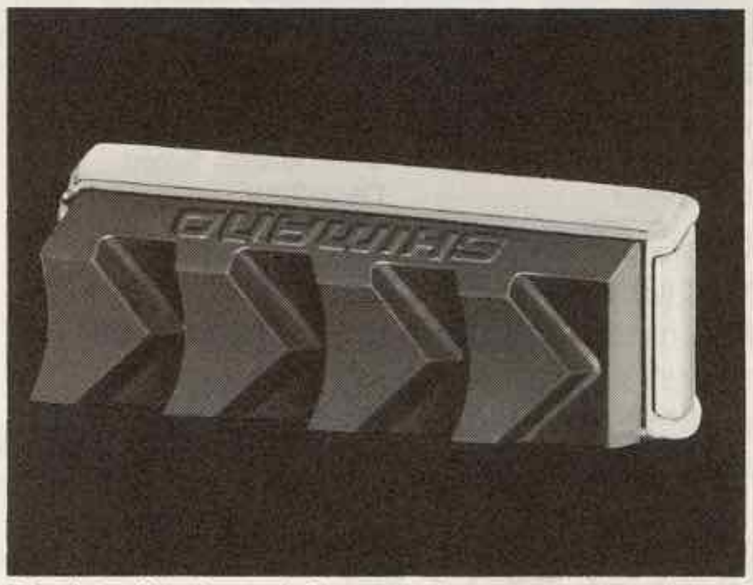
The Chevron Brake Shoe

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 chevlon 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 tests.

2-Speed Rear Gear Change System

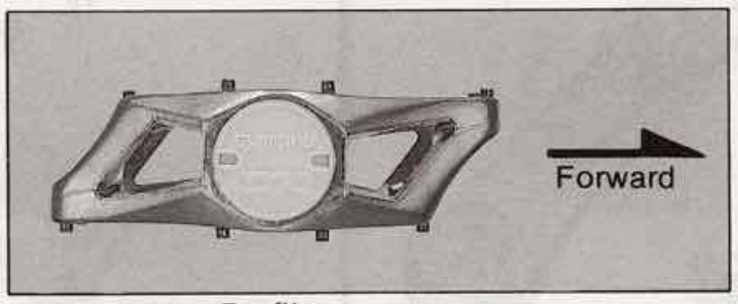
Shimano's new 2-speed gear change provides an extra gear to take the work out of cycling. There are many types of bicycle using a one speed gear which is, in most cases, insufficient to cope with the variety of demands as they arise. Shimano's 2-Speed gear change provides that extra gear to allow the rider to climb hills easily, compact windy or heavy conditions and to get off the mark easier. It is as essential as the second gear which allows cruising or just plain fast riding. Shimano's 1-2 Speed gear change is all these without being difficult or time-consuming to operate. Simply flick the lever and the gear is engaged. Now the bicycle does all the work—not the rider!

BMX

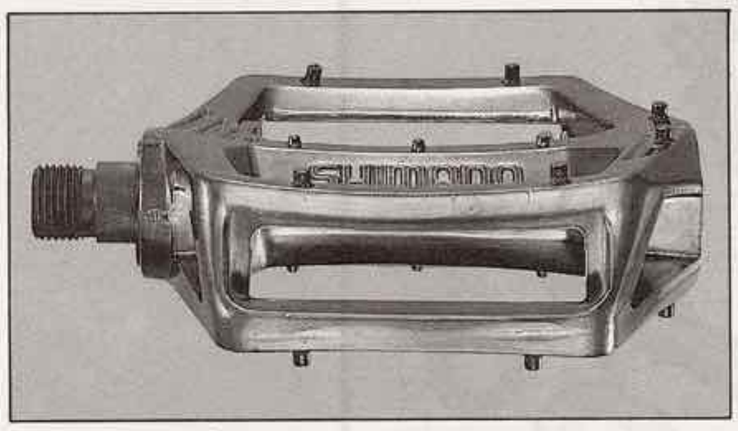
DX Pedal

Our DX platform Pedal is everything a competition motocross pedal should be. And more.
We started with a solid, one piece alloy platform, integrating pedal body and frame into a simple, rugged unit.
The platform of the DX is also specially concaved to put your foot right where it belongs for maximum driving power.
Next, we covered the platform with a scientifically designed grid of non-skid studs. Unlike conventional cages, these unique studs provide incredible grip in every direction. And the DX can't hang up or slip like flat sided pedals.
Our revolutionary parallelogram profile makes it even after the most radical maneuvers.
Feel the difference a perfect pedal makes, sink your tennies into Shimano DX.



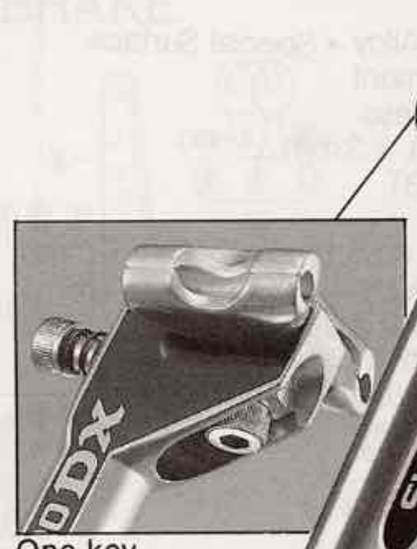


Parallelogram Profile



Concave platform

DX Solid Alloy Seat Pillar



One key micro-adjust clamp

Features:
1) Extra strong to withstand the toughest treatment.
2) Easy saddle adjustment mechanism.

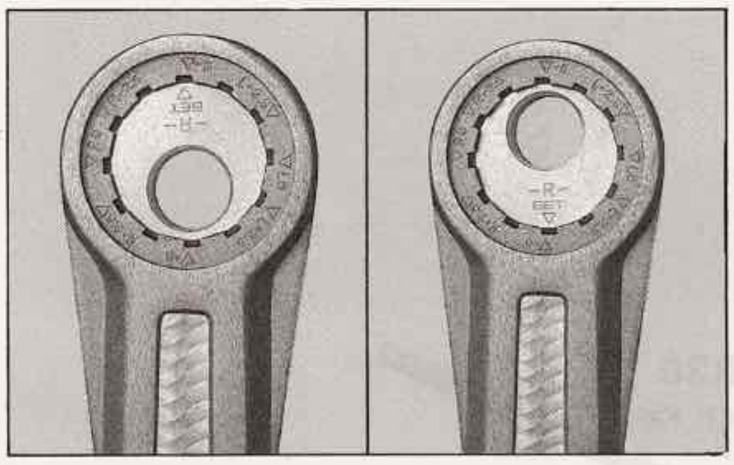
3) Hexagon release system.
4) A new radical design.
5) Loosening or twisting eliminated.

Z-Line Crank

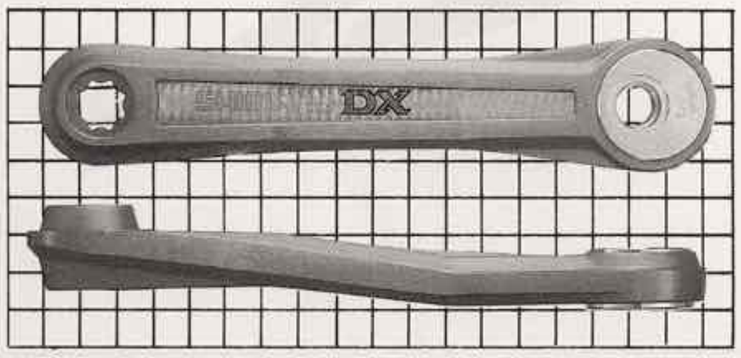


The specially angled design provides optimum strength and is perfect for transmitting powerful downward thrusts while pedalling. Especially suitable when riding in a standing position with legs never hitting against the crank arms.

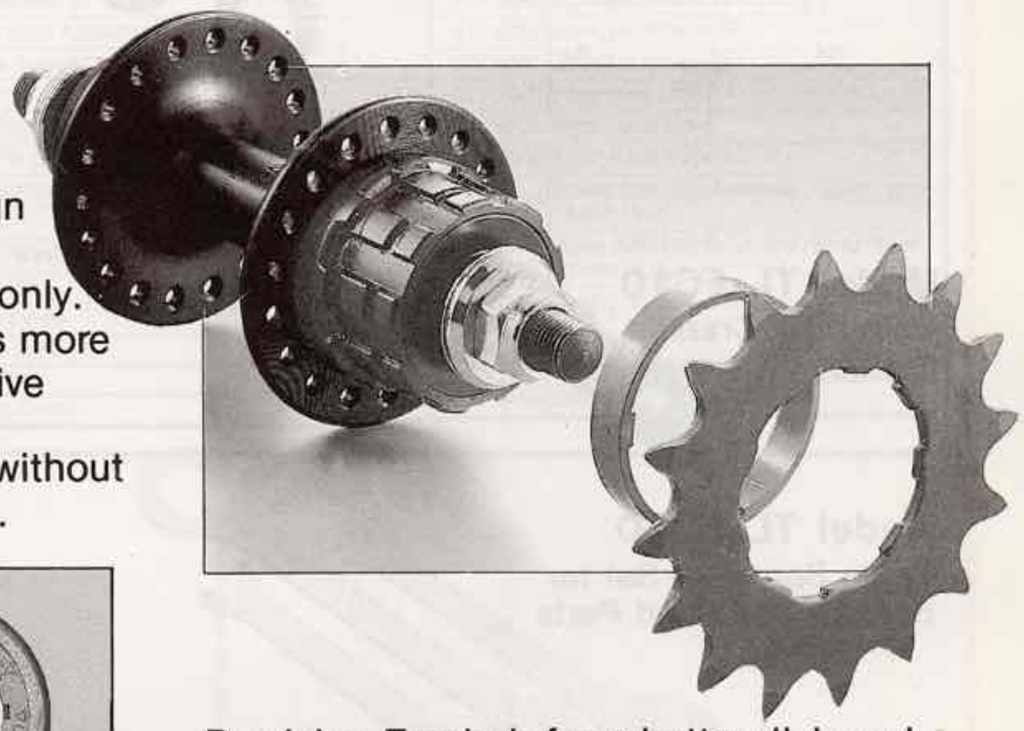
Features of Z-Line Crank
- Strengthened lightweight design of crank arm exclusive to BMX only.
- Design also allows more powerful and productive pedalling.
- Pedalling can be done standing without catching legs on the crank arms.



Crank Length Easily Changed!
an eccentric circle allows crank arm length to be changed according to rider preference.



High Rollers



Precision Freehub for a better dish and well-balanced wheel.

SHIMANO DURA-ACE 10 System Compo Series

Model FC-7000 Front Chainwheel

DURA-ACE 10 Front Chainwheel

Model FC-7000

SPECIFICATIONS

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



Spindle Length: [Unit: mm.]

Model TL-FC10
Cotterless Crank Extractor



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



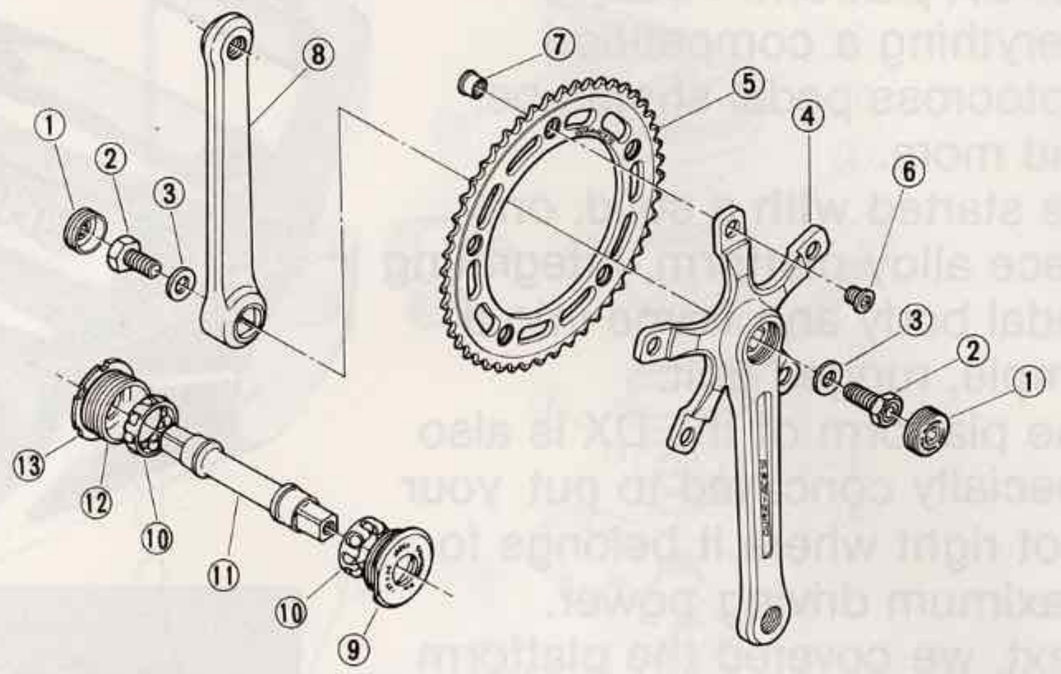
Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key
5 mm.



DURA-ACE 10 Front Chainwheel



ITEM NO.	PART NO.	DESCRIPTION
1	134 0200	Crank Arm Cap
2	134 0300	Fixing Bolt
3	134 0400	Fixing Washer
4	135 0100	Right Crank Arm English Thread 165mm
	135 0200	Right Crank Arm English Thread 167.5mm
	135 0300	Right Crank Arm English Thread 170mm
	135 0101	Right Crank Arm French Thread 165mm
	135 0201	Right Crank Arm French Thread 167.5mm
	135 0301	Right Crank Arm French Thread 170mm
5	135 4600	Chainwheel 46T
	135 4700	Chainwheel 47T
	135 4800	Chainwheel 48T
	135 4900	Chainwheel 49T
	135 5000	Chainwheel 50T
	135 5100	Chainwheel 51T
6	131 0500	Chainwheel Fixing Bolt
7	131 0600	Chainwheel Fixing Nut
8	134 5161	Left Crank Arm English Thread 165mm
	134 5162	Left Crank Arm English Thread 167.5mm
	134 5163	Left Crank Arm English Thread 170mm
	134 5181	Left Crank Arm French Thread 165mm
	134 5182	Left Crank Arm French Thread 167.5mm
	134 5183	Left Crank Arm French Thread 170mm
9	137 0200	Right Hand Fixed Cup (1.37" × 24)
	137 0210	Right Hand Fixed Cup (35 × P1)
10	137 9001	Ball Retainer
11	137 0110	Bottom Bracket Spindle 107mm
12	137 0400	Left Hand Adjustable Cup (1.37" × 24)
	137 0410	Left Hand Adjustable Cup (35 × P1)
13	137 0500	Lock Ring (1.37" × 24)
	137 0510	Lock Ring (35 × P1)

SHIMANO DURA-ACE 10 System Compo Series

Model HB-7020 Hubs with Lock Ring
Model SS-7000 Sprocket
Model CN-7000 Chain

DURA-ACE 10
Front & Rear Hubs with Lock Ring

Model HB-7020

SPECIFICATIONS

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



DURA-ACE 10
Sprocket for Track Hub

Model SS-7000

SPECIFICATIONS

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

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

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

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



For Use with Standard Dura-Ace Track Hubs Only

DURA-ACE 10 Chain

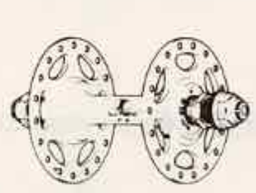
Model CN-7000

SPECIFICATIONS

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

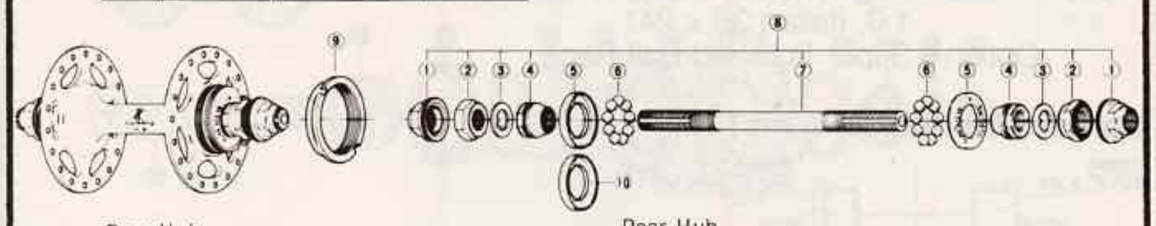


DURA-ACE 10 Front & Rear Hubs with Lock Ring



Front Hub

ITEM NO.	PART NO.	DESCRIPTION
1	237 9002	Hub Nut
2	237 0600	Lock Nut
3	233 1600	Non-Turn Washer
4	233 1501	Cone
5	237 0801	R.H. Dust Cap
6	000 0125	Steel Ball (3/16")
7	237 0302	Hub Axle
8	237 0802	L.H. Dust Cap
9	237 9101	Complete Axle Unite



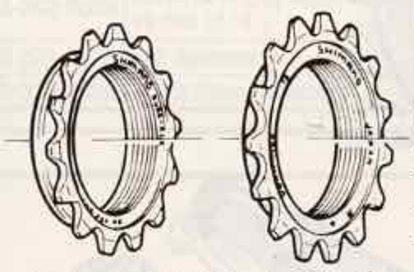
Rear Hub
(OVER LOCK NUT DIMENSION 110mm)

ITEM NO.	PART NO.	DESCRIPTION
1	247 9002	Hub Nut
2	247 0600	Lock Nut
3	243 1600	Non-Turn Washer
4	247 0401	Cone
5	247 0800	Dust Cap
6	000 0135	Steel Ball (1/4")
7	247 0302	Hub Axle
8	247 9101	Complete Axle Unite
9	277 1300	Lock Ring

Rear Hub
(OVER LOCK NUT DIMENSION 120mm)

ITEM NO.	PART NO.	DESCRIPTION
1	247 9002	Hub Nut
2	247 0601	Lock Nut
3	243 1600	Non-Turn Washer
4	243 1501	Cone
5	243 1401	R.H. Dust Cap
6	000 0135	Steel Ball (1/4")
7	247 0312	Hub Axle
8	247 9102	Complete Axle Unite
9	277 1300	Lock Ring
10	243 1402	L.H. Dust Cap

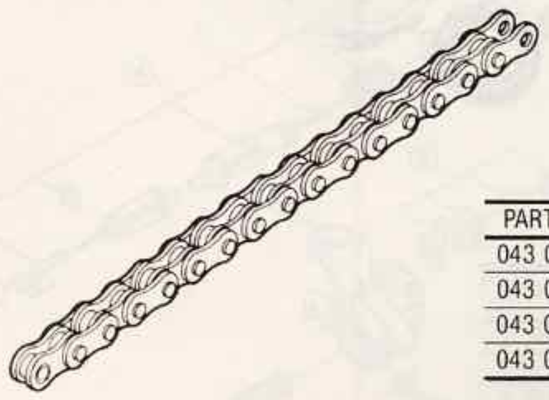
DURA-ACE 10 Sprocket



(You can use ordinary hub)

PART NO.	SPECIFICATION		
277 1014	DURA-ACE 10 Sprocket Wheel (Material: Steel/10mm Pitch)	Thread: BC33 × 24T.P.I.	14T
277 1015			15T
277 1016			16T
247 1715		Thread: BC1.37" × 24T.P.I. (You can use ordinary hub.)	15T
247 1716			16T

DURA-ACE 10 Chain



PART NO.	SPECIFICATION
043 00070	DURA-ACE 10mm Chain 112 Links
043 00040	DURA-ACE 10mm Chain 114 Links
043 00090	DURA-ACE 10mm Chain 116 Links
043 00100	DURA-ACE 10mm Chain 120 Links

Model TL-CN10
Chain Cutter for DURA-ACE 10 mm. Pitch



Model TL-SR10
Rear Sprocket Removal Tool



Model TL-HS10
Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



SHIMANO DURA-ACE System Compo Series

Model FC-7500 Front Chainwheel
Model BB-7500 Bottom Bracket Assembly

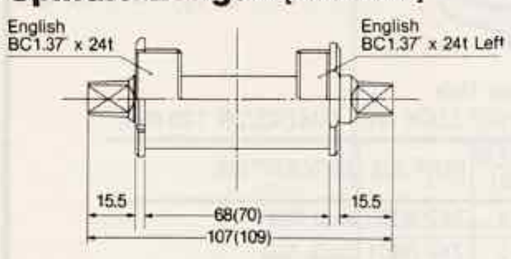
DURA-ACE Front Chainwheel

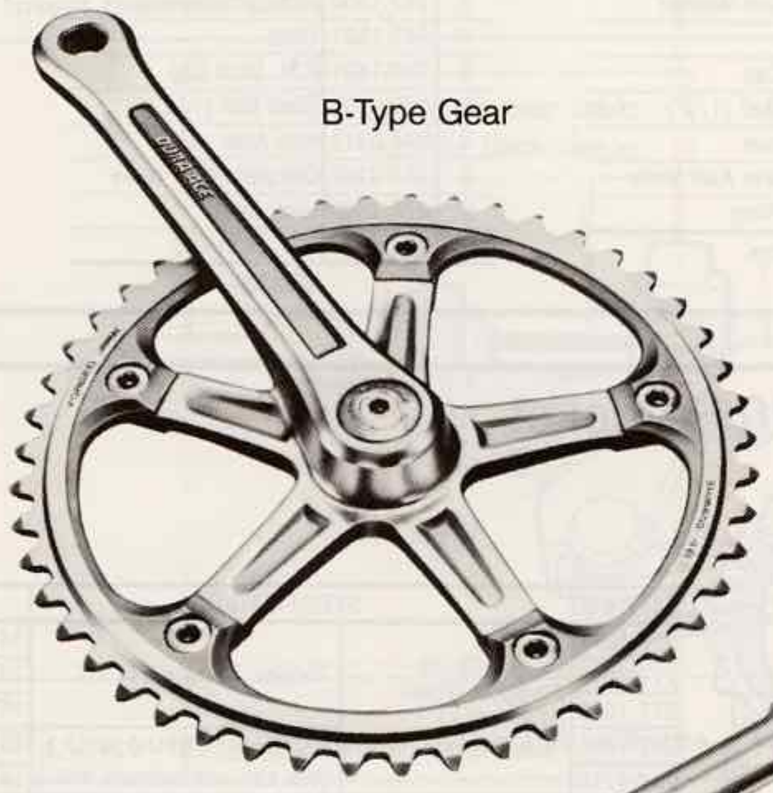
Model FC-7500
BB-7500

SPECIFICATIONS

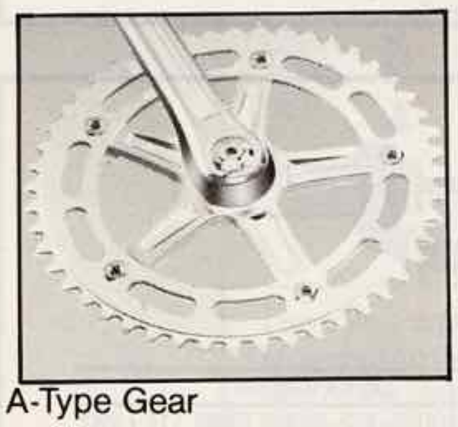
Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 1/8" Chain
Teeth ● 45T~52T
Crank Lengths
● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-7/8" (175mm.) Available by request 6-19/32" (167.5mm.), 6-13/16" (172.5mm.)
Crank Thread ● BC 9/16" x 20 T.P.I.
Cup Thread ● English 1.37" x 24t,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

Spindle Length: [Unit: mm.]





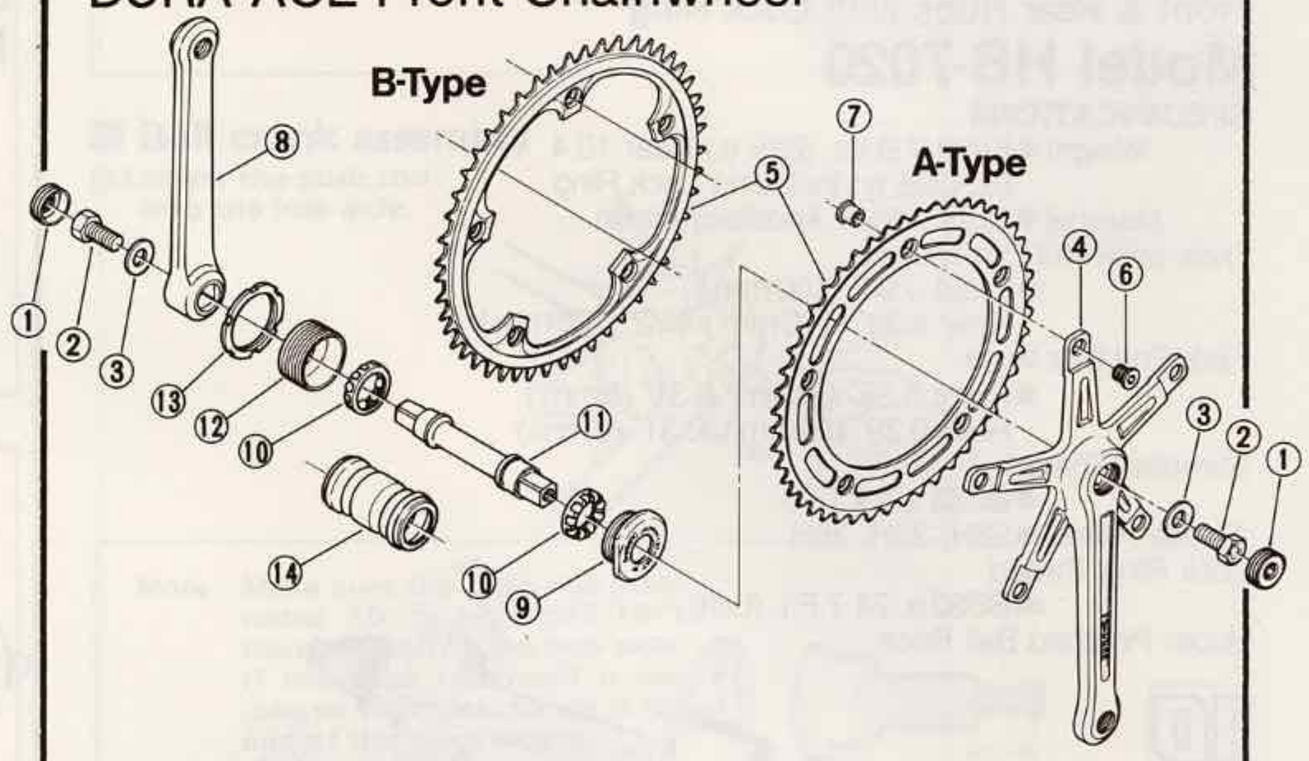
B-Type Gear



A-Type Gear



DURA-ACE Front Chainwheel



ITEM NO.	PART NO.	DESCRIPTION
1	134 0200	Crank Arm Dust Cap
2	134 0300	Crank Arm Fixing Bolt
3	134 0400	Spindle Washer
4	131 0100-1	Right Crank Arm 165mm (6-1/2")
	131 0200-1	Right Crank Arm 167.5mm (6-19/32")
	131 0300-1	Right Crank Arm 170mm (6-3/4")
	131 0301-1	Right Crank Arm 172.5mm (6-13/16")
	131 0302-1	Right Crank Arm 175mm (6-7/8")
5	131 4400	Chainring 44T (A-Type)
	131 4500	Chainring 45T (A-Type)
	131 4502	Chainring 45T (B-Type)
	131 4600	Chainring 46T (A-Type)
	131 4602	Chainring 46T (B-Type)
	131 4700	Chainring 47T (A-Type)
	131 4702	Chainring 47T (B-Type)
	131 4800	Chainring 48T (A-Type)
	131 4802	Chainring 48T (B-Type)
	131 4900	Chainring 49T (A-Type)
	131 4902	Chainring 49T (B-Type)
	131 5000	Chainring 50T (A-Type)
	131 5002	Chainring 50T (B-Type)
	131 5100-1	Chainring 51T (A-Type)
	131 5102	Chainring 51T (B-Type)
	131 5200-1	Chainring 52T (A-Type)
	131 5202	Chainring 52T (B-Type)
	131 5300	Chainring 53T (A-Type)
	131 5302	Chainring 53T (B-Type)
	131 5400	Chainring 54T (A-Type)

ITEM NO.	PART NO.	DESCRIPTION
5	131 5402	Chainring 54T (B-Type)
	131 5500	Chainring 55T (A-Type)
	131 5502	Chainring 55T (B-Type)
6	131 0500	Chainring Fixing Bolt
7	131 0600	Chainring Fixing Nut
8	134 0161-1	Left Crank Arm 165mm (6-1/2")
	134 0162-1	Left Crank Arm 167.5mm (6-19/32")
	134 0163-1	Left Crank Arm 170mm (6-3/4")
	134 0164-1	Left Crank Arm 172.5mm (6-13/16")
	134 0165-1	Left Crank Arm 175mm (6-7/8")
9	137 0200	Right Hand Fixed Cup (1.37" × 24T) English Thread
	137 0210	Right Hand Fixed Cup (35 × P1) French Thread
	137 0220	Right Hand Fixed Cup (36 × 24T) Italian Thread
10	3-137 9001	Ball Retainer
11	137 0110	Bottom Bracket Spindle 107mm (4-7/32")
	137 0111	Bottom Bracket Spindle 109mm (4-9/32")
12	137 0400	Left Hand Adjustable Cup (1.37" × 24T) English Thread
	137 0410	Left Hand Adjustable Cup (35 × P1) French Thread
	137 0420	Left Hand Adjustable Cup (36 × 24T) Italian Thread
13	137 0500	Lock Ring (1.37" × 24T) English Thread
	137 0510	Lock Ring (35 × P1) French Thread
	137 0520	Lock Ring (36 × 24T) Italian Thread
14	137 0600	Dust Seal

Model TL-FC10
Cotterless Crank Extractor



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key 5 mm.



SHIMANO DURA-ACE System Compo Series

Model HB-7520 Hubs with Lock Ring
Model SS-7500 Sprocket
Model HP-7500 Head Parts

DURA-ACE
Front & Rear Hubs with Lock Ring

Model HB-7520

SPECIFICATIONS

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



DURA-ACE Sprocket for Track Hub

Model SS-7500

SPECIFICATIONS

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



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

DURA-ACE Head Parts

Model HP-7500

SPECIFICATIONS

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



Model TL-HS10
Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



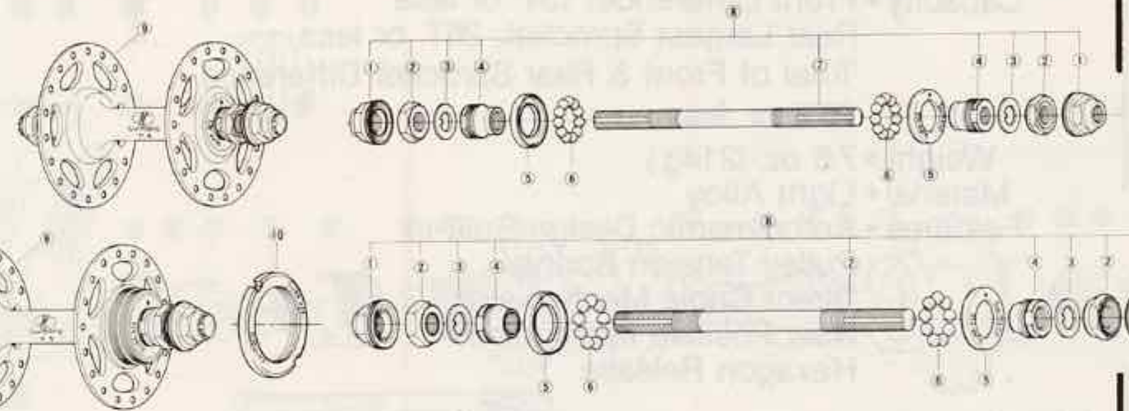
Model TL-SR20
Rear Sprocket Removal Tool



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



DURA-ACE Front & Rear Hubs with Lock Ring



ITEM NO.	PART NO.	DESCRIPTION
1	237 9002	Track Nut
2	237 0600	Lock Nut
3	233 1600	Non-Turn Washer
4	233 1500	Cone
5	233 1400	Dust Cap

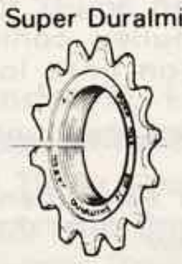
ITEM NO.	PART NO.	DESCRIPTION
6	000 0125	Steel Balls (3/16″)
7	237 0300	Axle
8	237 9001	Complete Axle Unit
9	237 41100	Complete Front Hub (28H)
	237 81100	Complete Front Hub (36H)

ITEM NO.	PART NO.	DESCRIPTION
1	247 9002	Track Nut
2	247 0600	Lock Nut
3	243 1600	Non-Turn Washer
4	243 1500	Cone
5	243 1400	Dust Cap
6	000 0135	Steel Balls (1/4″)
7	247 0310	Axle
8	247 9001	Complete Axle Unit
9	247 41100	Complete Rear Hub (28H)
	247 61100	Complete Rear Hub (36H)
10	247 1300	Lock Ring

ITEM NO.	PART NO.	DESCRIPTION
1	247 9002	Track Nut
2	247 0600	Lock Nut
3	243 1600	Non-Turn Washer
4	247 0400	Cone
5	247 0800	Dust Cap
6	000 0135	Steel Balls (1/4)
7	247 0300	Axle
8	247 9003	Complete Axle Unit
9	247 42200	Complete Rear Hub (28H)
	247 62200	Complete Rear Hub (36H)
10	247 1300	Lock Ring

DURA-ACE Sprocket

Material: Extra Super Duralmin

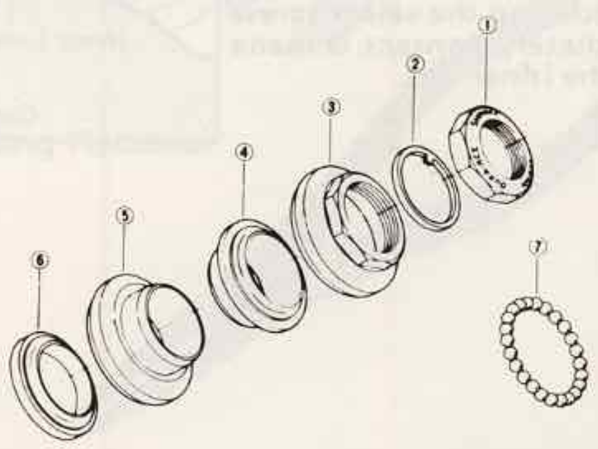


Material: Steel



PART NO.	SPECIFICATION		
247 1413	DURA-ACE Sprocket Wheel Thread: BC1.37″ × 24T.P.I.	Material: Extra Super duralmin	13T
247 1414			14T
247 1415			15T
247 1416			16T
247 1013		Material: Steel	13T
247 1014			14T
247 1015			15T
247 1016			16T

DURA-ACE Head Parts



ITEM NO.	PART NO.	DESCRIPTION
1	721 0100	Lock Nut
2	721 0200	Lock Washer
3	722 0300	Top Bearing Cup
4	722 0400	Top Bearing Cone

ITEM NO.	PART NO.	DESCRIPTION
5	722 0500	Bottom Bearing Cup
6	722 0600	Crown Cone
7	000 0151	Steel Balls 5/32″

Model RD-7300 Rear Derailleur

DURA-ACE AX Rear Derailleur

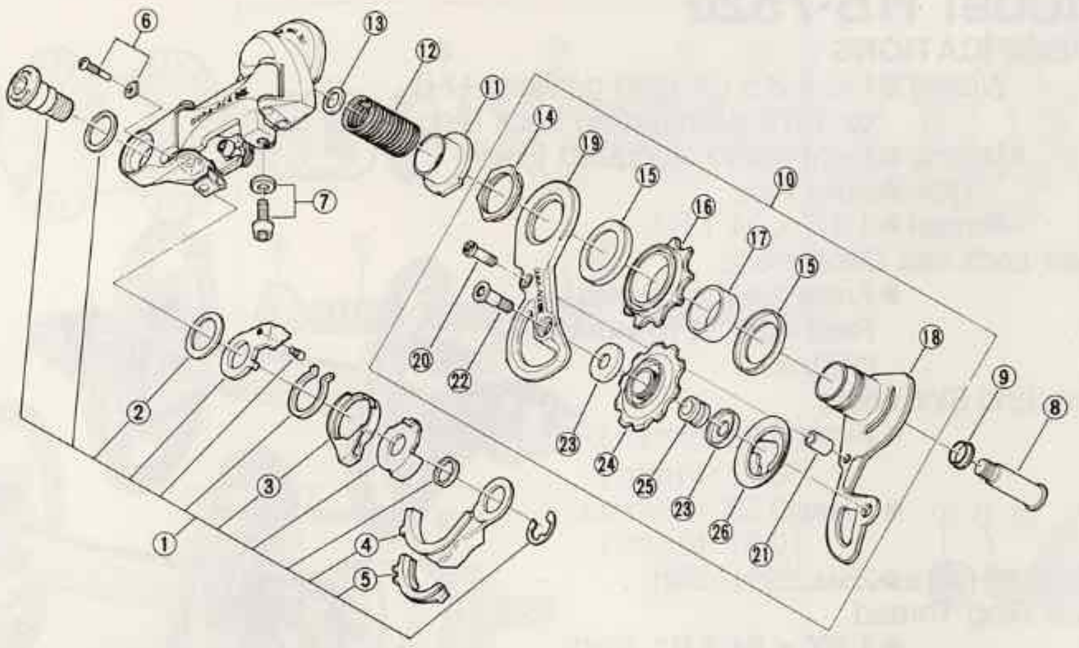
Model RD-7300

SPECIFICATIONS

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



DURA-ACE AX Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	3-561 9001	Bracket Axle Assembly
2	564 4500	Bracket Sleeve A
3	564 4400	Stopper
4	561 0900	Inner Guide
5	561 4000	Guide Liner
6	3-561 9801	Select Screw & Plate
7	3-571 9004	Cable Fixing Bolt & Washer
8	561 1300	Plate Axle
9	561 1200	P-Axle Sleeve
10	3-561 9002	Pulley Plate Assembly
11	561 1800	P-Sleeve
12	561 2500	P-Tension Spring
13	561 1700	P-Axle Collar

ITEM No.	PART NO.	DESCRIPTION
14	561 1900	Plate Fixing Nut
15	561 1500	Pulley Cap (Big)
16	561 1600	Guide Pulley
17	561 1400	Pulley Bushing e
18	3-561 9004	Inner Plate
19	561 2000	Outer Plate
20	561 3500	Roller Fixing Screw
21	561 3400	Roller
22	545 2600	Pulley Bolt
23	545 2800	Pulley Cap (Small)
24	3-545 9003-1	Tension Pulley
25	545 2700	Pulley Bushing B
26	561 2900	Spoke Barrier Cap

Assembly Notes

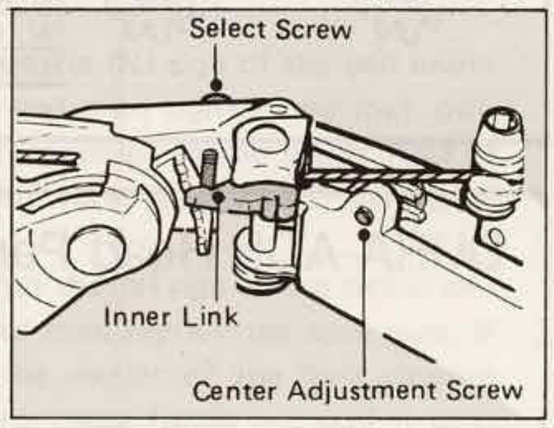
● Stroke Adjustment

1) Shift the lever from top gear to adjoining gear and adjust the center adjusting screw accordingly so that the pulley comes directly below the sprocket. Continue this operation until low gear is reached and confirmed.
To judge properly, the center screw should be adjusted until there is no noise when shifting.
Continue shifting to adjoining sprockets and make adjustments until low gear.

Note: When adjusting do not shift gears strongly, otherwise the chain is likely to drop between low gear and spokes.

2) Finally, turn the select screw, in low gear position, until contact is made with inner link.

Note: Stop turning the select screw immediately contact is made with the inner link.



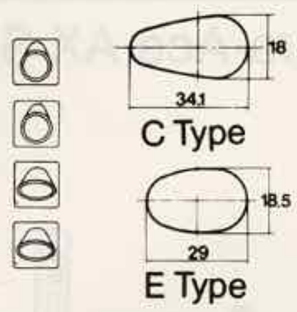
Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



Model FD-7300 Front Derailleur (Band Type)
Model FD-7310 Front Derailleur (Brazed-on Type)
Model FD-7320 Front Derailleur (Brazed-on Type for oval Tube E)
Model FD-7322 Front Derailleur (Brazed-on Type for oval Tube C)

DURA-ACE AX Front Derailleur

Model FD-7300 (Band Type)
FD-7310 (Brazed-on Type)
FD-7320 (Brazed-on Type for oval Tube E)
FD-7322 (Brazed-on Type for oval Tube C)



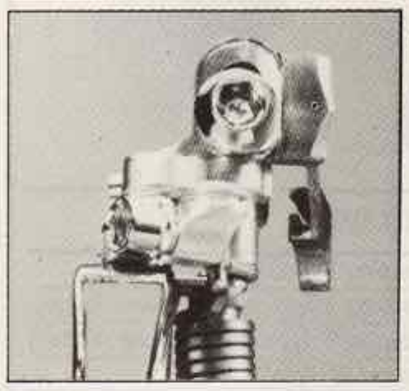
SHIMANO aero dynamics





SPECIFICATIONS

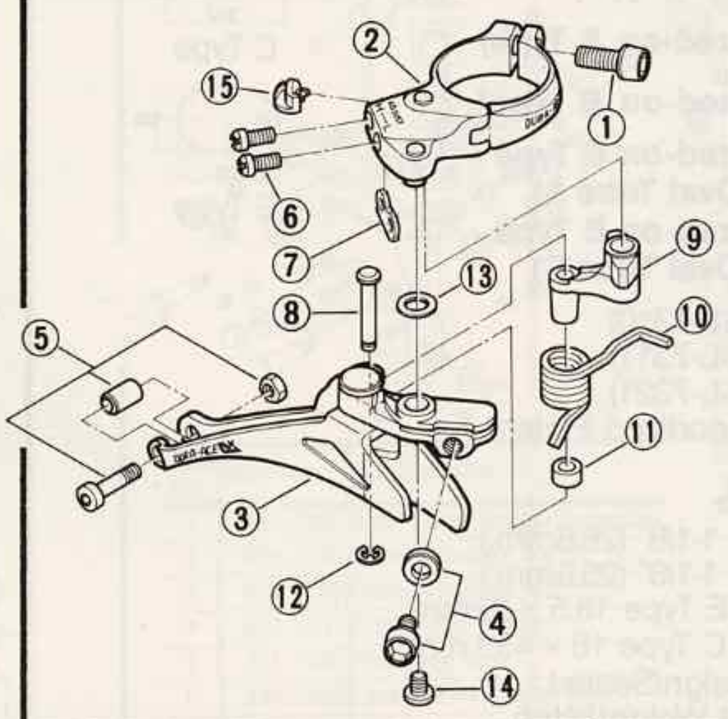
Capacity • 14T. or less
Weight • Band Type; 3.4 oz. (96g.)
Brazed-on Type; 3.1 oz. (88g.)
Brazed-on Parts; 0.5 oz. (13g.)
Material • Light Alloy • Anodized Finish (Body)
Steel • Chromium Finish (Chain Guide)
Inlet Diameter • Band Type/1-1/8″ (28.6mm.), 1-3/32″ (28.0mm.)
Brazed-on Type/1-1/8″ (28.6mm.)
Brazed-on Type (For Oval Tube)/ 18 × 34.1mm. (C Type), 18.5 × 29mm. (E Type)
Features • Aerodynamic Design/New Trap-Ease Mechanism/Indent•Guide Mechanism/Hexagon Release/ Inner End Guide



FD-7320
Brazed-on Type
(For Oval Tube E Type)



DURA-ACE AX Front Derailleur



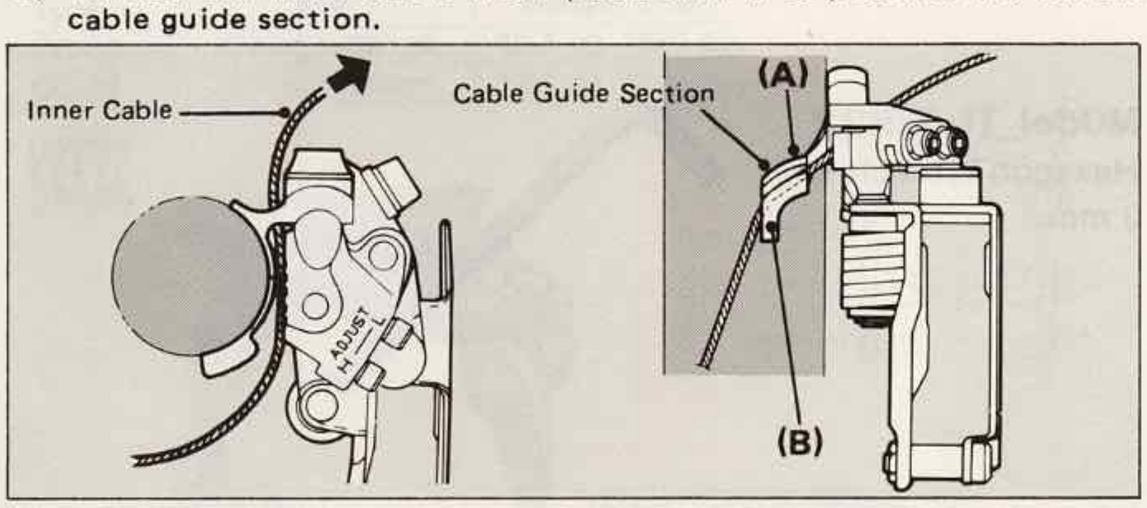
ITEM NO.	PART NO.	DESCRIPTION
1	571 0400	Clamp Bolt A (M5 × 11.5)
2	3-571 9001	Clamp Band (1-1/8″)
	3-571 9002	Clamp Band (ø28.0mm)
3	3-571 9003	Chain Guide Assembly
4	3-571 9004	Cable Fixing Bolt Unit (M5 × 8)
5	3-571 9005	Roller Fixing Screw Unit
6	571 0900	Stroke Adjusting Screw (M4 × 7.5)
7	585 4900	Adjusting Plate
8	571 1100	Axle C
9	571 0800	Inner Link
10	571 1200	Return Spring

ITEM No.	PART NO.	DESCRIPTION
11	586 4000	Axle Bush
12	584 2200	Stop Ring (M3)
13	571 2200	Link Washer
14	585 4800	Link Fixing Screw
15	571 1900	Cable Guide
16	571 0401	Clamp Blot B (M5 × 11) for Brazed-on Type
17	585 5800	Clamp Washer for Brazed-on Type
18	571 2100	Brazed-on Bracket for 1-1/8″ Tube
	571 2101	Brazed-on Bracket for Oval Tube
19	3-571 9006	Bracket Body for Brazed-on Type

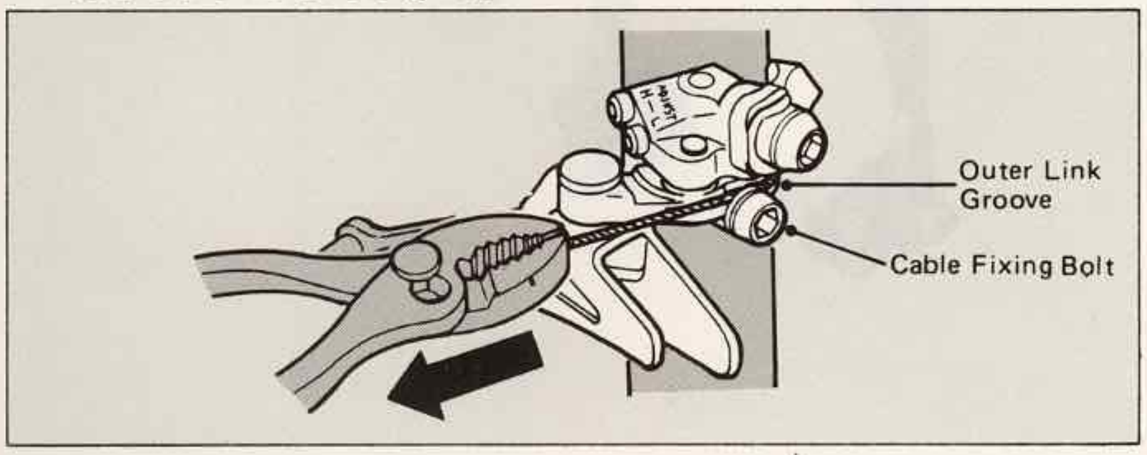
Assembly Notes

■ Cable Assembly

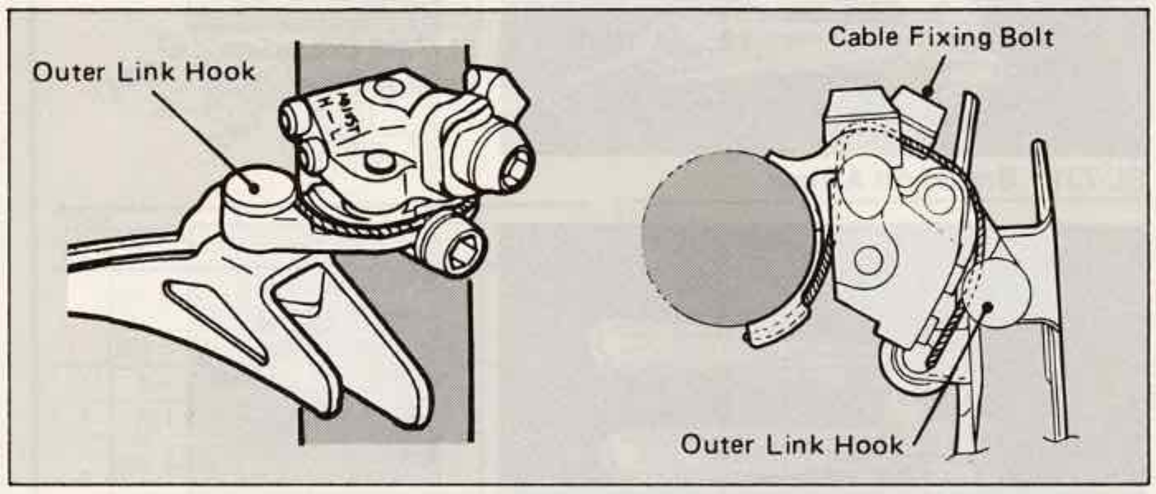
1) Insert the inner cable as shown in the diagram.
2) Thread the inner cable from position (A) to position (B) on the cable guide section.



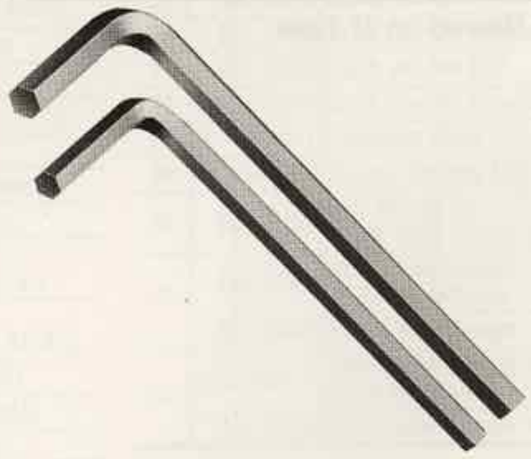
3) Pass the inner cable along the outer link groove and set to the cable fixing bolt.
Next, pull the inner cable using a pair of pliers to remove cable slack. In this position, fix the inner cable securely. Tightening torque should be 50kg·cm.



4) And then place the inner cable end onto the hook located on the outer link.



Model TL-WR36 6 mm:
Model TL-WR33 3 mm.
Hexagon Wrench Keys



DURA-ACE AX

Model SL-7300
Shifting Lever (Band A Type)

Model SL-7310
Shifting Lever (Brazed-on A Type)

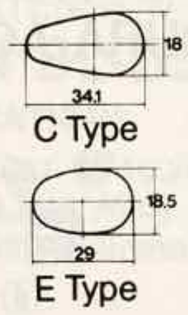
Model SL-7311
Shifting Lever (Brazed-on B Type)

Model SL-7321
Shifting Lever (Brazed-on B Type for Oval Tube E)

Model SL-7322
Shifting Lever (Brazed-on B Type for Oval Tube C)

DURA-ACE AX Shifting Lever

Model SL-7300 (Band A Type)
SL-7310 (Brazed-on A Type)
SL-7311 (Brazed-on B Type)
SL-7321 (Brazed-on B Type for Oval Tube E)
SL-7322 (Brazed-on B Type for Oval Tube C)



SPECIFICATIONS

Weight • 1.8 oz. (50g.) (SL-7310)
2.4 oz. (69g.) (SL-7311)
2.4 oz. (69g.) (SL-7321)
Material • Light Alloy • Anodized Finish
Type • Friction Type
Attachment Position • Down Tube
Lever Clamp Diameter • SL-7310; 1-1/8" (28.6mm.)
SL-7311; 1-1/8" (28.6mm.)
SL-7321 E Type 18.5 × 29mm.
SL-7322 C Type 18 × 43.1mm.
Features • Aerodynamic Design/Sealed Mechanism/Light Weight/With Fairing Cover/Hexagon Release


Model SL-7300
(Band A-Type)

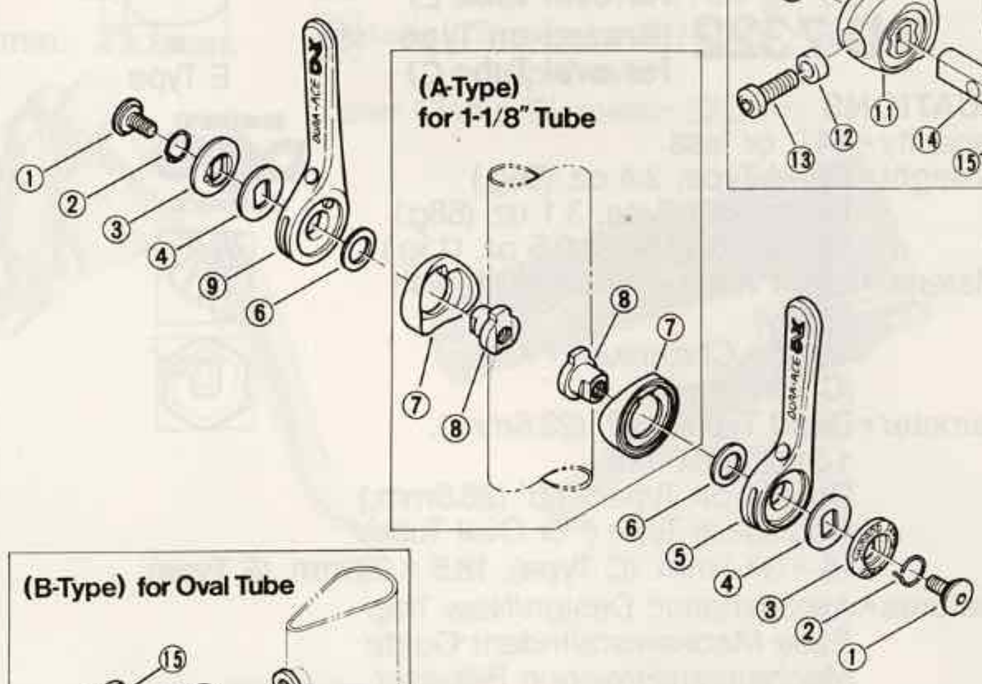

SL-7310 Brazed-on A Type


SL-7310 Brazed-on Parts A Type


SL-7311 Brazed-on B Type


SL-7311 Brazed-on Parts B Type

Dura-Ace AX Shifting Lever



ITEM No.	PART NO.	DESCRIPTION
1	641 0500	Lever Fixing Bolt
2	681 1300	Clutch Spring
3	641 0400	Cap
4	681 3500	Washer B
5	3-641 9010	Rear Lever
6	641 1200	Spacer A
7	641 0300	Dust Cap (A-Type)
8	681 4500	Brazed-on Axle (A-Type)
9	3-641 9011	Front Lever
10	681 6200	Brazed-on Axle (B-Type)

ITEM NO.	PART NO.	DESCRIPTION
11	641 1000	Housing B-Type for 1-1/8" Tube
	641 1001	Housing B-Type for Oval Tube (Tange)
	641 1002	Housing B-Type for Oval Tube (Kettler)
12	681 6300	Spacer (B-Type)
13	681 6400	Housing Fixing Bolt (M5 × 17) B-Type for 1-1/8" Tube
	681 6401	Housing Fixing Bolt (M5 × 20) B-Type for Oval Tube (Tange)
	681 6402	Housing Fixing Bolt (M5 × 30) B-Type for Oval Tube (Kettler)
14	681 6101	Lever Axle (B-Type)
15	641 1100	Washer A (B-Type)

MOdel TL-WR33
Hexagon Wrench Key
3 mm.



Model FH-7370 Freehub (Small/7-speed)

DURA-ACE AX Freehub

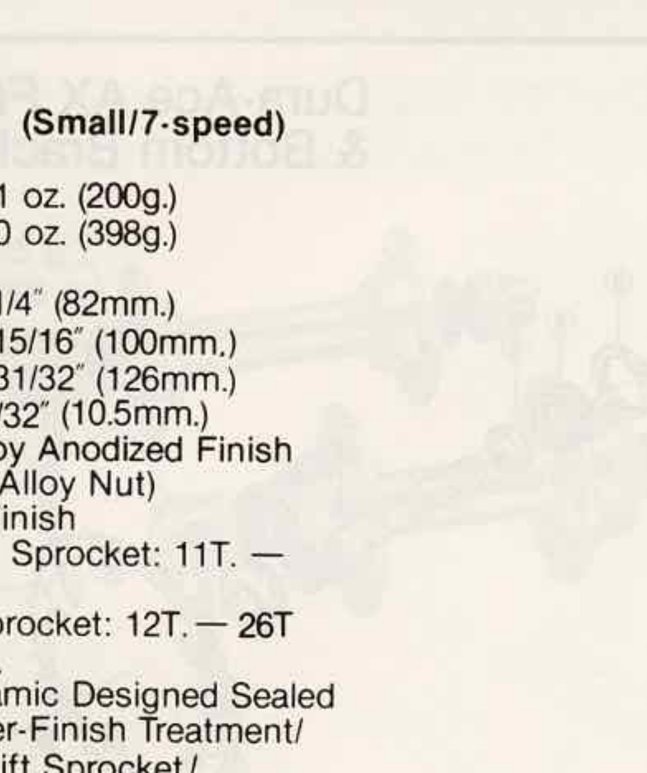
Model FH-7370 (Small/7-speed)

SPECIFICATIONS

Weight • Front; 7.1 oz. (200g.)
Rear; 14.0 oz. (398g.)
Over Lock Nut Dimensions
• Front; 3-1/4″ (82mm.)
3-15/16″ (100mm.)
Rear; 4-31/32″ (126mm.)
Amount of Dish • Rear; 13/32″ (10.5mm.)
Material • Light Alloy Anodized Finish (W/Light Alloy Nut)
Sprocket • Golden Finish
Teeth • Threaded Sprocket: 11T. — 18T.
Spline Sprocket: 12T. — 26T
Spoke Holes • 32H./36H.
Features • Aerodynamic Designed Sealed Cap/Super-Finish Treatment/ Super-Shift Sprocket/ Aerodynamic Designed Quick Release Lever/Cassette Gear/Sealed Mechanism/Light Weight/Direction-6 Hub

Super-Shift Sprocket 12T.—20T. available.



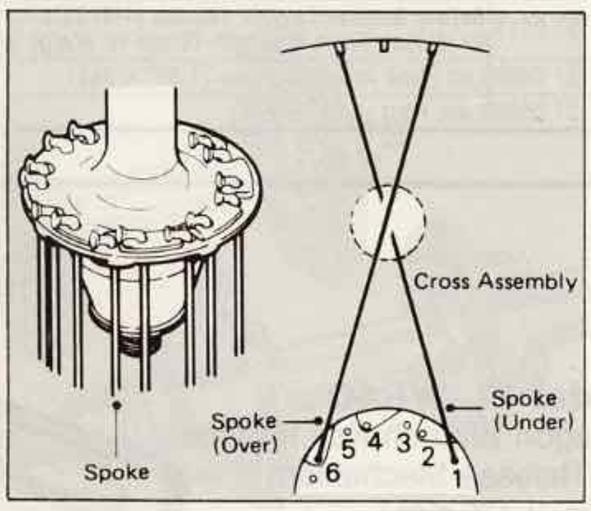


Assembly Notes

- **Rim Assembly**

Note: Be sure to use No. 15 spokes (Dia. 1.8mm). Spoke length is the same as used for a conventional small flanged hub. (Use the 302mm spoke for the 27″ x 32H rim)

1) Pass spokes through the spoke holes of the flange from inside as shown in diagram.
2) Cross the spokes as shown in diagram, then assemble to the rim by the nipples. Both front and rear hubs use the 6 hole spoke assembly system.



Model TL-FH30
Freehub Removal Tool



Model TL-HS10
Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



Model TL-FH40
Freehub Removal Tool (For freewheel body fixing race)



Model TL-SR20
Rear Sprocket Removal Tool

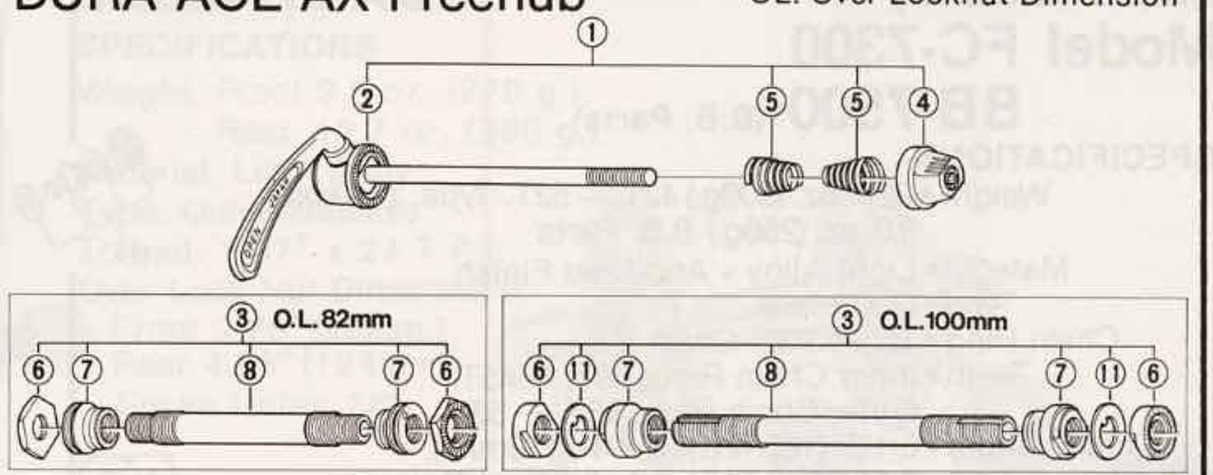


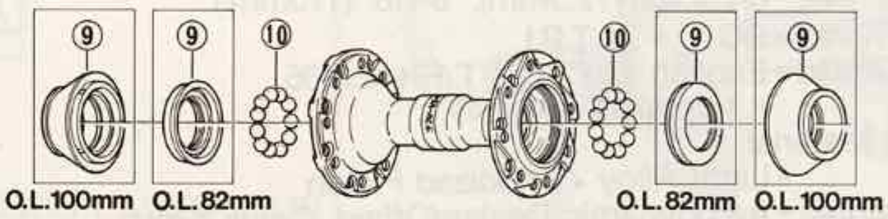


When removing sprockets, as seen in photograph, use the double wrap sprocket turning chain for easier operation.

DURA-ACE AX Freehub

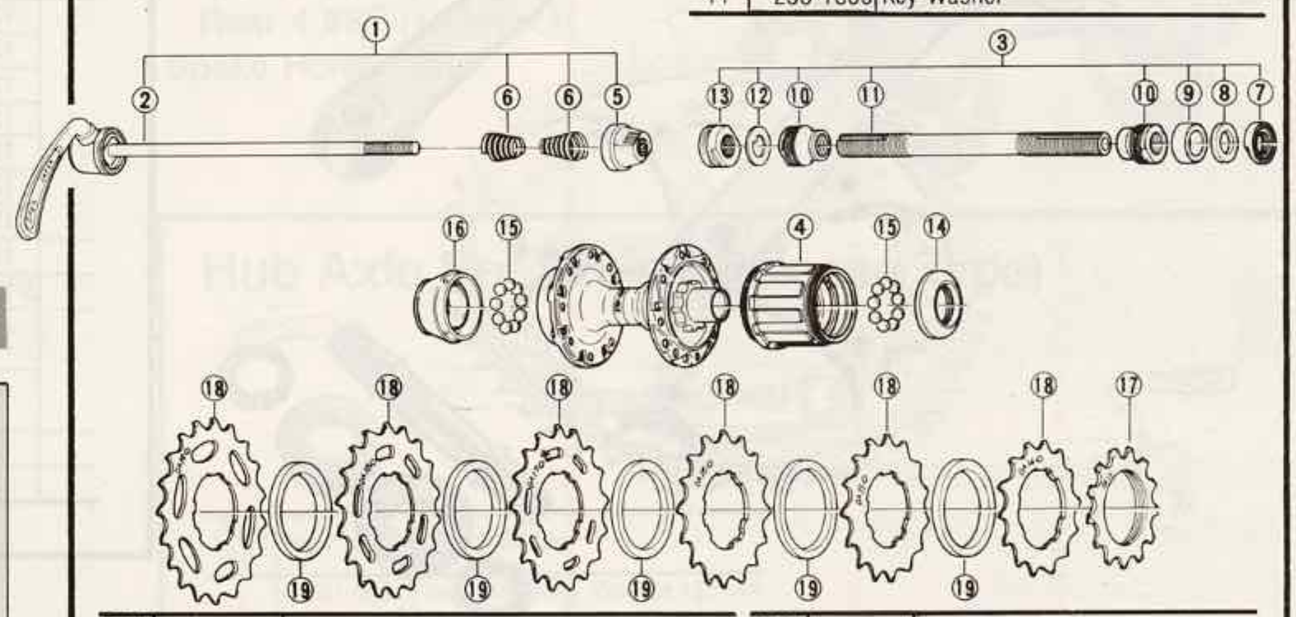
OL: Over Locknut Dimension





ITEM NO.	PART NO.	DESCRIPTION
1	3-262 9010	Complete Quick Release 111 mm
2	3-264 9001	Cam Lever Unit 111 mm (4-3/8″)
3	3-262 9020	Complete Hub Axle 90 mm (3-9/16″)
4	3-262 9001	Nut for Skewer
5	233 2100	Volute Spring
6	262 0700	Lock Nut
7	262 0600	Cone (M10 × 10.6)
8	262 0500	Hub Axle 90 mm (3-9/16″)
9	262 0300	Dust Cap
10	000 0125	Steel Ball (3/16″)

ITEM NO.	PART NO.	DESCRIPTION
1	3-262 9011	Complete Quick Release 128 mm
2	3-264 9003	Cam Lever Unit 128 mm (5-1/32″)
3	3-262 9021	Complete Hub Axle 108 mm (4-1/4″)
4	3-262 9001	Nut for Skewer
5	233 2100	Volute Spring
6	262 0701	Lock Nut 6 mm (1/4″)
7	262 0601	Cone (M9 × 15.7)
8	233 1800	Hub Axle 108 mm (4-1/4″)
9	263 0400	Dust Cap
10	000 0125	Steel Ball (3/16″)
11	233 1600	Key Washer



ITEM NO.	PART NO.	DESCRIPTION
1	3-262 9012	Complete Quick Release 157 mm (6-3/16″)
2	3-264 9005	Cam Lever Unit 157 mm (6-3/16″)
3	3-272 9001	Complete Hub Axle 137 mm (5-1332″) Over Lock Nut Dimension. 126 (4-31/32″)
4	3-272 9002	Complete Freewheel Body
5	3-262 9001	Nut for Skewer
6	233 2100	Volute Spring
7	272 0500	Right Hand Lock Nut
8	272 0700	Dust Washer
9	241 1100	Axle Space 5.5 mm (7/32″)
10	243 1500	Cone M10 × 15 mm (19/32″)
11	243 2001	Hub Axle 137 mm (5-13/32″)
12	243 1600	Left Hand Key Washer
13	272 0600	Left Hand Lock Nut
14	272 0300	Right Hand Dust Cap
15	000 0135	Steel Ball (1/4″) 18 pcs
16	272 0400	Left Hand Dust Cap
17	357 1117	Sprocket Wheel 11T

ITEM NO.	PART NO.	DESCRIPTION
17	357 1217	Sprocket Wheel 12T
	357 1317	Sprocket Wheel 13T
18	119 1302	Sprocket Wheel 13T (Super UG)
	119 1402	Sprocket Wheel 14T (Super UG)
	119 1502	Sprocket Wheel 15T (Super UG)
	119 1602	Sprocket Wheel 16T (Super UG)
	119 1702	Sprocket Wheel 17T (Super UG)
	119 1802	Sprocket Wheel 18T (Super UG)
	119 1902	Sprocket Wheel 19T (Super UG)
	119 2002	Sprocket Wheel 20T (Super UG)
	357 2102	Sprocket Wheel 21T
	357 2202	Sprocket Wheel 22T
	357 2302	Sprocket Wheel 23T
	357 2402	Sprocket Wheel 24T
	357 2502	Sprocket Wheel 25T
	357 2602	Sprocket Wheel 26T
19	356 6300	Sprocket Spacer

Model FC-7300
Model BB-7500

Front Chainwheel

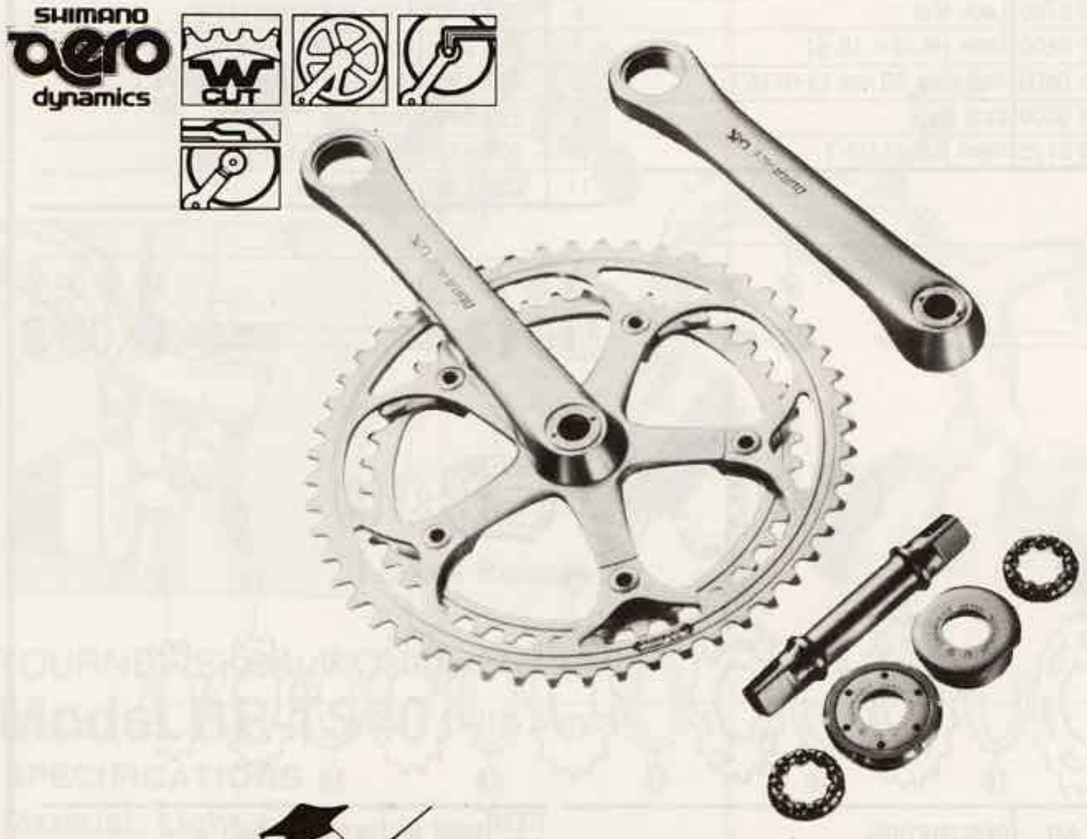
Bottom Bracket Assembly

DURA-ACE AX Front Chainwheel & Bottom Bracket Assembly

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

SPECIFICATIONS

Weight • 32.1 oz. (909g.) 42T. — 52T. Type, (170mm)
9.0 oz. (256g.) B.B. Parts
Material • Light Alloy • Anodized Finish
Type • Cotterless
Chain Ring • 1/2″ × 3/32″ Chain
Teeth • Inner Chain Ring; 39T. — 45T.
Outer Chain Ring; 48T. — 53T.
Crank Length • 6-1/2″ (165mm.), 6-3/4″ (170mm.), 6-25/32″ (172.5mm), 6-7/8″ (175mm.)
Crank Thread • BC 1″ × 24 T.P.I.
Cup Thread • English 1.37″ × 24 T./French 35 × 1.0/Italian 36 × 24T.
Chain Ring Material
• Light Alloy • Anodized Finish
Features • Aerodynamic Design/Offset Crank Arm/ W-cut Mechanism/ One Key Release Mechanism/ Safety Crank Arm
Optional Use • (B.B. Parts) Polished Ball Race
• With DURA-ACE AX DD Pedal (PD-7300) or SHIMANO 600AX DD Pedal (PD-6300)

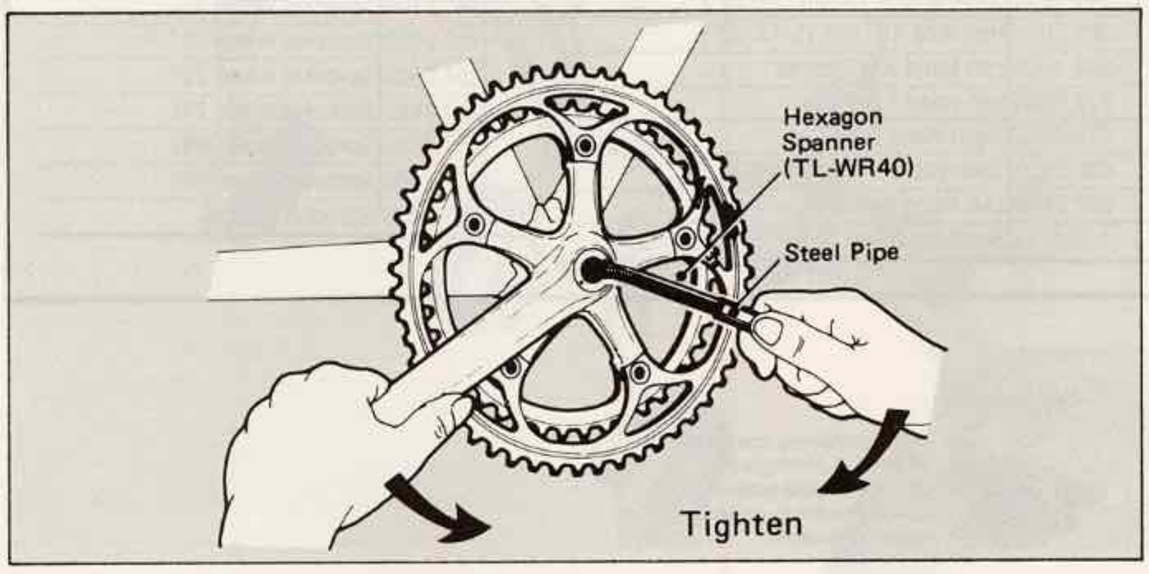




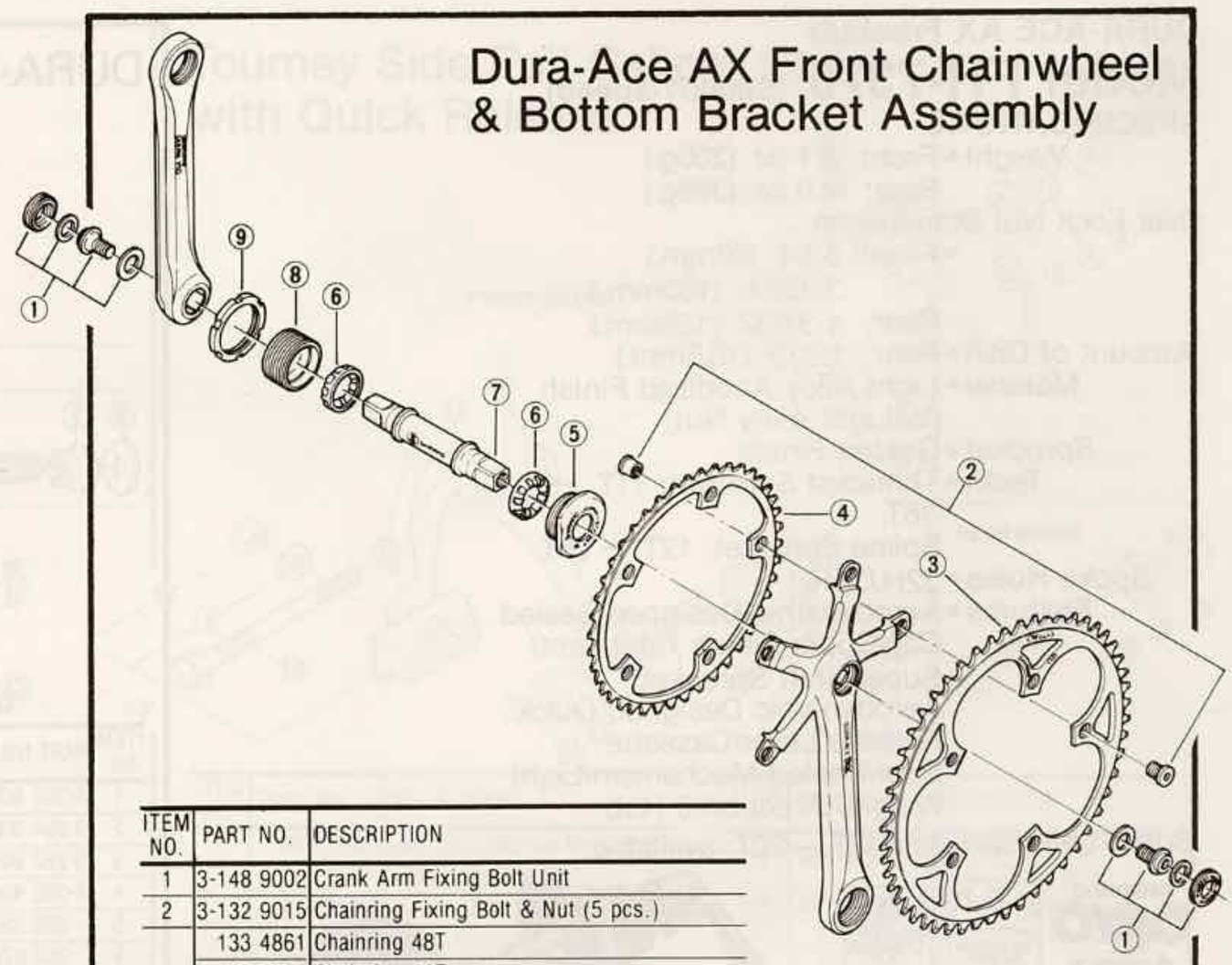
Assembly Notes

- **Crank Assembly**

1) Set the right hand crank to the right side of the bottom bracket spindle. Then screw the crank fixing bolt to the bottom bracket spindle by means of the hexagon spanner Model TL-WR40 — (width 6mm, length 130mm). At this time, tighten manually with force up to 30 kg. (66 lbs.) by gripping hexagon spanner. If it is too short, a steel pipe or similar can be used as a support. When using a torque wrench, tightening torque should be 250-350 kg-cm. (220-300 in. lbs.)
2) Left crank is the same as the right crank method and be sure to tighten securely.



Dura-Ace AX Front Chainwheel & Bottom Bracket Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	3-148 9002	Crank Arm Fixing Bolt Unit
2	3-132 9015	Chainring Fixing Bolt & Nut (5 pcs.)
3	133 4861	Chainring 48T
	133 4961	Chainring 49T
	133 5061	Chainring 50T
	133 5161	Chainring 51T
	133 5261	Chainring 52T
	133 5361	Chainring 53T
4	132 3970	Chainring 39T
	132 4070	Chainring 40T
	132 4170	Chainring 41T
	132 4270	Chainring 42T
	132 4370	Chainring 43T
	132 4470	Chainring 44T
	132 4570	Chainring 45T
5	137 0200	Right Hand Fixed Cup (1.37″ × 24T)
6	3-137 9001	Ball Retainer
7	137 0110	Bottom Bracket Spindle 107 mm (4-7/32″) for Bottom Bracket Length 68 mm (2-11/16″)
	137 0111	Bottom Bracket Spindle 109 mm (4-9/32″) for Bottom Bracket Length 70 mm (2-3/4″)
8	137 0400	Left Hand Adjustable Cup (1.37″ × 24T)
9	137 0500	Lock Ring (1.37″ × 24T)

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6 mm. x 130 mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350 kgfcm.



Model TL-WR35
Hexagon Wrench Key 5 mm.



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-FC20
Screw Peg Spanner



Model TL-PD10
DD Pedal Spanner



Model PD-7300 DD Pedal

DURA-ACE AX DD Pedal

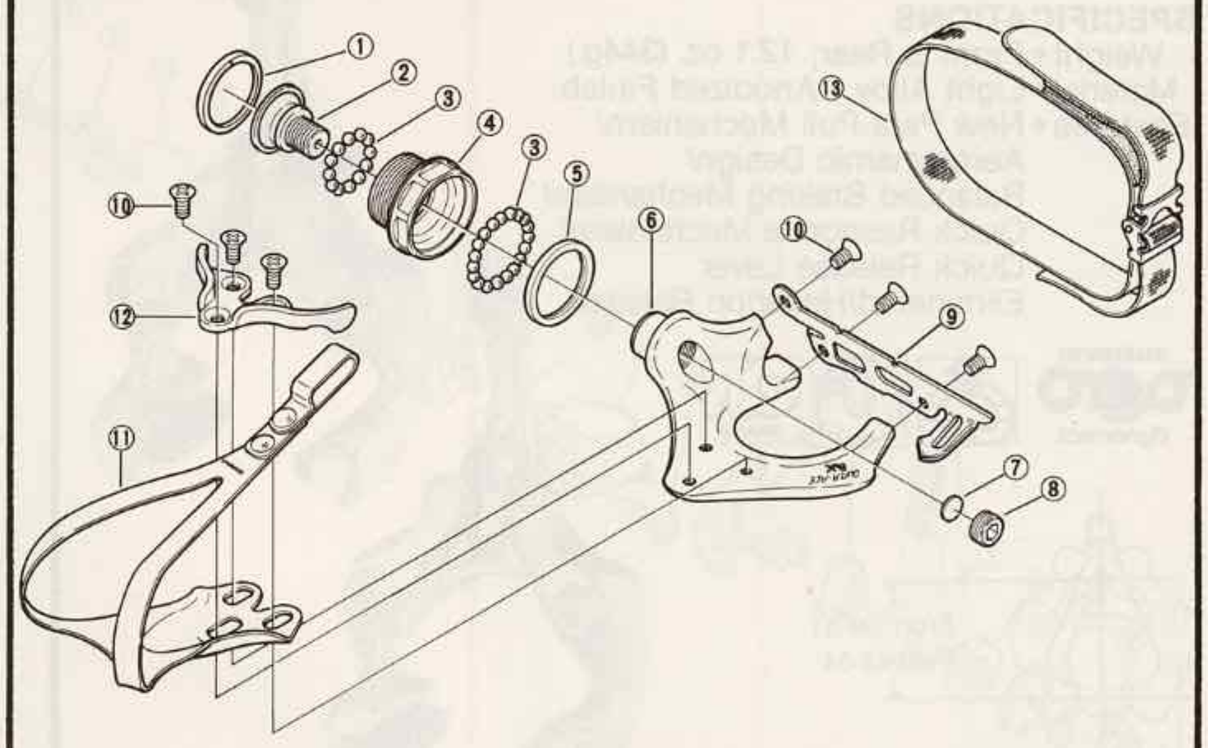
Model PD-7300

SPECIFICATIONS

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



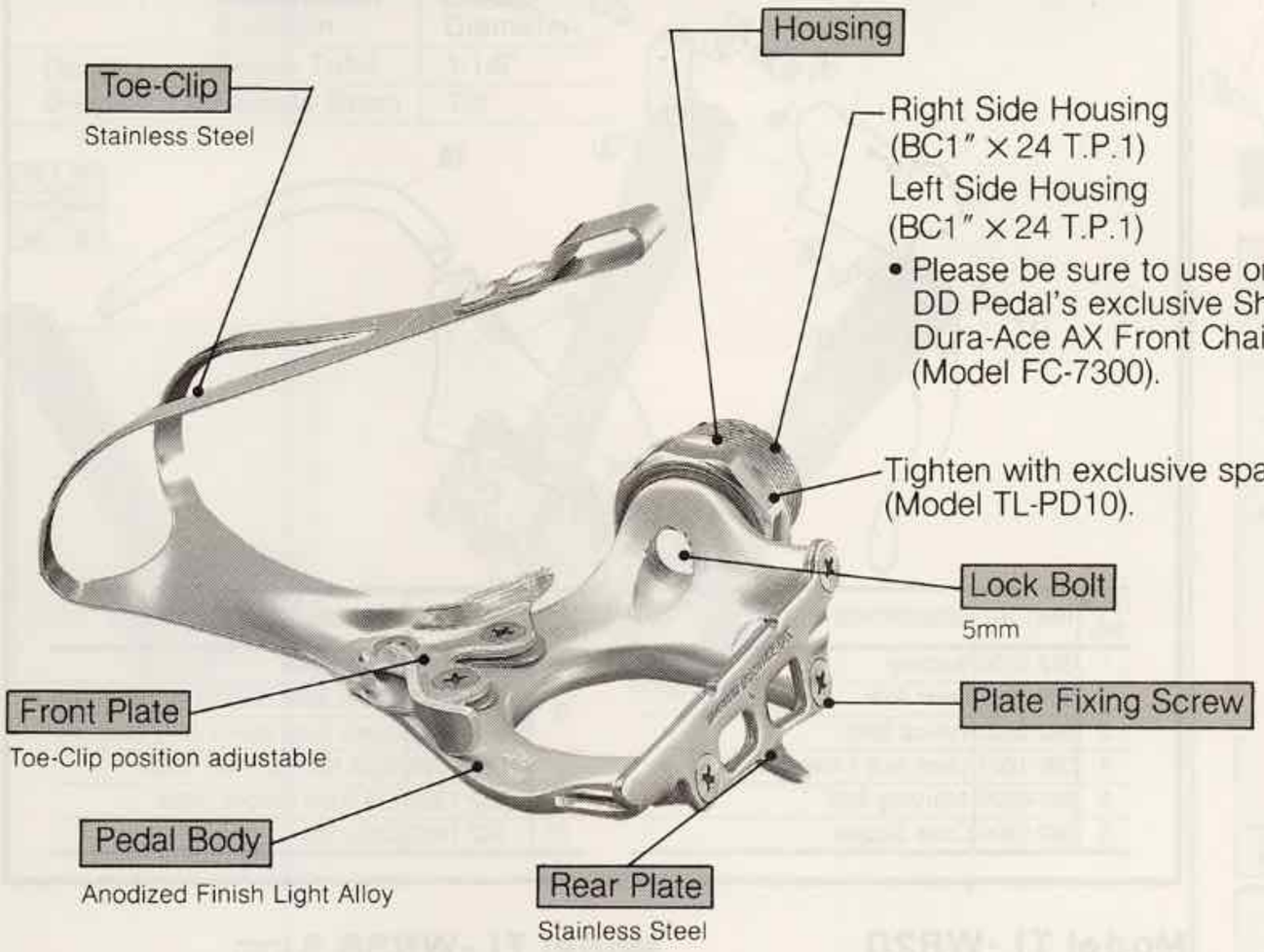
Dura-Ace AX DD Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	461 1100	Cone Side Dust Cap
2	461 0500	Cone (M10 × 1.0)
3	000 0182	Steel Ball (5/32″ × 32)
4	461 0300	Right Side Housing (BC1 × 24TPI)
	461 0400	Left Side Housing (BC1 × 24TPI)
5	461 1101	Body Side Dust Cap
6	3-463 9001	Right Side Pedal Body
	3-463 9002	Left Side Pedal Body
7	461 0800	Washer
8	461 0900	Lock Bolt
9	463 0300	Right Side Plate
	463 0400	Left Side Plate

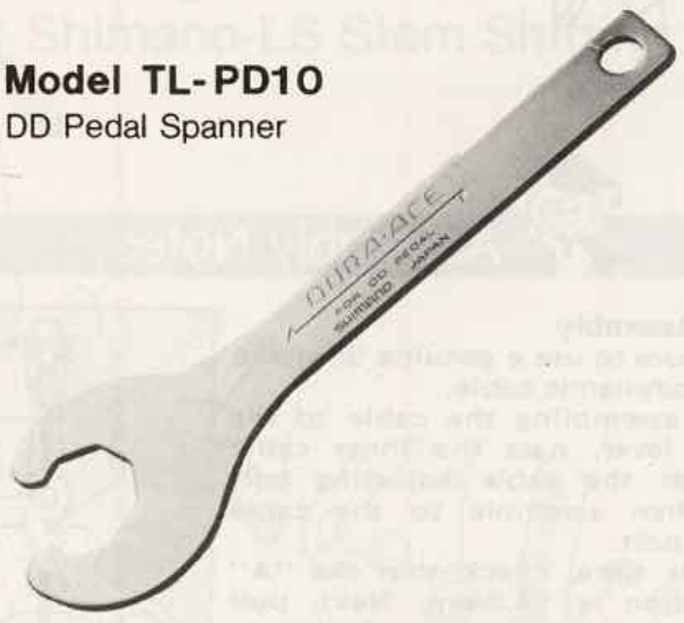
ITEM No.	PART NO.	DESCRIPTION
10	000 1900	Screw
11	3-461 9007	Toe-Clip M-Size
	3-461 9008	Toe-Clip L-Size
	3-461 9009	Toe-Clip LL-Size
	3-461 9003	Toe-Clip M-Size (Light Alloy) Option
	3-461 9004	Toe-Clip L-Size (Light Alloy) Option
12	463 0500	Right Side Front Plate
	463 0600	Left Side Front Plate
13	3-461 9006	Strap Assembly (Blue)
	3-461 9010	Strap Assembly (Red)
	3-461 9011	Strap Assembly (Black)

Assembly Notes



Note: There are two types of housing-left and right. The left housing has identifying notches on the outside rim. And right side is regular shape without notches.

Model TL-PD10
DD Pedal Spanner



Model BR-7300 Brake
Model BL-7300 Lever Brake

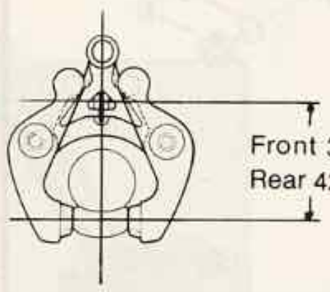
DURA-ACE AX Brake

Model BR-7300

SPECIFICATIONS

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





DURA-ACE AX Brake Lever

Model BL-7300

SPECIFICATIONS

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

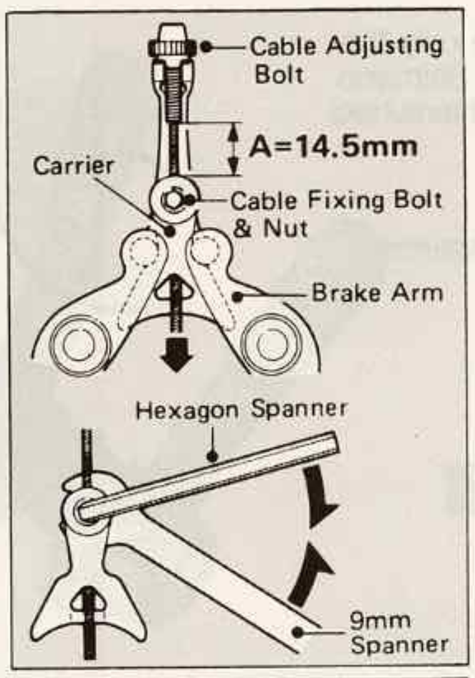


Assembly Notes

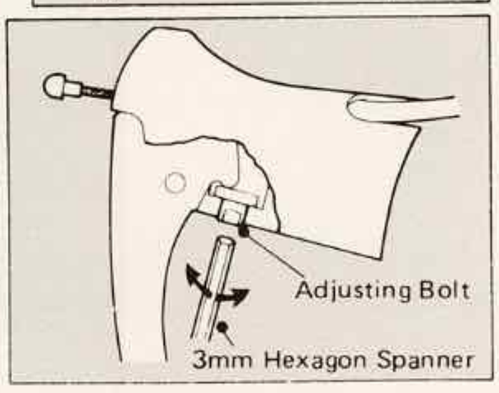
● Cable Assembly

Note: Ensure to use a genuine Shimano aerodynamic cable.

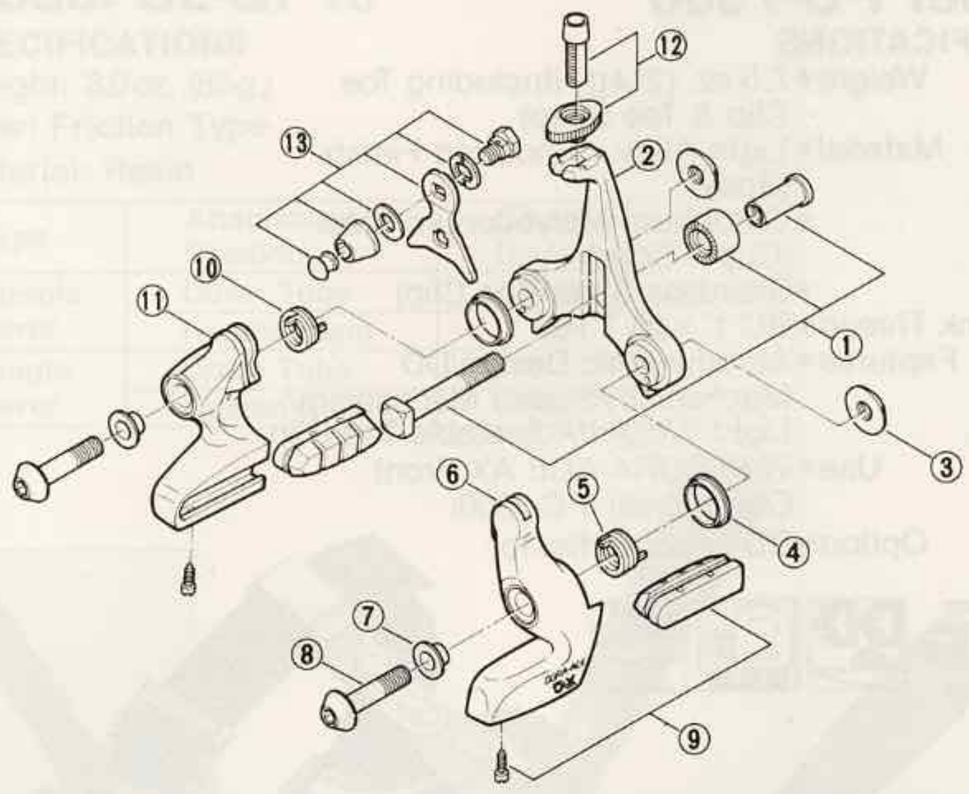
1) After assembling the cable to the brake lever, pass the inner cable through the cable adjusting bolt and then assemble to the cable fixing bolt.
2) At this time, check that the "A" dimension is 14.5mm. Next, pull the inner cable by a pair of pliers to eliminate cable slack. Fix the cable fixing nut temporarily at this stage.
3) Take out the carrier and inner cable from the brake arm and fix the cable fixing nut securely. Tightening torque should be 70—85 kg·cm.



4) Adjust the grip stroke of the lever to the most suitable setting by inserting a 3mm hexagon spanner into the adjusting bolt, located under the bracket, and turning. When the hexagon spanner is turned in a clockwise direction, the stroke becomes narrower and when turned in an anti-clockwise direction it becomes wider. Adjustment distance is 75—85mm.



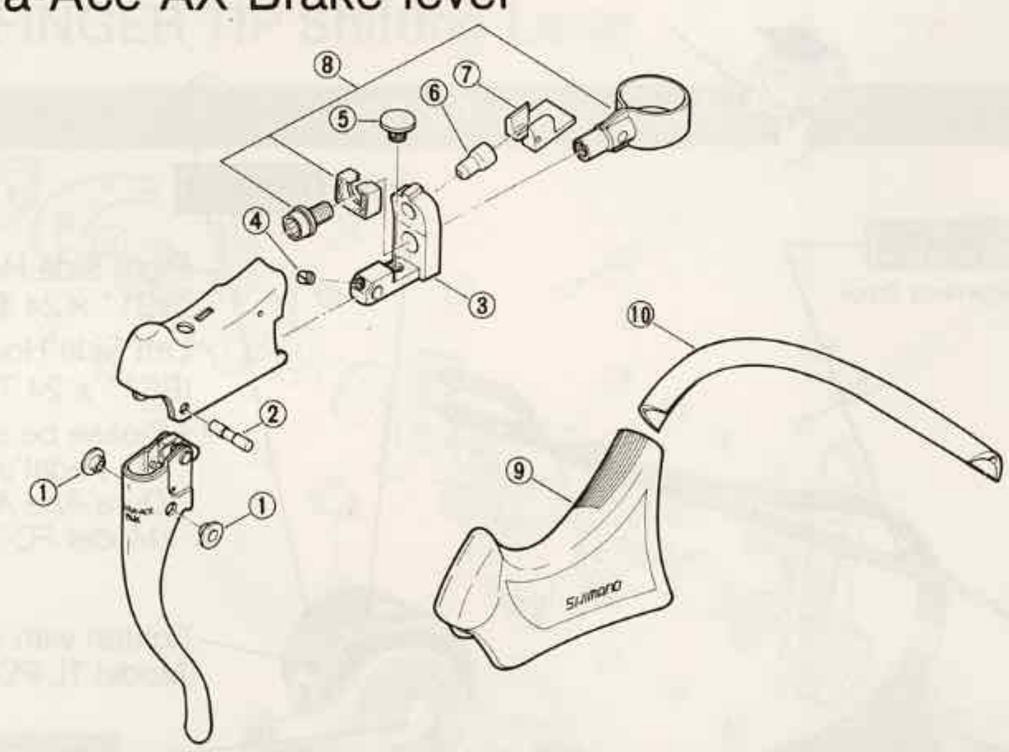
Dura-Ace AX Brake



ITEM NO.	PART NO.	DESCRIPTION
1	3-814 9802	Center Bolt Assembly for Front (M6 × 45)
	3-814 9803	Center Bolt Assembly for Rear (M6 × 25)
2	814 0100	Gate
3	814 0900	Pivot Nut
4	814 1000	Gate Bushing
5	814 2000	Return Spring for Left Arm
6	3-814 9002	Left Arm for Front
	3-814 9004	Left Arm for Rear

ITEM No.	PART NO.	DESCRIPTION
7	814 1100	Arm Bushing
8	814 0800	Pivot Bolt (M6 × 17.2)
9	3-815 9803	Brake Shoe & Shoe Fixing Screw
10	814 1900	Return Spring for Right arm
11	3-814 9001	Right Arm for Front
	3-814 9003	Right Arm for Rear
12	3-814 9801	Cable Adjusting Bolt & Nut
13	3-814 9005	Carrier Assembly

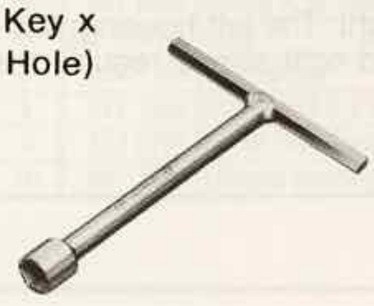
Dura-Ace AX Brake lever



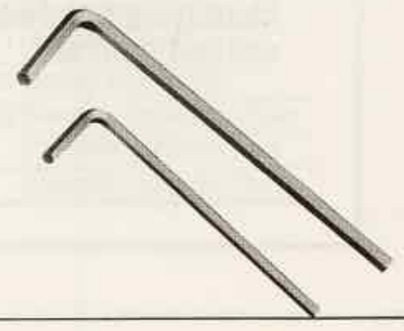
ITEM NO.	PART NO.	DESCRIPTION
1	882 0700	Bushing
2	882 0800	Lever Axle
3	882 0500	Pull-up Stud
4	000 1009	Lever Axle Fixing Screw
5	882-0600	Adjusting Bolt
6	882 0900	Cable Stopper

ITEM No.	PART NO.	DESCRIPTION
7	882 1000	Cable Guide
8	3-882 9801	Clamp Band (ø23.8 mm) Assembly
	3-882 9802	Clamp Band (ø24.2 mm) Assembly
9	882 1200	Right Hand Bracket Cover
	882 1300	Left Hand Bracket Cover
10	882 1400	Cable Pad

Model TL-WR20 (6mm. Key x 10mm. Hole)



Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



Model HS-7300 Handle Stem
Model SM-HP10 Head Parts Cover
Model HD-7300 Handle Bar

DURA-ACE AX Handle Stem

Model HS-7300

SPECIFICATIONS

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



DURA-ACE AX Head Parts Cover

Model SM-HP10

SPECIFICATIONS

Weight • 0.2 oz. (6.6g.)
Material • Plastic
Colour • Clear Blue
Use • With DURA-ACE EX & SHIMANO 600 EX Head Parts



DURA-ACE AX Handle Bar

Model HD-7300

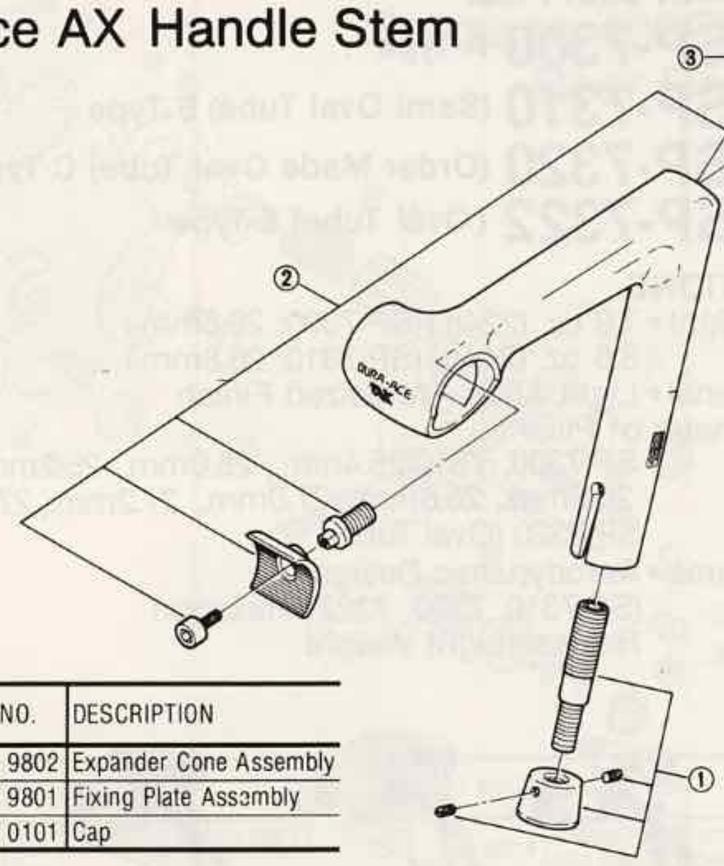
SPECIFICATIONS

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

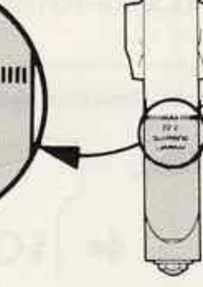


Handle Bar End Cap

Dura-Ace AX Handle Stem



ITEM NO.	PART NO.	DESCRIPTION
1	3-451 9802	Expander Cone Assembly
2	3-451 9801	Fixing Plate Assembly
3	451 0101	Cap



Assembly Notes

Assembly to Frame

1) Turn the expander bolt in an anti-clockwise direction by means of the hexagon spanner in order to move the expander cone so that the stem can be assembled to the head tube.
2) Insert the stem into the head tube. At this time the "MAX" sign on the stem should be completely covered by the head tube before fixing securely. Next, insert the hexagon spanner into the expander bolt and then attach the supporting tool. Tightening torque should be 200—300 kg·cm.



Cap Assembly

On completion of assembling the handle bar and the stem to the head tube, screw the cap to the handle stem by means of the hexagon spanner and lightly secure. Tightening torque should be 10—20kg·cm.

Note: The cap is made of resin so care should be exercised when tightening in order to avoid damage to the hexagon head.

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-WR33
Hexagon Wrench Key
3 mm.



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

DURA-ACE AX Seat Pillar

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

SPECIFICATIONS

Weight • 7.9 oz. (224g.) (SP-7300; 26.8mm.)
8.6 oz. (244g.) (SP-7310; 26.8mm.)
Material • Light Alloy • Anodized Finish
Outside Diameter of Pillar
• SP-7300, 7310/25.4mm., 26.0mm., 26.2mm., 26.4mm., 26.6mm., 26.8mm., 27.0mm., 27.2mm., 27.4mm.
SP-7320 (Oval Tube)
Features • Aerodynamic Design (SP-7310, 7320, 7322)/Hexagon Release/Light Weight

SHIMANO aero dynamics

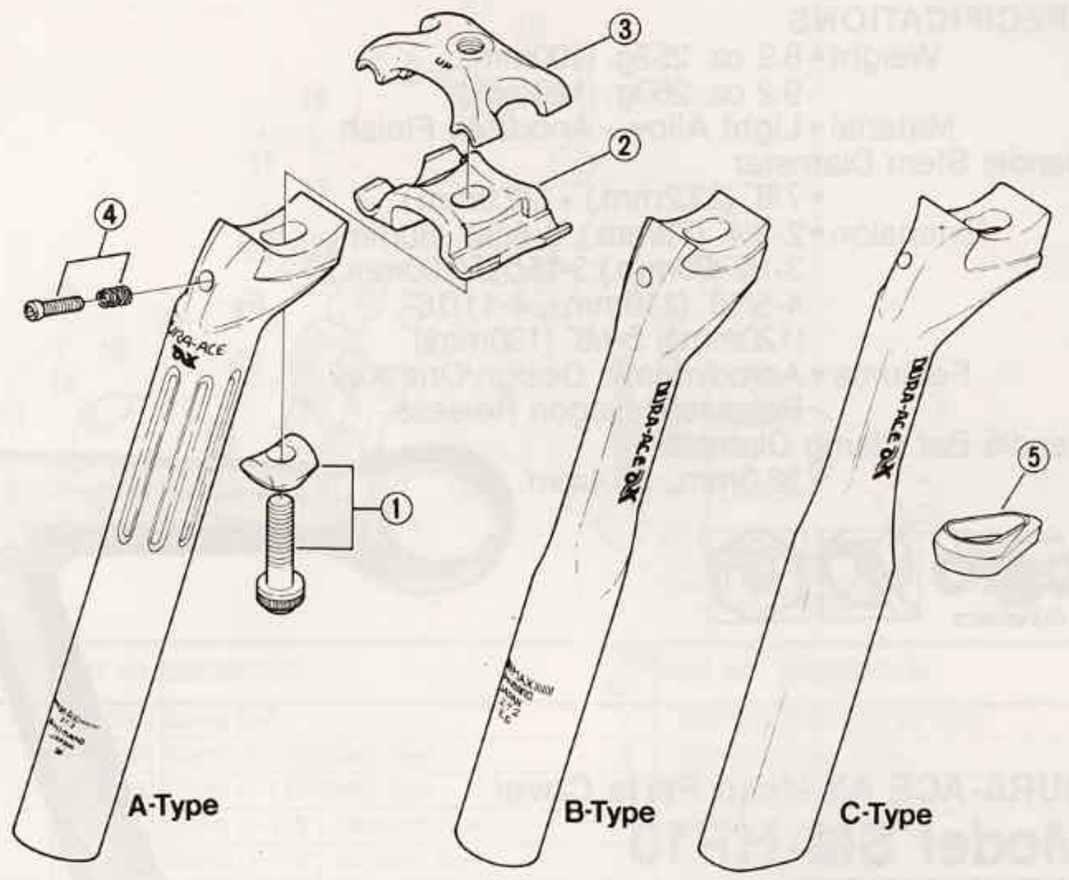
LIGHT WEIGHT



C Type

A Type B Type C Type E Type E Type

Dura-Ace AX Seat Pillar



ITEM NO.	PART NO.	DESCRIPTION
1	3-482 9801	Fixing Bolt & Washer
2	482 0100	Lower Plate
3	482 0200	Upper Plate
4	3-482 9001	Adjusting Bolt (M4) & Spring
5	482 1300	Rubber Cover

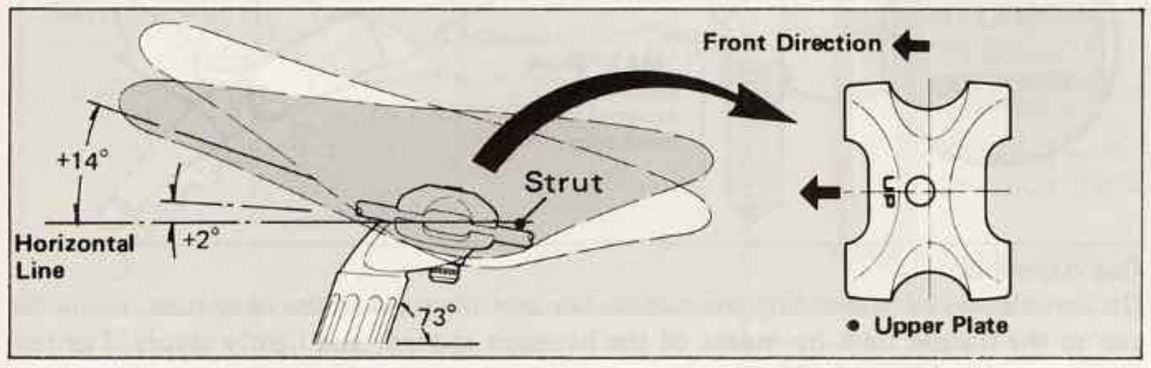
Assembly Notes

■ How to use Upper Plate

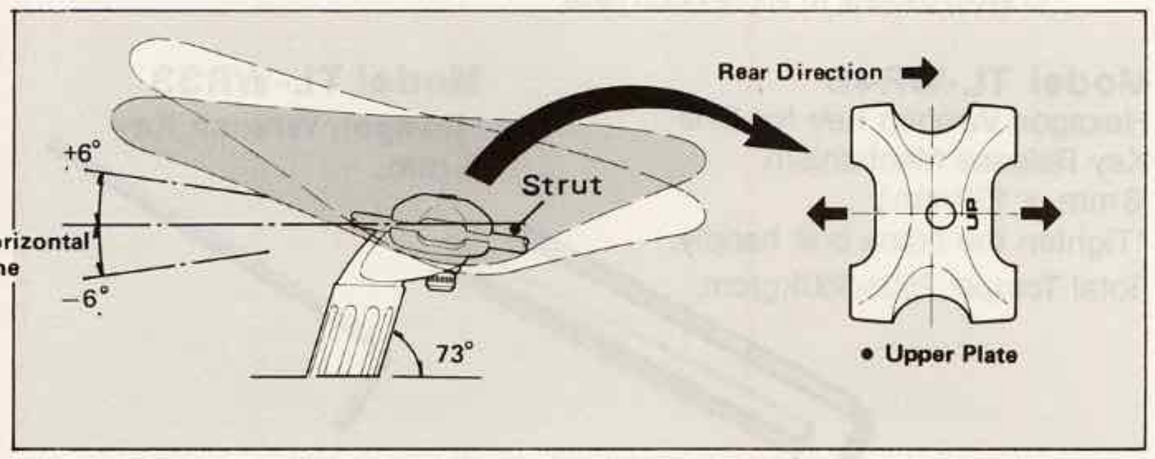
Shimano's Dura-Ace AX Seat Pillar upper plate is designed on the eccentric principle. This means a wide degree of angle adjustment is possible by simply changing the direction of the upper plate.

* Adjustment angle, regarding struts' angle, is calculated with seat pillar at an angle of 73°.

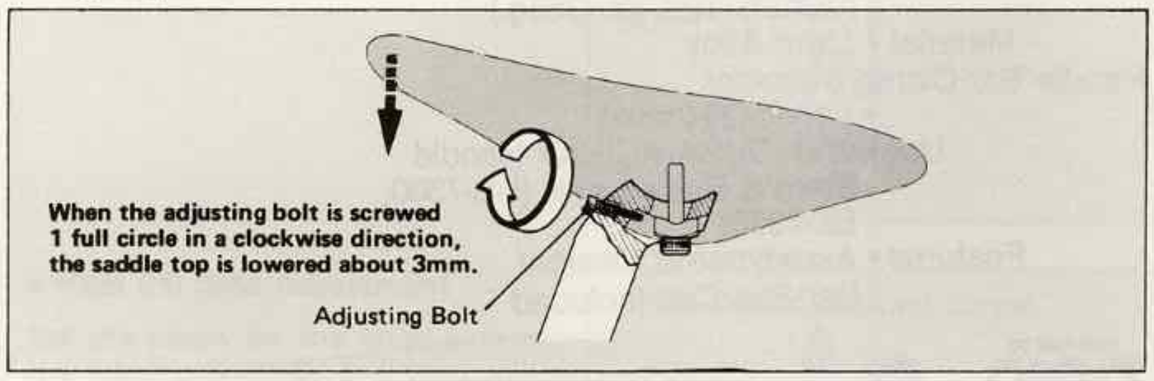
1) **Front upward direction** (when the UP sign is facing the front).
The saddle can be adjusted +2 ~ +14 degrees against a horizontal line. For normal use set the UP sign to the front.



2) **Front downward direction** (when the UP sign is facing the rear).
Adjustment angle is ±6 degrees.



3) Adjust the saddle-angle and then tighten the fixing bolt temporarily in this position. Next, screw the adjusting bolt in a clockwise direction for fine-precision saddle angle adjustment.



Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



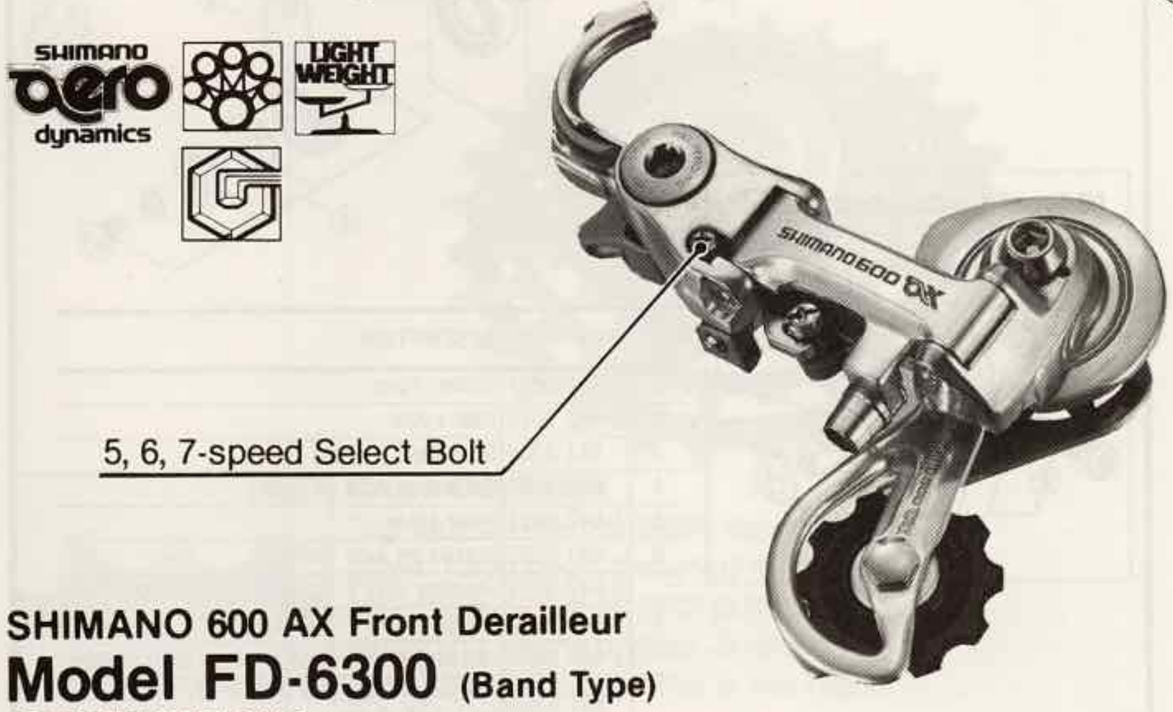
Model RD-6300 Rear Derailleur
Model FD-6300 Front Derailleur (Band Type)

SHIMANO 600 AX Rear Derailleur

Model RD-6300

SPECIFICATIONS

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



SHIMANO 600 AX Front Derailleur

Model FD-6300 (Band Type)

SPECIFICATIONS

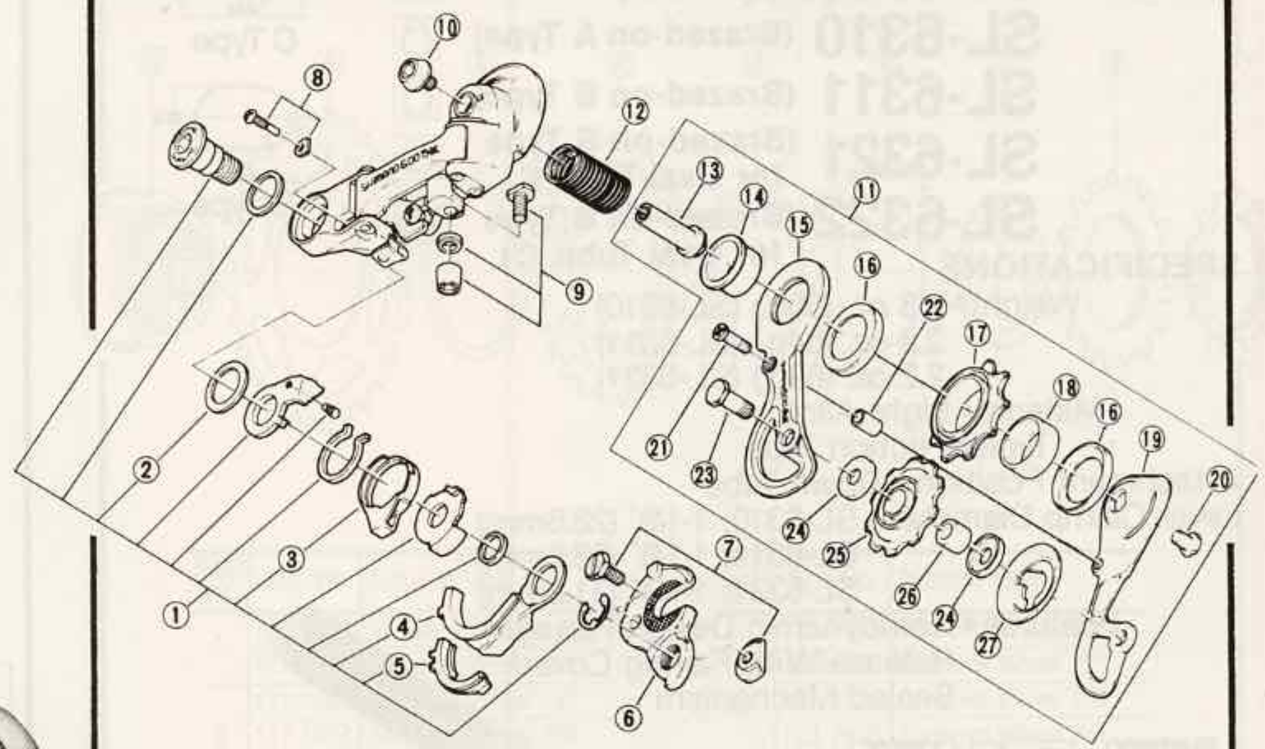
Capacity • 14T. or less
Weight • 3.8 oz. (107g.)
Material • Light Alloy (Body)
Steel (Chain Guide)
Inlet Diameter • 1-1/8″ (28.6mm.)
Features • Aerodynamic Design/New Trap-Ease Mechanism/Indent Guide Mechanism/Inner End Guide



Model TL-WR36 6 mm.
MOdel TL-WR33 3 mm.
Hexagon Wrench Keys



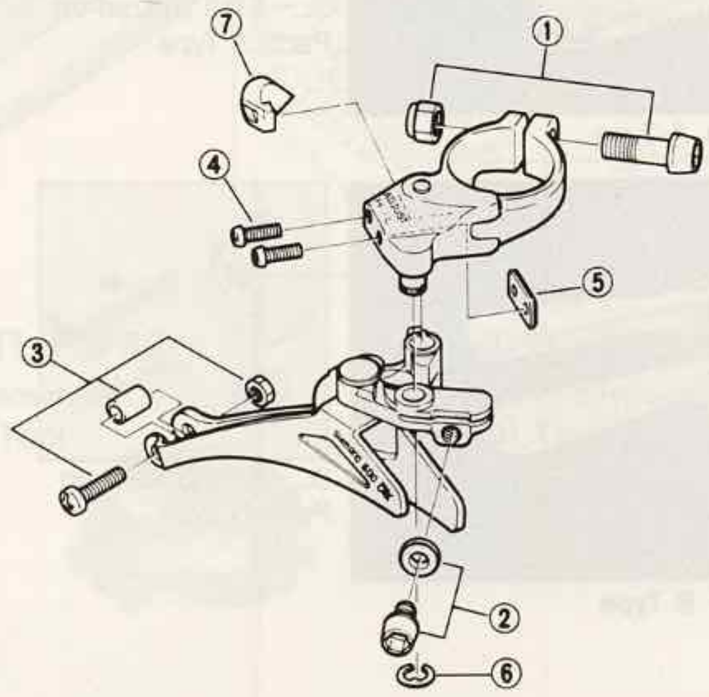
SHIMANO 600AX Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	3-562 9001	Bracket Axle Assembly
2	564 4500	Bracket Sleeve A
3	564 4400	Stopper
4	561 0900	Inner Guide
5	561 4000	Guide Liner
6	562 1000	Adapter
7	3-562 9004	Adapter Screw & Nut
8	3-561 9801	Select Screw & Plate
9	3-562 9003	Cable Fixing Bolt Unit
10	562 2500	P-Axle Bolt A
11	3-562 9002	Pulley Plate Assembly
12	562 1400	P-Tension Spring
13	562 0700	Plate Axle A
14	562 0600	P-Axle Bushing B

ITEM No.	PART NO.	DESCRIPTION
15	562 1200	Outer Plate
16	561 1501	Pulley Cap (Big)
17	562 0800	Guide Pulley
18	561 1400	Pulley Bushing E
19	562 1300	Inner Plate
20	564 1201	P-Axle Screw B
21	561 3500	Roller Fixing Screw
22	562 2300	Roller
23	551 0401	Pulley Bolt D
24	562 2100	Pulley Cap (Small)
25	551 1000	Tension Pulley
26	551 1200	Pulley Bushing
27	534 2500	Spoke Barrier Cap

SHIMANO 600AX Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	3-574 9001	Clamp Bolt & Nut
2	3-571 9004	Cable Fixing Bolt Unit (M5 × 8)
3	3-586 9025	Roller Fixing Screw Unit
4	000 1012	Stroke Adjusting Screw (M4 × 10)
5	574 0700	Adjusting Plate
6	582 3600	Stop Ring (ø4 mm)
7	574 0400	Cable Guide

SHIMANO 600 AX

Model SL-6300
Shifting Lever (Band A Type)

Model SL-6310
Shifting Lever (Brazed-on A Type)

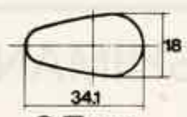
Model SL-6311
Shifting Lever (Brazed-on B Type)

Model SL-6321
Shifting Lever (Brazed-on B Type for Oval Tube E)

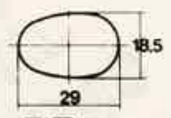
Model SL-6322
Shifting Lever (Brazed-on B Type for Oval Tube C)

SHIMANO 600 AX Shifting Lever

Model SL-6300 (Band A Type)
SL-6310 (Brazed-on A Type)
SL-6311 (Brazed-on B Type)
SL-6321 (Brazed-on B Type for Oval Tube E)
SL-6322 (Brazed-on B Type for Oval Tube C)



C Type



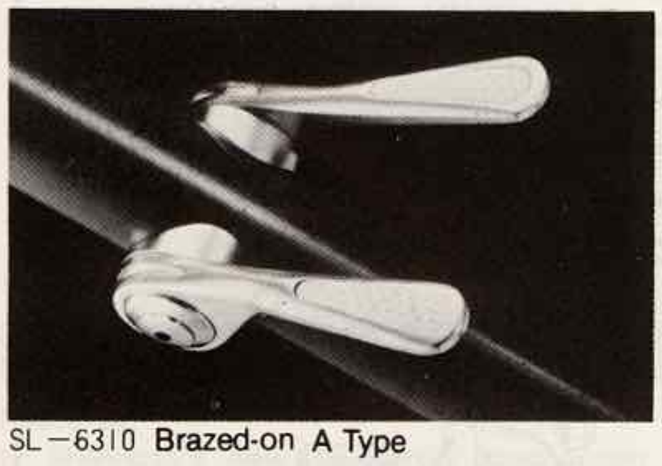
E Type

SPECIFICATIONS

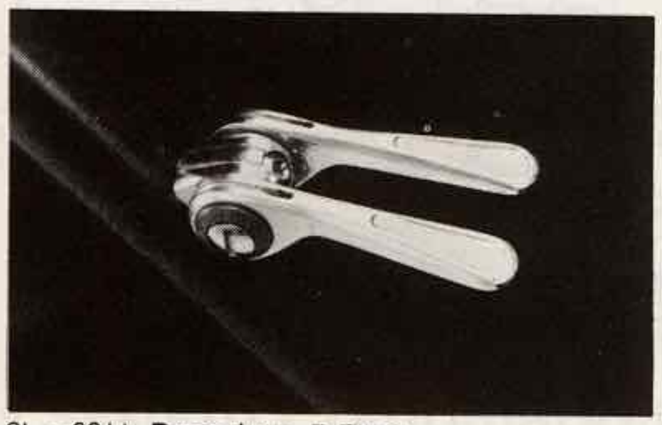
Weight • 1.8 oz. (50g.) (SL-6310)
2.3 oz. (64g.) (SL-6311)
2.2 oz. (63g.) (SL-6321)
Material • Light Alloy
Type • Friction Type
Attachment Position • Down Tube
Lever Clamp Diameter • SL-6310; 1-1/8" (28.6mm)
SL-6311; 1-1/8" (28.6mm)
SL-6321; 1-1/4" (31.8mm)
Features • Aerodynamic Design/Hexagon Release/With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

SHIMANO aero dynamics · SEALED · LIGHT WEIGHT


Model SL-6300
(Band A-Type)

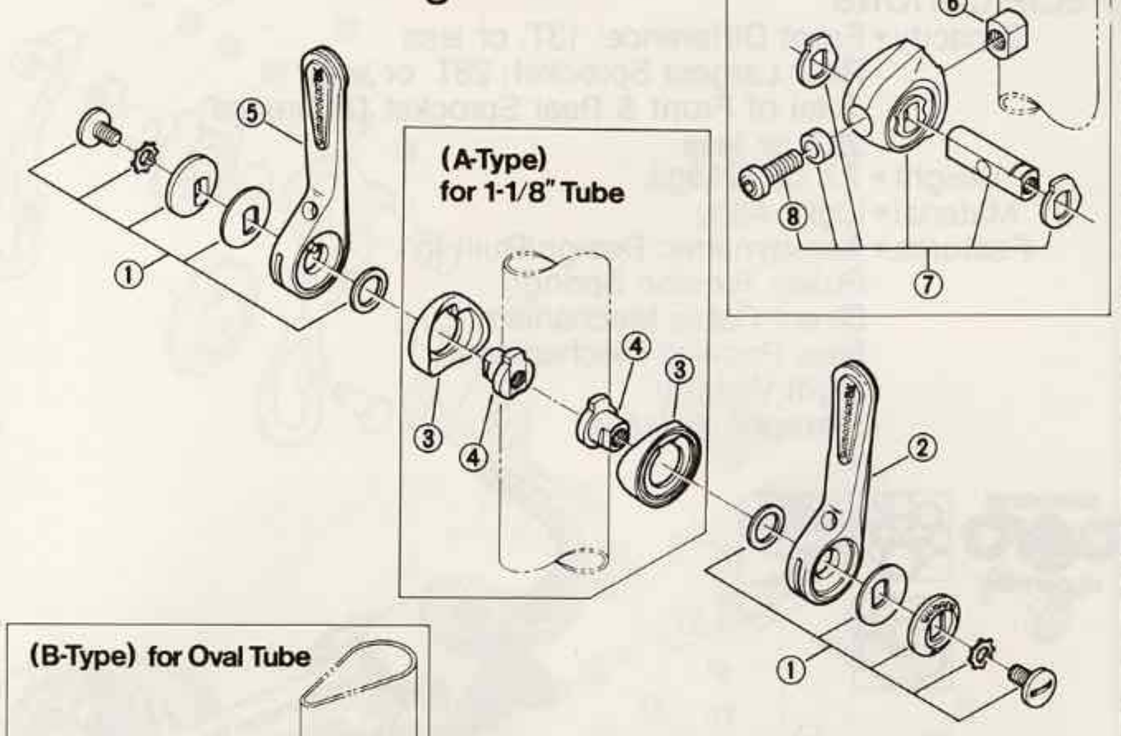

SL-6310 Brazed-on A Type


SL-6310 Brazed-on Parts A Type


SL-6311 Brazed-on B Type


SL-6311 Brazed-on Parts B Type

SHIMANO 600AX Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-642 9801	Shifter Parts
2	3-642 9020	Rear Lever
3	641 0300	Dust Cap (A-Type)
4	681 4500	Brazed-on Axle (A-Type)
5	3-642 9021	Front Lever
6	681 6200	Brazed-on Axle (B-Type)
7	3-642 9802	Housing Unit B-Type for 1-1/8" Tube
	3-642 9804	Housing Unit B-Type for Oval Tube (Tange)
	3-642 9803	Housing Unit B-Type for Oval Tube (Kettler)
8	681 6400	Housing Fixing Bolt (M5 × 17) B-Type for 1-1/8" Tube
	681 6401	Housing Fixing Bolt (M5 × 20) B-Type for Oval Tube (Tange)
	681 6402	Housing Fixing Bolt (M5 × 30) B-Type for Oval Tube (Kettler)

MOdel TL-WR33
Hexagon Wrench Key
3 mm.



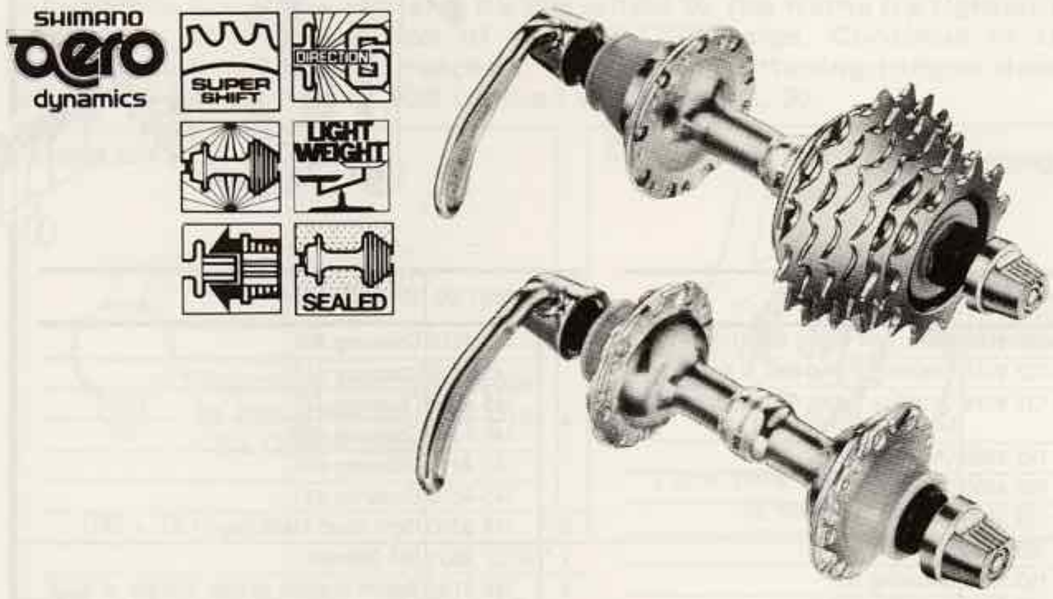
Model FH-6361 Freehub (Small/6-speed)

SHIMANO 600 AX Freehub

Model FH-6361 (Small/6 speed)

SPECIFICATIONS

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





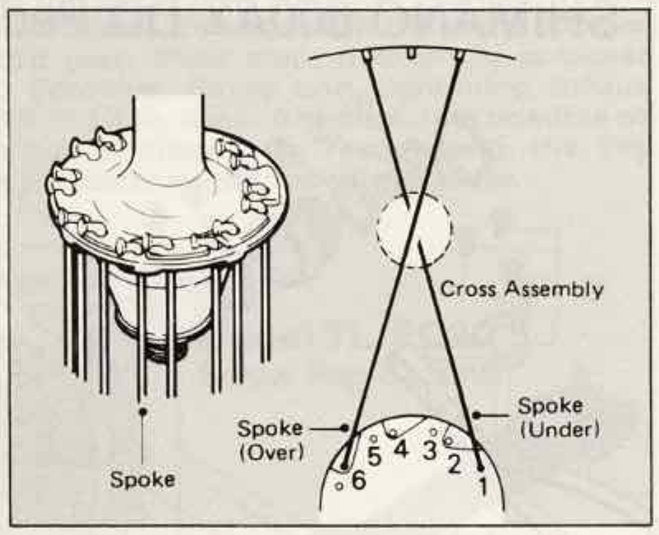
Assembly Notes

■ **Assembly**

• **Rim Assembly**

Note: Be sure to use No. 15 spokes (Dia. 1.8mm). Spoke length is the same as used for a conventional small flanged hub. (Use the 302mm spoke for the 27″ x 32H rim)

1) Pass spokes through the spoke holes of the flange from inside as shown in diagram.
2) Cross the spokes as shown in diagram, then assemble to the rim by the nipples. Both front and rear hubs use the 6 hole spoke assembly system.



Model TL-FH30
Freehub Removal Tool



Model TL-HS20
Spanner for DURA-ACE Hubs
Width: 15mm. 17mm.



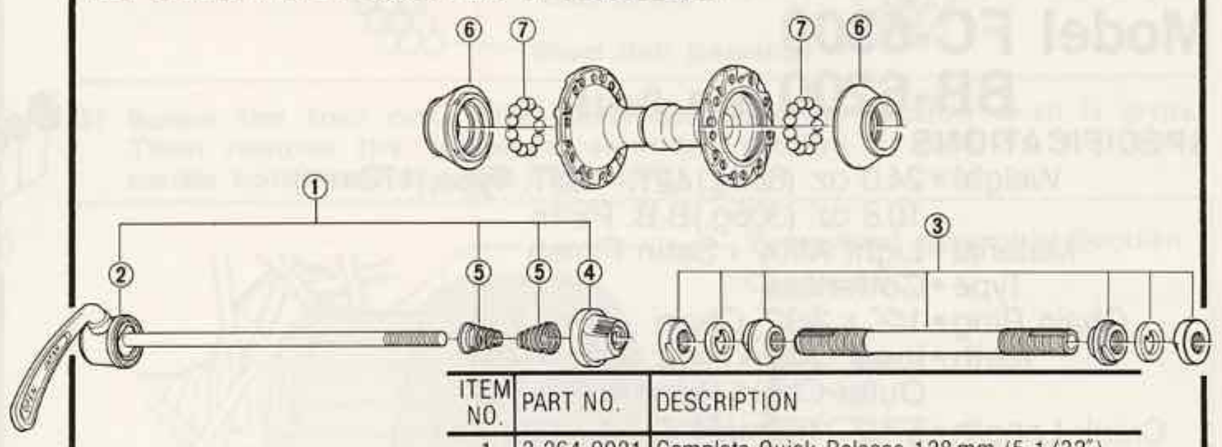
Model TL-SR20
Rear Sprocket Removal Tool



Model TL-FH40
Freehub Removal Tool (For freewheel body fixing race)



SHIMANO-600AX Freehub



ITEM NO.	PART NO.	DESCRIPTION
1	3-264 9021	Complete Quick Release 128 mm (5-1/32″)
2	3-264 9003	Cam Lever Unit 128 mm (5-1/32″)
3	3-263 9001	Complete Hub Axle 108 mm (4-1/4″)
4	3-264 9010	Nut for Skewer
5	231 1100	Volute Spring
6	263 0400	Dust Cap
7	000 0121	Steel Ball (3/16″)

ITEM NO.	PART NO.	DESCRIPTION
1	3-264 9022	Complete Quick Release 152 mm (6″) for O.L. 120 mm (4-23/32″)
	3-264 9023	Complete Quick Release 157 mm (6-3/16″) for O.L. 126 mm (4-31/32″)
2	3-264 9004	Cam Lever Unit 152 mm (6″) for O.L. 120 mm
	3-264 9005	Cam Lever Unit 157 mm (6-3/16″) for O.L. 126 mm
3	3-273 9001	Complete Hub Axle 131 mm (5-5/32″) O.L. 120 mm
4	3-273 9002	Complete Hub Axle 137 mm (5-13/32″) O.L. 126 mm
5	3-357 9003	Complete Freewheel Body
6	3-264 9010	Nut for Skewer
7	231 1100	Volute Spring
8	000 0131	Steel Ball (1/4″) 18pcs.
9	273 0400	Left Hand Dust Cap for O.L. 120 mm (4-23/32″)
	220 0707	Left Hand Dust Cap for O.L. 126 mm (4-31/32″)
10	357 1216	Sprocket Wheel 12T (Ni-Silver)
	357 1316	Sprocket Wheel 13T (Ni-Silver)
	357 1416	Sprocket Wheel 14T (Ni-Silver)
	357 1516	Sprocket Wheel 15T (Ni-Silver)
11	119 1421	Sprocket Wheel 14T (Ni-Silver) Super UG
	119 1521	Sprocket Wheel 15T (Ni-Silver) Super UG
12	119 1501	Sprocket Wheel 15T (Ni-Silver) Super UG
	119 1601	Sprocket Wheel 16T (Ni-Silver) Super UG
	119 1701	Sprocket Wheel 17T (Ni-Silver) Super UG
	119 1801	Sprocket Wheel 18T (Ni-Silver) Super UG
	119 1901	Sprocket Wheel 19T (Ni-Silver) Super UG
	119 2001	Sprocket Wheel 20T (Ni-Silver) Super UG
	357 2136	Sprocket Wheel 21T (Ni-Silver)
	357 2236	Sprocket Wheel 22T (Ni-Silver)
	357 2336	Sprocket Wheel 23T (Ni-Silver)
	357 2436	Sprocket Wheel 24T (Ni-Silver)
	357 2636	Sprocket Wheel 26T (Ni-Silver)
	357 2836	Sprocket Wheel 28T (Ni-Silver)
13	357 5800	Sprocket Spacer A
14	357 5900	Sprocket Spacer B
15	357 6001	Sprocket Fixing Bolt

Model FC-6300 Front Chainwheel
Model BB-6200 Bottom Bracket Assembly
Model PD-6300 DD Pedal

SHIMANO 600 AX Front Chainwheel & Bottom Bracket Assembly

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

SPECIFICATIONS

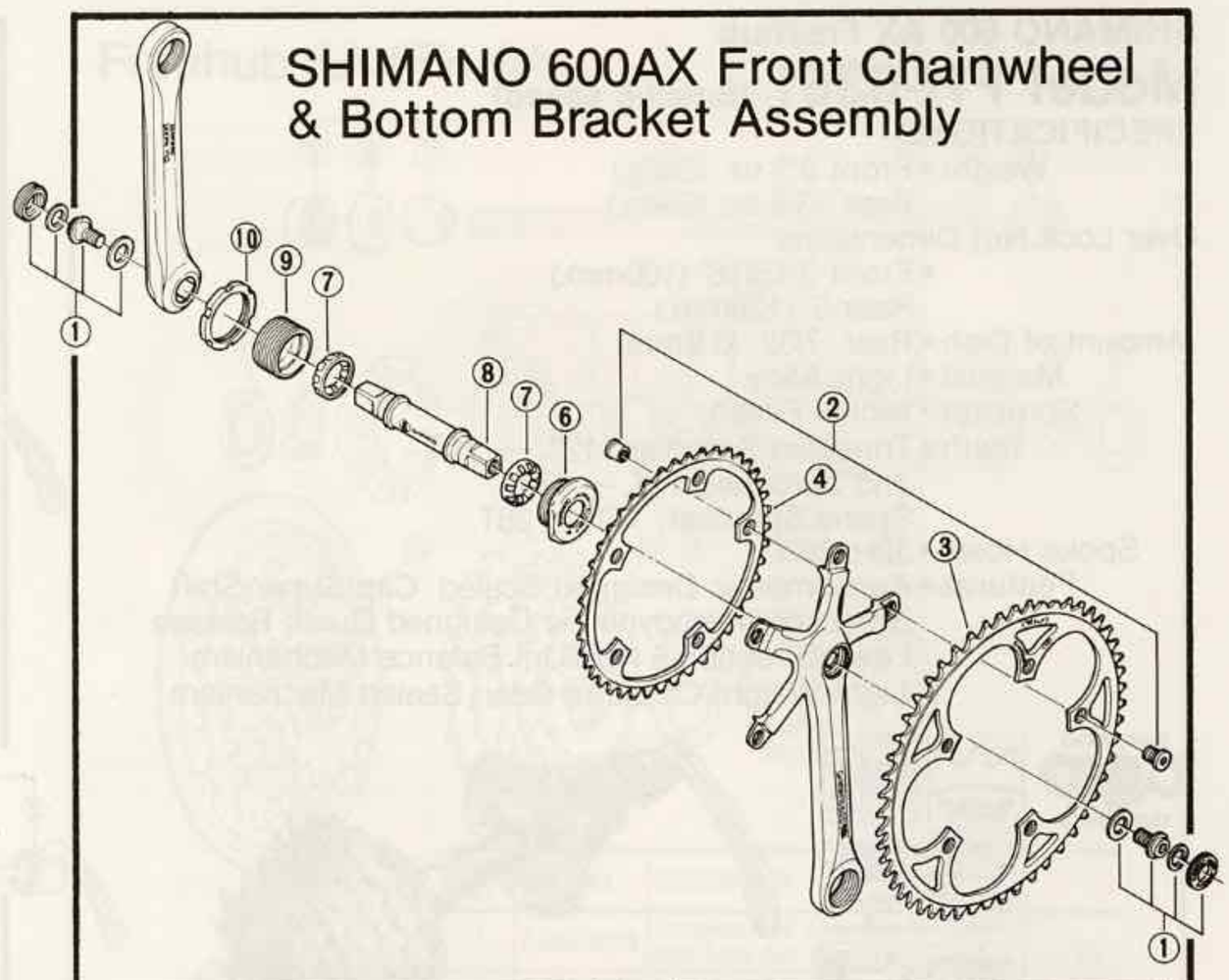
Weight • 24.0 oz. (680g.) 42T. — 52T. Type, (170mm)
10.8 oz. (306g.) B.B. Parts
Material • Light Alloy • Satin Finish
Type • Cotterless
Chain Ring • 1/2" × 3/32" Chain
Teeth • Inner Chain Ring; 39T. — 45T.
Outer Chain Ring; 48T. — 53T.
Crank Length • 6-1/2" (165mm.), 6-3/4" (170mm.)
Crank Thread • BC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

B.B Parts Size

Part No.	B.B. Shell Width	Axle Length
148 0101	68mm	116mm
148 0100	70mm	119mm



SHIMANO 600AX Front Chainwheel & Bottom Bracket Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	3-148 9002	Crank Arm Fixing Bolt Unit
2	3-132 9015	Chainring Fixing Bolt & Nut (5 pcs.)
	3-132 9016	Chainring Fixing Bolt & Nut for Twin Gear (5 pcs.)
3	193 4800	Chainring 48T
	193 4900	Chainring 49T
	193 5000	Chainring 50T
	193 5100	Chainring 51T
	193 5200	Chainring 52T
	193 5300	Chainring 53T
4	145 3910	Chainring 39T

ITEM No.	PART NO.	DESCRIPTION
4	145 4010	Chainring 40T
	145 4110	Chainring 41T
	145 4210	Chainring 42T
	145 4310	Chainring 43T
	145 4410	Chainring 44T
	145 4510	Chainring 45T
6	148 0200	Right Hand Fixed Cup (1.37" × 24T)
7	3-137 9001	Ball Retainer
8	148 0101	Bottom Bracket spindle 116 mm (4-9/16"
9	148 0300	Left hand Adjustable Cup (1.37" × 24T)
10	137 0500	Lock Ring (1.37" × 24T)

SHIMANO 600 AX DD Pedal

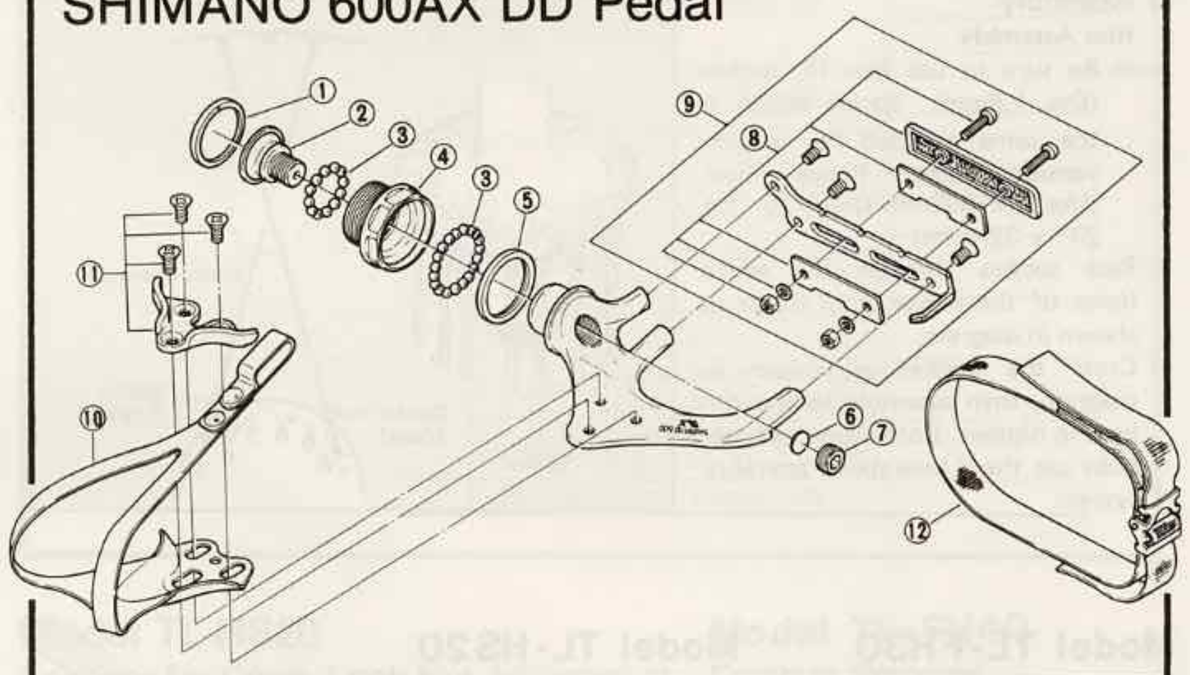
Model PD-6300

SPECIFICATIONS

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



SHIMANO 600AX DD Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	461 1100	Cone side Dust Cap
2	464 0500	Cone (M10 × 1.0)
3	000 0182	Steel Ball (5/32" × 32)
4	464 0300	Right Side Housing (BC1 × 24TPI)
	464 0400	Left Side Housing (BC1 × 24TPI Left)
5	461 1101	Body Side Dust Cap
6	461 0800	Washer
7	464 0700	Lock Bolt
8	3-462 9003	Reflector Unit for Right & Left Side
9	3-464 9807	Rear Plate & Reflector Unit for Right Side

ITEM No.	PART NO.	DESCRIPTION
9	3-464 9808	Rear Plate & Reflector Unit for Left Side
10	3-461 9007	Toe-Clip M-Size
	3-461 9008	Toe-Clip L-Size
	3-461 9009	Toe-Clip LL-Size
	3-461 9003	Toe-Clip M-Size (Light Alloy) Option
	3-461 9004	Toe-Clip L-Size (Light Alloy) Option
11	3-461 9801	Front Plate Unit
12	3-461 9006	Strap Assembly (Blue)
	3-461 9010	Strap Assembly (Red)
	3-461 9011	Strap Assembly (Black)

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6 mm. x 130 mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350 kgfcm.



Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key
5 mm.



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-PD10
DD Pedal Spanner

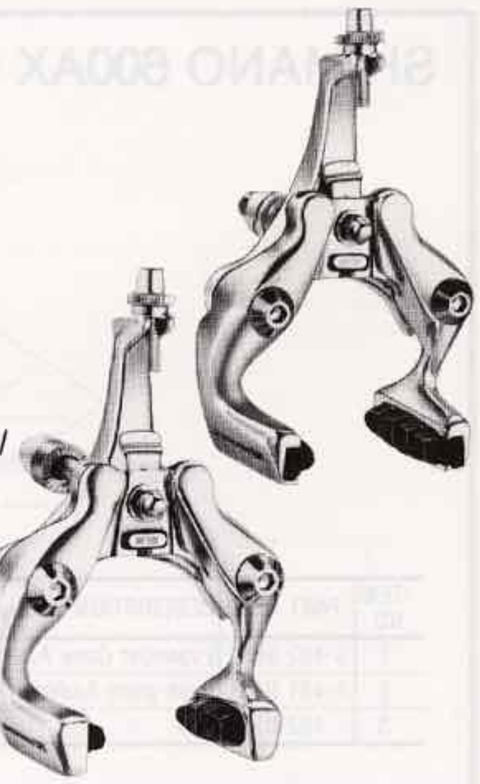


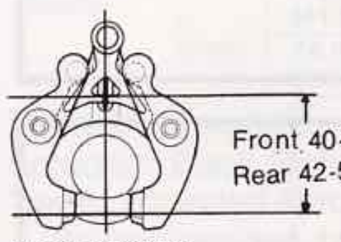
Model BR-6300 Brake (Long Cage Type)
Model BR-6310 Brake (Short Cage Type)
Model BL-6300 Brake Lever

SHIMANO 600 AX Brake
Model BR-6300
BR-6310

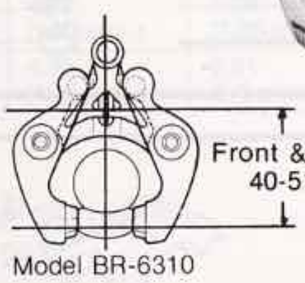
SPECIFICATIONS

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





Model BR-6300



Model BR-6310

SHIMANO 600 AX Brake Lever
Model BL-6300

SPECIFICATIONS

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

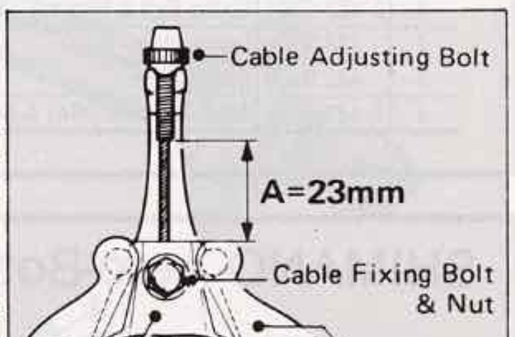


Assembly Notes

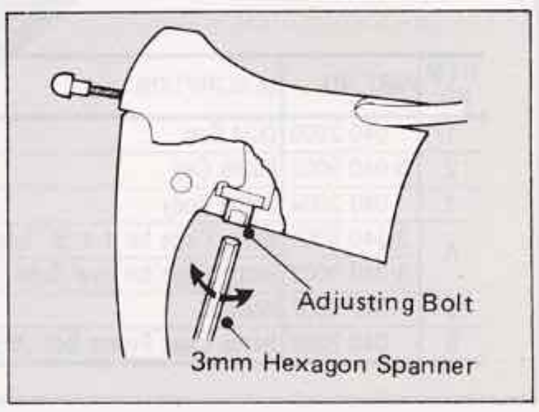
● Cable Assembly

Note: Ensure to use a genuine Shimano aerodynamic cable.

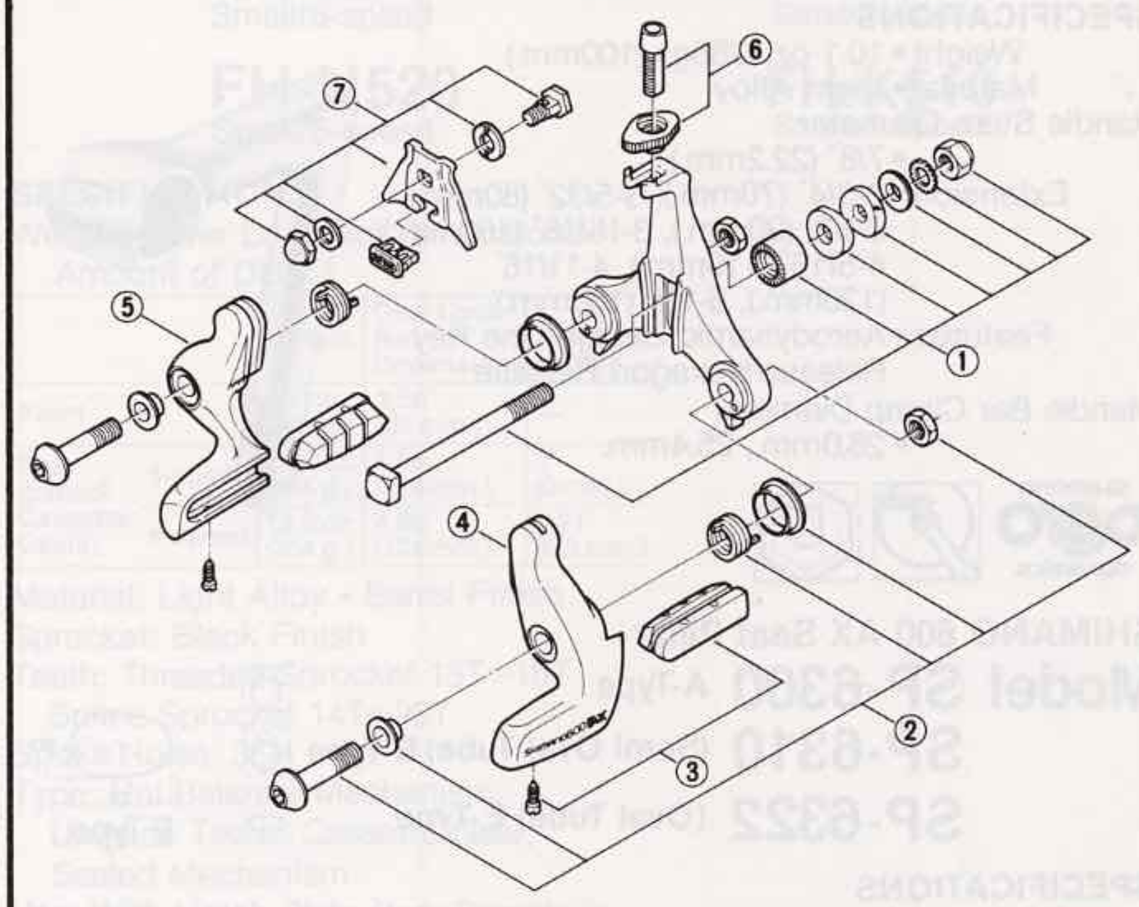
1) After assembling the cable to the brake lever, pass the inner cable through the cable adjusting bolt and then assemble to the cable fixing bolt.
2) At this time, check that the "A" dimension is 23mm. Next, pull the inner cable by a pair of pliers to eliminate cable slack. Fix the cable fixing nut temporarily at this stage.
3) Take out the carrier and inner cable from the brake arm and fix the cable fixing nut securely. Tightening torque should be 70—85 kg·cm.



4) Adjust the grip stroke of the lever to the most suitable setting by inserting a 3mm hexagon spanner into the adjusting bolt, located under the bracket, and turning. When the hexagon spanner is turned in a clockwise direction, the stroke becomes narrower and when turned in an anti-clockwise direction it becomes wider. Adjustment distance is 75—85mm.

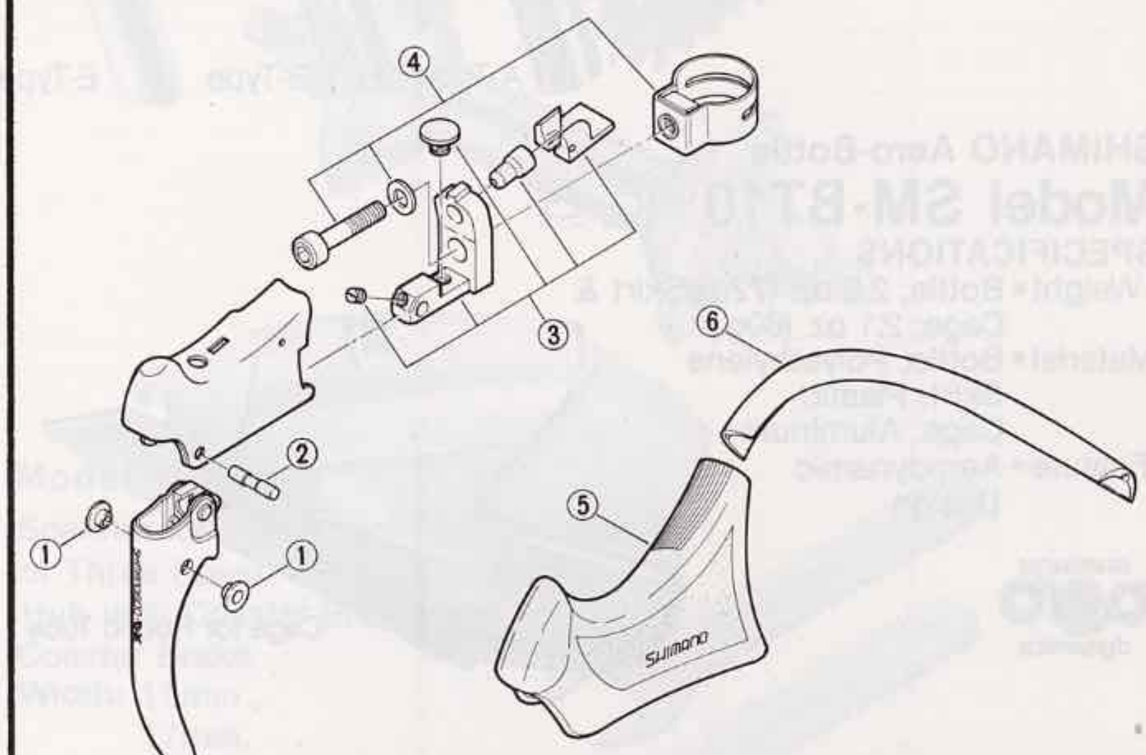


SHIMANO 600AX Brake



ITEM NO.	PART NO.	DESCRIPTION
1	3-815 9801	Center Bolt Assembly for Front (M6 × 67)
	3-815 9802	Center Bolt Assembly for Rear (M6 × 43)
2	3-815 9804	Pivot Bolt Assembly for Left Arm
	3-815 9805	Pivot Bolt Assembly for Right Arm
3	3-815 9803	Brake Shoe & Shoe Fixing Screw
4	3-815 9001	Left Arm for Front
	3-815 9002	Left Arm for Rear
5	3-815 9003	Right Arm for Front
	3-815 9004	Right Arm for Rear
6	3-815 9806	Cable Adjusting Bolt & Nut
7	3-815 9005	Carrier Assembly

SHIMANO 600AX Brake Lever



ITEM NO.	PART NO.	DESCRIPTION
1	882 0700	Bushing
2	882 0800	Lever Axle
3	3-883 9802	Pull-up Stud & Cable Stopper Assembly
4	3-883 9801	Clamp Band (ø23.8 mm) Assembly
5	882 1200	Right Hand Bracket Cover
	882 1300	Left Hand Bracket Cover
6	882 1400	Cable Pad

SHIMANO 600 AX

Model HS-6300
Handle Stem

Model SP-6300
Seat Pillar A-Type

Model SP-6310
Seat Pillar Semi Oval Tube B-Type

Model SP-6322
Seat Pillar Oval Tube E-Type

Model SM-BT10
Aero-Bottle

SHIMANO 600 AX Handle Stem
Model HS-6300

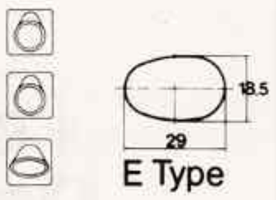
SPECIFICATIONS

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



SHIMANO aero dynamics

SHIMANO 600 AX Seat Pillar
Model SP-6300 A-Type
SP-6310 (Semi Oval Tube) B-Type
SP-6322 (Oval Tube) E-Type



E Type

SPECIFICATIONS

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

SHIMANO aero dynamics

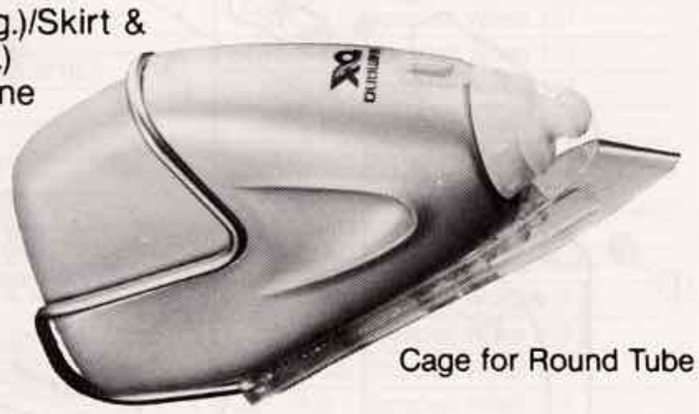

A-Type B-Type E-Type

SHIMANO Aero-Bottle
Model SM-BT10

SPECIFICATIONS

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

SHIMANO aero dynamics

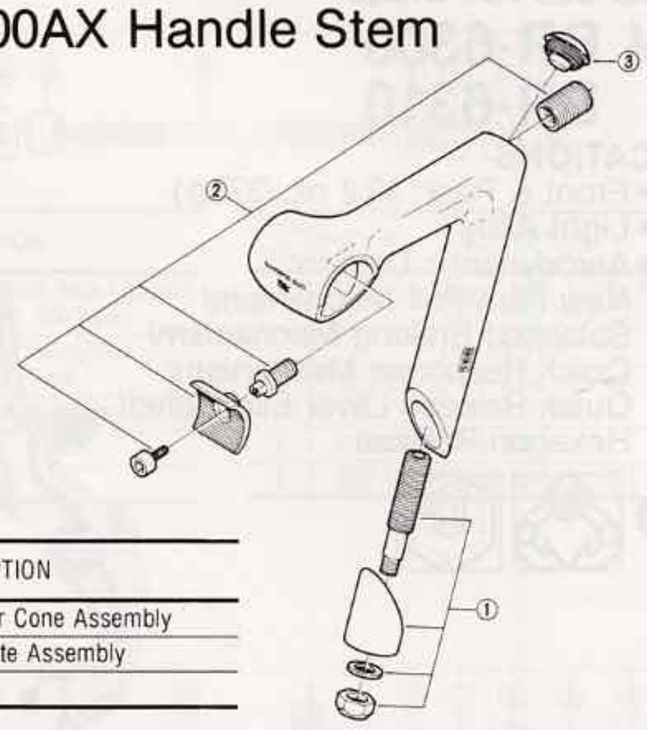

Cage for Round Tube

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.

Model TL-WR33
Hexagon Wrench Key
3 mm.

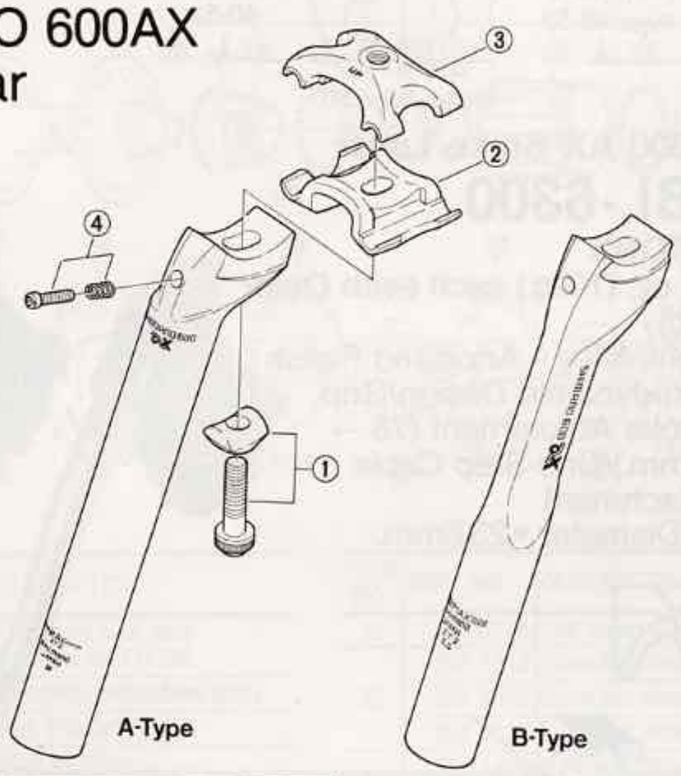


SHIMANO 600AX Handle Stem



ITEM NO.	PART NO.	DESCRIPTION
1	3-452 9802	Expander Cone Assembly
2	3-451 9801	Push-plate Assembly
3	452 0200	Cap

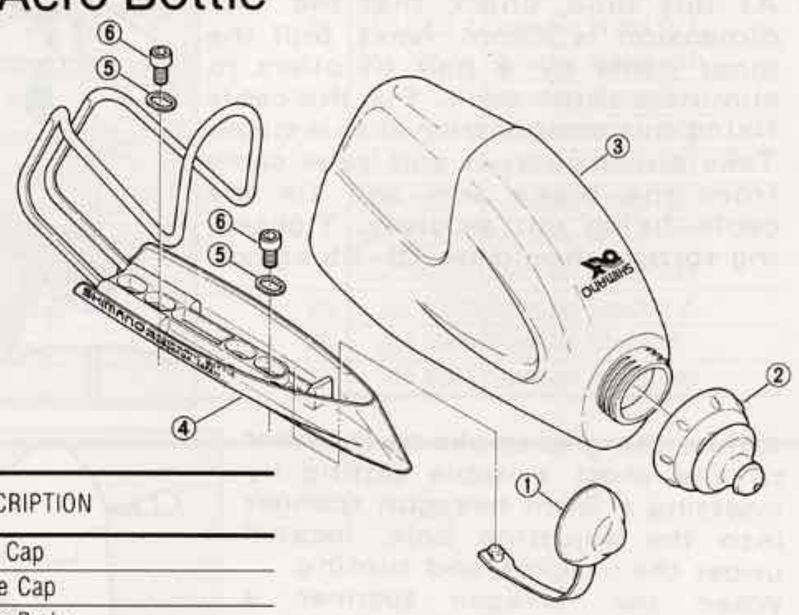
SHIMANO 600AX Seat Pillar



A-Type B-Type

ITEM NO.	PART NO.	DESCRIPTION
1	3-482 9801	Fixing Bolt & Washer
2	483 0300	Lower Plate
3	483 0400	Upper Plate
4	3-482 9001	Adjusting Bolt (M4) & Spring

SHIMANO Aero-Bottle



ITEM NO.	PART NO.	DESCRIPTION
1	040 2009	Dust Cap
2	3-040 9002	Bottle Cap
3	040 2004	Bottle Body
4	3-040 9001	Bottle Cage for 1-1/8″ Tube
	3-040 9003	Bottle Cage for Oval Tube
5	040 2007	Washer
6	040 2008	Bottle Cage Fixing Bolt (M5x8)

DURA-ACE EX Road Ensemble

Model RD-7200 Rear Derailleur

DURA-ACE EX Rear Derailleur

Model RD-7200

SPECIFICATIONS

Capacity
- Front Difference/13 Teeth or less
- Rear Largest Sprocket/26 Teeth or less

Total of Front & Rear Sprocket Difference/26 Teeth or less

Weight
- 6.2 oz. (175g.)

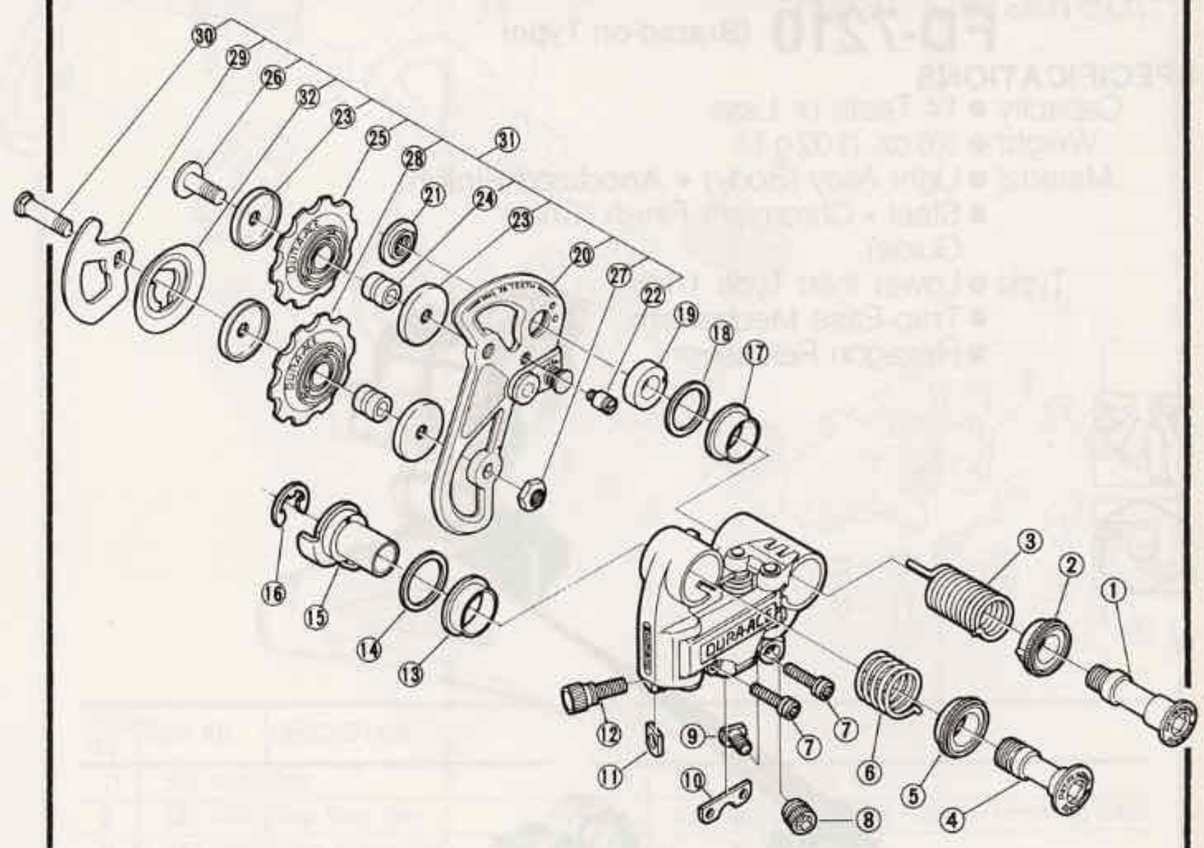
Material
- Light Alloy • Anodized Finish (Body)
- Light Alloy (Cage Plate)
- Heat Treated Stainless Steel (Guide Pulley Teeth)

Type
- Servo Panta Mechanism, Hatch Plate Mechanism, Without Left Plate, Hexagon Release, Synchro-Line Mechanism, Sealed Mechanism





DURA-ACE EX Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	545 0600	Plate Mounting Bolt
2	545 0700	Plate Mounting Collar
3	545 1100	P-Tension Spring
4	545 0500	Adapter Mounting Bolt
5	527 3000	Adapter Mounting Collar
6	528 1100	B-Tension Spring
7	545 1700	Strok Adjusting Screw
8	545 2100	Cable Fixing Nut
9	545 2000	Cable Fixing Bolt
10	545 3000	Strok Adjusting Plate
11	545 1900	Cable Adjusting Plate
12	545 1800	Cable Adjusting Barrel
13	541 3501	Adapter Mounting Sleeve
14	545 3200	B-Seal Ring
15	3-545 9002	Adapter Bushing Assembly
16	528 1200	Stop Ring

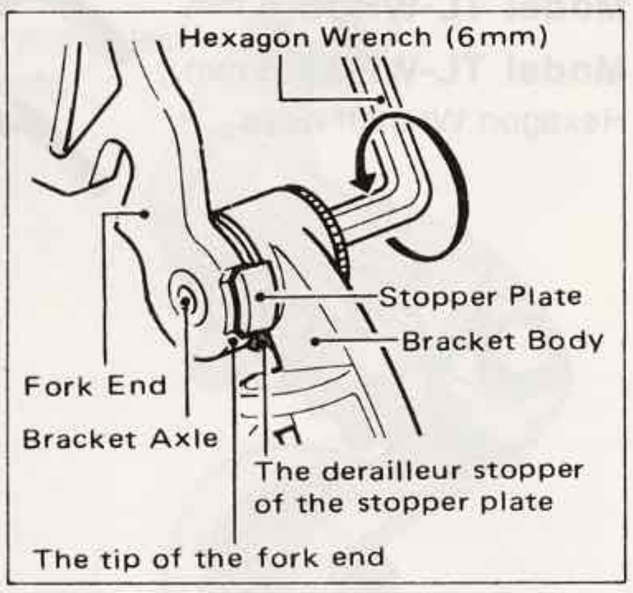
ITEM NO.	PART NO.	DESCRIPTION
17	545 1000-1	Plat Mounting Sleeve
18	545 3100	P-Seal Ring
19	545 0900	Plate Bushing
20	3-545 9012-1	Inner Cage Plate
21	545 2900	Plate Mounting Nut
22	527 2801	Stopper Pin
23	545 2800	Pulley Cap
24	545 2700	Pulley Bushing
25	3-545 9013	Guide Pulley
26	545 5800	Guide Pulley Fixing Bolt
27	545 5400	Tension Pulley Fixing Nut
28	3-545 9003-1	Tension Pulley
29	545 5601	Outer Cage Plate
30	534 2200	Tension Pully Fixing Bolt
31	3-545 9014-2	Pulley Plate Assembly
32	561 2900	S.B.Cap



Assembly Notes

• Frame Assembly

Assemble the rear derailleur bracket axle to the fork end by means of the hexagon wrench (6mm). At this point set the stopper plate to the tip of the fork end and tighten the bracket axle half way only. Next, push the bracket body forward so that its inside section touches the derailleur stopper of the stopper plate. Then tighten the bracket axle fully.
Tightening torque should be 80 — 100 kg·cm. (70 — 85 in·lbs.). When tightening is completed release the bracket body. And ensure that the stopper plate makes proper contact with the tip of the fork end.



Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



DURA-ACE EX Road Ensemble

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

DURA-ACE EX Front Derailleur

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

SPECIFICATIONS

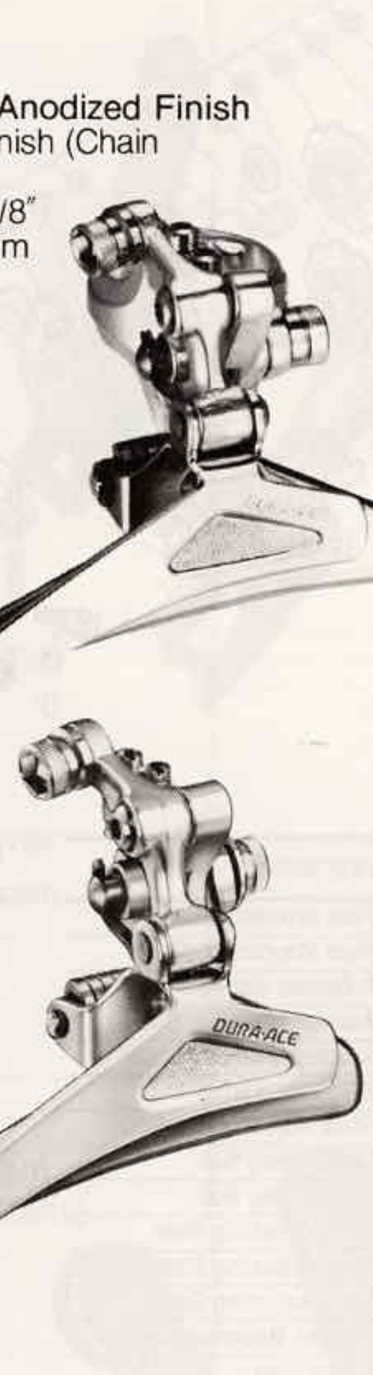
Capacity ● 14 Teeth or Less
Weight ● 3.6oz. (102g.)
Material ● Light Alloy (Body) • **Anodized Finish**
● Steel • Chromium Finish (Chain Guide)
Type ● Lower Inlet Type 1-1/8″
● Trap-Ease Mechanism
● Hexagon Release







Brazed-on Type



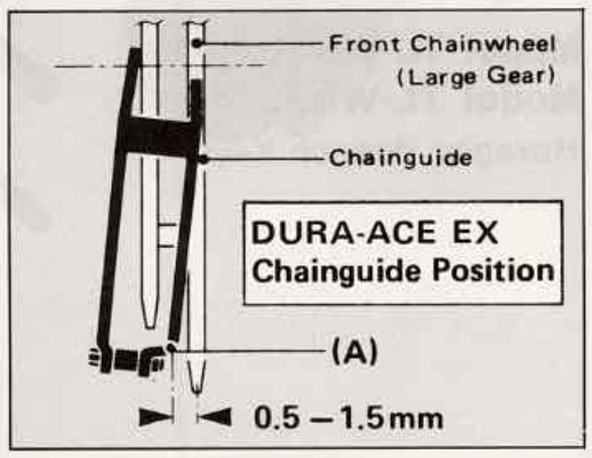




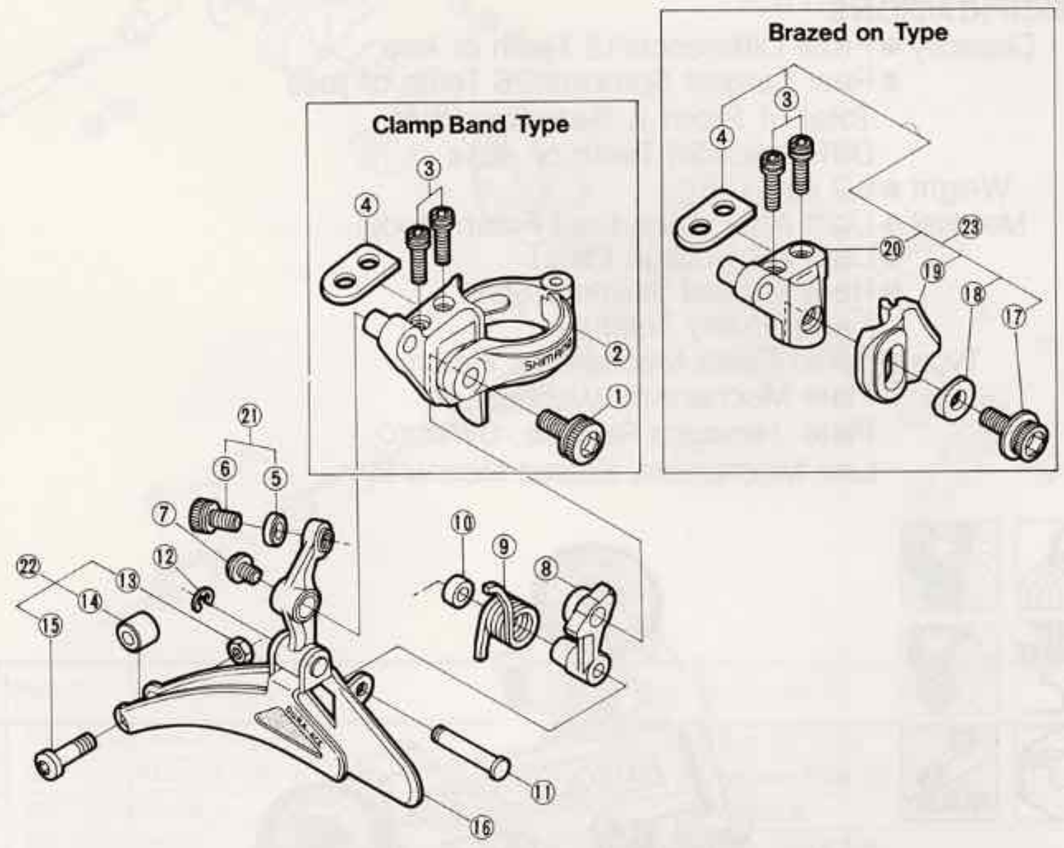
Assembly Notes

Assembly to Frame

1. Fix the clamp band to the seat tube temporarily by tightening the clamp bolt by hand.
2. And then adjust the clearence between the chainguide outside plate, as viewed from the side, and the front chainwheel large gear to between 2 — 3mm.
3. Next, when seen from above, adjust the chainguide position. As shown in diagram position the chainguide outside plate (A) exactly above the frotn chain-wheel large gear and then move it toward the small gear direction a distance of 0.5mm — 1.5mm.
4. Finally, tighten the clamp bolt by 6mm hexagon wrench spanner. Tightening torque of clamp bolt should be 60kg-cm. (53 in-lbs.).



DURA-ACE EX Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	585 3300	Clamp Bolt
2	585 9101	Clamp Assembly
3	585 3500	Stroke Adjusting Bolt
4	585 4900	Stroke Adjusting Plate
5	585 4200	Cable Fixing Spacer
6	585 1601	Cable Fixing Bolt
7	585 4800	Link Fixing Bolt
8	585 4700	Inner Link
9	585 5000	Return Spring
10	586 4000	Axle Bush
11	585 4500	Link Fixing Axle
12	584 2200	Stop Ring

ITEM NO.	PART NO.	DESCRIPTION
13	581 2001	Roller Fixing Nut
14	585 0900	Roller
15	585 3000	Roller Fixing Bolt
16	585 9102	Chain Guide Assembly
17	585 5700	Clamp Bolt B (Brazed on Type)
18	585 5800	Radius Washer (Brazed on Type)
19	585 5600	Bracket (Brazed on Type)
20	585 5500	Bracket Body (Brazed on Type)
21	585 9103	Cable Fixing Bolt Assembly
22	585 9104	Roller Rixing Bolt Assembly
23	585 9105	Brazed on Bracket Assembly

Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



Model SL-7200 Shifting Lever (Band Type)
Model SL-7210 Shifting Lever (Brazed-on A Type)

DURA-ACE EX Shifting Lever

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

SPECIFICATIONS

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

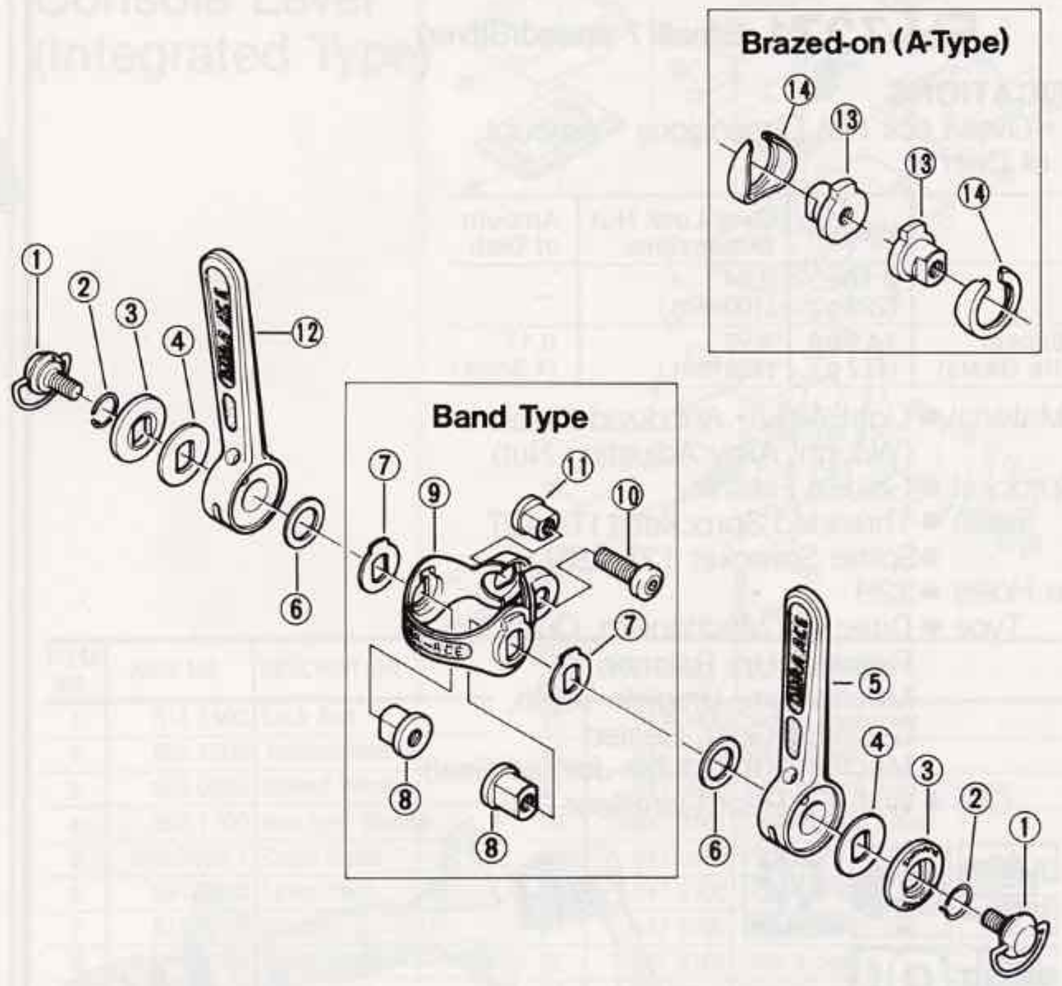
Brazed-on Type Only





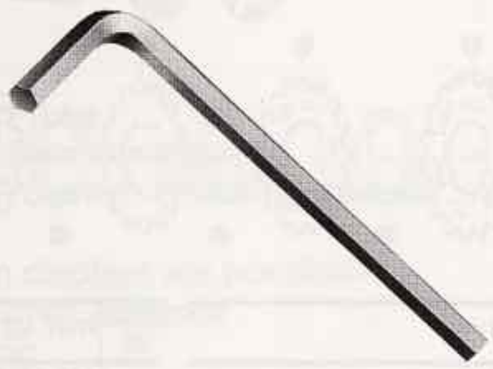
Brazed-on Parts (Model SL-7210)

DURA-ACE EX Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-683 9001-1	Lever Fixing Screw
2	681 1300	Clutch Spring
3	681 3400	Cap
4	681 3500	Washer B
5	3-683 9002	Rear Lever
6	000 3901	Spacer A
7	681 4100	Washer A
8	681 0800	Lever Axle
9	681 3100	Lever Clamp for 10-Speed (1-1/8")
10	681 3700	Clamp Bolt
11	681 3800	Clamp Nut
12	3-683 9003	Front Lever
13	681 4500	Brazed Axle (A-Type)
14	681 4600	Cover for Brazed Axle (A-Type)

MOdel TL-WR33
Hexagon Wrench Key
3 mm.



DURA-ACE EX Road Ensemble

Model FH-7261 Freehub (Small/6-speed/Silver)
Model FH-7271 Freehub (Small/7-speed/Silver)

DURA-ACE EX Freehub

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

FH-7271 (Small/7-speed/Silver)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

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

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





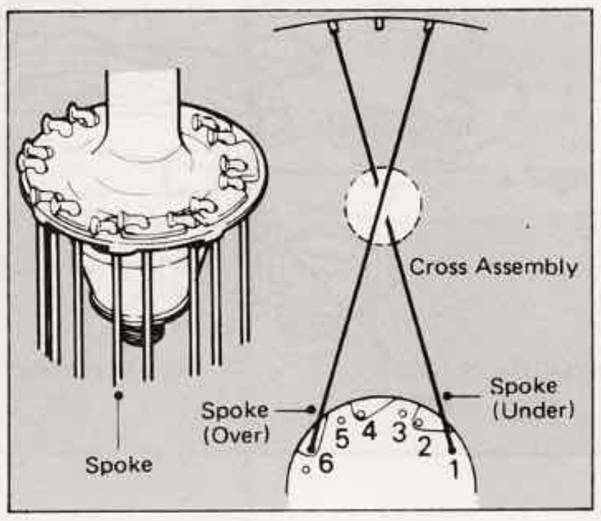
Assembly Notes

■ Assembly

● Rim Assembly

Note: Be sure to use No. 15 spokes (Dia. 1.8mm). Spoke length is the same as used for a conventional small flanged hub. (Use the 302mm spoke for the 27" x 32H rim)

1) Pass spokes through the spoke holes of the flange from inside as shown in diagram.
2) Cross the spokes as shown in diagram, then assemble to the rim by the nipples. Both front and rear hubs use the 6 hole spoke assembly system.



Model TL-FH30
Freehub Removal Tool



Model TL-HS10
Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



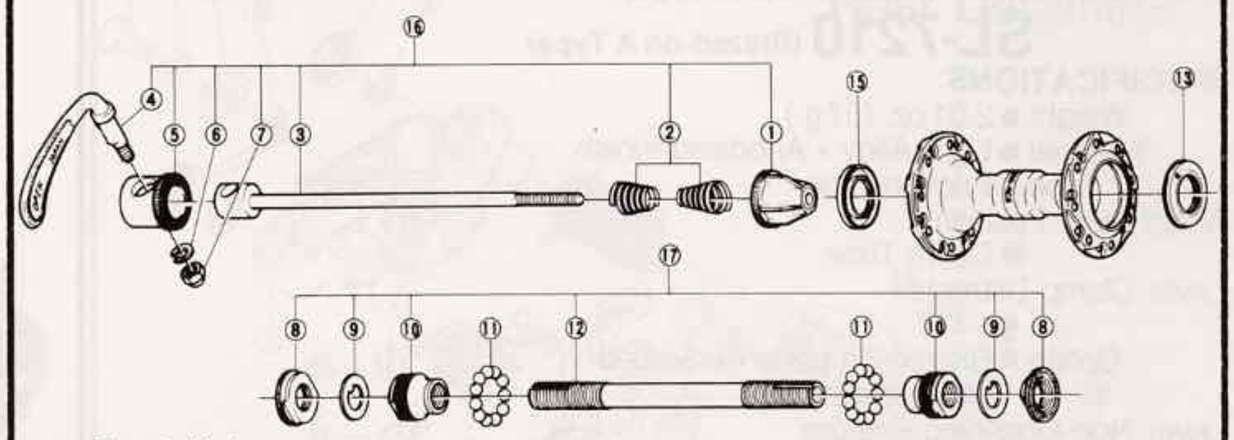
Model TL-FH40
Freehub Removal Tool (For freewheel body fixing race)



Model TL-SR20
Rear Sprocket Removal Tool



DURA-ACE EX Freehub

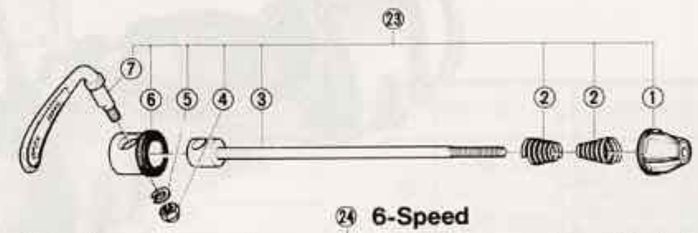


■ Front Hub

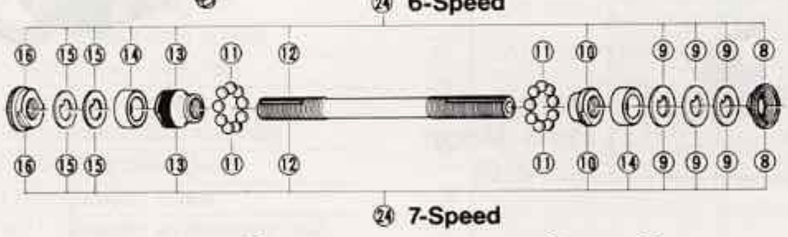
ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer
2	233 2100	Volute Spring
3	233 0800-1	Skewer 129 mm (5-3/32")
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0700	Spring Washer
7	231 0800	Cap Nut
8	233 1700	Lock Nut

Over Lock Nut Dimension: 100 mm (3-15/16")

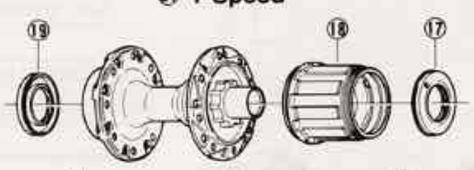
ITEM No.	PART NO.	DESCRIPTION
9	233 1600	Key Washer
10	233 1500	Cone
11	000 0125	Steel Ball (3/16")
12	233 1800	Hub Axle M9 × 108 mm (4-1/4")
13	237 0801	Right Hand Dust Cap
15	237 0802	Left Hand Dust Cap
16	233 9006	Complete Quick Release
17	233 9003	Complete Axle

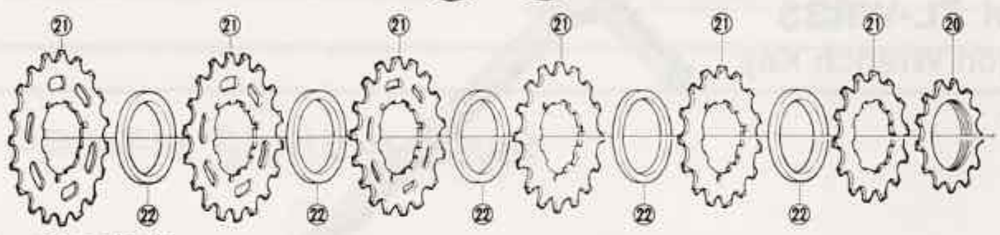


㉔ 6-Speed



㉔ 7-Speed





■ Rear Freehub

ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer
2	233 2100	Volute Spring
3	243 0801	Skewer 159 mm (6-1/4")
4	231 0800	Cap Nut
5	231 0700	Spring Washer
6	233 0300	Body Cam Lever
7	231 0600-4	Cam Lever
8	356 5900	Right Hand Lock Nut 4 mm
9	356 6100	Right Hand Key Washer
10	247 0400	Right Hand Cone M10 × 13.5 mm
11	000 0135	Steel Ball (1/4") 18 pcs
12	243 2001	Hub Axle 137 mm (5-13/32")
13	243 1500	Left Hand Cone M10 × 15 mm
14	356 6000	Axle Spacer
15	243 1600	Left Hand Key Washer
16	243 1700	Left Hand Lock Nut 7.5 mm
17	243 1401	Right Hand Dust Cap
18	271 9003	Complete Freewhell Body for 6-Speed
	271 9004	Complete Freewhell Body for 7-Speed
19	243 1402	Left Hand Freewheel Body for 7-Speed
20	357 1117	Sprocket Wheel 11T
	357 1217	Sprocket Wheel 12T
	357 1317	Sprocket Wheel 13T
	357 1417	Sprocket Wheel 14T
	357 1517	Sprocket Wheel 15T
	357 1617	Sprocket Wheel 16T
	357 1717	Sprocket Wheel 17T
	357 1817	Sprocket Wheel 18T
21	357 1237	Sprocket Wheel 12T
	357 1337	Sprocket Wheel 13T
	357 1437	Sprocket Wheel 14T
	357 1537	Sprocket Wheel 15T
	357 1637	Sprocket Wheel 16T
	357 1737	Sprocket Wheel 17T
	357 1837	Sprocket Wheel 18T
	357 1937	Sprocket Wheel 19T
	357 2037	Sprocket Wheel 20T
	357 2137	Sprocket Wheel 21T
	357 2237	Sprocket Wheel 22T
	357 2337	Sprocket Wheel 23T
	357 2437	Sprocket Wheel 24T
	357 2637	Sprocket Wheel 26T
22	356 6300	Sprocket Spacer
23	356 9005	Complete Quick Release Skewer Lenght 159 mm (6-1/4")
24	356 9009	Complete Hub Axle 137 mm (5-13/32") O.L. 126 mm (4-31/32")

DURA-ACE EX Road Ensemble

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

DURA-ACE EX Freehub

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

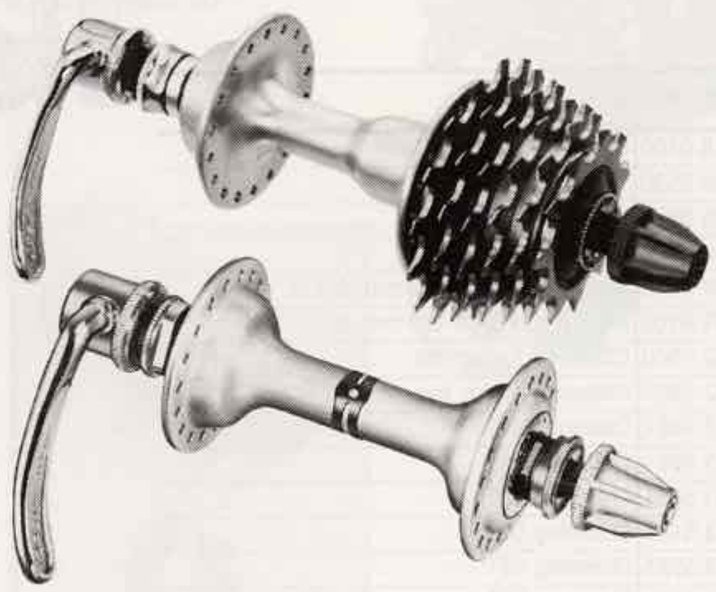
SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

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

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





Model TL-FH10

Freehub Removal Tool for DURA-ACE EX (Model FH-7260, 7250) Series Only



Model TL-HS10

Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.

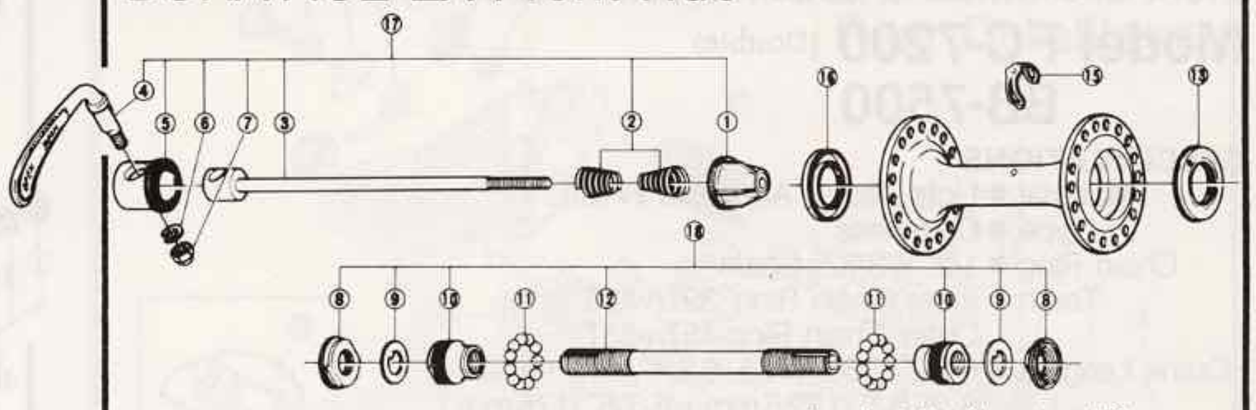


Model TL-SR20

Rear Sprocket Removal Tool



DURA-ACE EX Front Hub

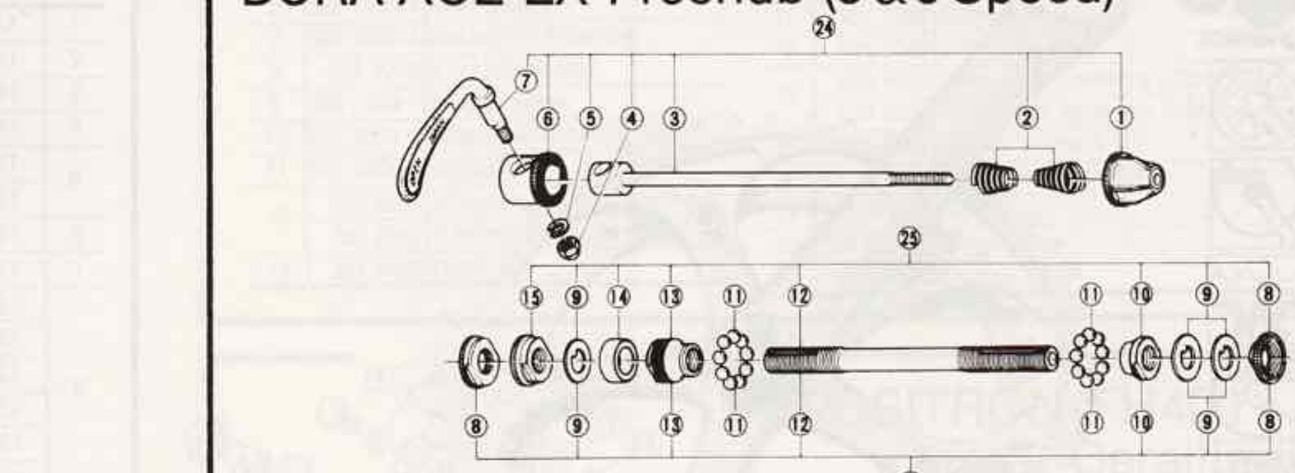


Over Lock Nut Dimension: 100 mm

ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer
2	233 2100	Volute Spring
3	233 0800-1	Skewer 129 mm
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0700	Spring Washer
7	231 0800	Cap Nut
8	233 1700	Lock Nut
9	233 1600	Key Washer
10	233 1500	Cone

ITEM NO.	PART NO.	DESCRIPTION
11	000 0125	Steel Ball (3/16")
12	233 1800	Hub Axle M9x 108 mm
13	237 0801	Right Hand Dust Cap
14	235 9011	Hub Shell 28Holes
	235 9012	Hub Shell 23Holes
	235 9013	Hub Shell 36Holes
15	233 1200	Oil Cap
16	237 0802	Left Hand Dust Cap
17	233 9006	Complete Quick Release
18	233 9003	Complete Axle

DURA-ACE EX Freehub (5 & 6 Speed)



ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer
2	233 2100	Volute Spring
3	243 0800	Skewer A 153 mm
	243 0801	Skewer C 159 mm
4	233 0600	Cap Nut
5	231 0700	Spring Washer
6	233 0300	Body Cam Lever
7	231 0600-4	Cam Lever
8	356 5900	Right Hand Lock Nut 4 mm
9	356 6100	Key Washer
10	247 0402	Right Hand Cone for 5-Speed M10 × 10 mm
	247 0400	Right Hand Cone for 6-Speed M10 × 13.5 mm
11	000 0135	Steel Ball (1/4") 18pcs
12	243 2000	Hub Axle 131 mm
	243 2001	Hub Axle 137 mm
13	243 1500	Left Hand Cone M10 × 15 mm
14	356 6000	Axle Spacer
15	243 1700	Left Hand Lock Nut 7.5 mm
16	243 1401	Right Hand Dust Cap
17	356 9011	Freewheel Body Assembly for 5-Speed
	356 9003	Freewheel Body Assembly for 6-Speed
18	356 5800	Stopper
19	356 9013	Hub Shell 18 Holes
	356 9012	Hub Shell 32 Holes
	356 9001	Hub Shell 36 Holes
20	243 1402	Left Hand Dust Cap

ITEM NO.	PART NO.	DESCRIPTION
21	357 1117	Sprocket Wheel 11T
	357 1217	Sprocket Wheel 12T
	357 1317	Sprocket Wheel 13T
	357 1417	Sprocket Wheel 14T
22	357 1237	Sprocket Wheel 12T
	357 1337	Sprocket Wheel 13T
	357 1437	Sprocket Wheel 14T
	357 1537	Sprocket Wheel 15T
	357 1637	Sprocket Wheel 16T
	357 1737	Sprocket Wheel 17T
	357 1837	Sprocket Wheel 18T
	357 1937	Sprocket Wheel 19T
	357 2037	Sprocket Wheel 20T
	357 2137	Sprocket Wheel 21T
	357 2237	Sprocket Wheel 22T
	357 2337	Sprocket Wheel 23T
	357 2437	Sprocket Wheel 24T
	357 2637	Sprocket Wheel 26T
23	356 6300	Sprocket Spacer
24	356 9004	Complete Quick Release A Skewer Length 153 mm
	356 9005	Complete Quick Release C Skewer Length 159 mm
25	356 9010	Complete Hub Axle A 131 mm for 5-Speed O.L. 120 mm
	356 9009	Complete Hub Axle C 137 mm for 6-Speed O.L. 126 mm
26	356 9008	Complete Hub Axle A 131 mm for 6-Speed O.L. 120 mm

DURA-ACE EX
Road Ensemble

Model FC-7200 Front Chainwheel
Model BB-7500 Bottom Bracket Assembly

DURA-ACE EX
Front Chainwheel & Bottom Bracket Assembly

Model FC-7200 (Double)
BB-7500

SPECIFICATIONS

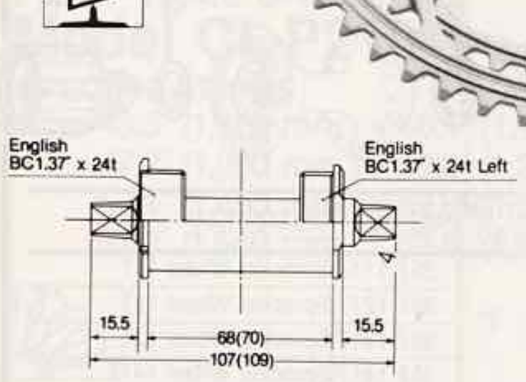
Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2″ × 3/32″ Chain
Teeth ● Inner Chain Ring 39T~45T
Outer Chain Ring 48T~53T
Crank Lengths ● 6-1/2″ (165 mm.), 6-3/4″ (170 mm.), 6-25/32″ (172.5mm.), 6-7/8″ (175mm.)
Crank Thread ● BC1″ × 24 T.P.I.
Cup Thread ● English 1.37″ × 24t,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

SHIMANO aero dynamics

W CUT

LIGHT WEIGHT



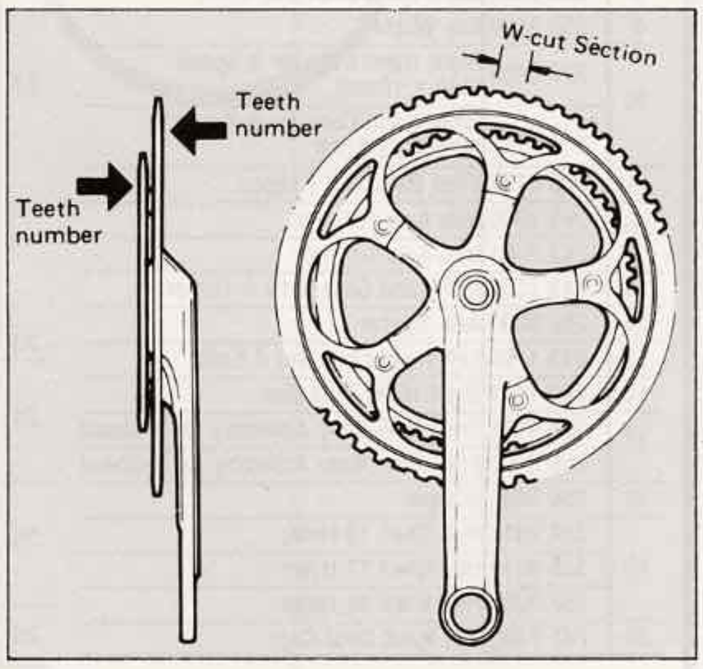




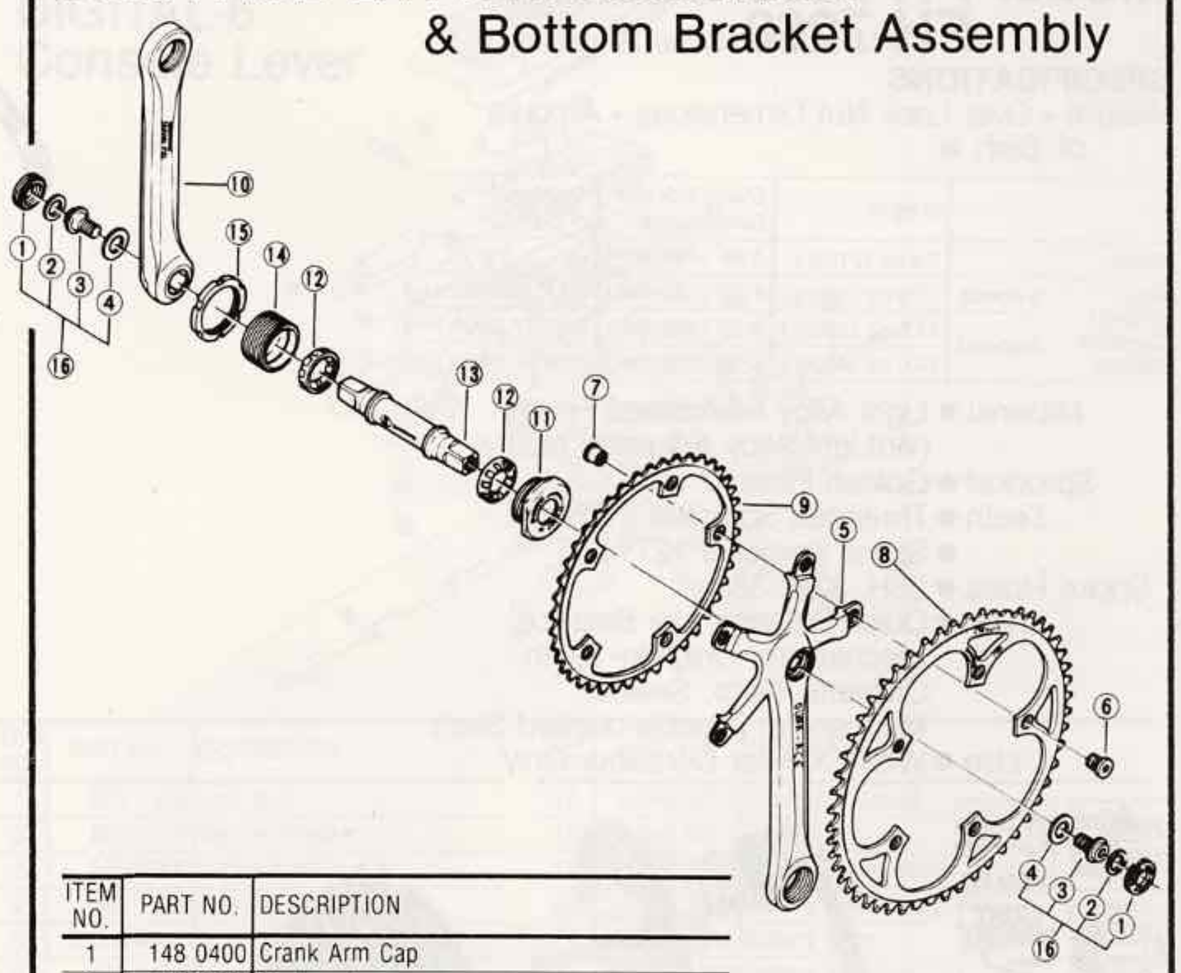


Assembly Notes

- Assemble large gear and small gear so that teeth number signs are both facing outwards. The large gear possesses W-cut teeth so assembly position should be aligned at a point just off center to the crank.



DURA-ACE EX Front Chainwheel & Bottom Bracket Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	148 0400	Crank Arm Cap
2	148 0500	Washer A
3	148 0600	Crank Arm Fixing Bolt
4	148 0700	Washer B
5	139 0200	Right Crank Arm 165 mm (6-1/2″)
	139 0100	Right Crank Arm 170 mm (6-11/16″)
6	132 0500	Chainring Fixing Bolt
7	132 0600	Chainring Fixing Nut
8	133 4861	Chainring 48T
	133 4961	Chainring 49T
	133 5061	Chainring 50T
	133 5161	Chainring 51T
	133 5261	Chainring 52T
	133 5361	Chainring 53T
9	132 3970	Chainring 39T
	132 4070	Chainring 40T
	132 4170	Chainring 41T
	132 4270	Chainring 42T
	132 4370	Chainring 43T
	132 4470	Chainring 44T
	132 4570	Chainring 45T
10	152 0200	Left Crank Arm 165 mm (6-1/2″)
	152 0100	Left Crank Arm 170 mm (6-11/16″)
11	137 0200	Right Hand Fixed Cup (1.37″ × 24T)
12	3-137 9001	Ball Retainer
13	137 0110	Bottom Bracket Spindle 107 mm (4-7/32″) for Bottom Bracket Length 68 mm (2-11/16″)
	137 0111	Bottom Bracket Spindle 109 mm (4-9/32″) for Bottom Bracket Length 70 mm (2-3/4″)
14	137 0400	Left Hand Adjustable Cup (1.37″ × 24T)
15	137 0500	Lock Ring (1.37″ × 24T)
16	3-148 9002	Crank Arm Fixing Bolt Unit

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6 mm. x 130 mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-FC20
Screw Peg Spanner



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-WR35
Hexagon Wrench Key
5 mm.



Model TL-PD10
DD Pedal Spanner



Model PD-7200 DD Pedal

DURA-ACE EX DD Pedal

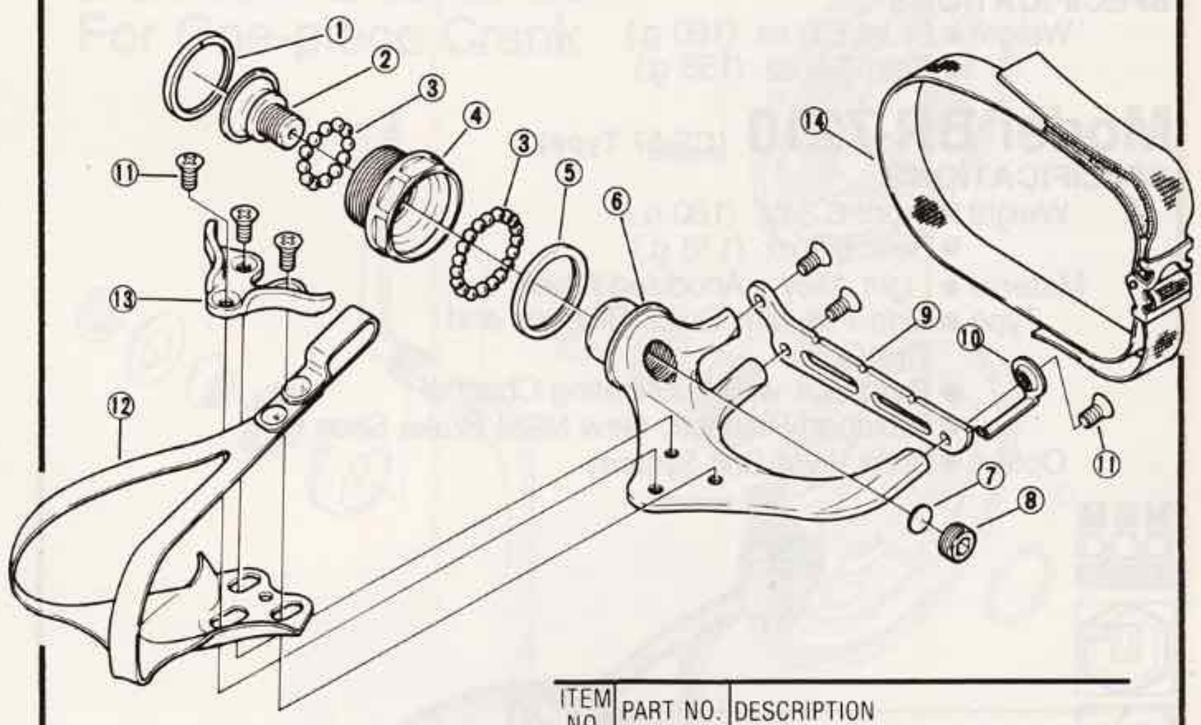
Model PD-7200

SPECIFICATIONS

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

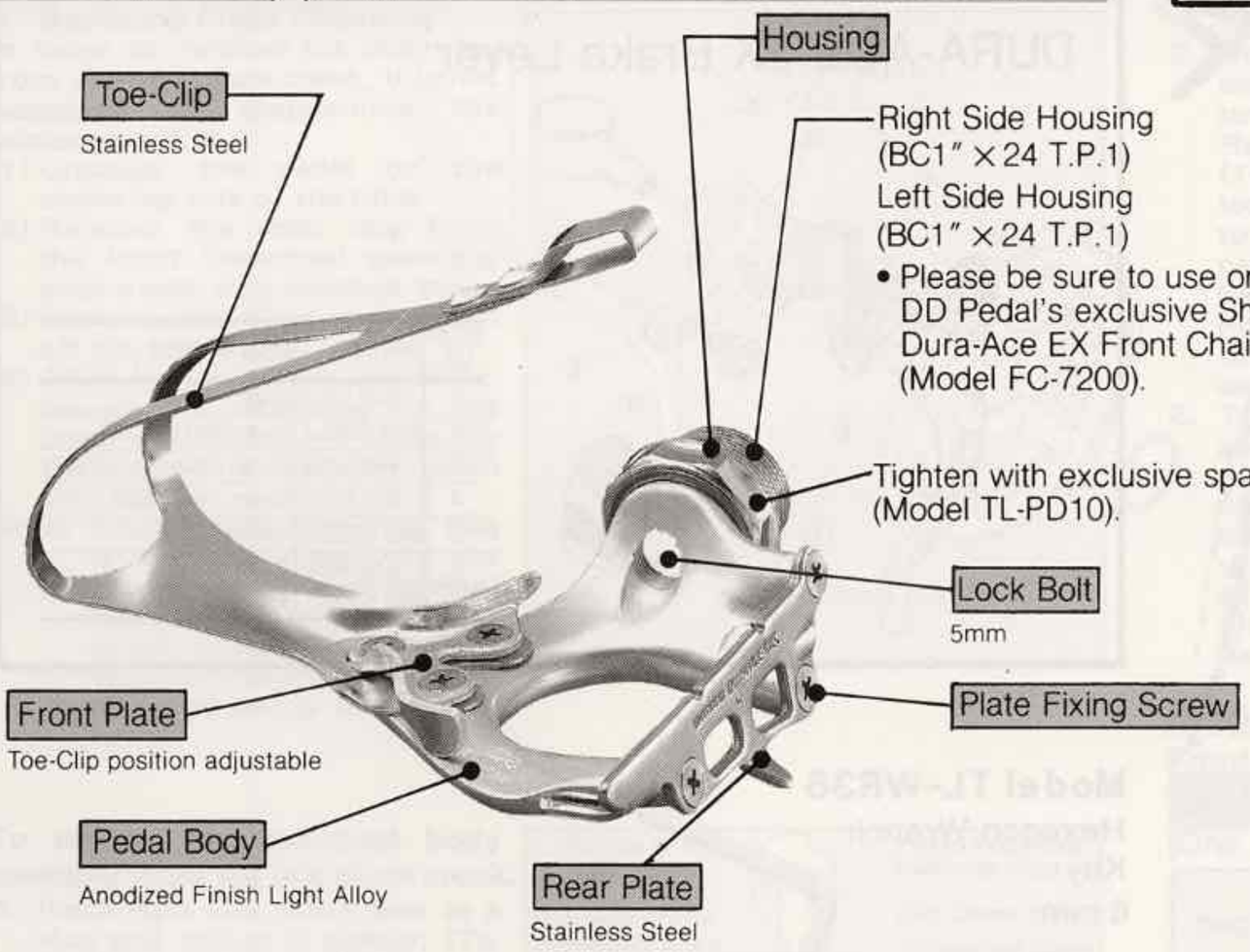


DURA-ACE EX DD Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	461 1100	Dust Cap
2	461 0500	Cone (M10 × 1.0)
3	000 0182	Steel Ball (5/32")
4	461 0300	Right Side Housing (BC1 × 24TPI)
	461 0400	Left Side Housing (BC1 × 24TPI Left)
5	461 1101	Body Side Dust Cap
6	461 9001	Right Side Pedal Body
	461 9002	Lift Side Pedal Body
7	461 0800	Washer
8	461 0900	Lock Bolt
9	461 1200	Right Side Plate
	461 1300	Left side Plate
10	461 2300	Strap Guide
11	000 1900	Screw
12	461 9003	Toe-Clip M-Size
	461 9004	Toe-Clip L-Size
13	461 1400	Front Plate
14	461 9006	Strap Assembly

Assembly Notes



Right Side Housing
(BC1″ × 24 T.P.1)
Left Side Housing
(BC1″ × 24 T.P.1)

- Please be sure to use only the DD Pedal's exclusive Shimano Dura-Ace EX Front Chainwheel (Model FC-7200).

Tighten with exclusive spanner (Model TL-PD10).

Note: There are two types of housing-left and right. The left housing has identifying notches on the outside rim. And right side is regular shape without notches.

Model TL-PD10

DD Pedal Spanner



DURA-ACE EX Road Ensemble

Model BR-7200 Caliper Brake (CS-49 Type)
Model BR-7210 Caliper Brake (CS-57 Type)
Model BL-7200 Brake Lever

DURA-ACE EX Caliper Brake

Model BR-7200 (CS-49 Type)

SPECIFICATIONS

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

Model BR-7210 (CS-57 Type)

SPECIFICATIONS

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



DURA-ACE EX Brake Lever

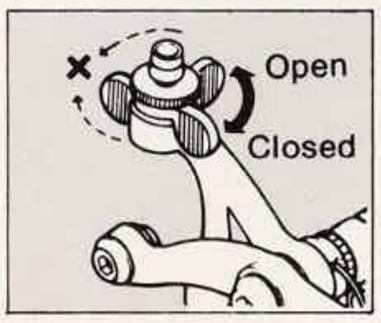
Model BL-7200

SPECIFICATIONS

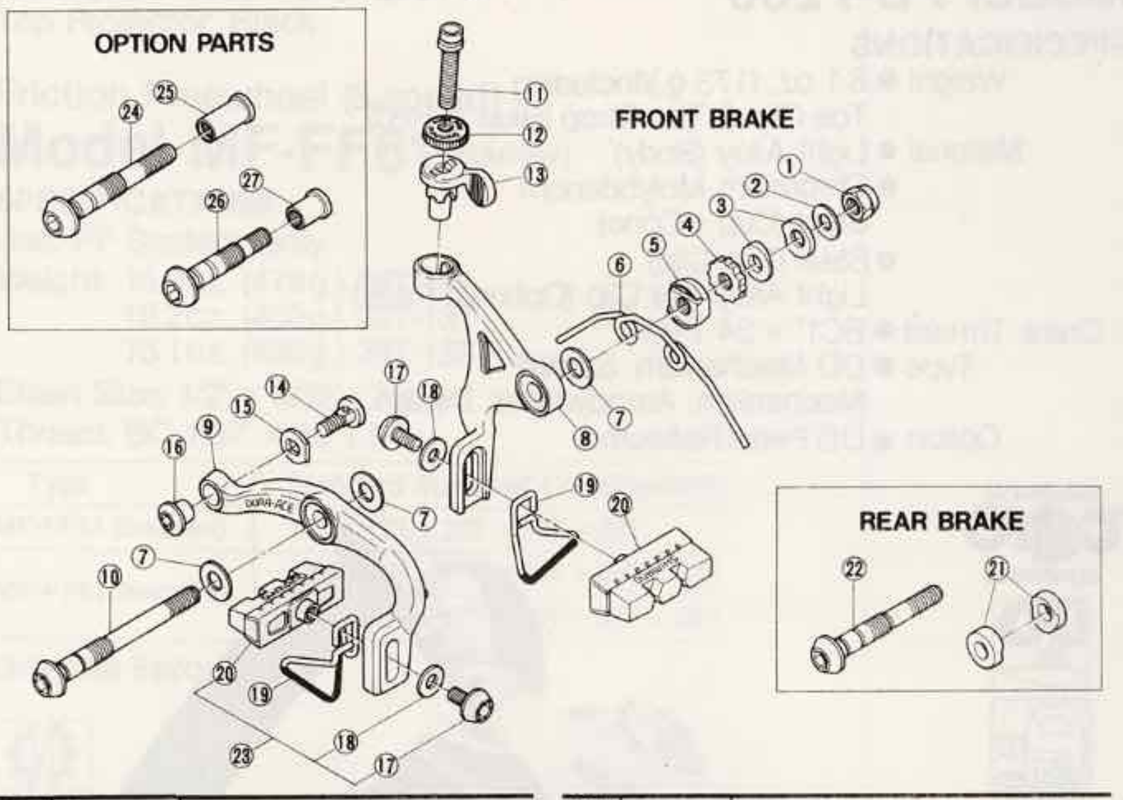
Weight ● 7.3 oz. (206 g.)/Pair (Including Rubber Cover)
Material ● Light Alloy • Anodized Finish
Lever Clamp Diameter
● 23.8 mm, 24.2 mm.
Type ● Hooded Lever with Rubber Cover
Drilled Out Finish
One-Step Cable Attachment Mechanism

Assembly Notes

To fix the brake cable, set the quick release lever to the "CLOSE" position.



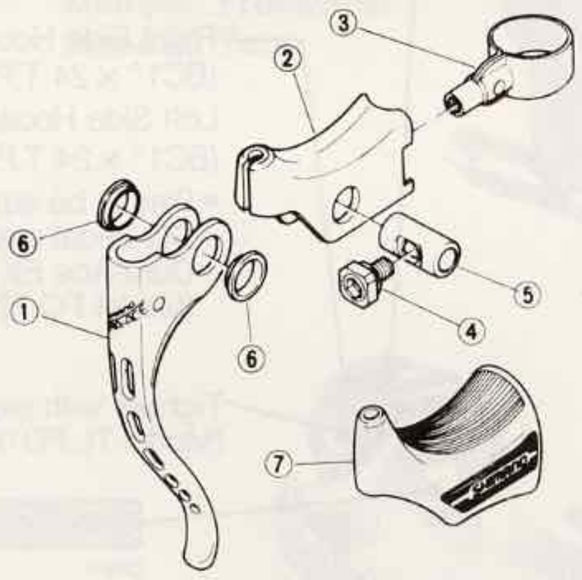
DURA-ACE EX Caliper Brake



ITEM NO.	PART NO.	DESCRIPTION
1	863 2700	Lock Nut for Pivot Bolt
2	855 1000	Washer A
3	855 2700	Radius Bushing for Front
4	855 6300	Lock Nut
5	855 6200	Pivot Nut
6	855 2801	Arm Return Spring (49 Type)
	855 2800-2	Arm Return Spring (57 Type)
7	855 6100	Arm Washer
8	855 9105	Brake Arm "Y" Shape (49-Type)
	855 9201	Brake Arm "Y" Shape (57-Type)
9	855 0202	Brake Arm "C" Shape (49-Type)
	855 0203	Brake Arm "C" Shape (57-Type)
10	855 0303	Pivot Bolt for Front
11	855 2401	Adjusting Barrel
12	855 2502	Adjusting Barrel Lock Nut

ITEM NO.	PART NO.	DESCRIPTION
13	855 9101	Cam Lever Assembly
14	855 7100	Wire Fixing Bolt
15	855 6600	Wire Fixing Washer
16	855 6700	Wire Fixing Nut
17	855 6800	Shoe Fixing Bolt
18	855 6900	Shoe Fixing Washer
19	855 1501	Tire Guide
20	855 9106	Brake Shoe (NBM)
21	855 2600	Radius Bushing for Rear
22	855 0405	Pivot Bolt for Rear
23	855 9108	Brake Shoe Assembly
24	855 7700	Sunken Pivot Bolt for Front (Option)
25	855 7400	Sunken Pivot Nut for Front (Option)
26	855 7600	Sunken Pivot Bolt for Rear (Option)
27	855 7500	Sunken Pivot Nut for Rear (Option)

DURA-ACE EX Brake Lever



ITEM NO.	PART NO.	DESCRIPTION
1	843 9101	Lever
2	843 0100-1	Lever Brakcer
3	843 9102	Clamp Assembly (ø23.8)
4	843 9103	Clamp Fixing Bolt
5	843 0500-2	Pull-Up Stud
6	843 0400	Bushing
7	843 1000-1	Rubber Cover

Model TL-WR36
Hexagon Wrench Key
6 mm.



DURA-ACE EX Road Ensemble

Model SP-7200 Seat Pillar

DURA-ACE EX Seat Pillar

Model SP-7200

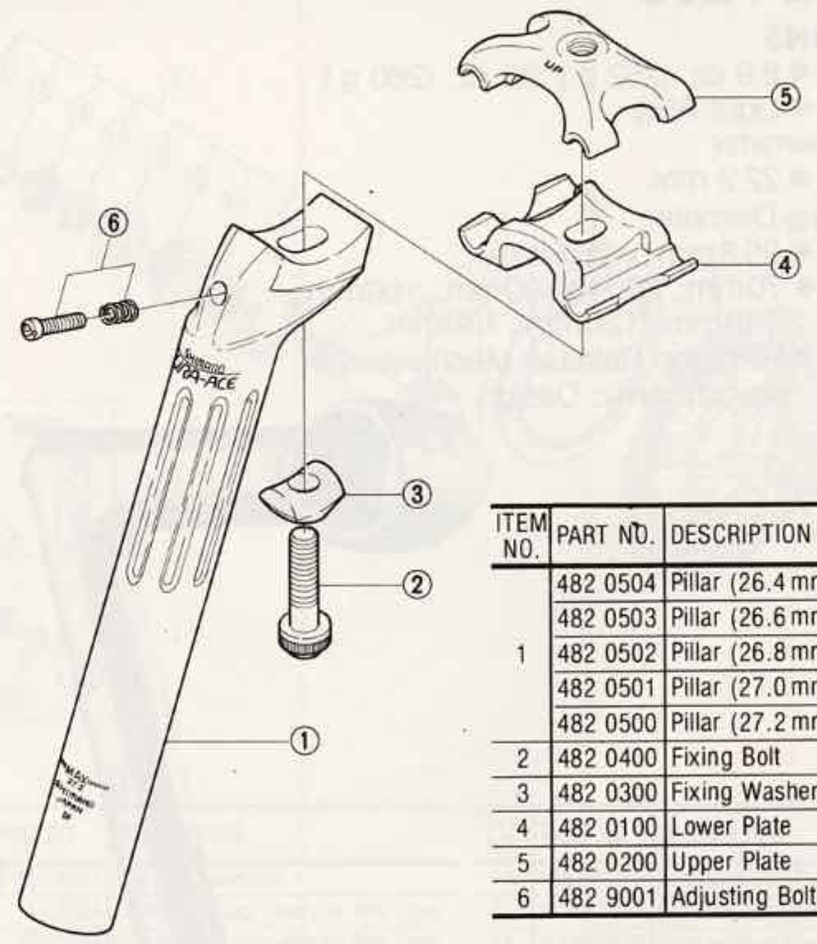
SPECIFICATIONS

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



SHIMANO aero dynamics

DURA-ACE EX Seat Pillar



ITEM NO.	PART NO.	DESCRIPTION
1	482 0504	Pillar (26.4 mm)
	482 0503	Pillar (26.6 mm)
	482 0502	Pillar (26.8 mm)
	482 0501	Pillar (27.0 mm)
	482 0500	Pillar (27.2 mm)
2	482 0400	Fixing Bolt
3	482 0300	Fixing Washer
4	482 0100	Lower Plate
5	482 0200	Upper Plate
6	482 9001	Adjusting Bolt (M4) & Spring

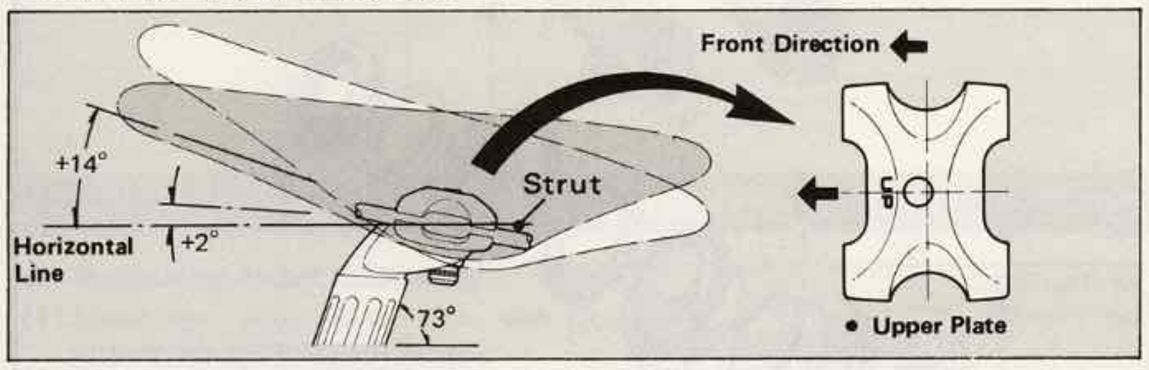
Assembly Notes

■ How to use Upper Plate

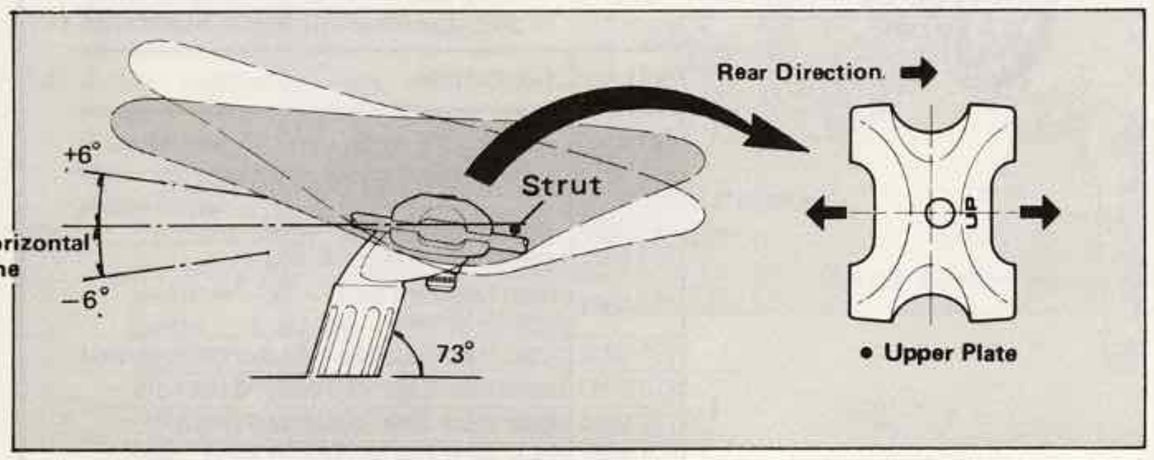
Shimano's Dura-Ace AX Seat Pillar upper plate is designed on the eccentric principle. This means a wide degree of angle adjustment is possible by simply changing the direction of the upper plate.

* Adjustment angle, regarding struts' angle, is calculated with seat pillar at an angle of 73°.

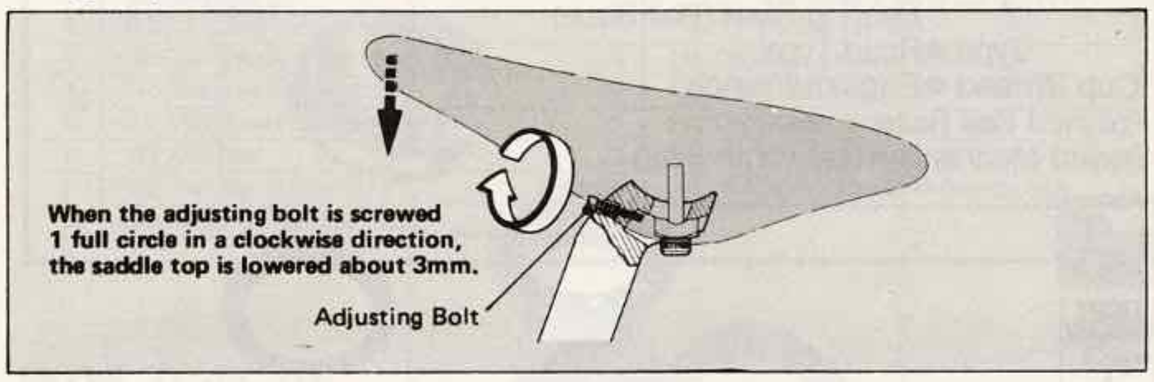
1) **Front upward direction** (when the UP sign is facing the front).
The saddle can be adjusted +2 ~ +14 degrees against a horizontal line. For normal use set the UP sign to the front.



2) **Front downward direction** (when the UP sign is facing the rear).
Adjustment angle is ±6 degrees.



3) Adjust the saddle-angle and then tighten the fixing bolt temporarily in this position. Next, screw the adjusting bolt in a clockwise direction for fine-precision saddle angle adjustment.



Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



DURA-ACE EX Road Ensemble

Model HS-7200 Handle Stem
Model HP-7200 Head Parts

DURA-ACE EX Handle Stem

Model HS-7200

SPECIFICATIONS

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

SHIMANO aero dynamics

LIGHT WEIGHT



DURA-ACE EX Head Parts

Model HP-7200

SPECIFICATIONS

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

SEALED

LIGHT WEIGHT



Model TL-WR40

Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-WR33

Hexagon Wrench Key
3 mm.

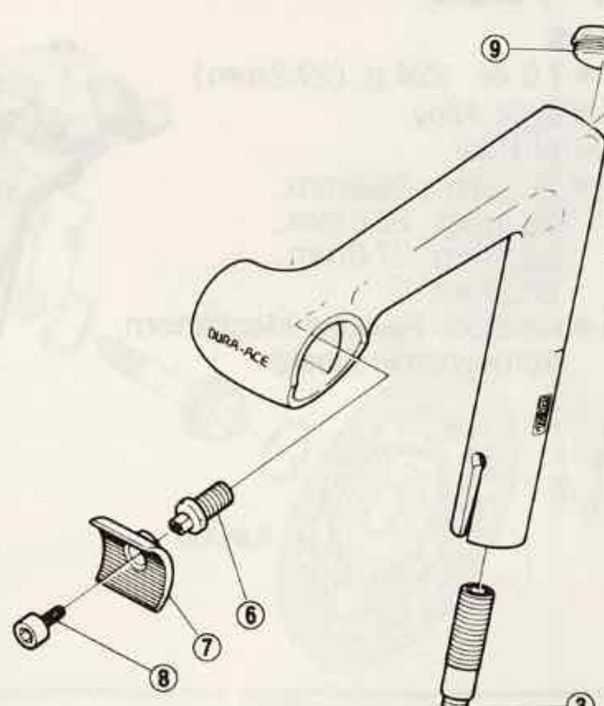


Model TL-HP10

Exclusive Tool for EX Series Head Parts

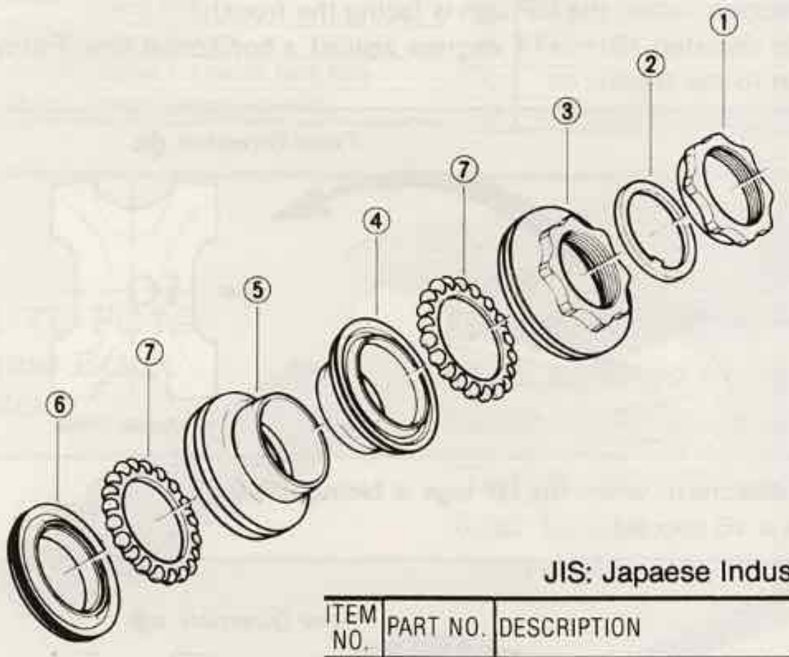


DURA-ACE EX Handle Stem



ITEM NO.	PART NO.	DESCRIPTION
1	451 0800	Expander Cone
2	451 0900	Non-Turn Screw (M3 × 5)
3	451 0700	Expander Bolt
5	451 0500	Handle Bar Adjusting Bolt
6	451 0400	Handle Bar Fixing Bolt
7	451 0300	Handle Bar Fixing Plate
8	451 0200	Fixing Bolt
9	451 0100	Cap

DURA-ACE EX Head Parts



JIS: Japaese Industrial Standards

ITEM NO.	PART NO.	DESCRIPTION
1	723 0100	Lock Nut B.C.1 × 24T.P.I. (English & JIS Thread)
	723 0101	Lock Nut M25 × P1.0 (French Thread)
2	723 0200	Lock Washer (English & JIS)
	723 0201	Lock Washer (French & JIS)
3	723 9001	Upper Head Cup B.C.1 × 24T.P.I (English Thread)
	723 9002	Upper Head Cup M25 × P1.0 (French Thread)
4	723 9003	Upper Head Cone 30.0 mm (1-5/32") JIS
	723 9004	Upper Head Cone 30.2 mm (1-3/16")
5	723 9005	Lower Head Cup 30.0 mm (1-5/32") JIS
	723 9006	Lower Head Cup 30.2 mm (1-3/16")
6	723 9007	Lower Head Cone 27.0 mm (1-1/16") JIS
	723 9008	Lower Head Cone 26.36 mm (1-1/32")
7	723 9009	Ball Retainer (3/16")

SHIMANO 600 EX Road Ensemble

Model RD-6200
Model RD-6210

Rear Derailleur (Short Cage Type)

Rear Derailleur (Long Cage Type)

SHIMANO-600 EX
Rear Derailleur

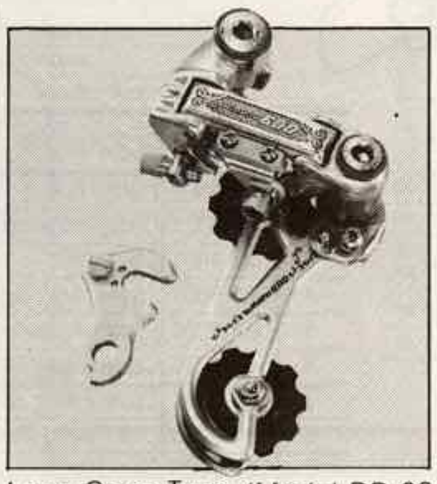
Model RD-6200
RD-6210

SPECIFICATIONS

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

Arabesque Pattern Design

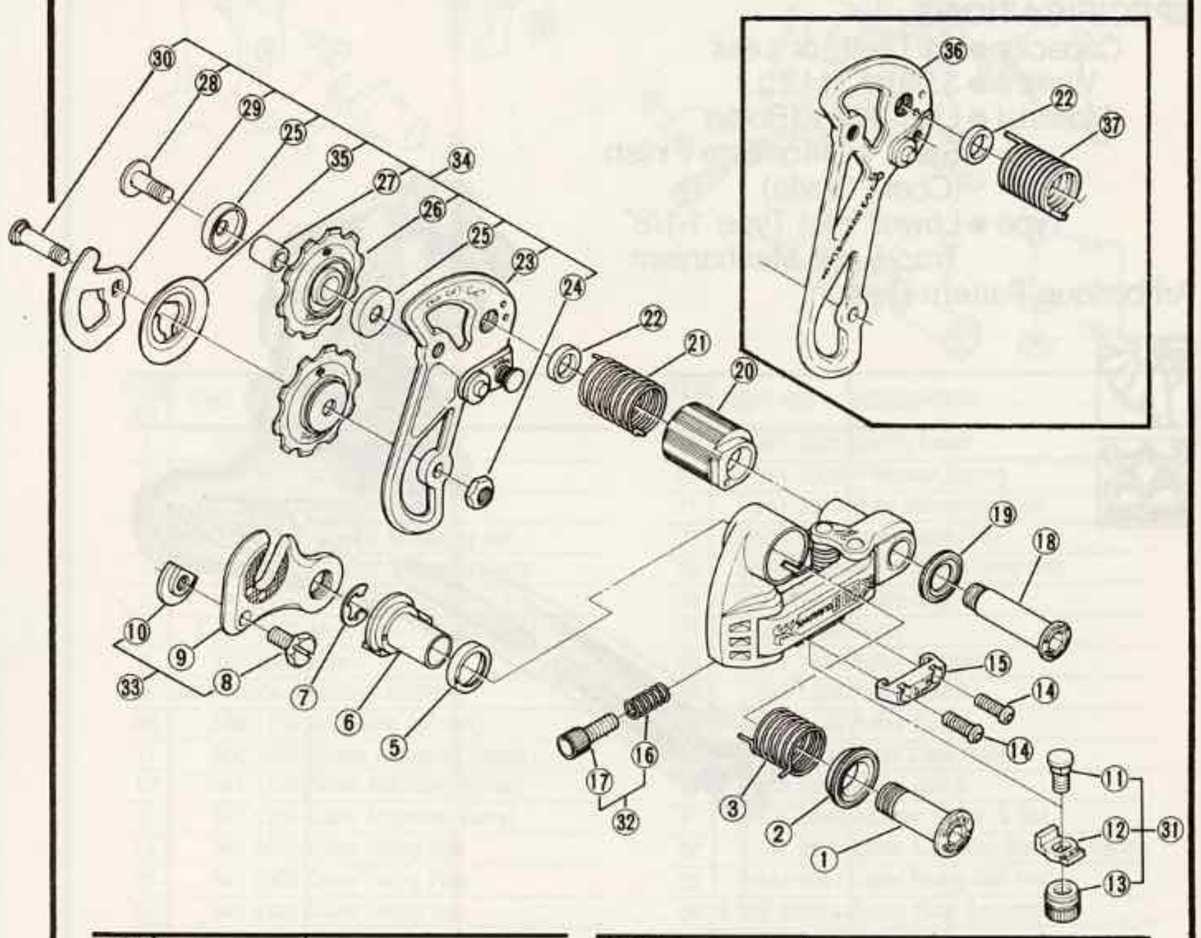




Long Cage Type (Model RD-6210)



SHIMANO-600EX Rear Derailleur



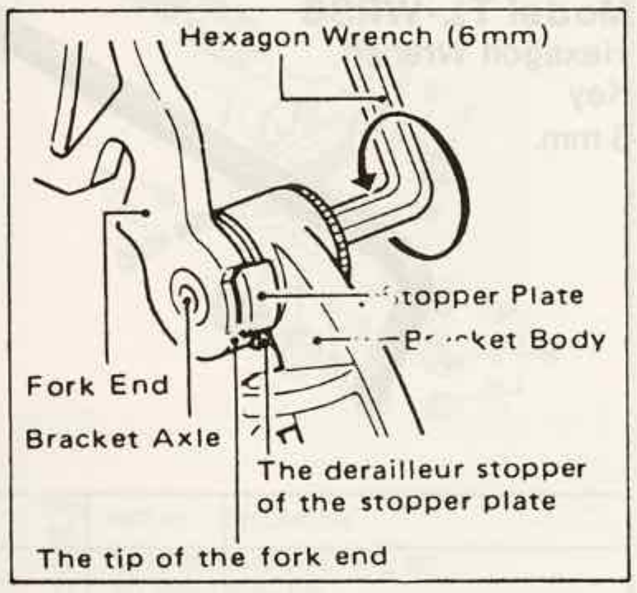
ITEM NO.	PART NO.	DESCRIPTION
1	541 0700-1	Adapter Mounting Bolt
2	541 2201	Adapter Mounting Collar
3	528 1100	B-Tension Spring
5	541 3500	Sleeve
6	3-541 9004-1	Adapter Bushing
7	528 1200	Stop Ring (ø7 mm)
8	000 1104-1	Adapter Screw
9	541 2701	Adapter
10	511 3500-1	Adapter Nut
11	541 3400	Cable Fixing Bolt
12	541 2300	Cable Fixing Washer
13	545 2100	Cable Fixing Nut
14	542 0500	Stroke Adjusting Screw
15	541 1901	Stroke Adjusting Plate
16	541 1100	Cable Adjusting Spring
17	541 1200	Cable Adjusting Barrel
18	541 0800-1	Plate Mounting Bolt
19	541 2101	Plate Mounting Collar

ITEM NO.	PART NO.	DESCRIPTION
20	541 2601	Spring Cover
21	541 0900	P-Tension Spring
22	541 2500	Plate Mounting Bushing
23	3-542 9012-1	Inner Cage Plate
24	545 5400	Pulley Nut
25	511 2701	Pulley Cap
26	521 3100	Pulley
27	511 2900	Pulley Bushing
28	542 1900	Pulley Bolt A
29	542 1501	Outer Cage Plate
30	534 2200	Pulley Bolt E
31	3-542 9014	Cable Fixing Bolt Unit
32	3-541 9002	Cable Adjusting Barrel & Spring
33	3-525 9069	Adapter Screw & Nut
34	3-542 9013-1	Pulley Plate Assembly
35	534 2500	S.B. Cap
36	3-542 9015	Inner Cage Plate
37	541 3000	P-Tension Spring

Assembly Notes

• Frame Assembly

Assemble the rear derailleur bracket axle to the fork end by means of the hexagon wrench (6mm). At this point set the stopper plate to the tip of the fork end and tighten the bracket axle half way only. Next, push the bracket body forward so that its inside section touches the derailleur stopper of the stopper plate. Then tighten the bracket axle fully.
Tightening torque should be 80 – 100 kg·cm. (70 – 85 in·lbs.). When tightening is completed release the bracket body. And ensure that the stopper plate makes proper contact with the tip of the fork end.



Model TL-WR36 6 mm.
Model TL-WR33 3 mm.
Hexagon Wrench Keys



SHIMANO 600 EX Road Ensemble

Model FD-6200 Front Derailleur

SHIMANO-600 EX Front Derailleur

Model FD-6200

SPECIFICATIONS

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



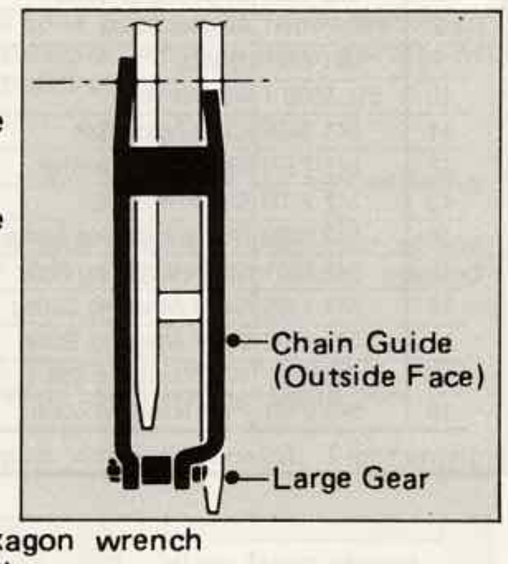
Assembly Notes

■ Assembly to the Frame

(1) Assemble the clamp band to the seat tube and then fix temporarily with the clamp bolt.

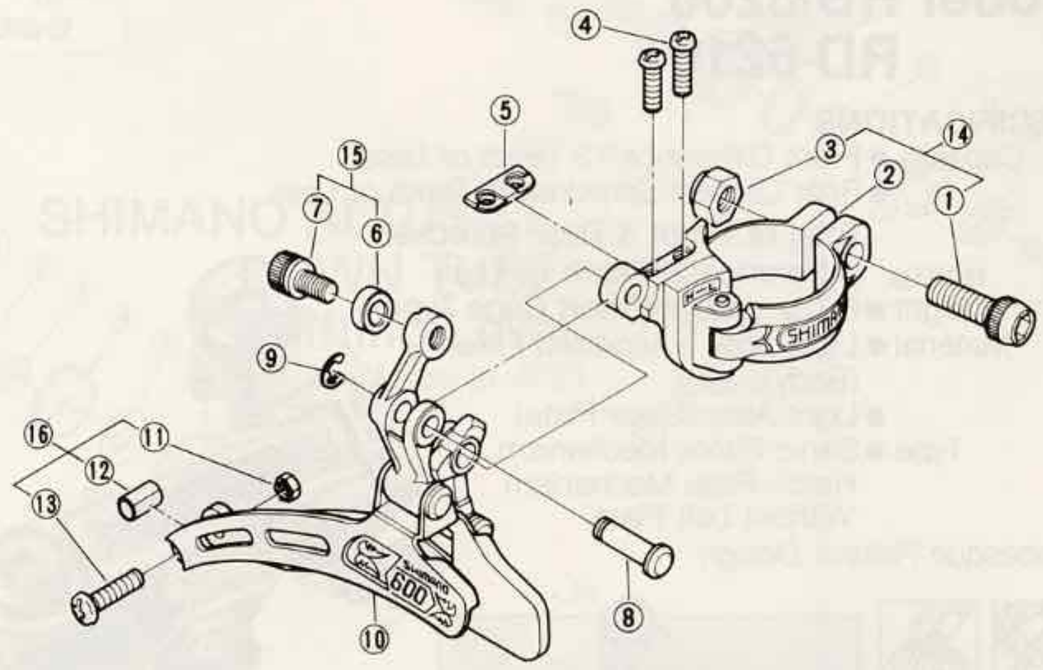
(2) Set the chain guide so that the outside face and the large gear of the front chainwheel have a clearance of about 1–5mm when viewed from the side.

(3) In addition, when viewed from above, the chain guide outside face should be positioned just over the front chainwheel large gear.



(4) Next, tighten the clamp bolt by hexagon wrench (6mm). Tightening torque should be 60kg·cm.

SHIMANO-600 EX Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	586 4300	Clamp Bolt
2	586 9021	Clamp Assembly (1-1/8")
3	525 1801	Clamp Nut
4	582 3001	Stroke Adjusting Screw
5	586 4500	Stroke Adjusting Plate
6	586 4200	Cable Fixing Plate
7	585 1601	Cable Fixing Bolt
8	586 3600	Link Fixing Rivet
9	582 3600	Stop Ring
10	586 9022	Chain Guide Assembly
11	585 3600	Roller Fixing Nut
12	586 4400	Roller
13	000 1004	Roller Fixing Screw
14	586 9023	Clamp Bolt & Nut
15	586 9024	Cable Fixing Bolt Assembly
16	586 9025	Roller Fixing Screw Assembly

Model TL-WR36
Hexagon Wrench
Key
6 mm.



SHIMANO 600 EX Road Ensemble

Model SL-6200 Shifting Lever (Band Type)
Model SL-6210 Shifting Lever (Brazed-on A Type)

SHIMANO-600 EX Shifting Lever

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

SPECIFICATIONS

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

ARABESQUE LIGHT WEIGHT SEALED

Brazed-on Type Only

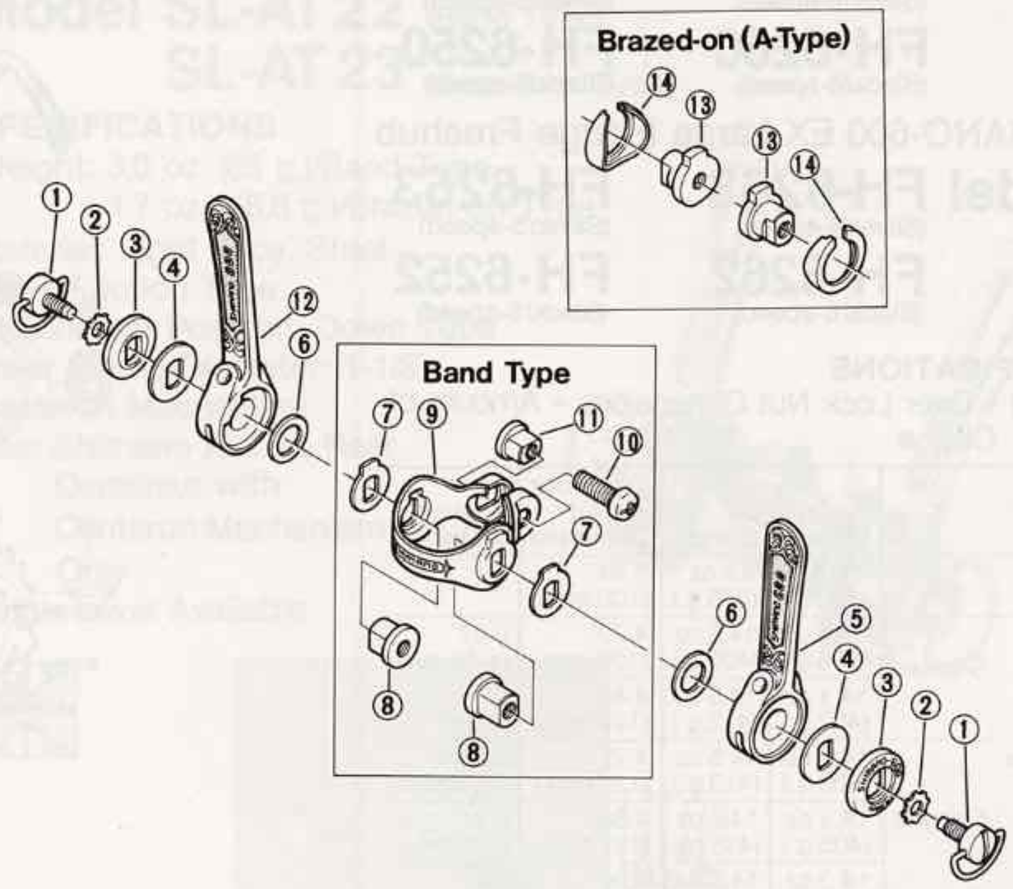


Band Type



SL-6210 Brazed-on Parts A Type

SHIMANO-600EX Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-682 9001	Lever Fixing Screw
2	000 3421	Teethed Washer
3	682 0300	Cap
4	681 3500	Washer B
5	3-682 9002	Rear Lever
6	000 3901	Spacer A
7	681 4100	Washer A
8	681 0801	Lever Axle

ITEM NO.	PART NO.	DESCRIPTION
9	681 3101	Lever Clamp for 10-Speed (1-1/8″)
10	681 1500	Clamp Screw
11	681 3800	Clamp Nut
12	3-682 9003	Front Lever
13	681 4500	Brazed Axle (A-Type)
14	681 4600	Cover for Brazed Axle (A-Type)

SHIMANO 600 EX Road Ensemble

Model FH-6261 (Small/6-speed/Silver)
Model FH-6251 (Small/5-speed/Silver)
Model FH-6260 (Small/6-speed/Black)
Model FH-6250 (Small/5-speed/Black)
Model FH-6263 (Large/6-speed/Silver)
Model FH-6253 (Large/5-speed/Silver)
Model FH-6262 (Large/6-speed/Black)
Model FH-6252 (Large/5-speed/Black)

SHIMANO-600 EX Small Flange Freehub

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

SHIMANO-600 EX Large Flange Freehub

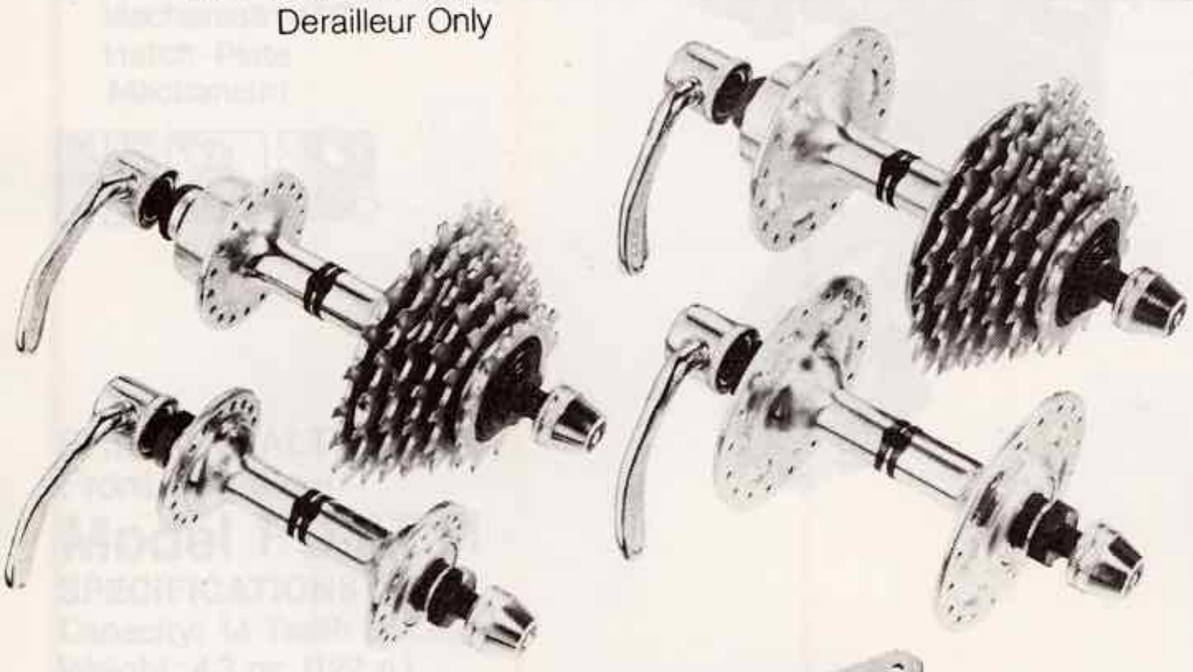
Model FH-6263 (Silver/6-speed) **FH-6253** (Silver/5-speed)
FH-6262 (Black/6-speed) **FH-6252** (Black/5-speed)

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish ●

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

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



Model TL-HS20
Spanner for DURA-ACE Hubs
Width: 15mm., 17mm.



Model TL-SR20
Rear Sprocket Removal Tool

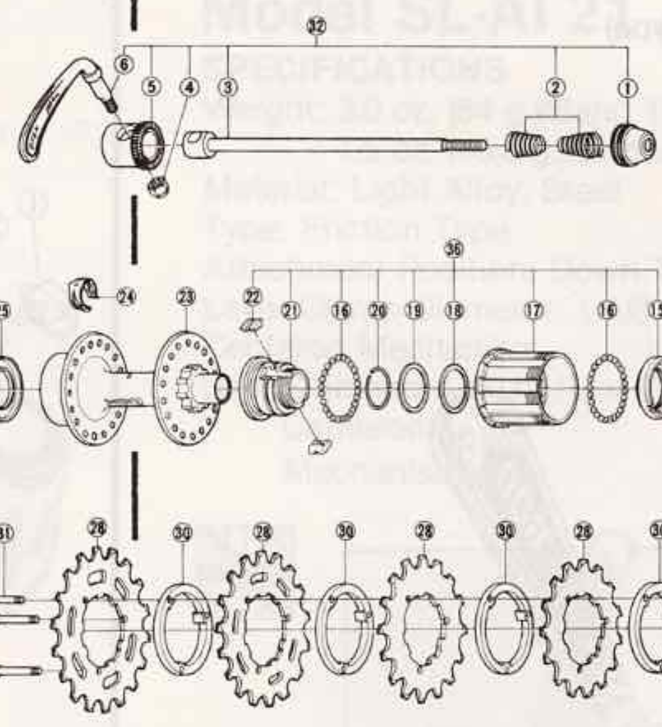


Model TL-FH30
Freehub Removal Tool

Model TL-FH40
Freehub Removal Tool (For freewheel body fixing race)



SHIMANO 600EX Freehub (5 & 6-Speed)



ITEM NO.	PART NO.	DESCRIPTION
1	231 9008	Nut for Skewer
2	231 1100	Volute Spring
3	243 0800	Skewer A 153 mm (6-1/32")
	243 0802	Skewer B 157 mm (6-3/16")
	243 0801	Skewer C 159 mm (6-1/4")
4	231 0800	Cap Nut
5	231 0500-1	Body Cam Lever
6	231 0600-4	Cam Lever
7	220 0502	Lock Nut
8	357 5700	Right Hand Dust Cap
9	241 1100	Axile Specer 5.5 mm (7/32")
10	220 0850	Right Hand Cone
11	000 0131	Steel Balls (1/4")
12	243 2000	Hub Axle A 131 mm (5-5/32")
	241 0302	Hub Axle B 135.5 mm (5-11/32")
	243 2001	Hub Axle C 137 mm (5-13/32") for 6-Speed
13	220 0800-2	Left Hand Cone for A & C
	220 0820-2	Left Hand Cone for B
14	241 0700-1	Key Washer
15	357 5300	Body Fixing Race
16	000 0111	Steel Balls (1/8")
17	357 5200	Outer Body for 5-Speed
	357 5201	Outer Body for 6-Speed
18	357 5500	Adjusting Washer 0.05 mm
	357 5501	Adjusting Washer 0.10 mm
	357 5502	Adjusting Washer 0.17 mm
	357 5503	Adjusting Washer 0.30 mm
19	357 5400	Spacer 1.0 mm
20	357 5600-1	Pawl Spring
21	357 5101	Inner Body
22	256 0700	Pawl
23	357 9001-1	Hub Shell 36 Holes
24	217 0500	Oil Cap
25	241 0601	Left Hand Dust Cap
26	357 1210	Sprocket Wheel 12T (Black)
	357 1215	Sprocket Wheel 12T (Silver)
	357 1310	Sprocket Wheel 13T (Black)
	357 1315	Sprocket Wheel 13T (Silver)
	357 1410	Sprocket Wheel 14T (Black)
	357 1415	Sprocket Wheel 14T (Silver)
	357 1510	Sprocket Wheel 15T (Black)
	357 1515	Sprocket Wheel 15T (Silver)
27	357 1320	Sprocket Wheel 13T (Black)
	357 1325	Sprocket Wheel 13T (Silver)
	357 1420	Sprocket Wheel 14T (Black)
	357 1425	Sprocket Wheel 14T (Silver)
	357 1520	Sprocket Wheel 15T (Black)
	357 1525	Sprocket Wheel 15T (Silver)
	357 1620	Sprocket Wheel 16T (Black)
	357 1625	Sprocket Wheel 16T (Silver)

ITEM NO.	PART NO.	DESCRIPTION
27	357 1720	Sprocket Wheel 17T (Black)
	357 1725	Sprocket Wheel 17T (Silver)
28	357 1530	Sprocket Wheel 15T (Black)
	357 1535	Sprocket Wheel 15T (Silver)
	357 1630	Sprocket Wheel 16T (Black)
	357 1635	Sprocket Wheel 16T (Silver)
	357 1730	Sprocket Wheel 17T (Black)
	357 1735	Sprocket Wheel 17T (Silver)
	357 1830	Sprocket Wheel 18T (Black)
	357 1835	Sprocket Wheel 18T (Silver)
	357 1930	Sprocket Wheel 19T (Black)
	357 1935	Sprocket Wheel 19T (Silver)
	357 2030	Sprocket Wheel 20T (Black)
	357 2035	Sprocket Wheel 20T (Silver)
	357 2130	Sprocket Wheel 21T (Black)
	357 2135	Sprocket Wheel 21T (Silver)
	357 2230	Sprocket Wheel 22T (Black)
	357 2235	Sprocket Wheel 22T (Silver)
	357 2330	Sprocket Wheel 23T (Black)
	357 2335	Sprocket Wheel 23T (Silver)
	357 2430	Sprocket Wheel 24T (Black)
	357 2435	Sprocket Wheel 24T (Silver)
	357 2630	Sprocket Wheel 26T (Black)
	357 2635	Sprocket Wheel 26T (Silver)
	357 2830	Sprocket Wheel 28T (Black)
	357 2835	Sprocket Wheel 28T (Silver)
29	357 5800	Sprocket Spacer A
30	357 5900	Sprocket Spacer B
31	357 6000	Sprocket Fixing Bolt for 5-Speed
	357 6001	Sprocket Fixing Bolt for 6-Speed
32	227 9003	Complete Quick Release A Skewer Length 153 mm (6-1/32")
	227 9008	Complete Quick Release B Skewer Length 157 mm (6-3/16")
	227 9006	Complete Quick Release C Skewer Length 159 mm (6-1/4")
33	357 9007	Complete Hub Axle A 131 mm (5-5/32") O.L. 120.5 mm (4-3/4")
	357 9009	Complete Hub Axle B 135.5 mm (5-11/32") O.L. 124 mm (4-7/8")
34	357 9010	Complete Hub Axle A 131 mm (5-5/32") O.L. 120.5 mm (4-3/4")
	357 9011	Complete Hub Axle B 135.5 mm (5-11/32") O.L. 124 mm (4-7/8")
35	357 9008	Complete Hub Axle C 137 mm (5-13/32") O.L. 126 mm (4-31/32")
36	357 9002	Complete Freewheel Body for 5-Speed
	357 9003	Complete Freewheel Body for 6-Speed
37	357 9004	Right Hand Cone w/Dust Cap for 5-Speed
38	357 9005	Axle Spacer w/Dust Cap for 6-Speed

SHIMANO 600 EX Road Ensemble

Model FC-6200 Front Chainwheel
Model BB-6200 Bottom Bracket Assembly (Spindle Length 116mm.)
Model BB-6210 Bottom Bracket Assembly (Spindle Length 119mm.)

SHIMANO-600 EX Front Chainwheel

Model FC-6200
BB-6200 (Spindle Length 116mm.)
BB-6210 (Spindle Length 119mm.)

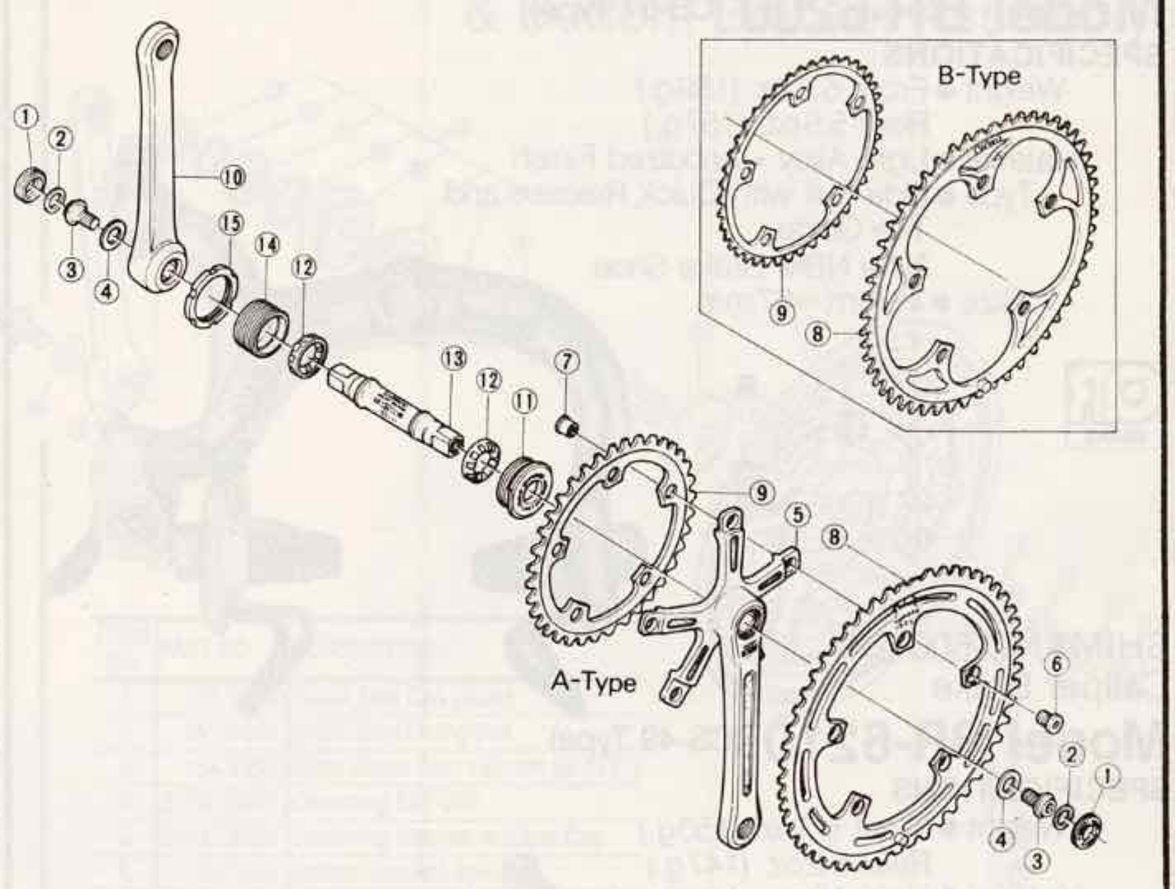
SPECIFICATIONS

Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 3/32" Chain
Teeth ● FC-6200/Inner 39T~45T
Outer 48T~53T
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
Material of Chain Ring
● Light Alloy • Anodized Finish
W cut Mechanism, One Key Release Mechanism, Safety Crank Arm and Arabesque Pattern Design





SHIMANO-600EX Front Chainwheel



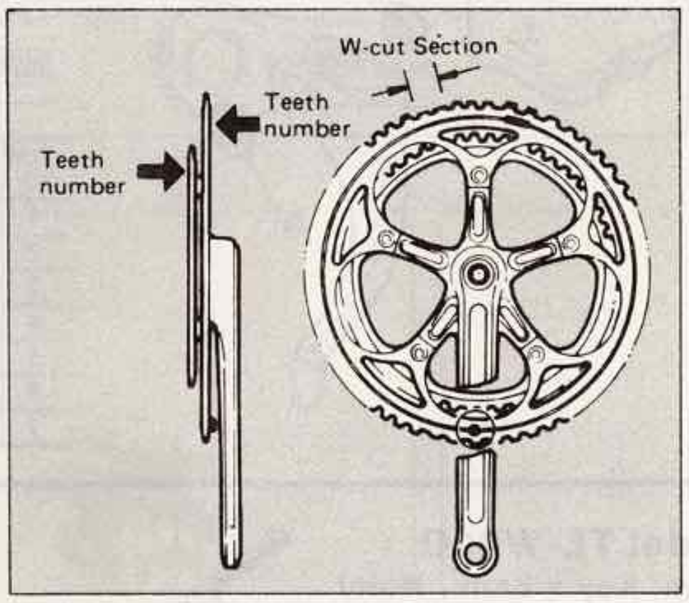
ITEM NO.	PART NO.	DESCRIPTION
1	148 0400	Crank Arm Cap
2	148 0500	Washer A
3	148 0600	Spindle Bolt
4	148 0700	Washer B
5	145 9001	Right Crank Arm 165mm (6-1/2") Calking Type
	145 9002	Right Crank Arm 170mm (6-3/4") Calking Type
	145 0111	Right Crank Arm 170mm (6-3/4")
6	132 0500	Chain Ring Fixing Bolt
7	132 0600	Chain Ring Fixing Nut
8	145 4850	Chain Ring 48T (A-Type)
	145 4950	Chain Ring 49T (A-Type)
	145 5050	Chain Ring 50T (A-Type)
	145 5150	Chain Ring 51T (A-Type)
	145 5250	Chain Ring 52T (A-Type)
	145 5350	Chain Ring 53T (A-Type)
	145 5450	Chain Ring 54T (A-Type)
	145 5550	Chain Ring 55T (A-Type)
	145 4860	Chain Ring 48T (B-Type)
	145 4960	Chain Ring 49T (B-Type)
	145 5060	Chain Ring 50T (B-Type)
	145 5160	Chain Ring 51T (B-Type)
	145 5260	Chain Ring 52T (B-Type)
	145 5360	Chain Ring 53T (B-Type)
9	145 3900	Chain Ring 39T (A-Type)

ITEM NO.	PART NO.	DESCRIPTION
9	145 4000	Chain Ring 40T (A-Type)
	145 4100	Chain Ring 41T (A-Type)
	145 4200	Chain Ring 42T (A-Type)
	145 4300	Chain Ring 43T (A-Type)
	145 4400	Chain Ring 44T (A-Type)
	145 4500	Chain Ring 45T (A-Type)
	145 4600	Chain Ring 46T (A-Type)
	145 4700	Chain Ring 47T (A-Type)
	145 4800	Chain Ring 48T (A-Type)
	145 3910	Chain Ring 39T (B-Type)
	145 4010	Chain Ring 40T (B-Type)
	145 4110	Chain Ring 41T (B-Type)
	145 4210	Chain Ring 42T (B-Type)
	145 4310	Chain Ring 43T (B-Type)
	145 4410	Chain Ring 44T (B-Type)
	145 4510	Chain Ring 45T (B-Type)
10	146 0100	Left Crank Arm 165mm (6-1/2")
	146 0110	Left Crank Arm 170mm (6-3/4")
11	148 0200	Right Hand Fixed Cup (1.37" × 24T)
12	137 9001	Ball Retainer
13	148 0100	Bottom Bracket Spindle for Calking Type 119mm (4-11/16")
	148 0101	Bottom Bracket Spindle 116mm (4-9/16")
14	148 0300	Left Hand Adjustable Cup (1.37" × 24T)
15	137 0500	Lock Ring (1.37" × 24T)



Assembly Notes

- Assemble large gear and small gear so that teeth number signs are both facing outwards. The large gear possesses W-cut teeth so assembly position should be aligned at a point just off center to the crank.



Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key
5 mm.



SHIMANO 600 EX Road Ensemble

Model BR-6200 Caliper Brake (CS-57 Type)
Model BR-6210 Caliper Brake (CS-49 Type)
Model BL-6200 Brake Lever

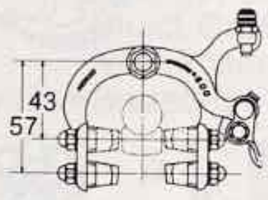
SHIMANO-600 EX
Caliper Brake

Model BR-6200 (CS-57 Type)

SPECIFICATIONS

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





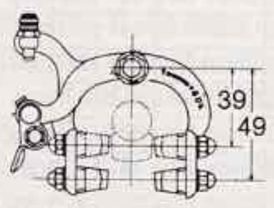
SHIMANO-600 EX
Caliper Brake

Model BR-6210 (CS-49 Type)

SPECIFICATIONS

Weight ● Front 5.3oz. (150g.)
Rear 5.2oz. (147g.)
Material ● Light Alloy • Anodized Finish
Type ● Side Pull with Quick Release and Tire Guide
New NBM Brake Shoe
Size ● 39mm.~49mm.





Model TL-WR36
Hexagon Wrench Key
6 mm.



SHIMANO-600 EX
Brake Lever

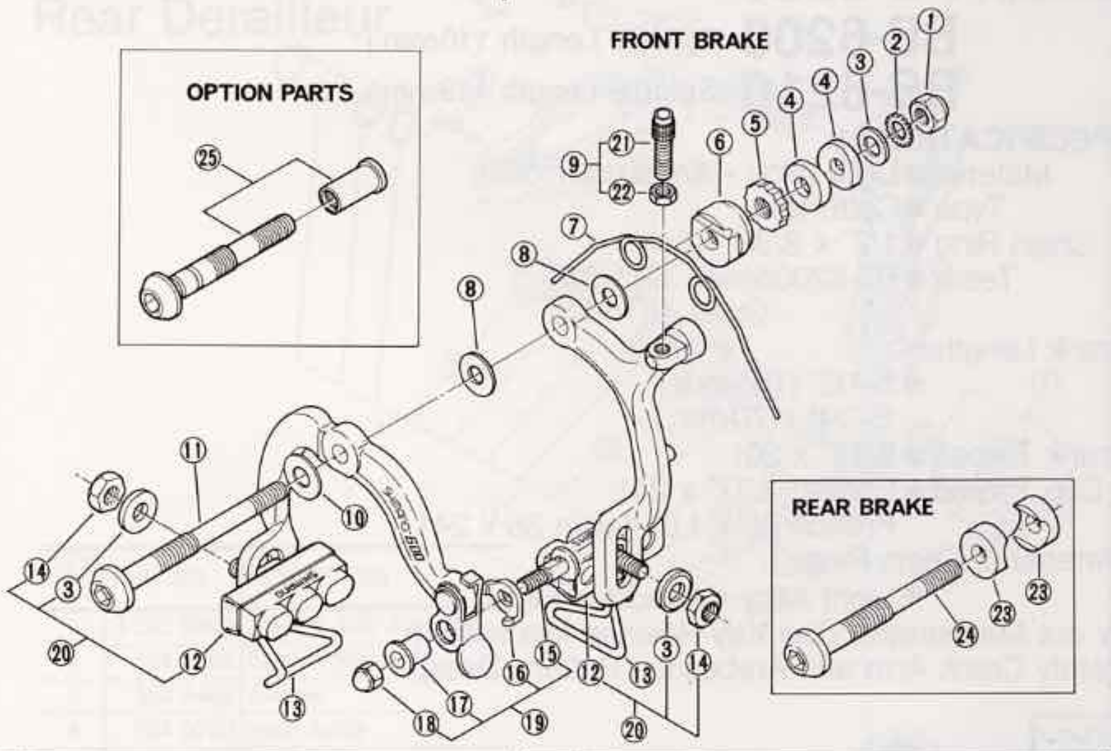
Model BL-6200

SPECIFICATIONS

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



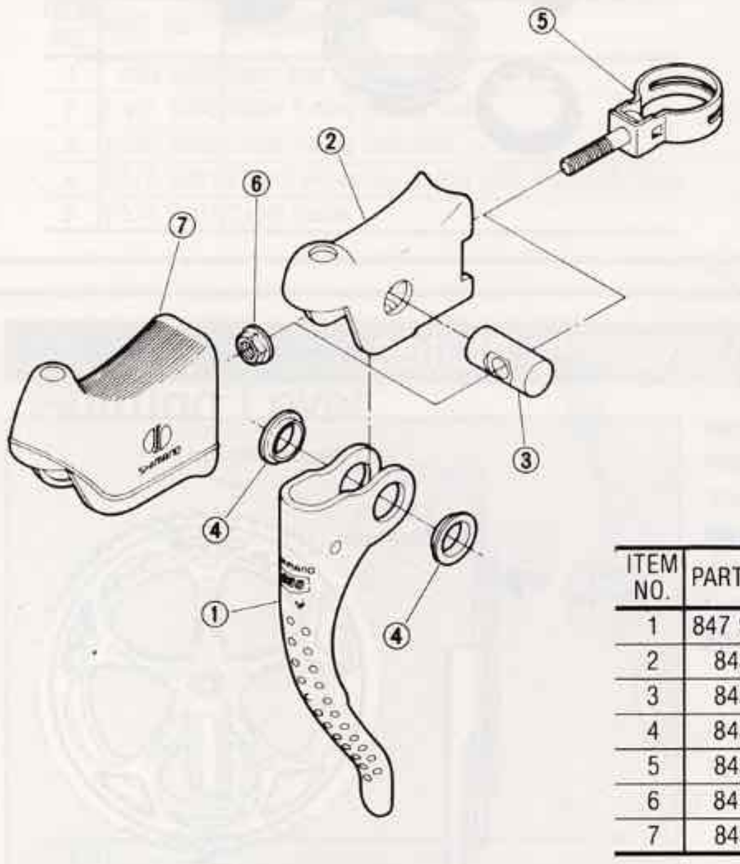
SHIMANO-600EX Caliper Brake



ITEM NO.	PART NO.	DESCRIPTION
1	863 2701	Lock Nut for Pivot Bolt
2	811 6101	Teethed Washer
3	855 1000	Washer
4	855 2700	Radius Bushing (Front)
5	855 6300	Lock Nut
6	857 0500	Pivot Nut
7	857 0700	Arm Return Spring
8	857 0600	Arm Washer 1mm
9	3-831 9043	Cable Adjusting Barrel & Lock Nut
10	855 6100	Arm Spacer 1.5mm
11	857 0300	Pivot Bolt (Front)
12	3-857 9002	Brake Shoe
13	857 1300	Tire Guide
14	855 1100	Shoe Fixing Nut

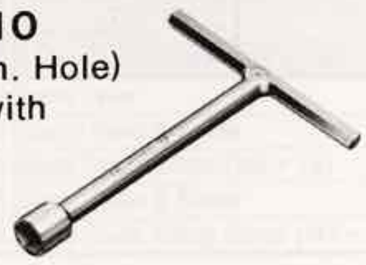
ITEM NO.	PART NO.	DESCRIPTION
15	857 1200	Cable Fixing Bolt
16	857 1100	Cable Fixing Washer
17	857 1000	Bushing
18	851 5201	Cable Fixing Nut
19	3-857 9003	Cable Fixing Bolt Assembly
20	3-857 9005	Brake Shoe Assembly
21	831 6600	Cable Adjusting Barrel
22	831 6700	Cable Adjusting Lock Nut
23	855 2600	Radius Bushing (Rear)
24	857 0400	Pivot Bolt (Rear)
25	3-855 9801	Suken Pivot Bolt & Nut 57mm (2-1/4") for Front (Option)
	3-855 9802	Sunken Pivot Bolt & Nut 40mm (1-9/16") for Rear (Option)

SHIMANO-600EX Brake Lever



ITEM NO.	PART NO.	DESCRIPTION
1	847 9001-2	Lever
2	843 0100	Lever Bracket
3	843 0500	Pull-Up Stud
4	843 0400	Bushing
5	843 9003	Clamp Assembly
6	843 0901	Pull-Up Nut
7	843 1000	Rubber Cover

Model TL-WR10
(5mm. Key x 8mm. Hole)
T-Type Wrench with Wrench key



SHIMANO 600 EX Road Ensemble

Model CN-6200 UG Chain

SHIMANO-600 EX UG Chain

Model CN-6200

SPECIFICATIONS

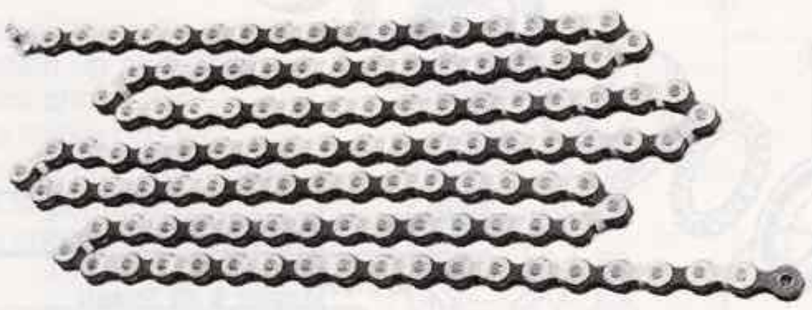
Material ● Steel

Surface Treatment
- ● Roller Link Plate/Black Finish
- ● Pin Link Plate/Satin Nickel Finish (Silver)
- ● Rivet Pin/Special Hardened Finish

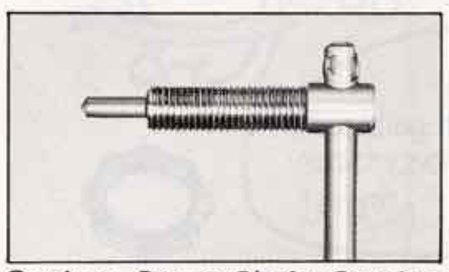
Type ● Roller Chain

Size ● 1/2" × 3/32" Chain

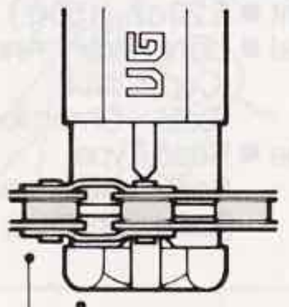
UNIGLIDE



Assembly Notes



Option: Spare Chain Cutting Arrow (Spindle)



UG Chain Cutter (Model TL-CN20)

(For Both UG Chain and Ordinary Chain)

Model TL-CN20

Chain Cutter

(For Both UG Chain and Ordinary Chain)



● Quick: Sure Gearshifting: No Need to Overshift

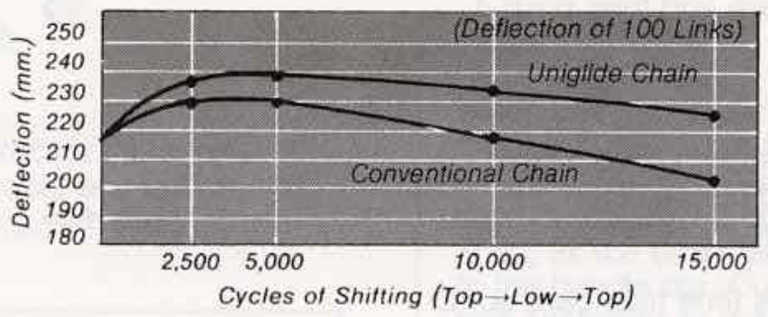
The outerplates of the Uniglide chain have been widened, making gear engagement easier and faster. It also keeps the Uniglide chain from slipping over the teeth of the desired gear, so that overshifting is completely unnecessary.

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.

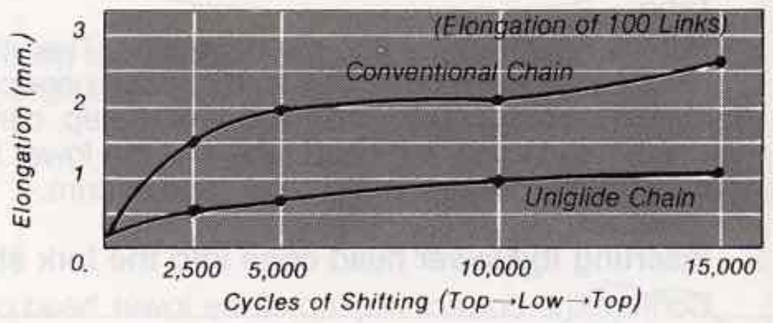
Graph. 1: Deflection of Chain After Repeated Gear Shifts



● 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



SHIMANO 600 EX Road Ensemble

Model HP-6200 Head Parts

ŞHIMANO-600 EX Head Parts

Model HP-6200

SPECIFICATIONS

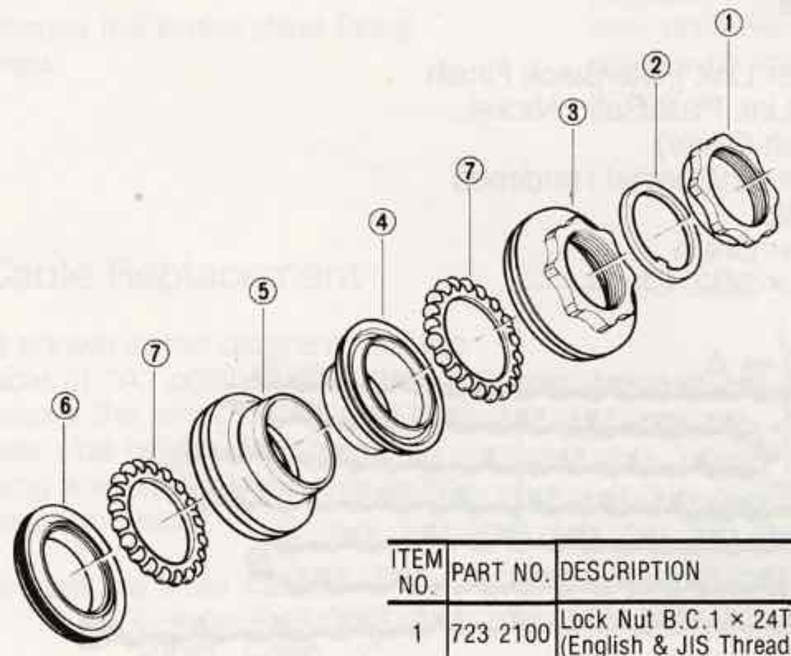
Weight ● 5.29oz. (150g.)
Material ● Light Alloy • Anodized Finish (Cup & Nut)
Steel • Chromium Finish (Cone)
Type ● Road Type
Sealed Mechanism
(Labyrinth Seal)

SEALED

LIGHT WEIGHT



SHIMANO 600EX Head Parts



ITEM NO.	PART NO.	DESCRIPTION
1	723 2100	Lock Nut B.C.1 × 24T.P.I. (English & JIS Thread)
	723 2101	Lock Nut M25 × P1.0 (French Thread)
2	723 0200	Lock Washer (English & JIS)
	723 0201	Lock Washer (French & JIS)
3	723 9011	Upper Head Cup B.C.1 × 24T.P.I (English Thread)
	723 9012	Upper Head Cup M25 × P1.0 (French Thread)
4	723 2400	Upper Head Cone 30.0 mm (1-5/32") JIS
	723 2401	Upper Head Cone 30.2 mm (1-3/16")
5	723 9013	Lower Head Cup 30.0 mm (1-5/32") JIS
	723 9014	Lower Head Cup 30.2 mm (1-3/16")
6	723 2700	Lower Head Cone 27.0 mm (1-1/16") JIS
	723 2701	Lower Head Cone 26.36 mm (1-1/32")
7	723 9009	Ball Retainer (3/16")

Assembly Notes

- Assembly ... Refer to Exploded View & Parts List

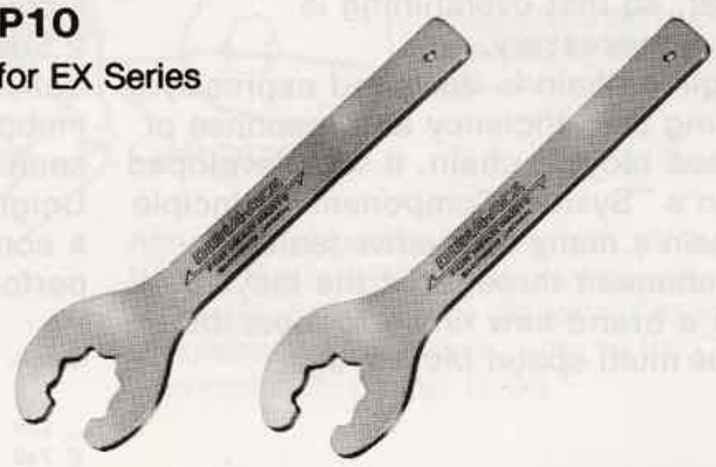
1. Inserting the upper head cone and lower head cup into the head tube.
   Put the head reamer into the head tube. Then file the edges on the head tube's inner rim. (This is to prevent unnecessary shaving of the aluminum parts during insertion.) Next step, centrally align together the upper head cone, the head tube and the lower head cup and then insert firmly into the bottom part and secure.

2. Inserting the lower head cone into the fork stem.
   Confirm the correct way up of the lower head cone and then push it firmly into the bottom part of the fork stem.

3. Assembling the fork stem to the head tube.
   i) Put sufficient grease on the upper and lower head cones, upper and lower head cups' labyrinth seal parts and ball retainer.
   ii) Check the correct position for the ball retainer and then put it on the lower head cone of the fork stem.
   iii) Insert the fork stem into the head tube. At this time take care not to damage the labyrinth seal part.
   iv) Assemble into the fork stem in the following order of ball retainer, upper head cup, lock washer and lock nut. Check the correct position of the ball retainer, also.

4. Adjustment
   Screw the upper head cup to a position where the fork stem can be turned lightly without interference.
   Next step, fix the upper head cup by use of the exclusive Shimano spanner (TL-HP10) and tighten the lock nut. Torque should be 300 ~ 400 kg.cm (260 ~ 350 in.lbs). When using a thinner head tube, the handle stem should be assembled before tightening the lock nut.

Model TL-HP10
Exclusive Tool for EX Series Head Parts



Model FC-7110
Model BB-7200

Front Chainwheel

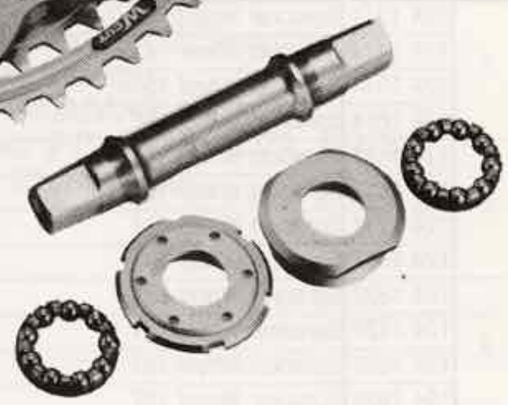
Bottom Bracket Assembly

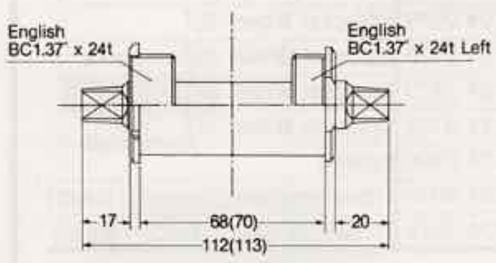
DURA-ACE Front Chainwheel
& Bottom Bracket Assembly

Model FC-7110
BB-7200

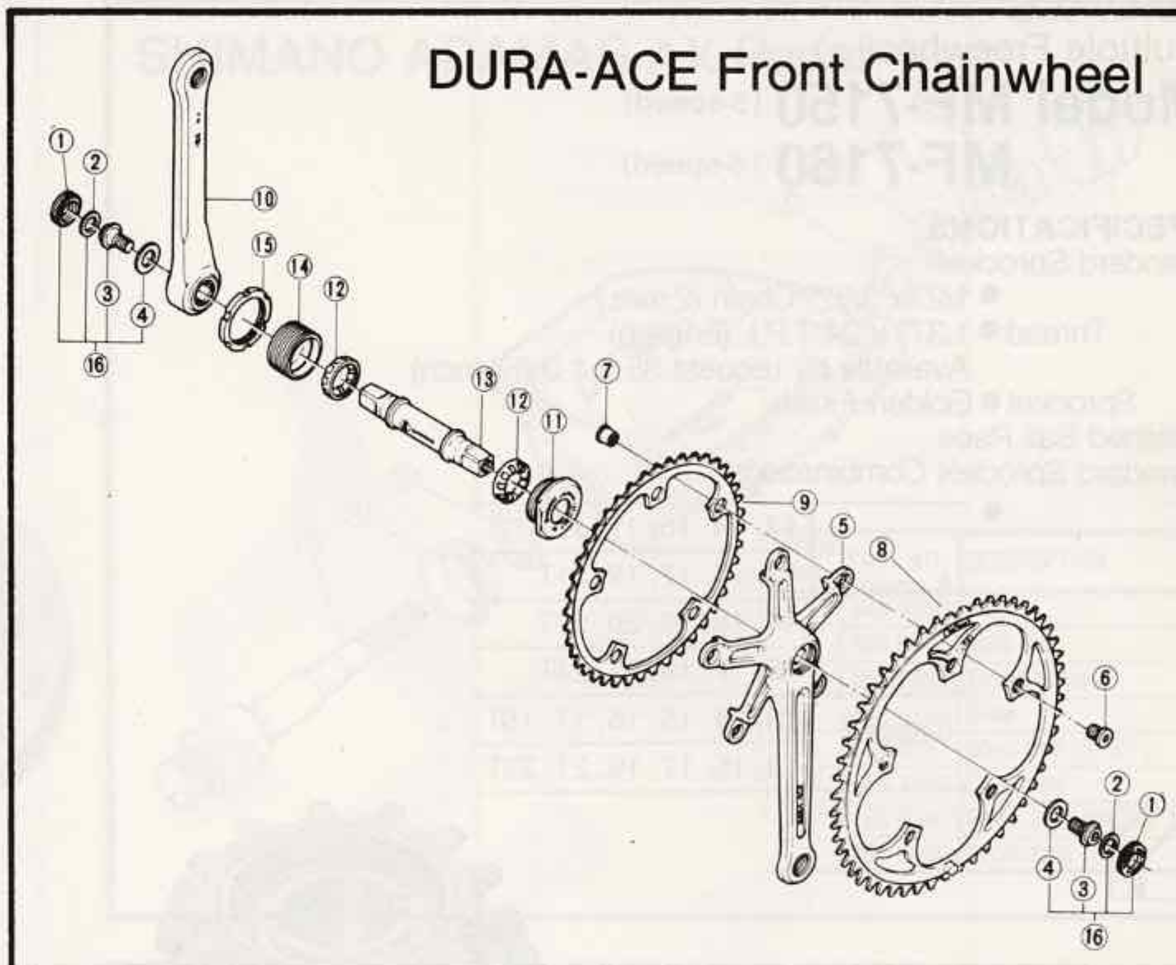
Material ● Light Alloy • Anodized Finish
Type ● Cotterless
Chain Ring ● 1/2" x 3/32" Chain
Teeth ● Inner Chain Ring 39T~45T
● Outer Chain Ring 48T~53T
Crank Lengths
● 6-1/2" (165mm.), 6-3/4" (170mm.), 6-7/8" (175mm.)
Available by request
● 6-19/32" (167.5mm.), 6-13/16" (172.5mm.)
Crank Thread ● BC9/16"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







DURA-ACE Front Chainwheel

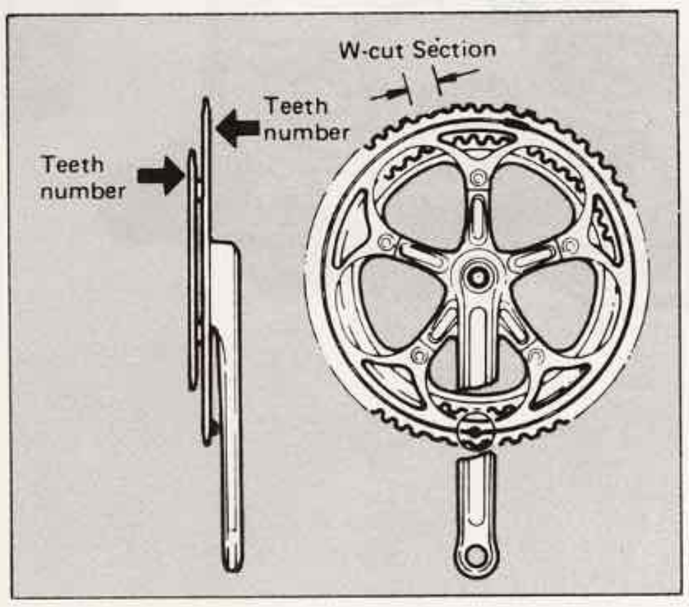


ITEM NO.	PART NO.	DESCRIPTION
1	148 0400	Crank Arm Cap
2	148 0500	Washer A
3	148 0600	Spindle Bolt
4	148 0700	Washer B
5	132 0101-1	Right Crank Arm 165mm (6-1/2") English Thread
	132 0103-1	Right Crank Arm 170mm (6-3/4") English Thread
	132 0104-1	Right Crank Arm 172.5mm (6-13/16") English Thread
	132 0105-1	Right Crank Arm 175mm (6-7/8") English Thread
	132 0121-1	Right Crank Arm 165mm (6-1/2") French Thread
	132 0123-1	Right Crank Arm 170mm (6-3/4") French Thread
	132 0124-1	Right Crank Arm 172.5mm (6-13/16") French Thread
	132 0125-1	Right Crank Arm 175mm (6-7/8") French Thread
6	132 0500	Chain Ring Fixing Bolt
7	132 0600	Chain Ring Fixing Nut
8	133 4860	Chain Ring 48T
	133 4960	Chain Ring 49T
	133 5060	Chain Ring 50T
	133 5160	Chain Ring 51T
	133 5260	Chain Ring 52T
	133 5360	Chain Ring 53T
9	132 3970	Chain Ring 39T
	132 4070	Chain Ring 40T
	132 4170	Chain Ring 41T
	132 4270	Chain Ring 42T
	132 4370	Chain Ring 43T
	132 4470	Chain Ring 44T
	132 4570	Chain Ring 45T

ITEM NO.	PART NO.	DESCRIPTION
10	134 0101-1	Left Crank Arm 165mm (6-1/2") English Thread
	134 0103-1	Left Crank Arm 170mm (6-3/4") English Thread
	134 0104-1	Left Crank Arm 172.5mm (6-13/16") English Thread
	134 0105-1	Left Crank Arm 175mm (6-7/8") English Thread
	134 0121-1	Left Crank Arm 165mm (6-1/2") French Thread
	134 0123-1	Left Crank Arm 170mm (6-3/4") French Thread
	134 0124-1	Left Crank Arm 172.5mm (6-13/16") French Thread
	134 0125-1	Left Crank Arm 175mm (6-7/8") French Thread
11	137 0200	Right Hand Fixed Cup (1.37" × 24T) English thread
	137 0210	Right Hand Fixed Cup (35 × P1) French thread
	137 0220	Right Hand Fixed Cup (36 × 24T) Italian thread
12	137 9001	Ball Retainer
13	137 0100	Bottom Bracket Spindle 112mm (4-13/32") for Bottom Bracket Length 68mm
	137 0101	Bottom Bracket Spindle 113mm (4-7/16") for Bottom Bracket Length 70mm
14	137 0400	Left Hand Adjustable Cup (1.37" × 24T) English Thread
	137 0410	Left Hand Adjustable Cup (35 × P1) French Thread
	137 0420	Left Hand Adjustable Cup (36 × 24T) Italian Thread
15	137 0500	Lock Ring (1.37" × 24T) English Thread
	137 0510	Lock Ring (35 × P1) French Tread
	137 0520	Lock Ring (36 × 24T) Italian Thread
16	148 9002	Clank Arm Fixing Bolt Nut

Assembly Notes

● Assemble large gear and small gear so that teeth number signs are both facing outwards. The large gear possesses W-cut teeth so assembly position should be aligned at a point just off center to the crank.



Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-WR35
Hexagon Wrench Key
5 mm.



Model TL-FC20
Screw Peg Spanner



Model TL-FC30
Three Spanners Set for Spindle and Head Parts





Hanger Cup Hook Bolt

SHIMANO DURA-ACE System Compo Series

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

DURA-ACE
Multiple Freewheel

Model MF-7150 (5-speed)
MF-7160 (6-speed)

SPECIFICATIONS

Standard Sprocket
- 1/2" x 3/32" Chain (2mm.)

Thread
- 1.37" x 24 T.P.I. (English)
- Available by request 35 x 1.0 (French)

Sprocket
- Golden Finish

Polished Ball Race

Standard Sprocket Combinations

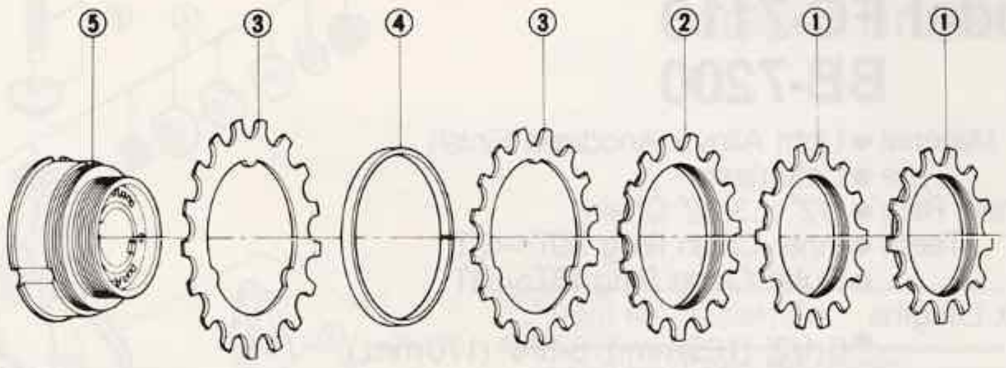
5-speed	13, 14, 15, 17, 19T
	13, 15, 17, 19, 21T
	14, 16, 18, 20, 22T
	15, 17, 19, 21, 24T
6-speed	13, 14, 15, 16, 17, 18T
	13, 15, 17, 19, 21, 23T







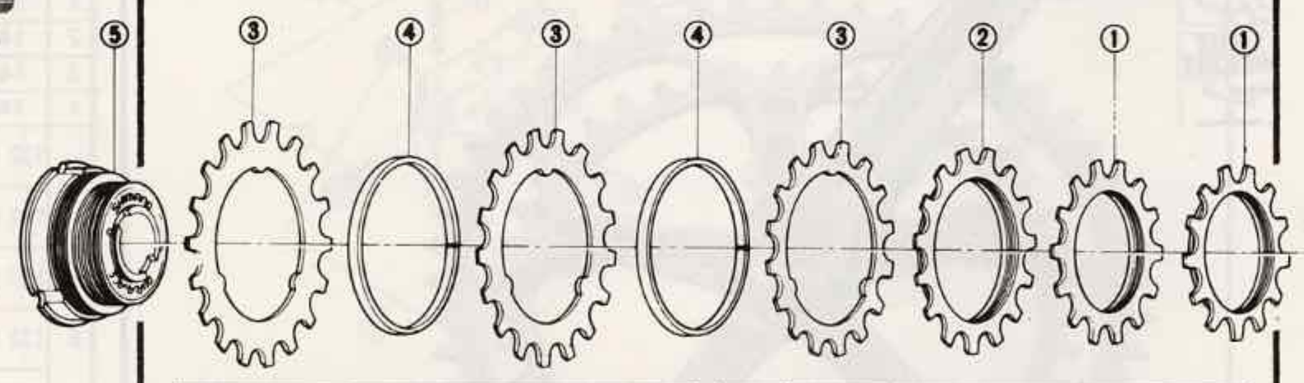
DURA-ACE Multiple Freewheel (5-Speed)



ITEM NO.	PART NO.	DESCRIPTION
1	124 1311	Sprocket Wheel 13T
	124 1414	Sprocket Wheel 14T
	124 1514	Sprocket Wheel 15T
	124 1614	Sprocket Wheel 16T
2	124 1517	Sprocket Wheel 15T
	124 1617	Sprocket Wheel 16T
	124 1717	Sprocket Wheel 17T
	124 1817	Sprocket Wheel 18T
3	124 1620	Sprocket Wheel 16T
	124 1720	Sprocket Wheel 17T
	124 1820	Sprocket Wheel 18T
	124 1920	Sprocket Wheel 19T

ITEM NO.	PART NO.	DESCRIPTION
3	124 2020	Sprocket Wheel 20T
	124 2120	Sprocket Wheel 21T
	124 2220	Sprocket Wheel 22T
	124 2320	Sprocket Wheel 23T
	124 2420	Sprocket Wheel 24T
	124 2520	Sprocket Wheel 25T
	124 2620	Sprocket Wheel 26T
	124 2823	Sprocket Wheel 28T
	124 3123	Sprocket Wheel 31T
4	124 5900	Spacer
5	124 9009	Freewheel Body (English Thread)
	124 9011	Freewheel Body (French Thread)

DURA-ACE Multiple Freewheel (6-Speed)



ITEM NO.	PART NO.	DESCRIPTION
1	124 1311	Sprocket Wheel 13T
	124 1414	Sprocket Wheel 14T
	124 1514	Sprocket Wheel 15T
	124 1614	Sprocket Wheel 16T
2	124 1517	Sprocket Wheel 15T
	124 1617	Sprocket Wheel 16T
	124 1717	Sprocket Wheel 17T
	124 1817	Sprocket Wheel 18T
3	124 1620	Sprocket Wheel 16T
	124 1720	Sprocket Wheel 17T
	124 1820	Sprocket Wheel 18T
	124 1920	Sprocket Wheel 19T

ITEM NO.	PART NO.	DESCRIPTION
3	124 2020	Sprocket Wheel 20T
	124 2120	Sprocket Wheel 21T
	124 2220	Sprocket Wheel 22T
	124 2320	Sprocket Wheel 23T
	124 2420	Sprocket Wheel 24T
	124 2520	Sprocket Wheel 25T
	124 2620	Sprocket Wheel 26T
	124 2823	Sprocket Wheel 28T
	124 3123	Sprocket Wheel 31T
4	124 5900	Spacer
5	124 9010	Freewheel Body (English Thread)
	124 9012	Freewheel Body (French Thread)

Model TL-SR20
Rear Sprocket
Removal Tool



Model TL-FW10
(5mm. Key x 8mm. Hole)
T-Type Wrench with
Wrench key



SHIMANO DURA-ACE System Compo Series

Model HB-7110 Small Flange Hubs
Model HB-7120 Large Flange Hubs

DURA-ACE
Light Alloy Hub

Model HB-7110 (Small)

SPECIFICATIONS

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

QR HUB



DURA-ACE
Light Alloy Hub

Model HB-7120 (Large)

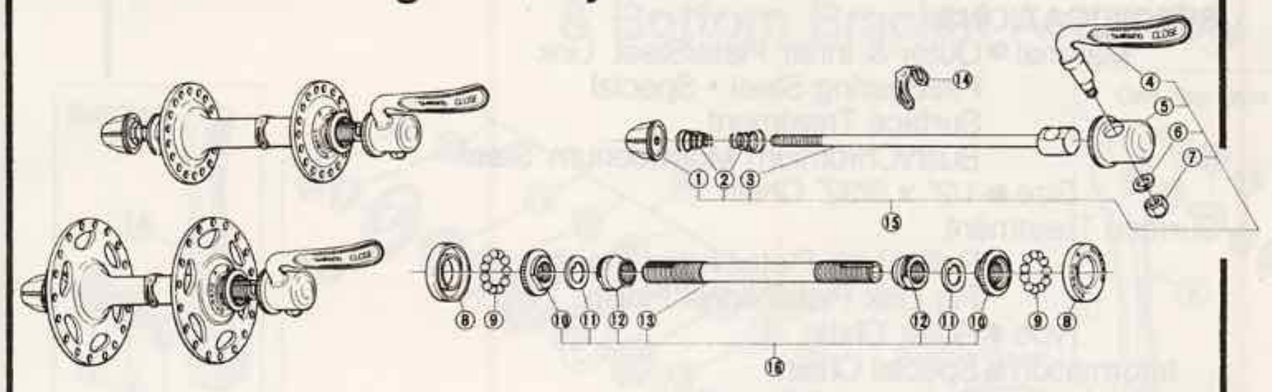
SPECIFICATIONS

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

QR HUB



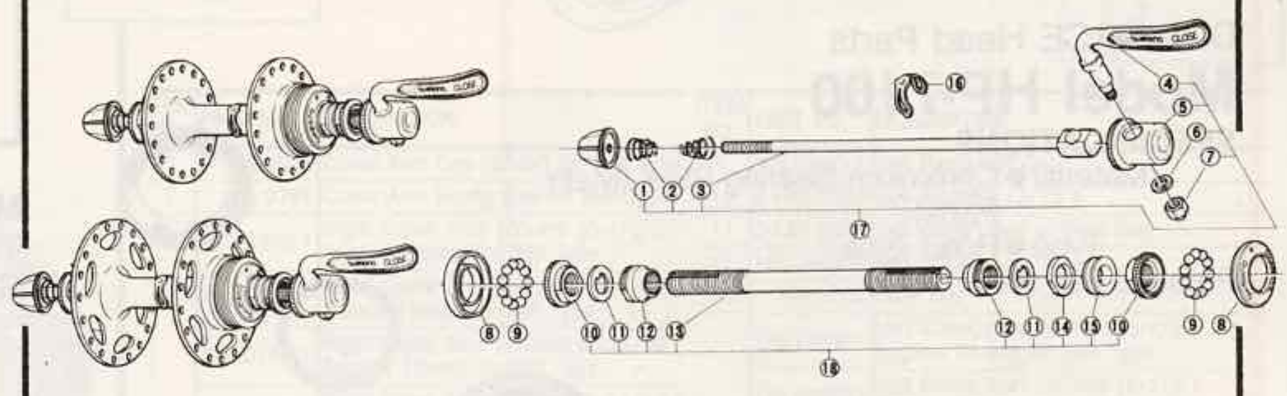
DURA-ACE Light Alloy Hub



FRONT HUB Over Lock Nut dimension : 100 mm (3-15/16")

ITEM NO.	PART NO.	DESCRIPTION
1	233 9001	Nut for Skewer
2	233 2100	Volute Spring
3	233 0800-1	Skewer 129 mm (5-1/10")
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0700	Spring Washer
7	233 0600	Cap Nut
8	233 1400	Dust Cap

ITEM NO.	PART NO.	DESCRIPTION
9	000 0125	Steel Ball (3/16")
10	233 1700	Lock Nut
11	233 1600	Key Washer
12	233 1500	Cone
13	233 1800	Hub Axle M9 × 108 mm (M9 × 4-1/4")
14	233 1200	Oil Cap
15	233 9002-2	Complete Quick Release
16	233 9003	Complete Axle



REAR HUB Over Lock Nut Dimension :
5-Speed 120 mm (4-23/32"), 6-Speed 126 mm (4-32/33")

ITEM NO.	PART NO.	DESCRIPTION
1	233 9001	Nut for Skewer
2	233 2100	Volute Spring
3	243 0800	Skewer for 5-Speed 153 mm (6")
	243 0801	Skewer for 6-Speed 159 mm (6-1/4")
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0700	Spring Washer
7	233 0600	Cap Nut
8	243 1400	Dust Cap
9	000 0135	Steel Ball (1/4")
10	243 1700	Lock Nut
11	243 1600	Key Washer
12	243 1500	Cone
13	243 2000	Hub Axle for 5-Speed M10 × 131 mm (M10 × 5-5/32")
	243 2001	Hub Axle for 6-Speed M10 × 137 mm (M10 × 5-5/5")
14	243 1800	Lock Nut
15	243 1900	Specer for 5-Speed 4.5 mm (3/16")
	243 1901	Specer for 6-Speed 10.5 mm (13/32")
16	233 1200	Oil Cap
17	243 9002-1	Complete Quick Release for 5-Speed
	243 9003-1	Complete Quick Release for 6-Speed
18	243 9004	Complete Axle for 5-Speed
	243 9005	Complete Axle for 6-Speed

Model TL-HS10

Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



SHIMANO DURA-ACE System Compo Series

Model CN-7100 UG Chain
Model HP-7100 Head Parts

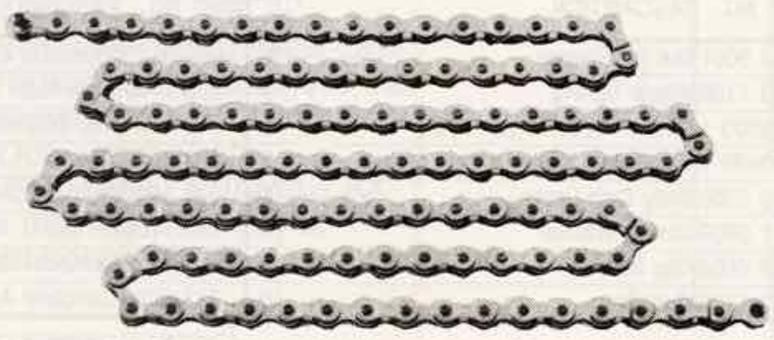
DURA-ACE UG Chain

Model CN-7100

SPECIFICATIONS

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

UNIGLIDE



DURA-ACE Head Parts

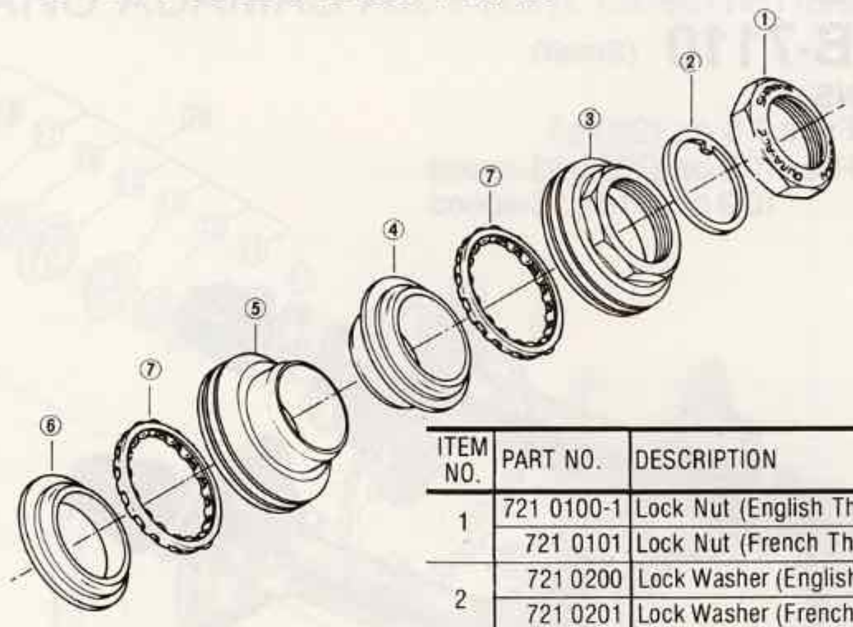
Model HP-7100

SPECIFICATIONS

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

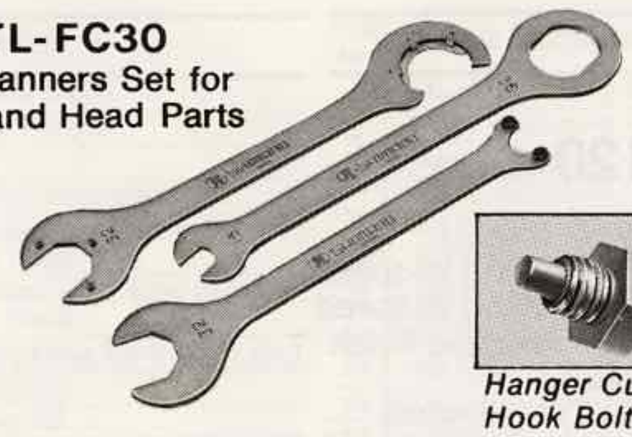


DURA-ACE Head Parts



ITEM NO.	PART NO.	DESCRIPTION
1	721 0100-1	Lock Nut (English Thread)
	721 0101	Lock Nut (French Thread)
2	721 0200	Lock Washer (English Thread)
	721 0201	Lock Washer (French Thread)
3	721 0300-1	Adjusting Cup (English Thread)
	721 0301	Adjusting Cup (French Thread)
	721 0310	Adjusting Cup (English Thread) (Black)
	721 0311	Adjusting Cup (French Thread) (Black)
4	721 0400	Upper Stationary Cone
5	721 0500-1	Lower Stationary Cone
	721 0510	Lower Stationary Cone (Black)
6	721 0600	Crown Cone
7	721 0700	Ball Retainer 4.5 mm (3/16")

Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Hanger Cup Hook Bolt

Model TL-CN20
Chain Cutter (For Both UG Chain and Ordinary Chain)



Model RD-6100 Rear Derailleur (Short Cage Type)
Model RD-6101 Rear Derailleur (Long Cage Type)
Model FD-6100 Front Derailleur
Model SL-6100 Shifting Lever

SHIMANO-600 Rear Derailleur

Model RD-6100 (Short Cage Type)
RD-6101 (Long Cage Type)

SPECIFICATIONS

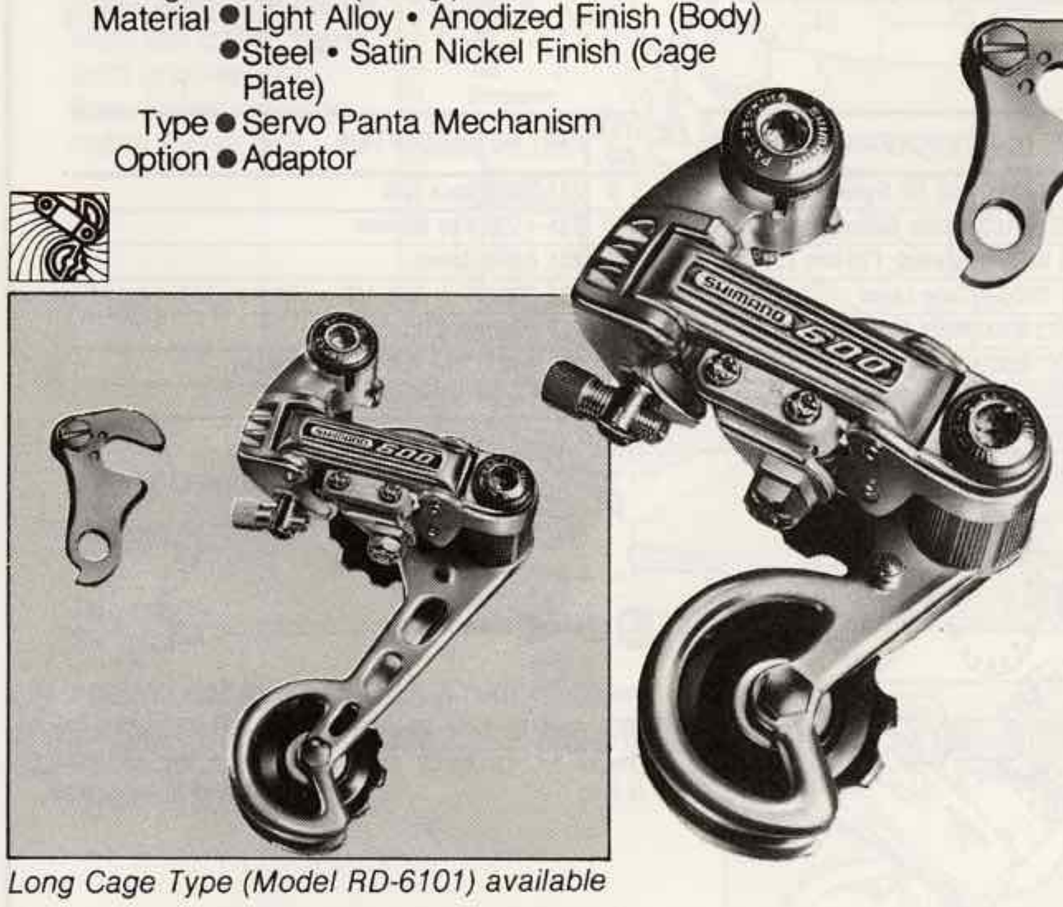
Capacity
- Front Difference/13 Teeth or Less
- Rear Largest Sprocket/28 Teeth or Less
  Total of Front & Rear Sprocket Difference/ 28 Teeth or Less

Weight
- 8.3 oz. (235 g.)

Material
- Light Alloy • Anodized Finish (Body)
- Steel • Satin Nickel Finish (Cage Plate)

Type
- Servo Panta Mechanism

Option
- Adaptor



Long Cage Type (Model RD-6101) available

SHIMANO-600 Front Derailleur

Model FD-6100

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



SHIMANO-600 Shifting Lever

Model SL-6100

SPECIFICATIONS

Weight
- 3.1 oz. (88g.)

Material
- Light Alloy

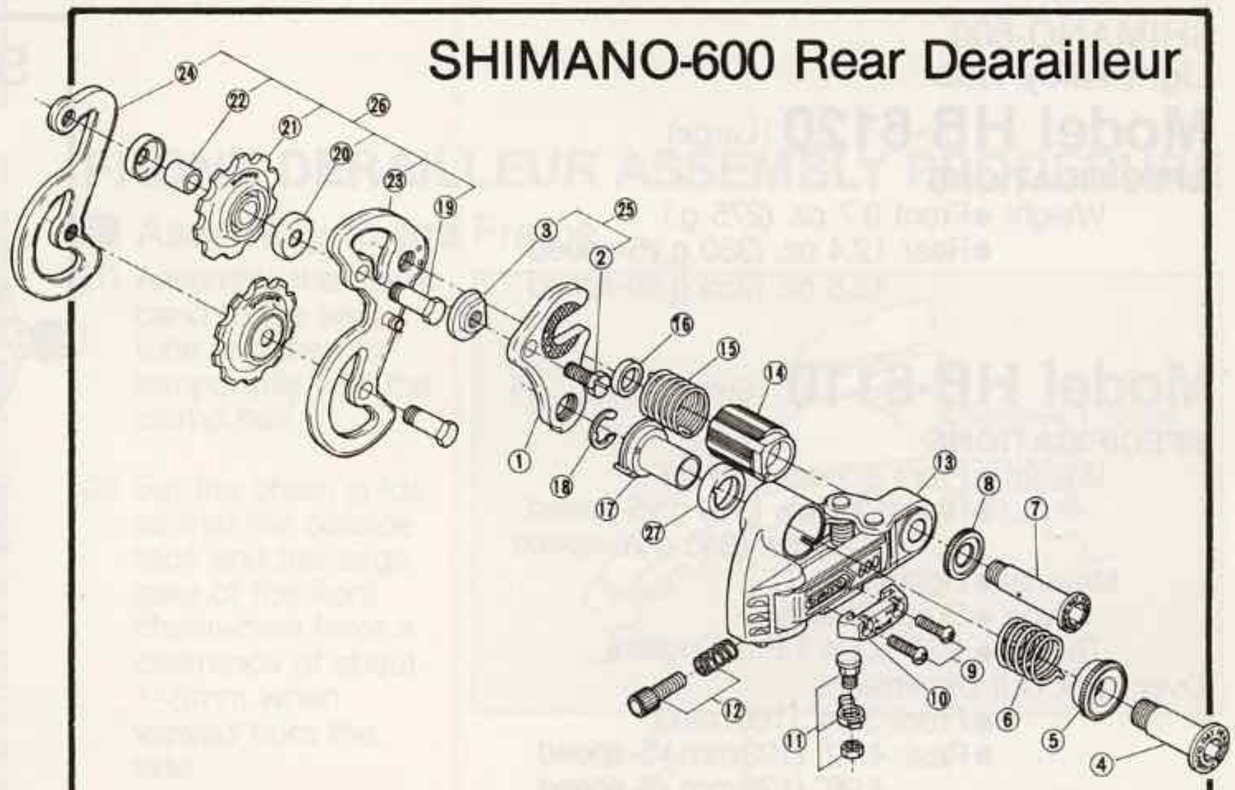
Type
- Friction Type

Attachment Position
- Down Tube

Lever Clamp Diameter
- 1-1/8"



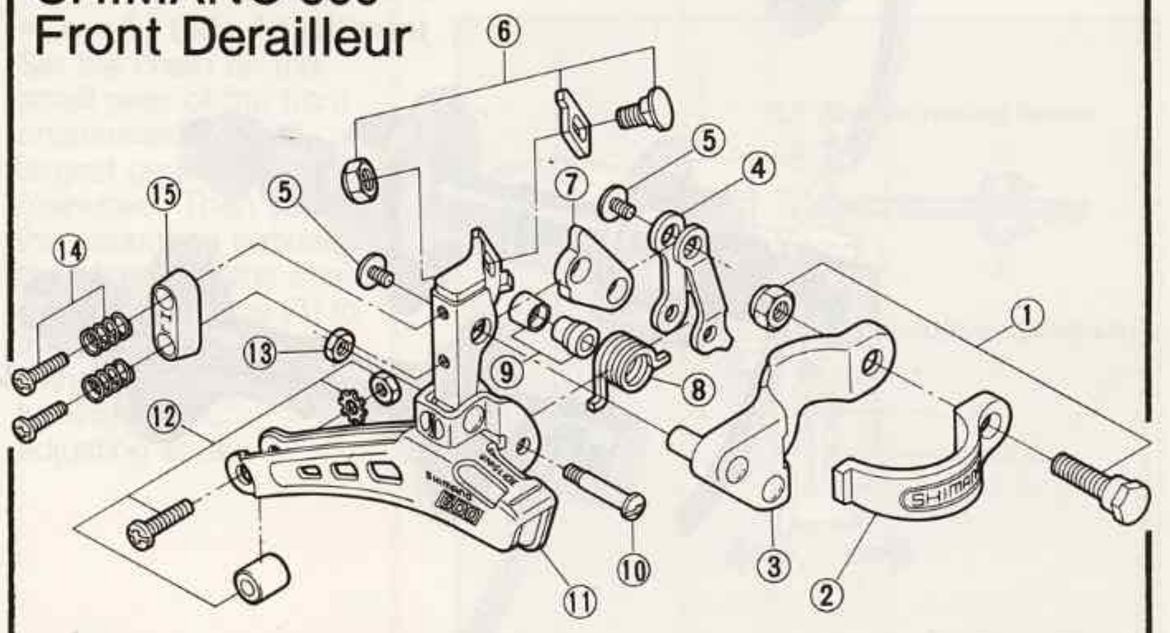
SHIMANO-600 Rear Dearailleur



ITEM NO.	PART NO.	DESCRIPTION
1	541 2701	Adapter
2	000 1104-1	Adapter Screw
3	511 3500-1	Adapter Nut
4	541 0700-1	Adapter Mounting Bolt
5	541 2201	Adapter Mounting Collar
6	528 1100	B-Tension Spring
7	541 0800-1	Plate Mounting Bolt
8	541 2101	Plate Mounting Collar
9	542 0500	Adjusting Screw
10	541 1901	Adjusting Plate
11	541 9001	Cable Fixing Bolt Set
12	541 9002	Cable Adjusting Barrel Set
13	542 9003	Mechanism Assembly
14	541 2601	Spring Cover

ITEM NO.	PART NO.	DESCRIPTION
15	541 0900	P-Tension Spring
16	541 2500	Plate Bushing
17	541 9004-1	Adapter Bushing
18	528 1200	Stop Ring
19	511 2600-1	Pulley Bolt
20	511 2700-1	Pulley Cap
21	521 3100	Pulley
22	511 2900	Pulley Bushing
23	542 9004	Inner Cage Plate
24	541 0602	Outer Cage Plate
25	525 9069	Adapter Screw & Nut
26	542 9005	Pulley Plate Assembly
27	541 3500	Sleeve

SHIMANO-600 Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	586 9011	Clamp Bolt w/Nut
2	586 2100	Clamp (1-1/8")
3	586 9012	Mounting Plate (1-1/8") w/Outer Stopper
	586 9014	Mounting Plate (1-1/8")
4	582 3301	L.H. Link
5	586 0400	Link Fixing Bolt
6	587 9003	Cable Fixing Bolt Assembly
7	582 3501	Plate

ITEM NO.	PART NO.	DESCRIPTION
8	582 3800	Return Spring
9	582 9039	Sleeve A & B
10	582 3903	Axle Bolt
11	586 9013	Front Mechanism Assembly
12	586 9010	Chain Guide Bushing Set
13	581 2001	Nut
14	587 9004	Adjust Bolt w/Spring
15	582 2901	Guard for Adjusting Bolt

Model HB-6120 Light Alloy Hub (Large)
Model HB-6110 Light Alloy Hub (Small)

SHIMANO-600
Light Alloy Hub

Model HB-6120 (Large)

SPECIFICATIONS

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

Model HB-6110 (Small)

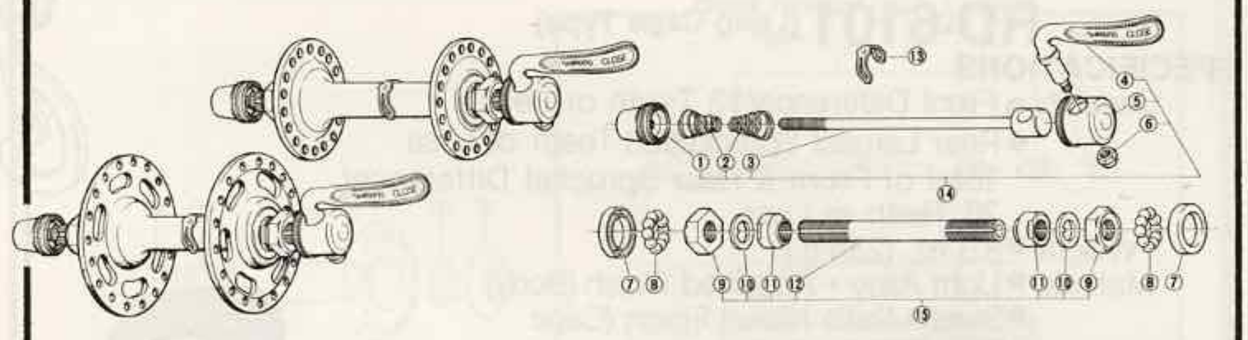
SPECIFICATIONS

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

QR HUB



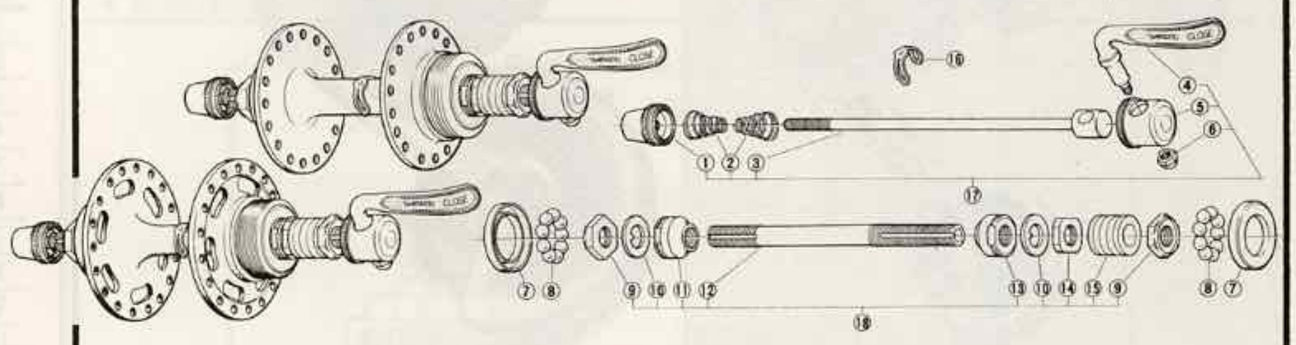
SHIMANO-600 Light Alloy Hub



ITEM NO.	PART NO.	DESCRIPTION
1	231 1000-2	Nut for Skewer
2	231 1100	Volute Spring
3	233 0800-1	Skewer 129mm (5-1/10")
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0800	Cap Nut
7	231 1300	Dust Cap
8	000 0121	Steel Ball (3/16")

ITEM NO.	PART NO.	DESCRIPTION
9	231 2302	Lock Nut
10	231 1500	Key Washer
11	231 0400	Come
12	233 1800	Hub Axle M9 × 108mm (M9 × 4-1/4")
13	217 0500	Oil Cap
14	217 9003	Complete Quick Release
15	217 9002	Complete Axle

FRONT HUB Over Lock Nut Dimension :
100mm (3-15/16")



ITEM NO.	PART NO.	DESCRIPTION
1	231 1000-2	Nut for Skewer
2	231 1100	Volute Spring
3	243 0800	Skewer for 5-Speed 153mm (6")
	243 0801	Skewer for 6-Speed 159mm (6-1/4")
4	231 0600-4	Cam Lever
5	233 0300	Body Cam Lever
6	231 0800	Cap Nut
7	241 0600	Dust Cap
8	000 0131	Steel Ball (1/4")
9	220 0501	Lock Nut
10	241 0700-1	Key Washer
11	220 0820-2	Left Hand Cone 15mm (19/32")

ITEM NO.	PART NO.	DESCRIPTION
12	243 2000	Hub Axle for 5-Speed M10 × 131mm (M10 × 5-5/32")
	243 2001	Hub Axle for 6-Speed M10 × 137mm (M10 × 5-5/5")
13	220 0800-2	Right Hand Cone 13mm (1/2")
14	200 0400-1	Lock Nut
15	243 1901	Spacer for 5-Speed
	243 1900	Spacer for 6-Speed
16	217 0500	Oil Cap
17	227 9003	Complete Quick Release for 5-Speed
	227 9006	Complete Quick Release for 6-Speed
18	227 9002	Complete Axle for 5-Speed
	227 9007	Complete Axle for 6-Speed

REAR HUB Over Lock Nut Dimension :
5-Speed 120mm (4-23/32"), 6-Speed 126mm (4-32/33")

Model MF-6150 Multiple Freewheel (Black/5-speed)
Model MF-6160 Multiple Freewheel (Black/6-speed)
Model MF-6151 Multiple Freewheel (Silver/5-speed)
Model MF-6161 Multiple Freewheel (Silver/6-speed)

SHIMANO-600 UG Multiple Freewheel

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

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

SPECIFICATIONS

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

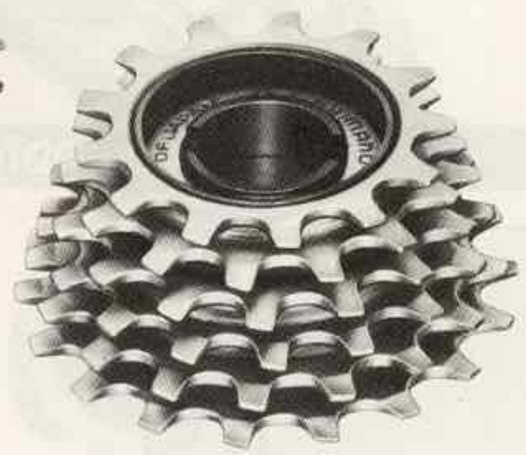
Standard Sprocket Combinations

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

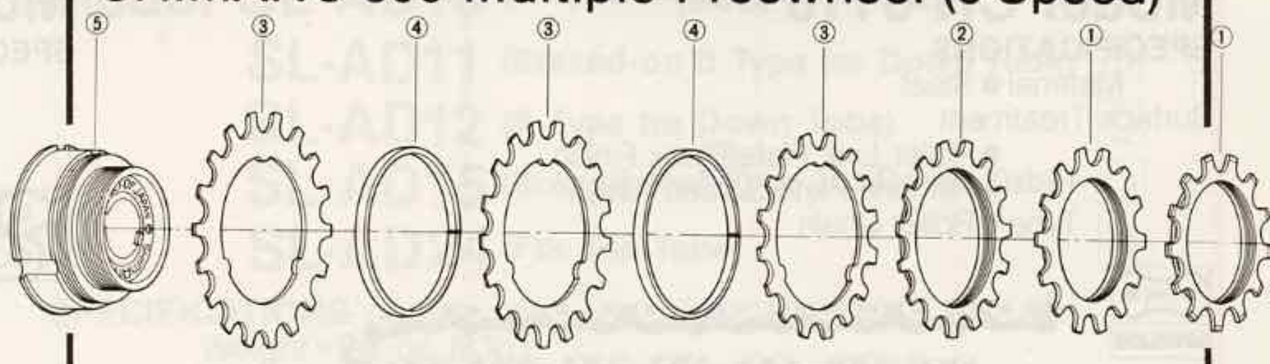


Model MF-6150

Model MF-6161



SHIMANO-600 Multiple Freewheel (6-Speed)



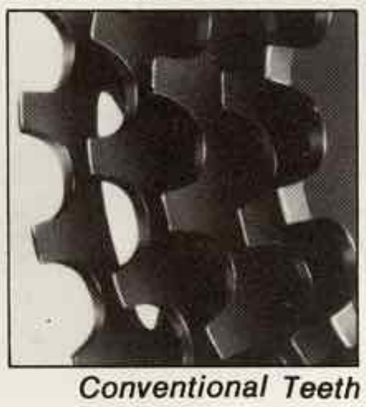
ITEM NO.	PART NO.	DESCRIPTION
1	124 1312	Sprocket Wheel 13T
	124 1415	Sprocket Wheel 14T
	124 1515	Sprocket Wheel 15T
	124 1615	Sprocket Wheel 16T
2	124 1518	Sprocket Wheel 15T
	124 1618	Sprocket Wheel 16T
	124 1718	Sprocket Wheel 17T
	124 1818	Sprocket Wheel 18T
3	124 1621	Sprocket Wheel 16T
	124 1721	Sprocket Wheel 17T
	124 1821	Sprocket Wheel 18T
	124 1921	Sprocket Wheel 19T
3	124 2021	Sprocket Wheel 20T
	124 2121	Sprocket Wheel 21T
	124 2221	Sprocket Wheel 22T
	124 2321	Sprocket Wheel 23T
	124 2421	Sprocket Wheel 24T
	124 2521	Sprocket Wheel 25T
	124 2621	Sprocket Wheel 26T
	124 2821	Sprocket Wheel 28T
	124 3121	Sprocket Wheel 31T
4	124 5901	Spacer
5	125 9003	Outer Assembly

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.

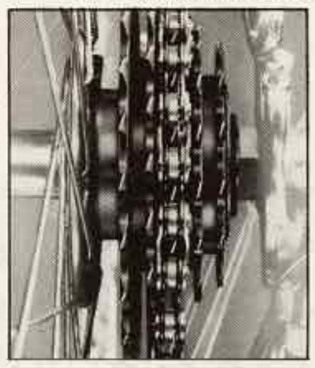


UG Teeth

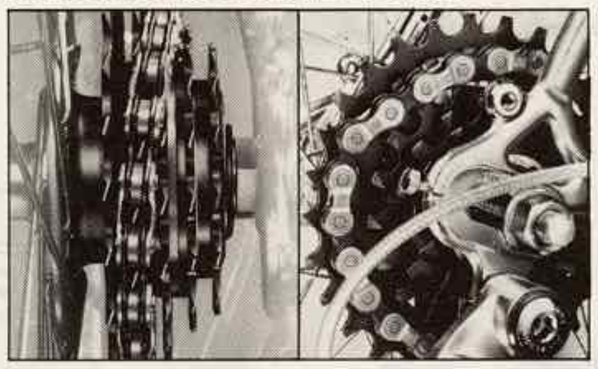


Conventional Teeth

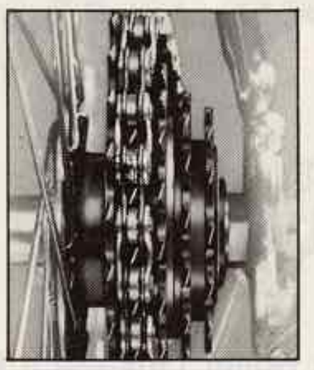
- **Gearshift with a UG Freewheel (UG Chain Is Used)**



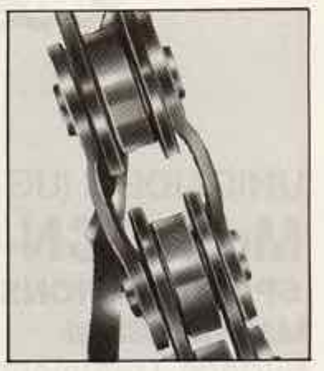
1. The chain moves smoothly off the sprocket teeth and quickly moves onto the adjacent gear.



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.

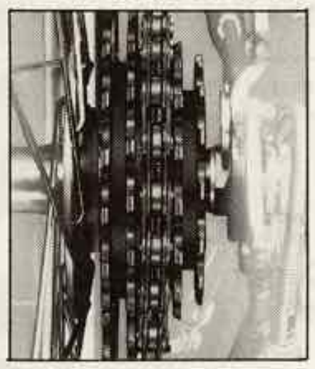


3. A smooth and natural gearshift is completed without undue stress on the chain.

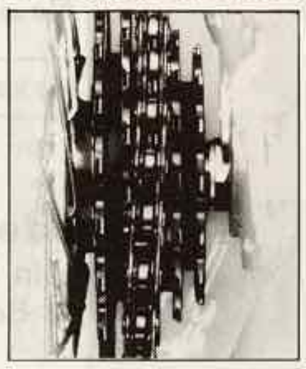


*When shifting from low to high gear, the teeth move in at an angle to the chain and engage the chain links securely.

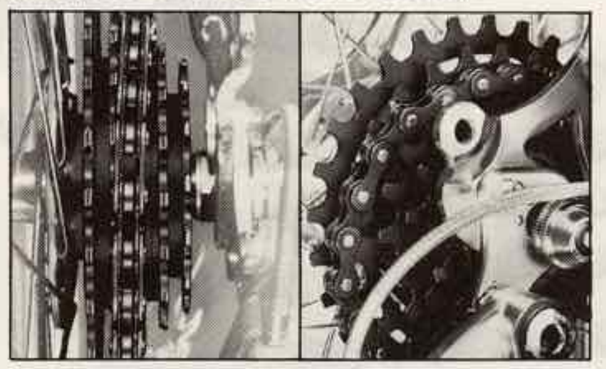
- **Gearshift with a Conventional Freewheel (A Conventional Chain Is Used)**



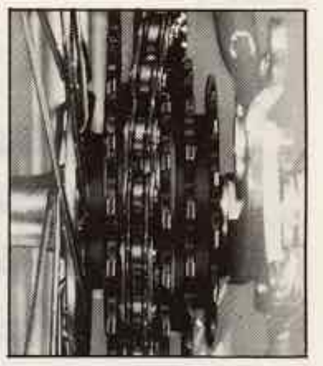
1. The chainpins hit the sprocket of the adjacent larger gear.



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.

SHIMANO 600 System Compo Series

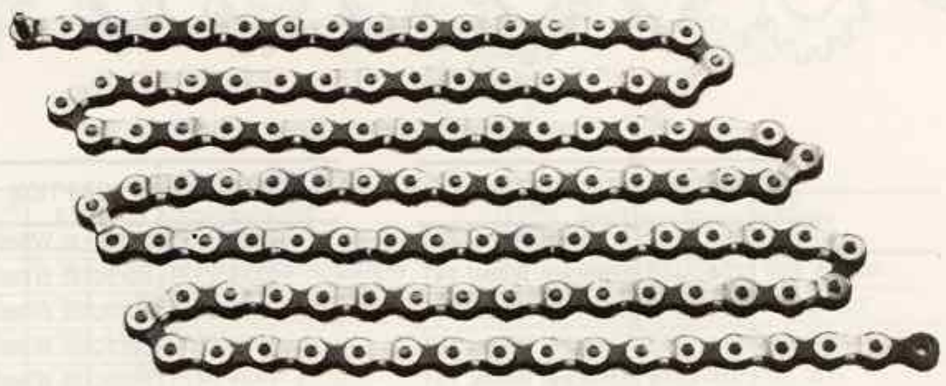
Model CN-6110 UG Chain (Gold)
Model CN-6120 UG Chain (Silver)
Model CN-UG20 UNIGLIDE-II
Model CN-6130 Chine Link Lock

SHIMANO-600 UG Chain

Model CN-6110 (Gold)

SPECIFICATIONS

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

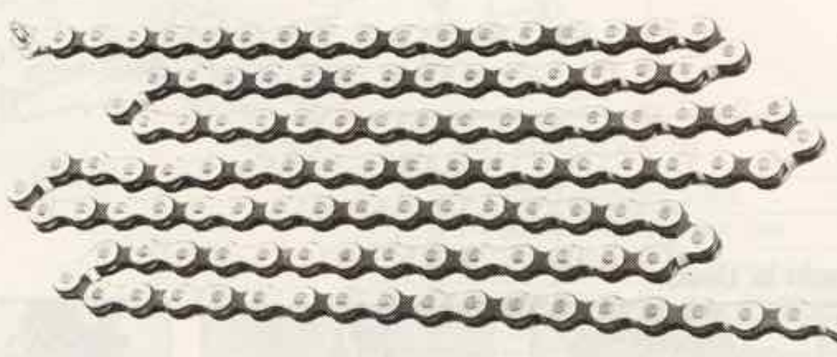


SHIMANO-600 UG Chain

Model CN-6120 (Silver)

SPECIFICATIONS

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

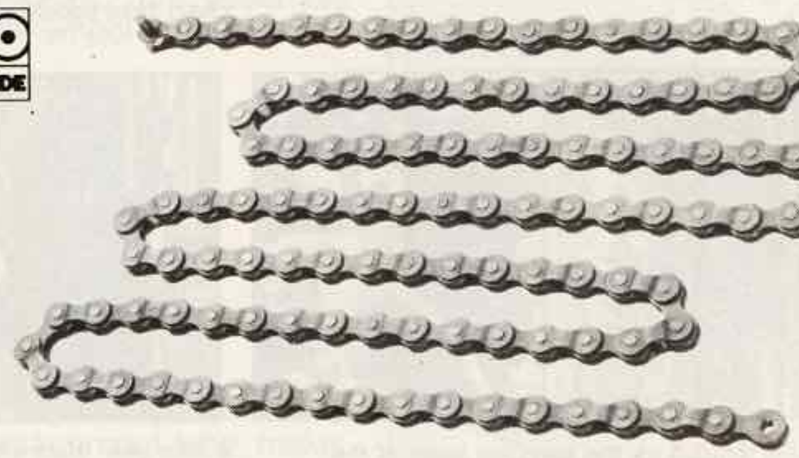


UNIGLIDE-II (UG-II)

Model CN-UG20

SPECIFICATIONS

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



Chain Link Lock

Model CN-6130

SPECIFICATIONS

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

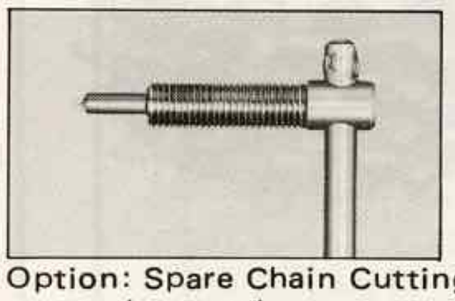




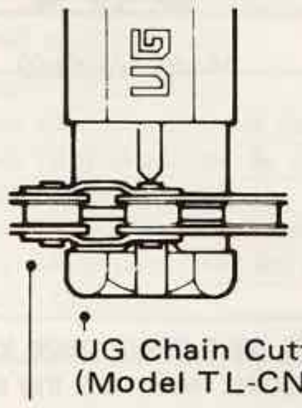
Without using special tools, the LINK LOCK chain can be easily cut and removed, thanks to the revolutionary pin-removing device incorporated within the chain itself.



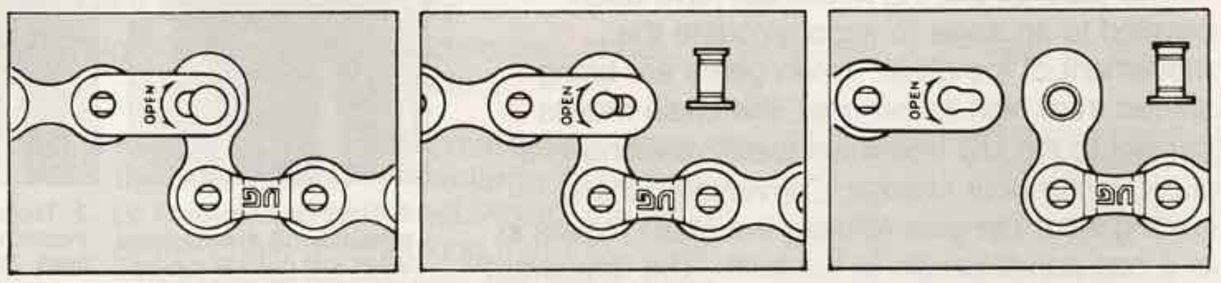
Assembly Notes



Option: Spare Chain Cutting Arrow (Spindle)



UG Chain Cutter
(Model TL-CN20)
(For Both UG Chain and Ordinary Chain)



● Set the Link Lock at 90 degrees, as before, and slide the inner plate along so that the link pin is moved toward the large hole.
Now the link pin is easily removed and the chain is disassembled.

Make sure that the link pin is not lost on removal.

Model TL-CN20
Chain Cutter
(For Both UG Chain and Ordinary Chain)



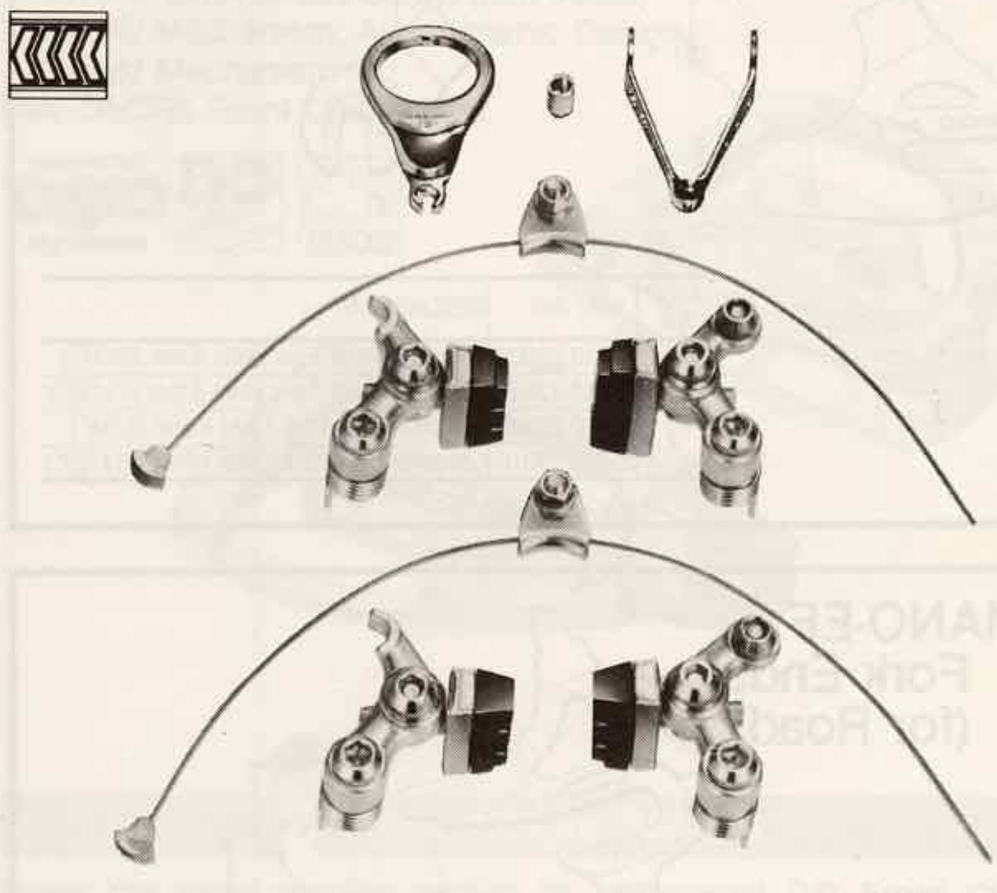
Model BR-6102 Cantilever Brake
Model SL-BC10 Shifting Lever

SHIMANO-600
Cantilever Brake

Model BR-6102

SPECIFICATIONS

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

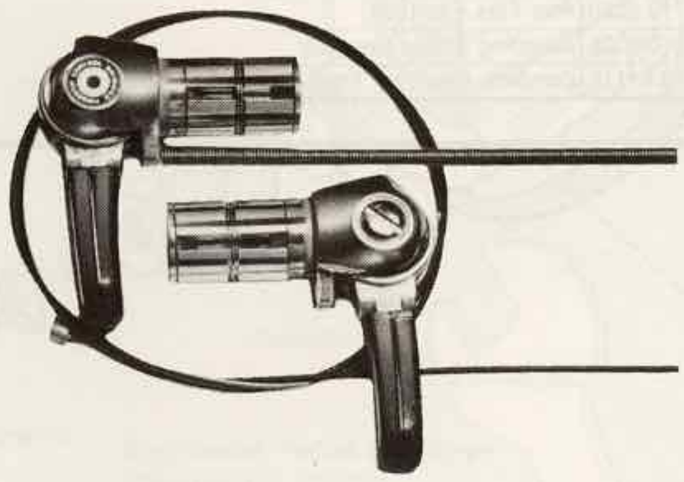


SHIMANO-600 Shifting Lever

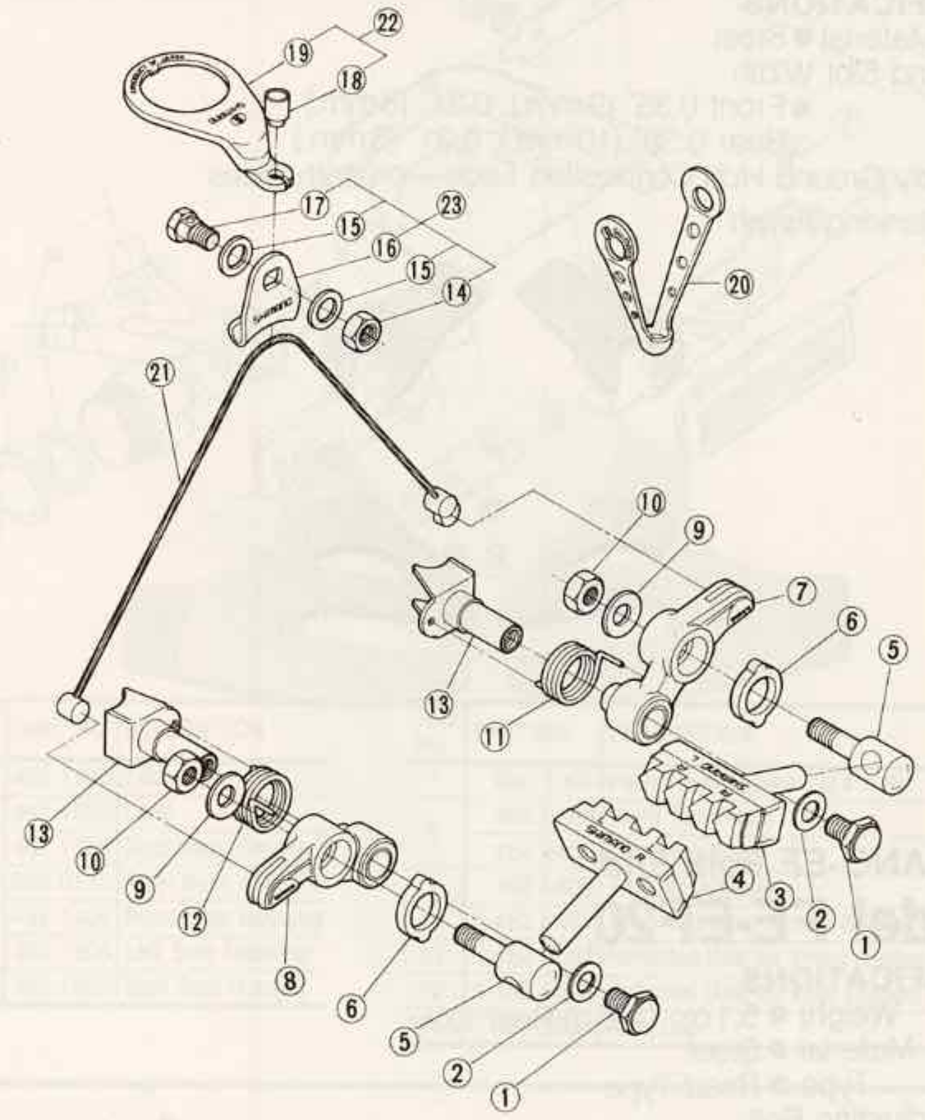
Model SL-BC10

SPECIFICATIONS

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



SHIMANO-600 Cantilever Brake



ITEM NO.	PART NO.	DESCRIPTION
1	861 0900	Arm Fixing BOlt
2	831 0600	Washer
3	861 9006	Brake Shoe Assembly (Left)
4	861 9007	Brake Shoe Assembly (Right)
5	861 0300	Brake Shoe Fixing Eye Bolt)
6	861 0200	Brake Shoe Adjusting Washer)
7	861 9003	L.H. Arm
8	861 9002	R.H. Arm
9	861 0400	Dished Washer
10	861 0600	Brake Shoe Fixing Nut
11	861 1001	R.H. Return Spring
12	861 1000	L.H. Return Spring
13	861 9004	Brake Mounting Shaft (Front)
	861 9005	Brake Mounting Shaft (Rear)
14	831 0700	Cable Fixing Nut
15	831 5400	Cable Fixing Washer
16	831 5200	Cable Carrier
17	831 5300	Cable Fixing Bolt
18	861 1700	Outer Stopper
19	861 1500	Front Cable Hanger
20	861 1600	Rear Cable Hanger
21	861 1100	Center Cable
22	861 9001	F. Hanger & Outer Stopper
23	831 9010	Cable Carrier Set

SHIMANO fork end

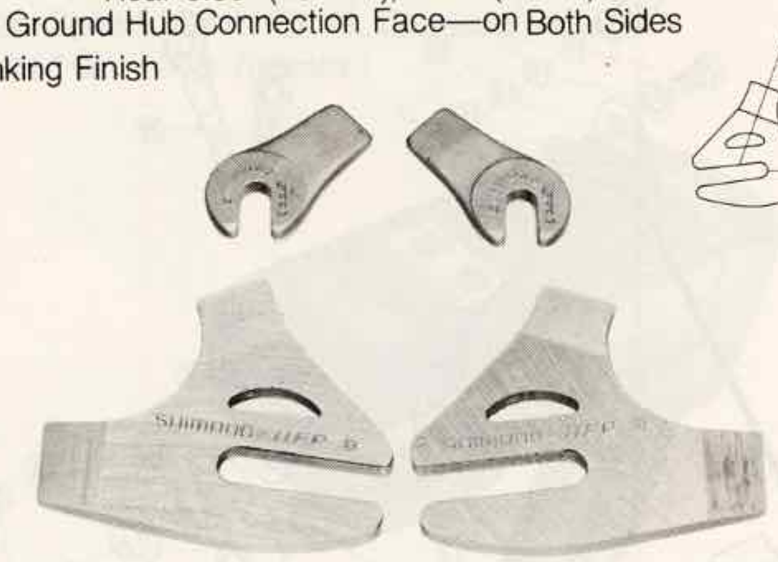
Model FE-UF10 UFP Fork Ends
Model FE-EF20 EF Fork Ends

SHIMANO-UFP Fork Ends

Model FE-UF10

SPECIFICATIONS

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



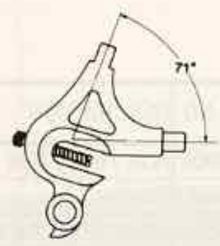
SHIMANO-EF Fork End

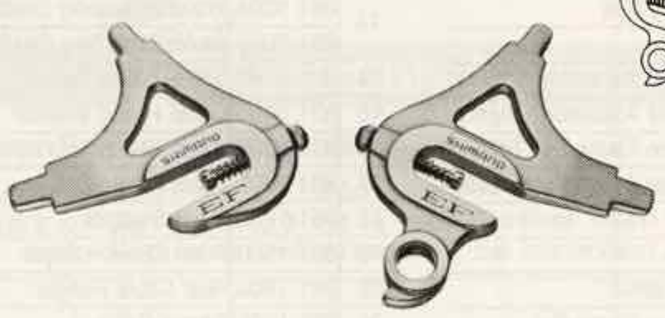
Model FE-EF20

SPECIFICATIQNS

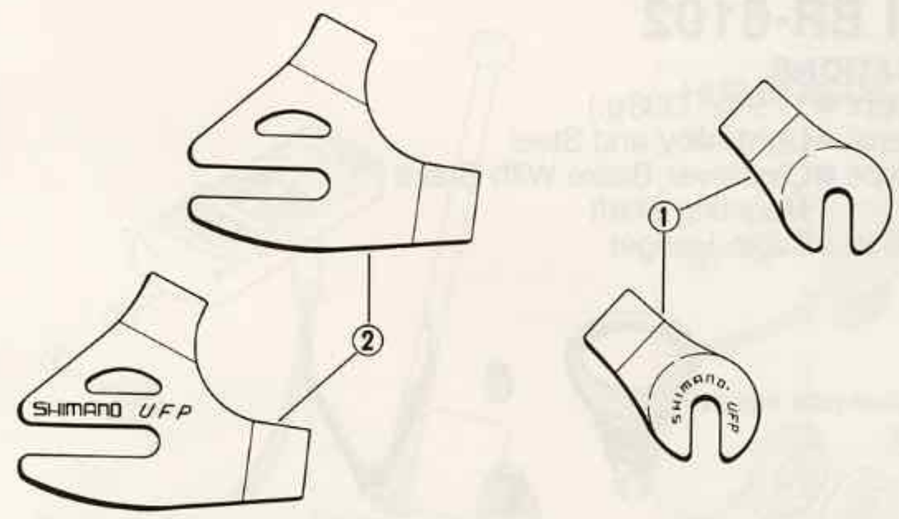
Weight ● 5.1 oz. (145g)/Rear Only
Material ● Steel
Type ● Road Type
With Adjusting Bolt
Specially Ground Hub Connection Face

LIGHT WEIGHT



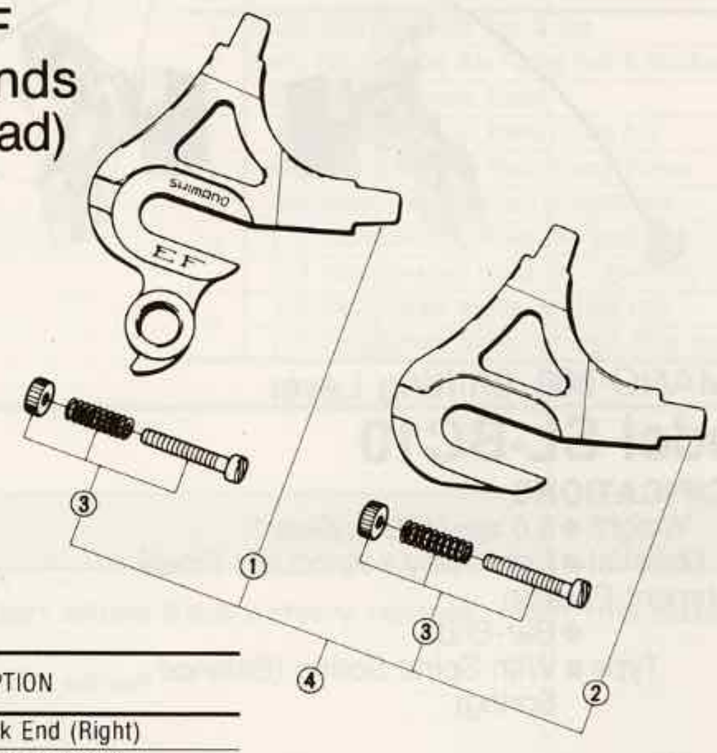


SHIMANO-UFP Fork Ends (for Track)



ITEM NO.	PART NO.	DESCRIPTION
1	2-710 22000	Complete Front Fork Ends 8mm (5/16")
	2-710 22010	Complete Front Fork Ends 9mm (11/32")
2	2-710 23000	Complete Rear Fork Ends 8mm (5/16")
	2-710 23010	Complete Rear Fork Ends 10mm (11/32")

SHIMANO-EF Fork Ends (for Road)



ITEM NO.	PART NO.	DESCRIPTION
1	710 5100	Rear Fork End (Right)
2	710 5200	Rear Fork End (Left)
3	710 9008	Adjusting Screw Assembly
4	2-710 41110	Complete Rear Fork Ends (71°)

SHIMANO
fork
end

Model FE-PR20 PR Fork Ends
Model FE-SF20 SF Fork Ends
Model FE-SF21 SFR Fork Ends
Model FE-UF20 UF Fork Ends

SHIMANO-PR Fork Ends

Model FE-PR20

SPECIFICATIONS

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





Adamas AX Type

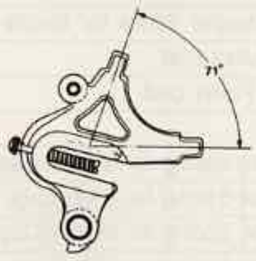


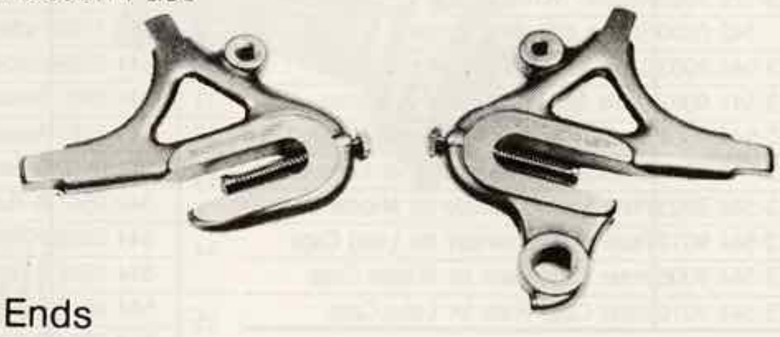
SHIMANO-SF Fork Ends

Model FE-SF20

SPECIFICATIONS

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



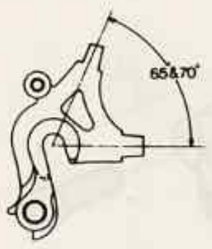


SHIMANO-SFR Fork Ends

Model FE-SF21

SPECIFICATIONS

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





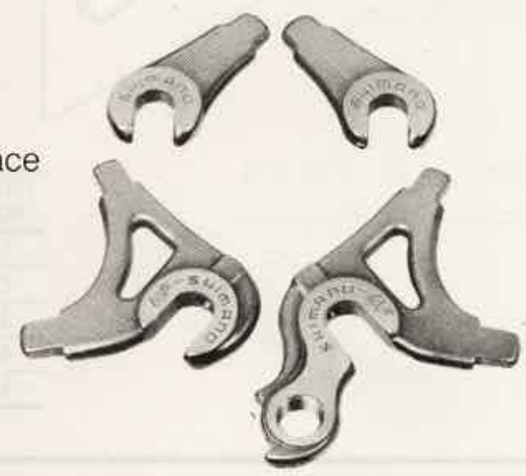
SHIMANO-UF Fork Ends

Model FE-UF20

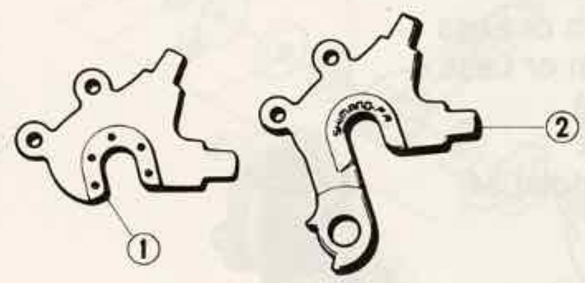
SPECIFICATIONS

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



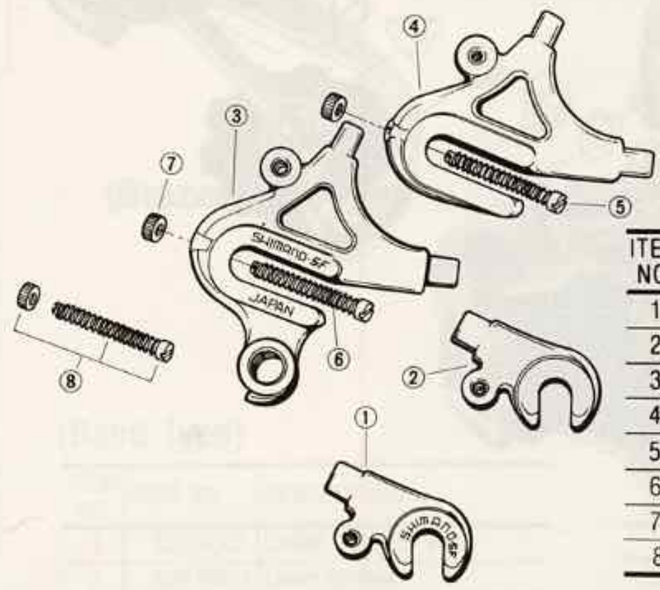


SHIMANO-PR Fork Ends (Shimano Adamas AX Type)



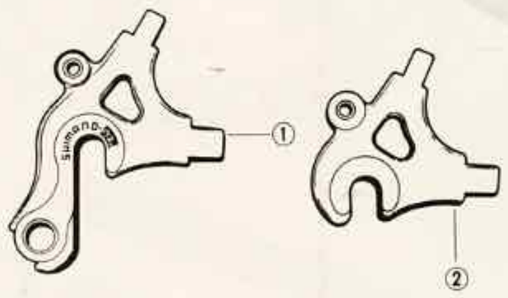
ITEM NO.	PART NO.	DESCRIPTION
1	710 4105	Rear Fork End (Right)
2	710 4205	Rear Fork End (Left)

SHIMANO-SF Fork Ends (for Road)



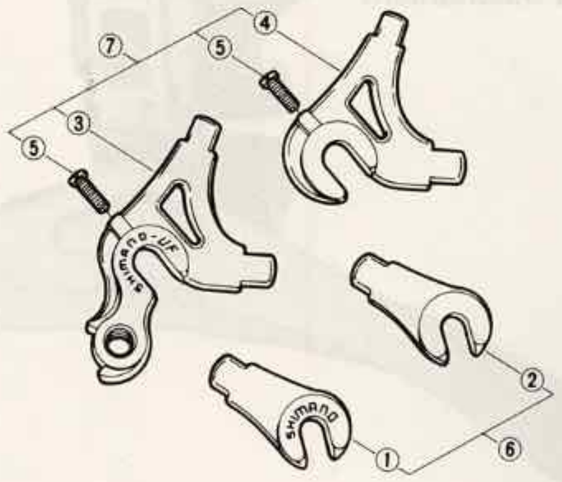
ITEM NO.	PART NO.	DESCRIPTION
1	710 0100	R.H. Front Fork End
2	710 0200	L.H. Front Fork End
3	710 0300	R.H. Rear Fork End
4	710 0400	L.H. Rear Fork End
5	710 0500	Adjusting Bolt
6	710 0600	Adjusting Screw
7	710 0700	Nut
8	710 9001	Rear Fork End Set

SHIMANO-SFR Fork Ends (for Road)



ITEM NO.	PART NO.	DESCRIPTION
1	710 4100-2	R.H. Rear Fork End (65)
	710 4101-2	R.H. Rear Fork End (70)
2	710 4200-2	L.H. Rear Fork End (65)
	710 4201-2	L.H. Rear Fork End (70)
1 & 2	710 9006	Rear Fork End Set (65)
	710 9006-1	Rear Fork End Set (70)

SHIMANO-UF Fork Ends (for Road)



ITEM NO.	PART NO.	DESCRIPTION
1	710 2000	R.H. Front Fork End
2	710 2100	L.H. Front Fork End
3	710 3101	R.H. Rear Fork End
4	710 3201	L.H. Rear Fork End
5	710 3300	Adjusting Bolt
6	710 61000	Front Fork Ends Set
7	710 62000	Rear Fork Ends Set

SHIMANO DEORE SERIES

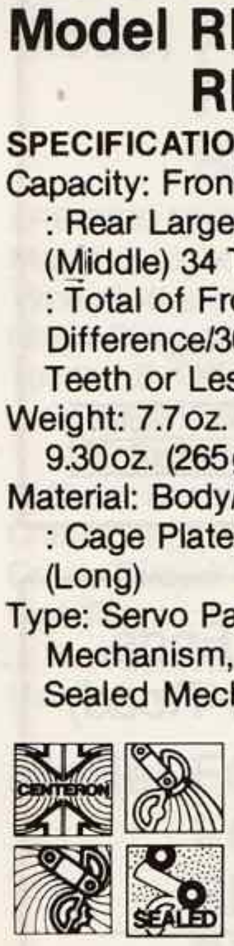
Model RD-DE10 Rear Derailleur (Middle Cage)
Model RD-DE20 Rear Derailleur (Long Cage)
Model FD-DE10 Front Derailleur

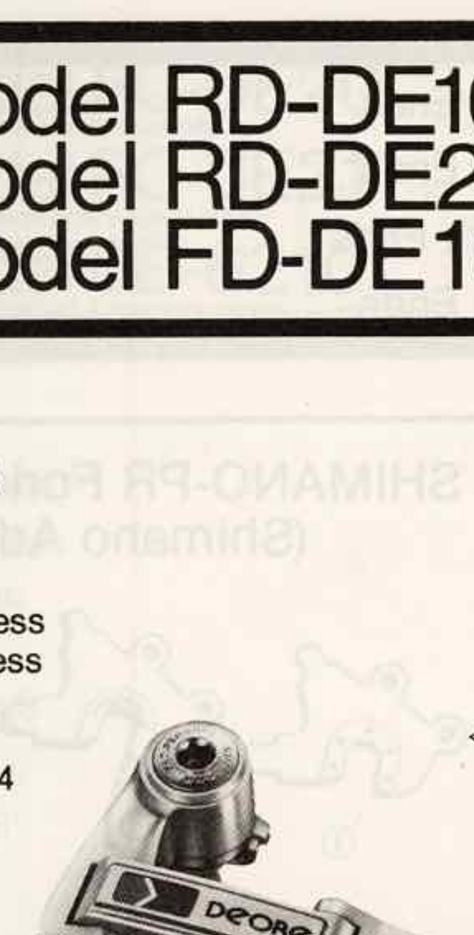
DEORE Rear Derailleur

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

SPECIFICATIONS

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









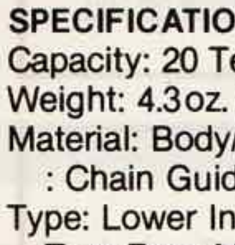
Model TL-WR36
Hexagon Wrench Keys
6 mm.

DEORE Front Derailleur

Model FD-DE10

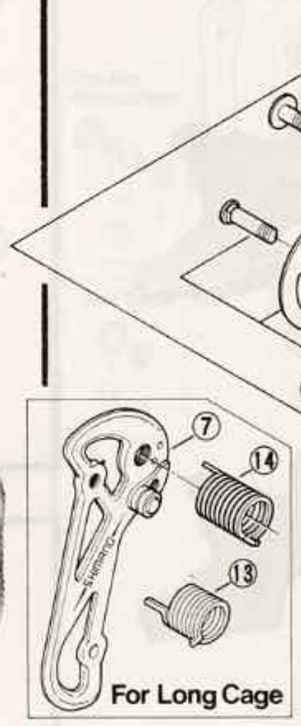
SPECIFICATIONS

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





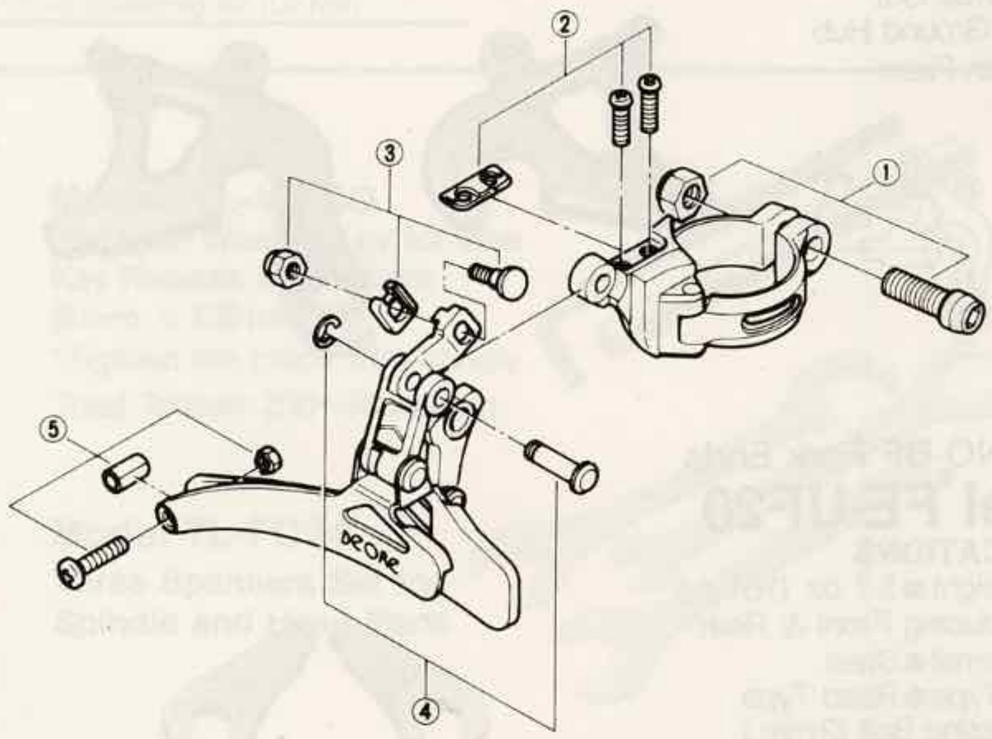
DEORE Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	3-525 9069	Adapter Screw & Nut
2	542 0500	Stroke Adjusting Screw
3	3-544 9003	Cable Fixing Bolt & Washer
4	3-541 9002	Cable Adjusting Barrel & Spring
5	3-544 9004	Bracket Axle Assembly for Middle Cage
	3-544 9011	Bracket Axle Assembly for Long Cage
6	3-544 9005	Plate Axle Assembly for Middle Cage
	3-544 9012	Plate Axle Assembly for Long Cage
7	3-544 9006	Inner Cage Plate for Middle Cage
	3-544 9010	Inner Cage Plate for Long Cage

ITEM No.	PART NO.	DESCRIPTION
8	3-537 9003	Hatch Plate Fixing Screw
9	544 1700	Pulley Stopper Screw for Middle Cage
10	3-544 9088	Guide Pulley Unit
11	3-544 9801	Tension Pulley Unit
12	541 2701	Adapter
13	544 0500	B-Tension Spring for Middle Cage
	544 0501	B-Tension Spring for Long Cage
14	544 0600	P-Tension Spring for Middle Cage
	544 0601	P-Tension Spring for Long Cage
15	544 9013	Pulley Plate Assembly for Middle Cage
	544 9014	Pulley Plate Assembly for Long Cage

DEORE Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	586 9023	Clamp Bolt & Nut
2	589 9003	Adjusting Plate & Screw
3	594 9003	Cable Fixing Bolt Assembly
4	589 9006	Rivet & Stop Ring
5	586 9025	Roller Fixing Screw Assembly

SHIMANO DEORE SERIES

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

DEORE Shifting Lever

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

SPECIFICATIONS

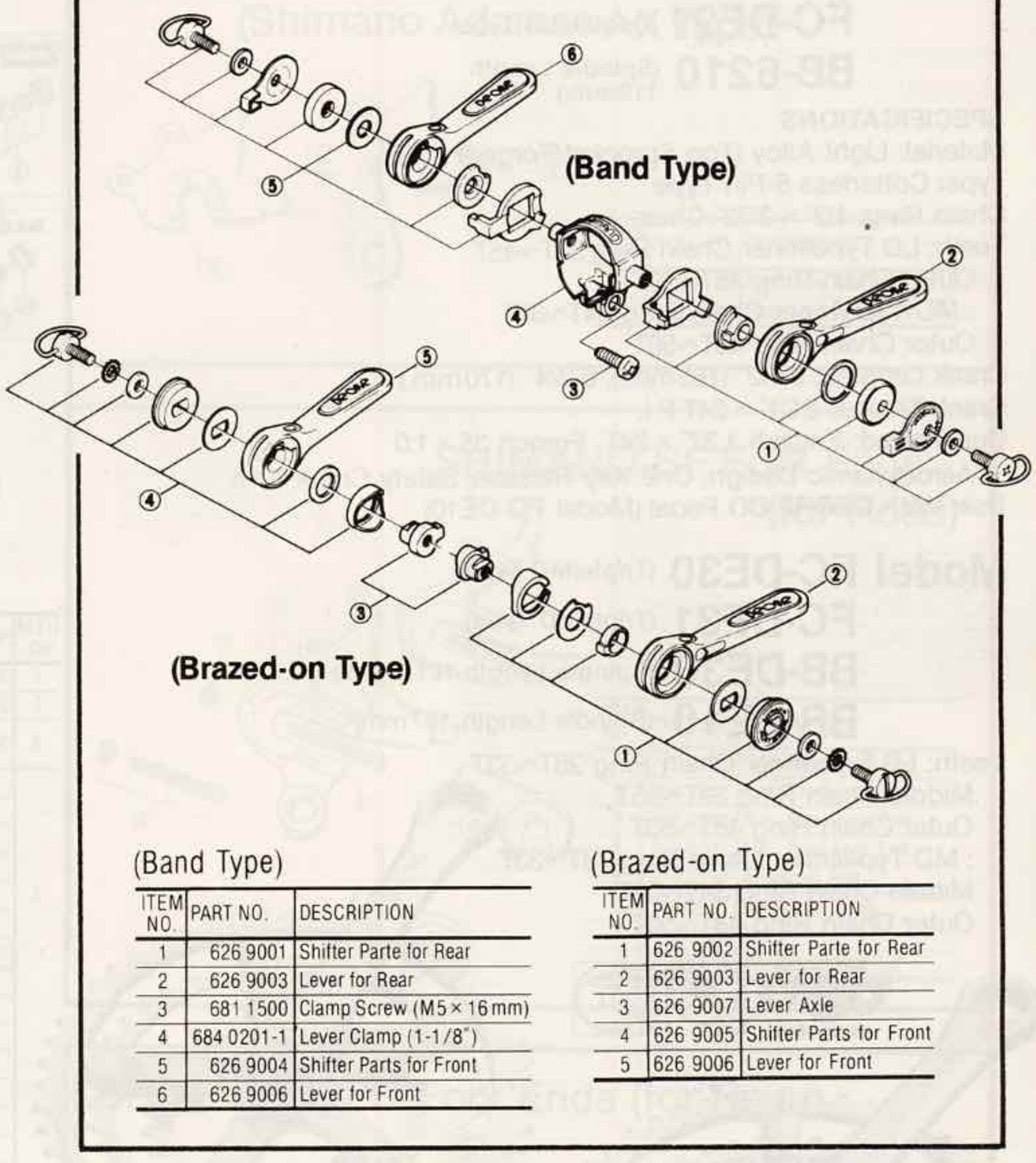
Weight: 1.4oz. (39g.)/Brazed-on Type
: 2.9oz. (82g.)/Band Type
Material: Light Alloy, Steel
Type: Friction Type
Attachment Position: Down Tube
Lever Clamp Diameter: 1-1/8″
Centeron Mechanism, Sealed Mechanism (Brazed-on Type Only), Lever Non-loosening Feature
Use: Rear Derailleur with Centeron Mechanism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





SL-DE21
Brazed-on Parts

Deore Shifting Lever



(Band Type)

ITEM NO.	PART NO.	DESCRIPTION
1	626 9001	Shifter Parte for Rear
2	626 9003	Lever for Rear
3	681 1500	Clamp Screw (M5×16mm)
4	684 0201-1	Lever Clamp (1-1/8″)
5	626 9004	Shifter Parts for Front
6	626 9006	Lever for Front

(Brazed-on Type)

ITEM NO.	PART NO.	DESCRIPTION
1	626 9002	Shifter Parte for Rear
2	626 9003	Lever for Rear
3	626 9007	Lever Axle
4	626 9005	Shifter Parts for Front
5	626 9006	Lever for Front

SHIMANO DEORE SERIES

Model FC-DE20
Front Chainwheel (Double/MD-Type)

Model FC-DE21
Front Chainwheel (Double/LD-Type)

Model BB-6210
Bottom Bracket Assembly (Spindle Length 119mm.)

Model FC-DE30
Front Chainwheel (Triple/MD-Type)

Model FC-DE31
Front Chainwheel (Triple/LD-Type)

Model BB-DE30
Bottom Bracket Assembly (Spindle Length 121.5mm.)

Model BB-DE10
Bottom Bracket Assembly (Spindle Length 137mm)

DEORE Front Chainwheel

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

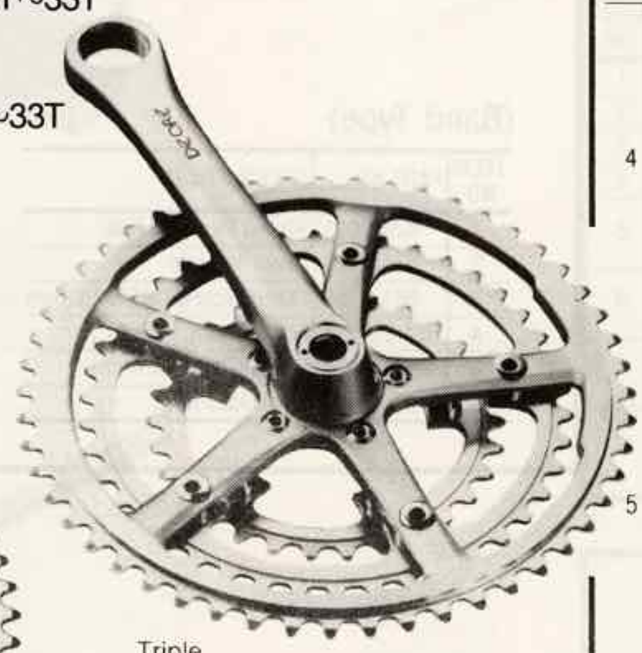
SPECIFICATIONS
Material: Light Alloy (Top Sprocket/Forged)
Type: Cotterless 5-Pin Type
Chain Ring: 1/2″ × 3/32″ Chain
Teeth: LD Type/Inner Chain Ring 39T~45T
Outer Chain Ring 48T~53T
: MD Type/Inner Chain Ring 34T~37T
Outer Chain Ring 48T~50T
Crank Lengths: 6-1/2″ (165mm.), 6-3/4″ (170mm.)
Crank Thread: BC1″ × 24T.P.I.
Cup Thread: English 1.37″ × 24T, French 35 × 1.0
Aerodynamic Design, One Key Release, Safety Crank Arm
Use: With DEORE DD Pedal (Model PD-DE10)

Model FC-DE30 (Triple/MD Type)
FC-DE31 (Triple/LD Type)
BB-DE30 (Spindle Length 121.5mm.)
BB-DE10 (Spindle Length 137mm)

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

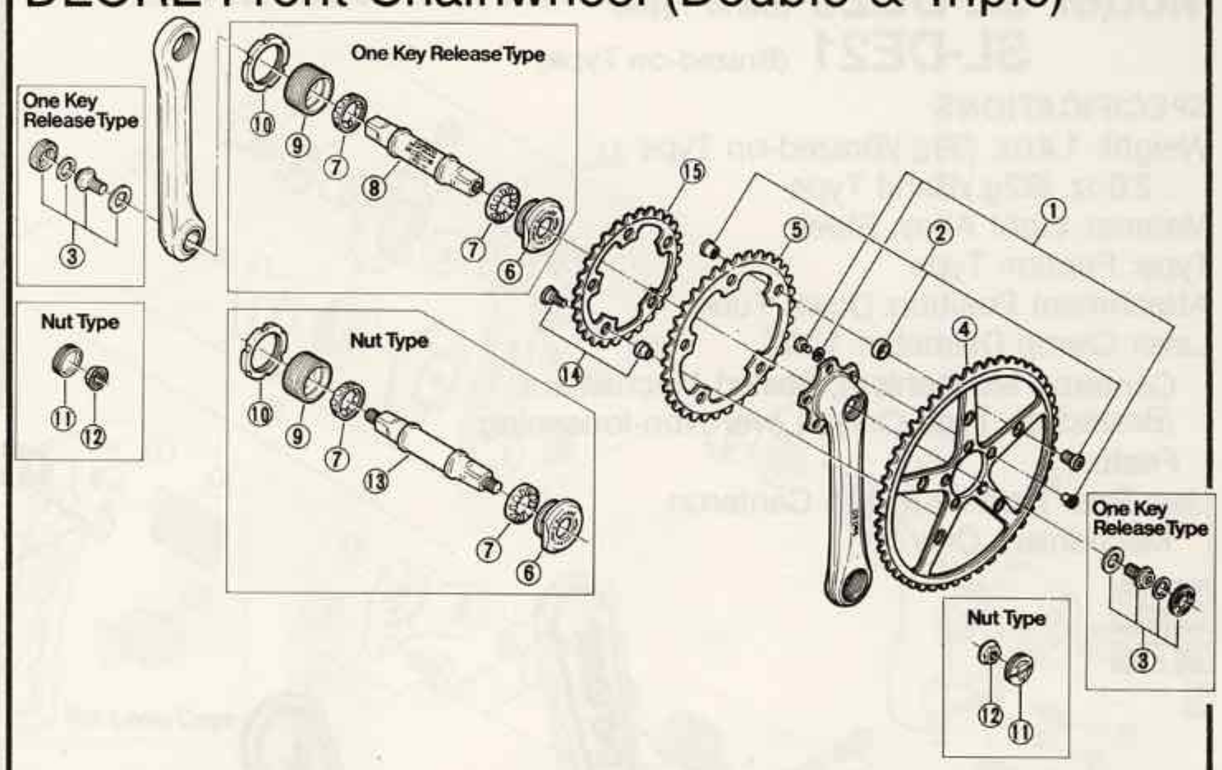


Double


Triple



DEORE Front Chainwheel (Double & Triple)

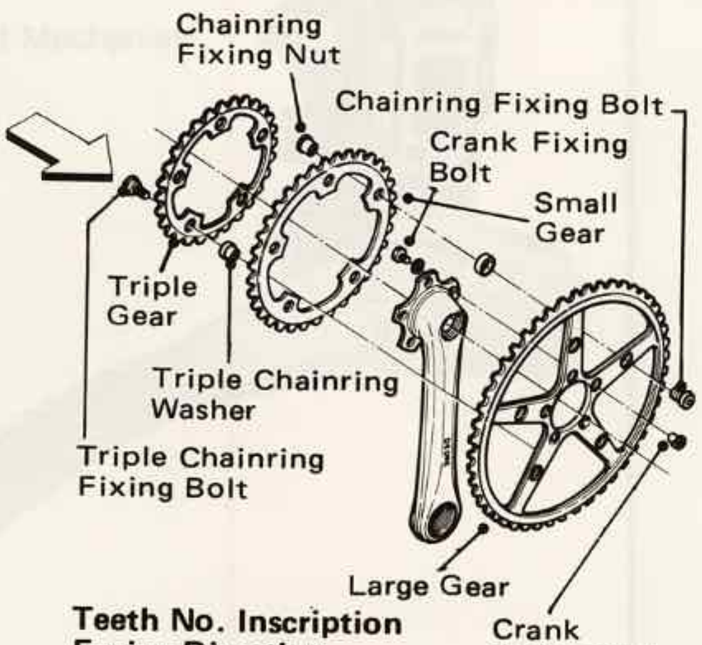


ITEM NO.	PART NO.	DESCRIPTION
1	3-149 9001	Crank & Chainring Fixing Bolt Unit
2	3-149 9002	Chainring Fixing Bolt Unit
3	3-148 9002	Crank Arm Fixing Bolt Unit for One Key Release Type
4	149 4800	Chainring 48T (MD-Type)
	149 4801	Chainring 48T (LD-Type)
	149 4900	Chainring 49T (MD-Type)
	149 4901	Chainring 49T (LD-Type)
	149 5000	Chainring 50T (MD-Type)
	149 5001	Chainring 50T (LD-Type)
	149 5101	Chainring 51T (LD-Type)
	149 5201	Chainring 52T (LD-Type)
	149 5301	Chainring 53T (LD-Type)
	145 3411	Chainring 34T (MD-Type)
	145 3511	Chainring 35T (MD-Type)
	145 3611	Chainring 36T (MD-Type)
	145 3711	Chainring 37T (MD-Type)
	145 3910	Chainring 39T (LD-Type)
5	145 4010	Chainring 40T (LD-Type)
	145 4110	Chainring 41T (LD-Type)
	145 4210	Chainring 42T (LD-Type)
	145 4310	Chainring 43T (LD-Type)
	145 4410	Chainring 44T (LD-Type)
	145 4510	Chainring 45T (LD-Type)

ITEM No.	PART NO.	DESCRIPTION
6	148 0200	Right Hand Fixed Cup (1.37″ × 24T)
7	3-137 9001	Ball Retainer
8	148 0100	Bottom Bracket Spindle 119mm (4-11/16″) for Double Gear
	149 1300	Bottom Bracket Spindle 121.5mm (4-25/32″) for Triple Gear
9	148 0300	Left Hand Adjustable Cup (1.37″ × 24T)
10	137 0500	Lock Ring
11	144 0200-1	Crank Arm Cap for Nut Type
12	148 0800	Nut for Arm to Spindle
13	148 0103	Bottom Bracket Spindle 137 mm (5-13/32″) for Nut Type
14	3-149 9003	Triple Gear Fixing Washer & Bolt for Spindle Length 121.5 mm (4-25/32″)
	3-149 9004	Triple Gear Fixing Washer & Bolt for Spindle Length 119 mm (4-11/16″)
15	149 2810	Chainring 28T for Triple
	149 2910	Chainring 29T for Triple
	149 3010	Chainring 30T for Triple
	149 3110	Chainring 31T for Triple
	149 3210	Chainring 32T for Triple
	149 3310	Chainring 33T for Triple

Assembly Notes

Replacing Chainwheel
1 Remove crank fixing bolt.
To change the triple gear, first remove the 5 triple gear fixing bolts and washers. And then change the triple gear.
2 To change the small gear, remove the 6 charnring fixing bolts and washer with special peg spanner (Model TL-FC20) and 5 mm hexagon spanner (Model TL-WR-35). And then replace the small gear.
Note: The teeth number on the chainrings should face in towards the frame.



Teeth No. Inscription Facing Direction

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque: 250~350kgfcm.



Model TL-FC30
Three Spanners Set for Spindle and Head Parts

Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key 5 mm.



SHIMANO DEORE SERIES

Model PD-DE10 DD Pedal

DEORE DD Pedal

Model PD-DE10

SPECIFICATIONS

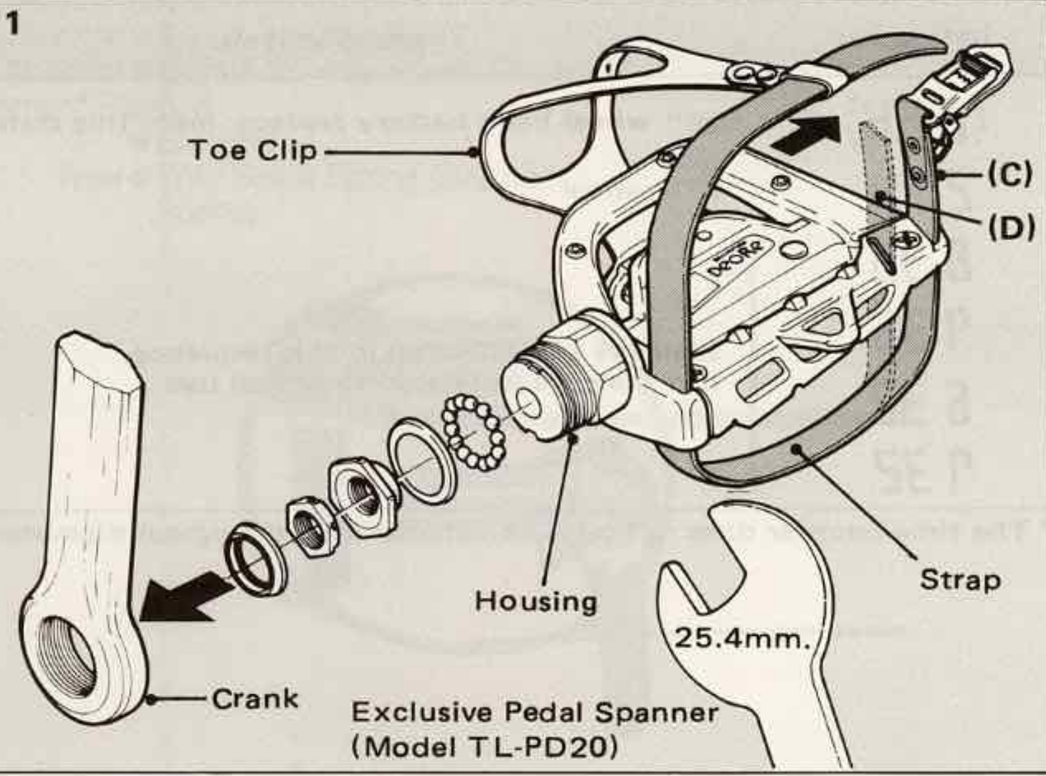
Weight: 20.1oz. (550g.)
Material: Body/Light Alloy
: Cup Cone/Chromium Molybdenum Steel
Crank Thread: BC1″ × 24T.P.I.
Right-handed Screw (Right Pedal) BC × 1″
24T.P.I. Left-handed Screw (Left Pedal)
Type: DD Mechanism, Aerodynamic Design, Sealed Mechanism
Use: DEORE Front Chainwheel



Assembly Notes

Screw the pedal housing section to the special DD Front Chain wheel and then tighten securely with exclusive spanner. Tightening torque should 350 ~ 400kgfcm. (350 in-lbs.). (Dia 1) The right pedal should be turned in a clockwise direction when screwing, and the left pedal in an anticlockwise direction. Please confirm these points before assembling.

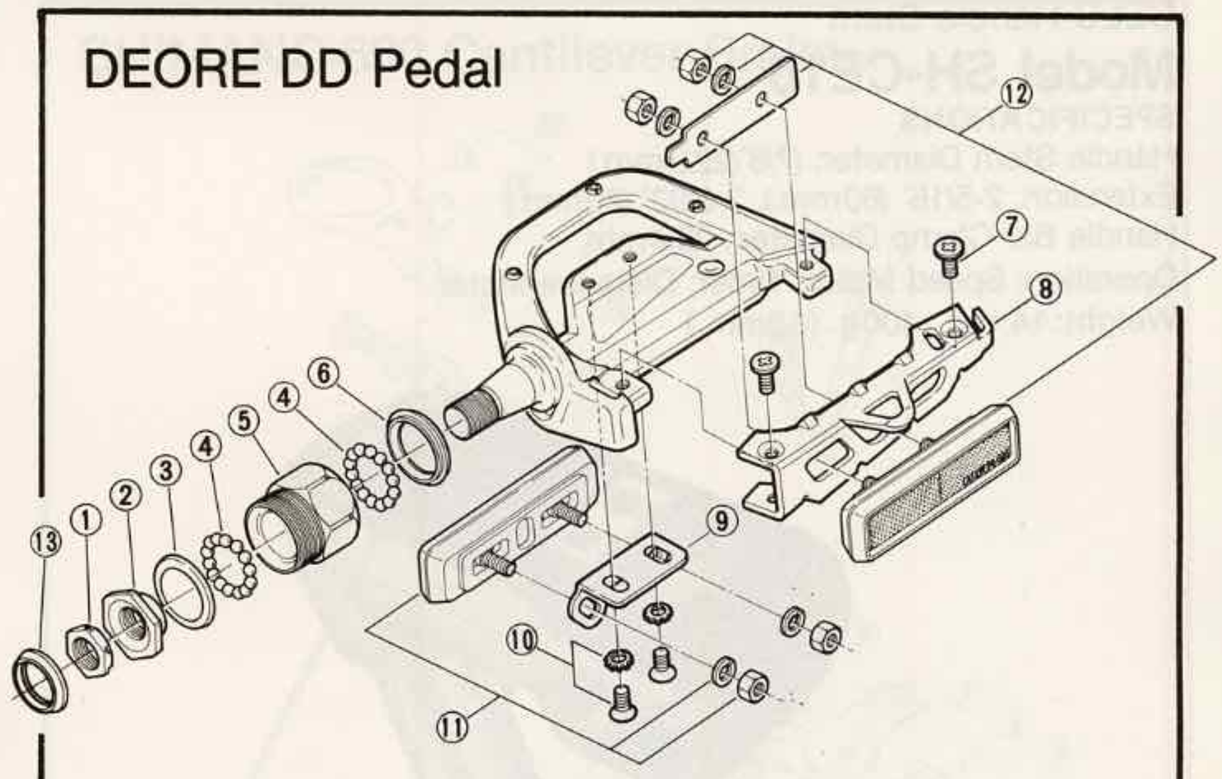
Dia. 1



Model TL-PD20
Deore Pedal Spanner



DEORE DD Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	462 1700	Lock Nut
2	462 1600	Cone
3	462 1900	Dust Seal (Small)
4	000 0182	Steel Balls (5/32″)
5	462 1400	Right Side Housing
	462 1500	Left Side Housing
6	462 1800	Dust Seal (Large)

ITEM NO.	PART NO.	DESCRIPTION
7	000 1900	Plate Fixing Screw (M4 × 8)
8	462 0300	Right Side Plate
	462 0400	Left Side Plate
9	462 0800	Toe-Clip Adapter
10	3-462 9001	Adapter Fixing Screw & Washer
11	3-462 9002	Reflector Unit for Front (Option)
12	3-462 9003	Reflector Unit for Rear (Option)
13	462 2000	Aero Cap

Toe Clip Adjustment

There are two different assembly methods possible.
(A) One assembles the toe clip above the pedal platform.
(B) The other assembles below the pedal platform.
This is to accommodate differing shoe sizes worn by riders. (Dia. 2)
1 Tighten the 2 toe clip fixing screws and secure the toe clip temporarily. Keeping this condition, the rider's foot can be inserted until best setting is found.
2 On deciding best position and size, tighten both screws securely to fix the toe clip. (Dia. 2)

Strap Assembly

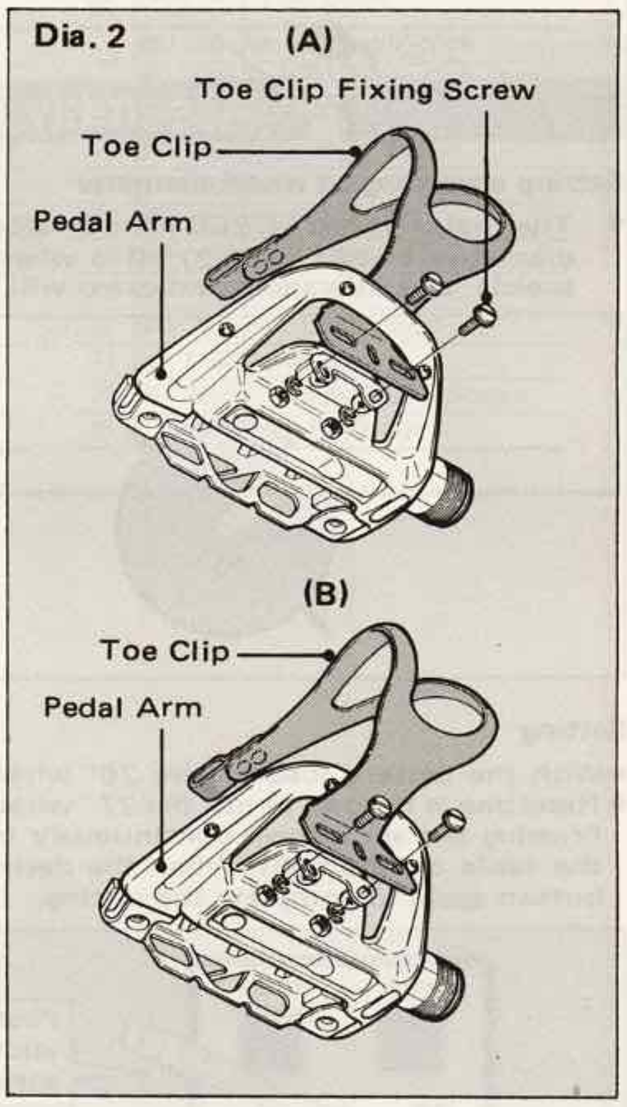
1 Fix the strap to the pedal as shown in diagram 1. 2 different widths (C), (D) can be used depending on varying shoe widths.
2 Adjust the strap's length to the most suitable position for the rider's shoe.

When using racing shoes with cleats

Assemble the left side plate to the right pedal, and the right side plate to the left pedal in up side down positions for use with cleats.

Reflectors are optiona. Assembly method is seen in the exploded view drawing.

Dia. 2



SHIMANO celc stem

Model SH-CE10 CELC Handle Stem

CELC Handle Stem

Model SH-CE10

SPECIFICATIONS

Handle Stem Diameter: (7/8"(22.2mm.)
Extension: 2-5/16" (60mm.), 3-5/32" (80mm.)
Handle Bar Clamp Diameter: 25.4mm.
Operation: Speed Meter, Timer, Distance Meter
Weight: 14.1oz. 400g. (80mm.)

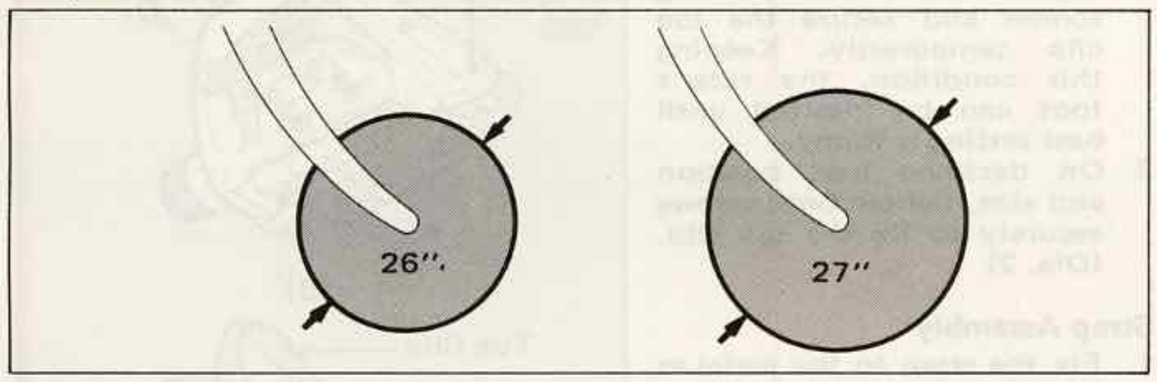




Assembly Notes

Setting according to wheel diameter

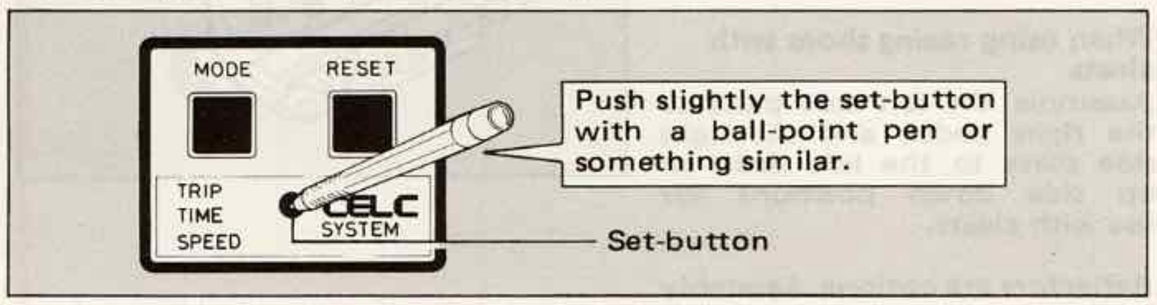
- The meter unit of CELC handle stem can be set to two wheel diameters of 26" and 27" If a wheel other than these is used, the speeds and distances indicated will be incorrect.



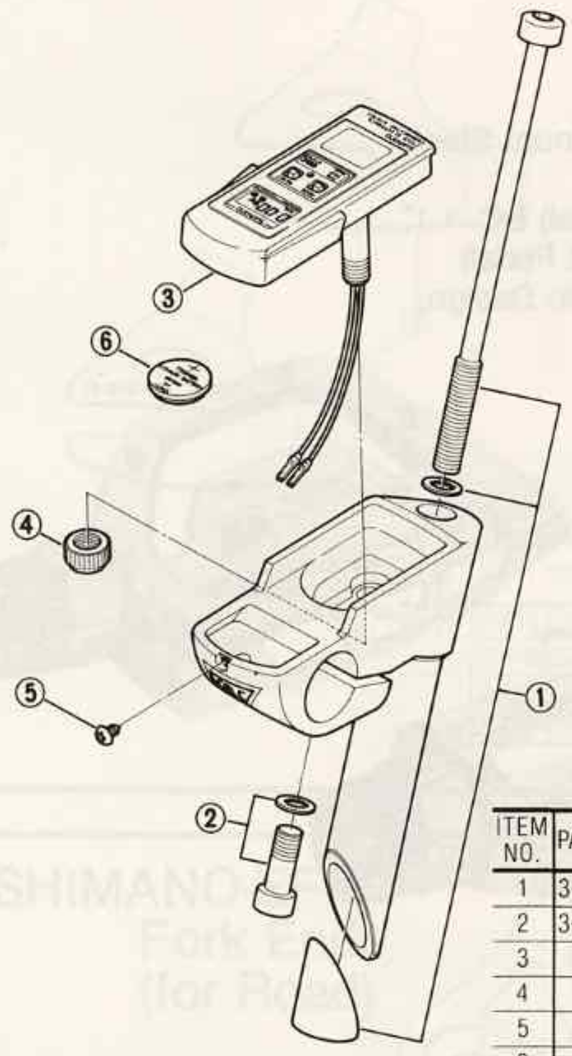
Setting

- With the battery loaded, the 26" wheel diameter is automatically set.
- Resetting is needed to use the 27" wheel.

Pressing the set button continuously indicates the dispalys as shwon in the table on the right. When the desired display appears, press the set button again to complete the setting.



CELC Handle Stem





ITEM NO.	PART NO.	DESCRIPTION
1	3-453 9801	Expander Bolt & Nut
2	3-453 9802	Handle Bar Fixing Bolt & Washer
3	650 0100	Electronic Panel
4	453 0800	Electronic Panel Fixing Nut
5	453 0900	Electronic Panel Fixing Screw
6	650 0300	Lithium Battery (CR2032)ew
7	212 1005	Covering Holder for Steel Hub
	212 1006	Covering Holder for Light Alloy Hub
8	212 1003	Sensor Holder for Steel Hub
	212 1004	Sensor Holder for Light Alloy Hub

Indication	Types of wheels
(26H)	26" wheel Each battery replace ment this state.
27H	27" wheel
636 736 632 732	Displays are indicated in this sequence, but they are unrelated to actual use.

* The time counter does not operate when setting the wheel diameter.

adamas AX

Model RD-AD10
Rear Derailleur

Model FD-AD10
Front Derailleur

Model SL-AD10
Shifting Lever (A Type for Down Tube)

Model SL-AD11
Shifting Lever (Brazed-on B Type for Down Tube)

Model SL-AD12
Shifting Lever (B Type for Down Tube)

Model SL-AD15
Shifting Lever (Brazed-on A Type for Down Tube)

Model SL-AD24
Shifting Lever (For Top Tube)

SHIMANO ADAMAS AX Rear Derailleur
Model RD-AD10
SPECIFICATIONS

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



SHIMANO ADAMAS AX Front Derailleur
Model FD-AD10
SPECIFICATIONS

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



SHIMANO ADAMAS AX Shifting Lever
Model SL-AD10 (A Type for Down Tube)
SL-AD11 (Brazed-on B Type for Down Tube)
SL-AD12 (B Type for Down Tube)
SL-AD15 (Brazed-on A Type for Down Tube)
SL-AD24 (For Top Tube)

SPECIFICATIONS

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

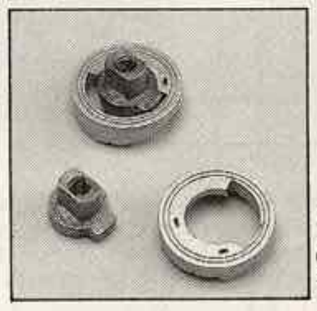


SL-AD10
(A Type for Down Tube)

SL-AD11
(Brazed-on B Type for Down Tube)

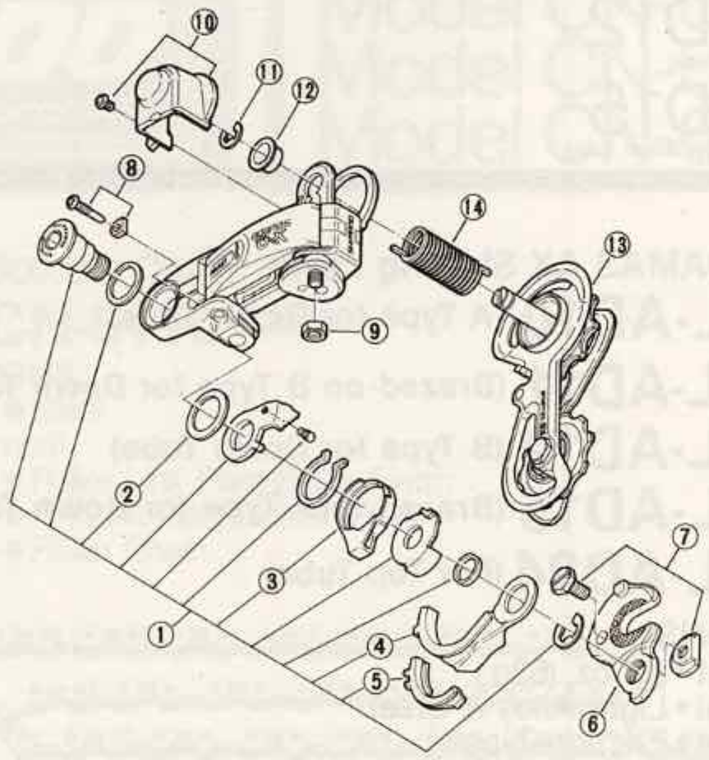
SL-AD12
(B Type for Down Tube)

SL-AD24
(For Top Tube)



Model SL-AD15
(Brazed-on A Type for Down Tube)

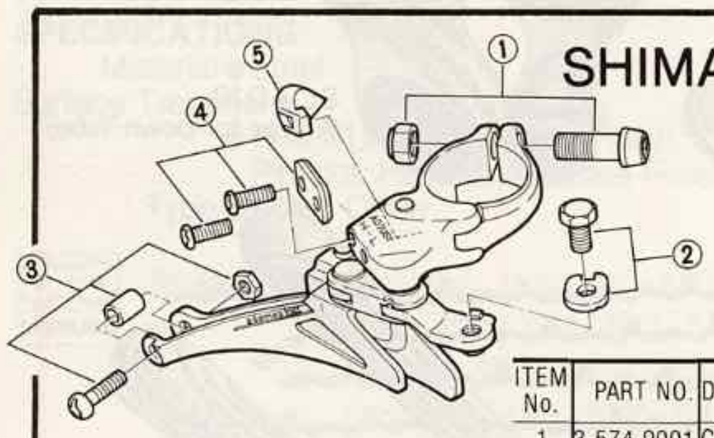
SHIMANO ADAMAS AX Rear Derailleur



ITEM No.	PART NO.	DESCRIPTION
1	3-564 9001	Bracket Axle Assembly
2	564 4500	Bracket Sleeve A
3	564 4400	Stopper
4	564 0700	Inner Guide
5	564 3200	Guide Liner
6	562 1000	Adapter
7	3-525 9069	Set Bolt & Nut

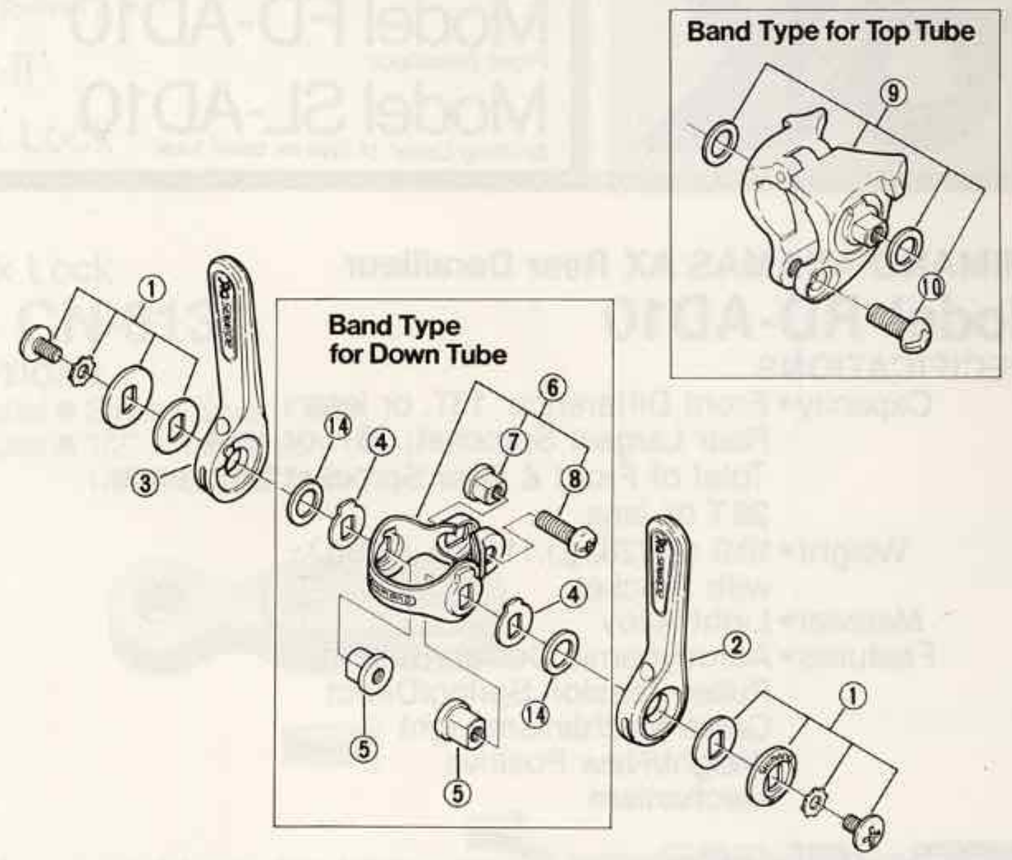
ITEM No.	PART NO.	DESCRIPTION
8	3-564 9802	Select Bolt & Plate
9	541 2400	Cable Fixing Nut
10	3-564 9801	P-Cover & Screw
11	564 4100	Stop Ring (ø5)
12	564 1900	P-Bushing
13	3-564 9002	Pulley Assembly
14	564 2000	P-Tension Spring

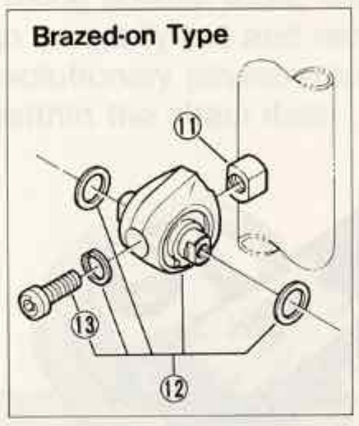
SHIMANO ADAMAS AX Front Derailleur



ITEM No.	PART NO.	DESCRIPTION
1	3-574 9001	Clamp Bolt & Nut
2	3-574 9004	Cable Fixing Bolt Unit
3	3-591 9006	Roller Fixing Screw Unit
4	3-574 9801	Stroke Adjusting Screw (M4 × 10) & Plate
5	574 0400	Cable Guide

SHIMANO ADAMAS AX Shifting Lever





ITEM No.	PART NO.	DESCRIPTION
1	3-644 9802	Lever Fixing Screw Unit
2	3-644 9101	Rear Lever
3	3-644 9102	Front Lever
4	681 4101	Washer A
5	644 1900	Lever Axle
6	3-644 9803	Clamp Band Unit (1-1/8")
7	681 3801	Clamp Nut

ITEM No.	PART NO.	DESCRIPTION
8	000 1111	Clamp Screw
9	3-644 9804	Clamp Band Unit (Top Tube)
10	645 1201	Clamp Screw (Top Tube)
11	681 6200	Brazed Axle
12	3-644 9805	Housing Unit (Brazed-on Type)
13	681 6400	Housing Fixing Bolt (Brazed-on Type)
14	641 1200	Spacer A

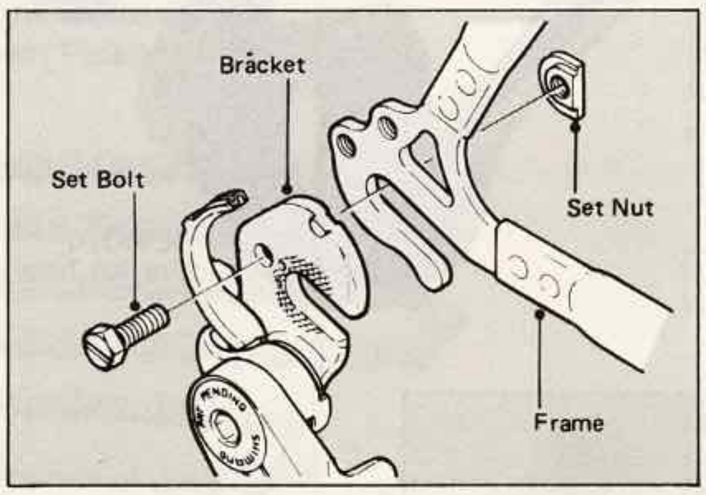


Assembly Notes

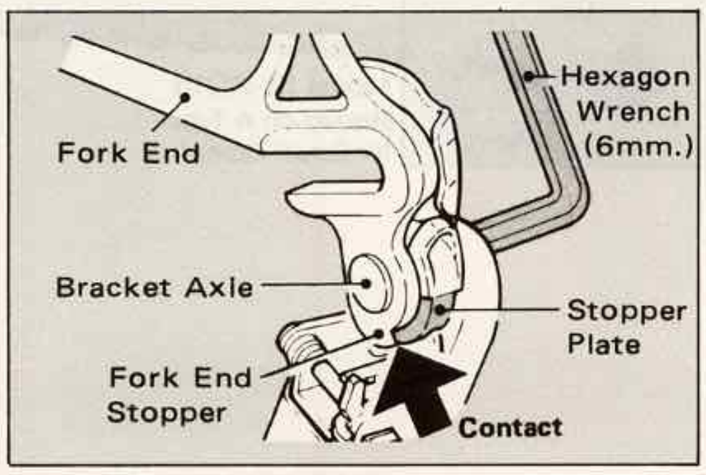
REAR DERAILLEUR ASSEMBLY PROCEDURE

■ Assembly to Frame

(1) Assemble the derailleur bracket to the frame by means of the set bolt and nut. Then assemble the wheel to the frame.



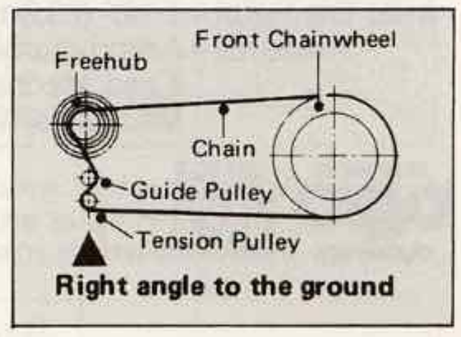
(2) When using direct attachment type, make sure contact is made between the derailleur stopper plate and fork end stopper. At that time, torque of bracket axle should be 80–100 kg-cm. (70–85 in-lbs.)



■ Chain Assembly

Note: Adamas-AX rear derailleur should be used with a 28 teeth or less freehub low sprocket.

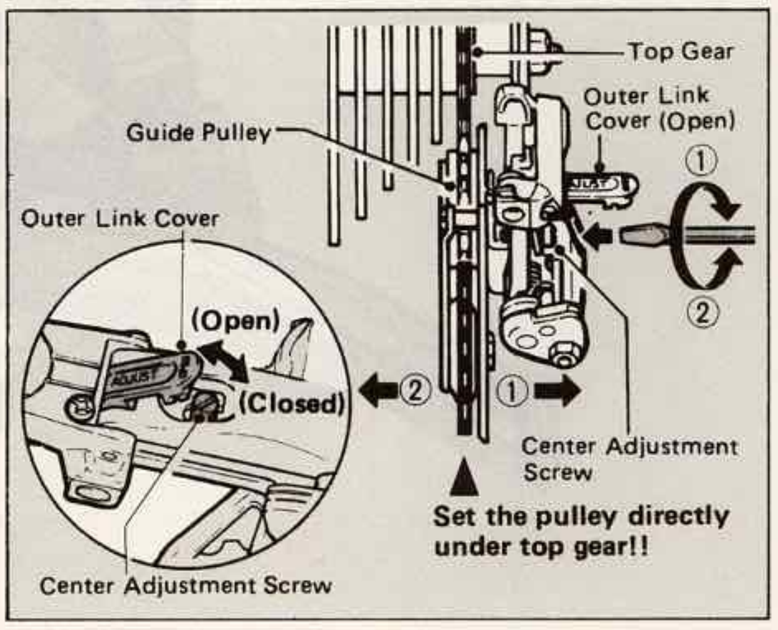
- Put the chain on the smallest sprocket of the freehub and on the largest sprocket of the front chainwheel. Adjust the length of the chain by checking that the center line connecting the rear derailleur guide pulley and the tension pulley is at right angles to the ground.



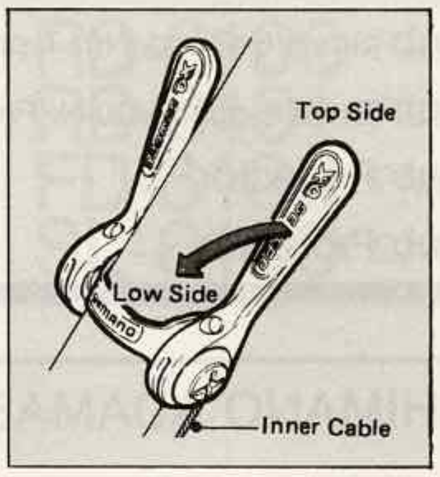
■ Cable Assembly

(1) Open the outer link cover and turn the center adjustment screw to move the derailleur guide pulley directly under top gear (smallest sprocket).

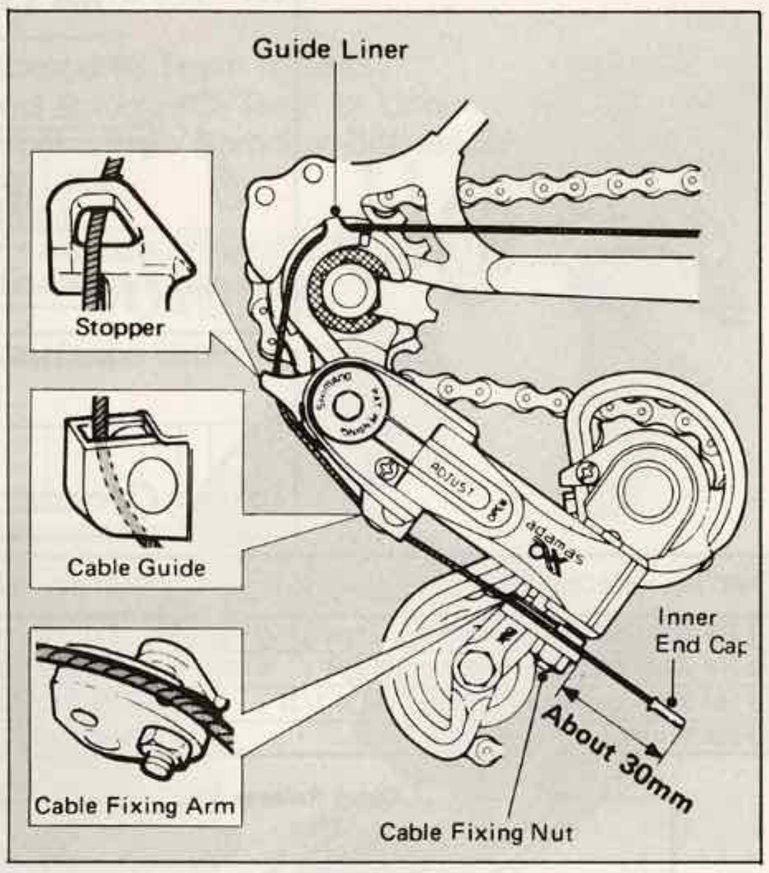
Note:
After adjusting the center screw, close the outer link cover.



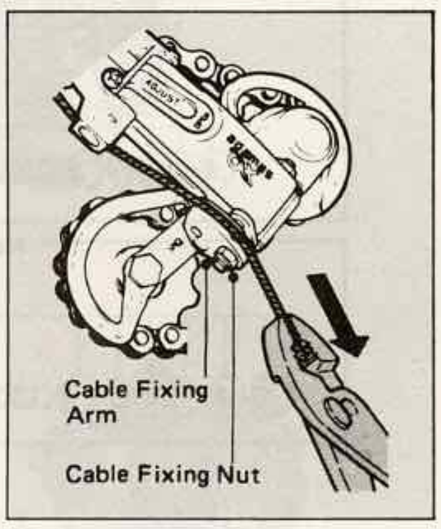
(2) Assemble the inner cable to the shifting lever.



(3) Next, thread the inner cable into the guide liner hole, the stopper hole and the cable guide hole, in that order.
Then align the cable with the cable fixing arm groove, and then insert into the cable fixing bolt.



(4) Absorb cable slack with a pair of pliers, pulling in the direction of the cable arm. Cable fixing nut torque should be 40–60 kg-cm. (35–53 in-lbs.)



(5) On completion of cable assembly, cut it about 30mm from cable fixing nut and then fit inner end cap. Next, bend the inner cable end away from the derailleur body to prevent catching.

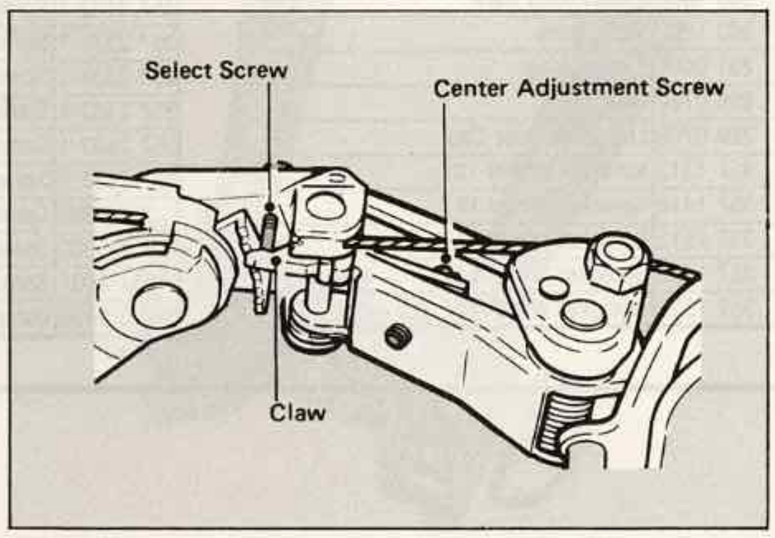
■Stroke Adjustment

(1) Shift the lever from top gear to adjoining gear so that the guide pulley comes directly below the sprocket. To judge properly, the center screw should be adjusted until there is no noise when shifting. Continue shifting to adjoining sprockets and make adjustments until low gear.

Note: When adjusting do not shift gears strongly, otherwise the chain is likely to drop between low gear and spokes.

(2) Finally, turn the select screw, in low gear position, until contact is made with claw.

Note: Stop turning the select screw immediately contact is made with the claw.



■ Confirm

Check shifting response while spinning the wheel, if noise occurs or the chain drops off, readjust according to assembly procedure.

NOTE

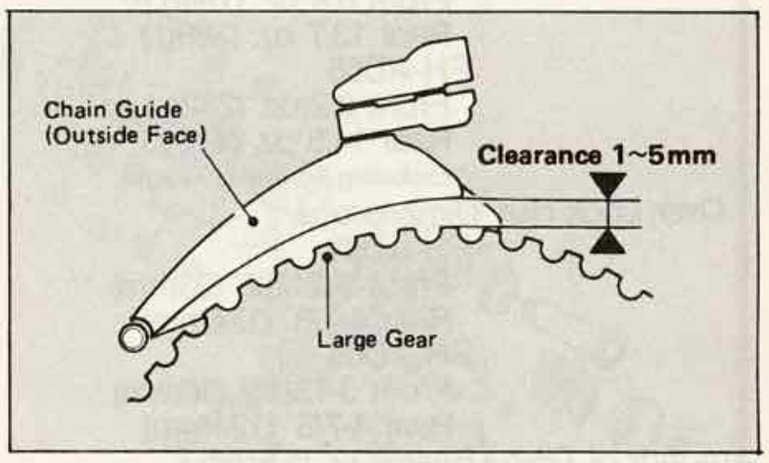
- Make sure that the Adamas AX Rear Derailleur is used together with a Shimano Freehub, Shifting Lever and UG Chain.

FRONT DERAILLEUR ASSEMBLY PROCEDURE

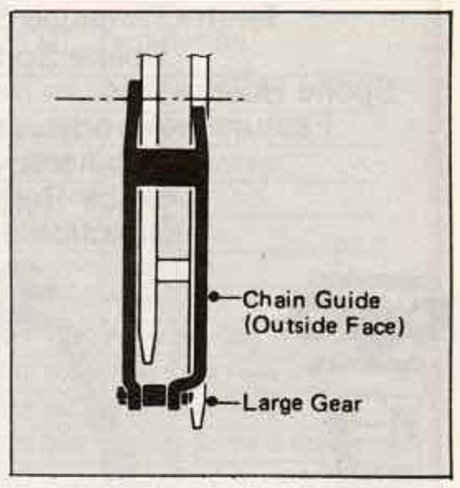
■ Assembly to the Frame

(1) Assemble the clamp band to the seat tube and then fix temporarily with the clamp bolt.

(2) Set the chain guide so that the outside face and the large gear of the front chainwheel have a clearance of about 1–5mm when viewed from the side.



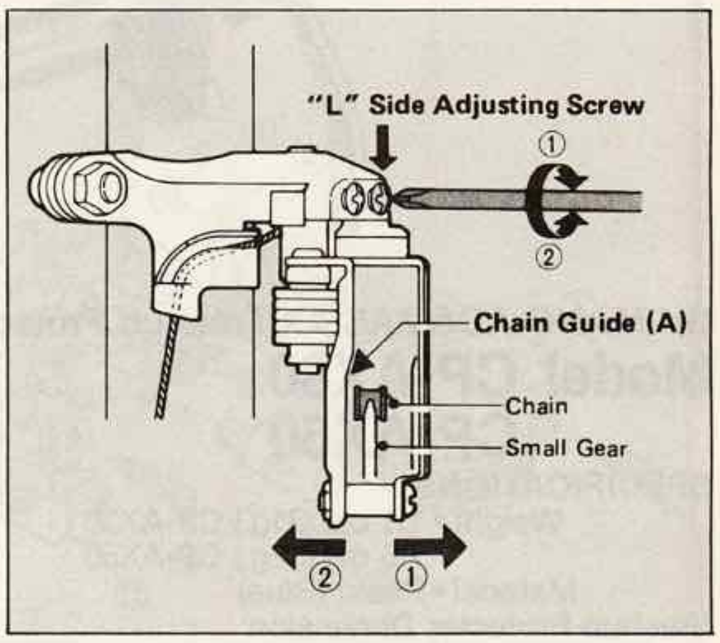
(3) In addition, when viewed from above, the chain guide outside face should be positioned just over the front chainwheel large gear



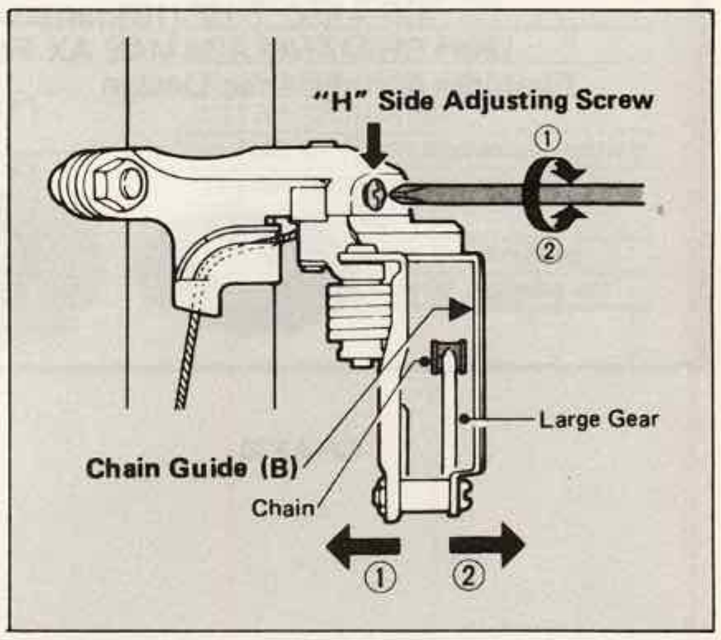
(4) Next, tighten the clamp bolt by hexagon wrench (6mm). Tightening torque should be 60 kg-cm.

■ Stroke Adjustment

• Low (L) Side Adjustment
Set the chain on the small gear of the front chainwheel and the largest gear of the freewheel. Then adjust the clearance between the chain and the chain guide inside face (A) to the absolute minimum without touching by turning the "L" adjusting screw.



• High (H) Side Adjustment
Set the chain on the large gear of the front chainwheel and the smallest gear of the freewheel. Then adjust the clearance between the chain and the chain guide inside face (B) to the absolute minimum without touching by turning the "H" adjusting screw.



Model FH-AD61 Freehub (Small/6-speed -Nut Type)
Model FH-AD65 Freehub (Small/6-speed-Quick Release Type)
Model CP-AX30 Freehub Protector
Model CP-AX50 Freehub Protector

SHIMANO ADAMAS AX Freehub

Model FH-AD61 (Small/6 speed—Nut Type)
FH-AD65 (Small/6 speed—Quick Release Type)

SPECIFICATIONS

Weight • FH-AD61
Front 6.8 oz. (194g.)
Rear 13.7 oz. (389g.)
FH-AD65
Front 8.2 oz. (232g.)
Rear 14.5 oz. (410g.)
* Excluding Sprockets' weight.

Over Lock Nut Dimensions
• FH-AD61
Front 3-21/32" (93mm)
Rear 4-7/8" (124mm)
FH-AD65
Front 3-13/16" (96mm)
Rear 4-7/8" (124mm)

Amount of Dish • Rear 7/32" (5.5mm.)
Material • Light Alloy Buff Finish
Sprocket • Black Finish
Teeth • Threaded Sprocket; 13T.—15T.
Spline Sprocket; 14T.— 34T.
Spoke Holes • 36H.
Features • Aerodynamic Designed Sealed Cap/Aerodynamic Designed Quick Release Lever/ Direction-6 Hub

SHIMANO aero dynamics

SEALED

QR HUB

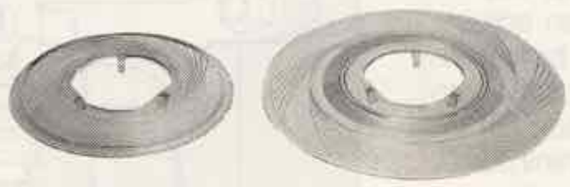


SHIMANO ADAMAS AX Freehub Protector

Model CP-AX30
CP-AX50

SPECIFICATIONS

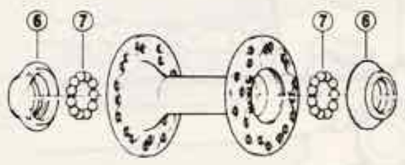
Weight • 1.1 oz. (31g.) CP-AX30
1.8 oz. (52g.) CP-AX50
Material • Resin (Blue)
Freehub Protector Dimension
• CP-AX30; 5.4" (137mm.)
CP-AX50; 7-1/2" (188mm.)
Use • SHIMANO ADAMAS AX Freehub 36H. only
Feature • Aerodynamic Design

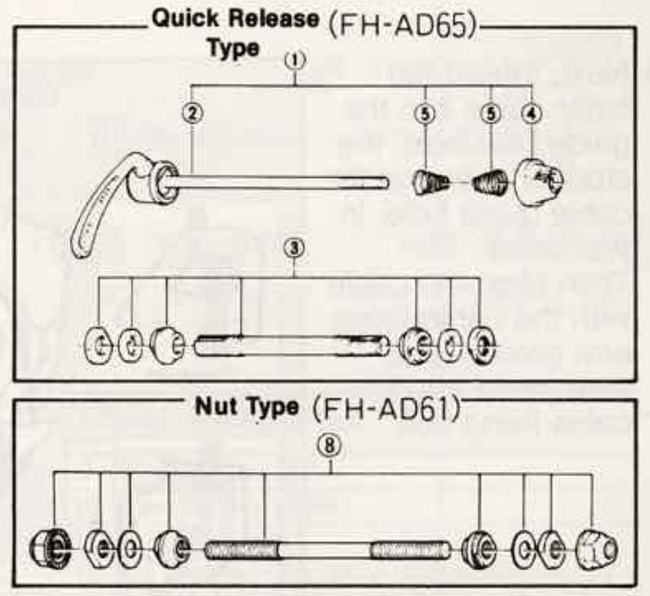


CP-AX30

CP-AX50

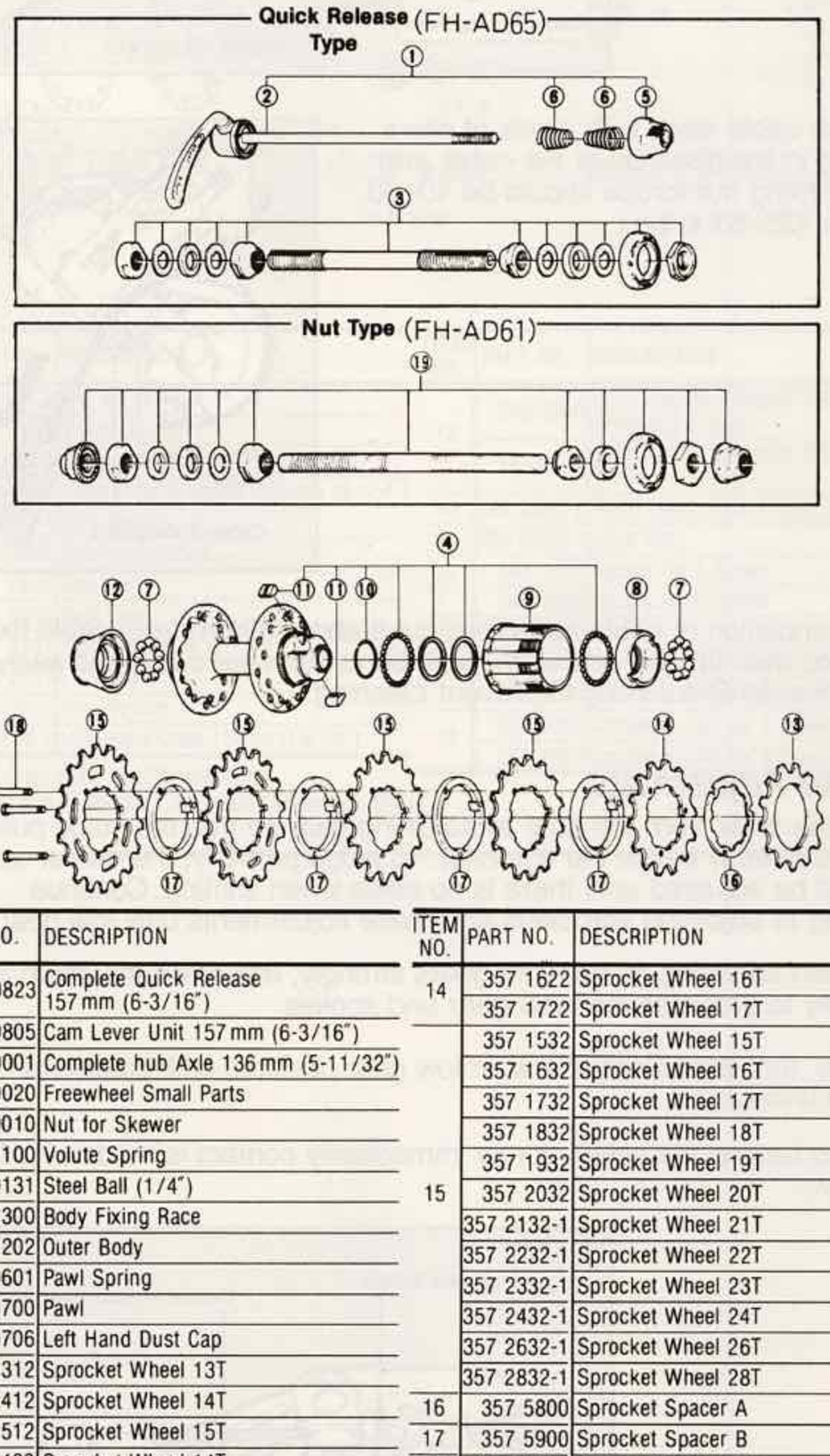
SHIMANO ADAMAS AX Freehub





ITEM NO.	PART NO.	DESCRIPTION
1	3-264 9020	Complete Quick Release 124 mm (4-7/8")
2	3-264 9002	Cam Lever Unit 124 mm (4-7/8")
3	3-264 9030	Complete Hub Axle 104 mm (4-3/32")
4	3-264 9010	Nut for Skewer

ITEM NO.	PART NO.	DESCRIPTION
5	231 1100	Volute Spring
6	210 0905	Dust Cap
7	000 0121	Steel Ball (3/16")
8	3-265 9001	Complete Hub Axle 133 mm (5-1/4")



ITEM NO.	PART NO.	DESCRIPTION
1	3-264 9823	Complete Quick Release 157 mm (6-3/16")
2	3-264 9805	Cam Lever Unit 157 mm (6-3/16")
3	3-275 9001	Complete hub Axle 136 mm (5-11/32")
4	3-363 9020	Freewheel Small Parts
5	3-264 9010	Nut for Skewer
6	231 1100	Volute Spring
7	000 0131	Steel Ball (1/4")
8	363 1300	Body Fixing Race
9	363 1202	Outer Body
10	251 0601	Pawl Spring
11	256 0700	Pawl
12	220 0706	Left Hand Dust Cap
13	357 1312	Sprocket Wheel 13T
	357 1412	Sprocket Wheel 14T
	357 1512	Sprocket Wheel 15T
14	357 1422	Sprocket Wheel 14T
	357 1522	Sprocket Wheel 15T

ITEM NO.	PART NO.	DESCRIPTION
14	357 1622	Sprocket Wheel 16T
	357 1722	Sprocket Wheel 17T
15	357 1532	Sprocket Wheel 15T
	357 1632	Sprocket Wheel 16T
	357 1732	Sprocket Wheel 17T
	357 1832	Sprocket Wheel 18T
	357 1932	Sprocket Wheel 19T
	357 2032	Sprocket Wheel 20T
	357 2132-1	Sprocket Wheel 21T
	357 2232-1	Sprocket Wheel 22T
	357 2332-1	Sprocket Wheel 23T
	357 2432-1	Sprocket Wheel 24T
	357 2632-1	Sprocket Wheel 26T
	357 2832-1	Sprocket Wheel 28T
16	357 5800	Sprocket Spacer A
17	357 5900	Sprocket Spacer B
18	357 6001	Sprocket Fixing Bolt
19	3-275 9002	Complete Hub Axle 170 mm (6-11/16")

Model FC-AD21 Front Chainwheel (Single)
Model FC-AD11 Front Chainwheel (Double)
Model BB-SL31 Bottom Bracket Assembly

SHIMANO ADAMAS AX Front Chainwheel & Bottom Bracket Assembly

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

SPECIFICATIONS

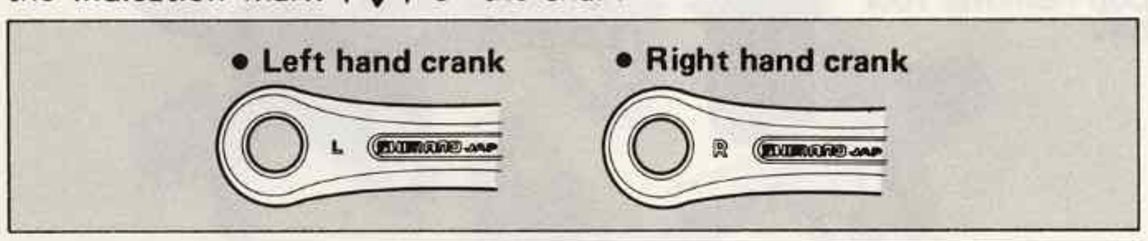
Weight • FC-AD 11 • 7.9 oz. (224g.) 48T. Type
FC-AD 21 • 9.7 oz. (275g.) 36T. — 48T. Type
10.7 oz. (305g.) 42T. — 52T. Type
11.6 oz. (328g.) B.B. Parts
Material • Light Alloy
Type • Cotterless
Chain Ring • 1/2″ × 3/32″ Chain
Teeth • FC-AD11; 48T. only
FC-AD21; 36T. — 48T. Type
42T. — 52T. Type
Crank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

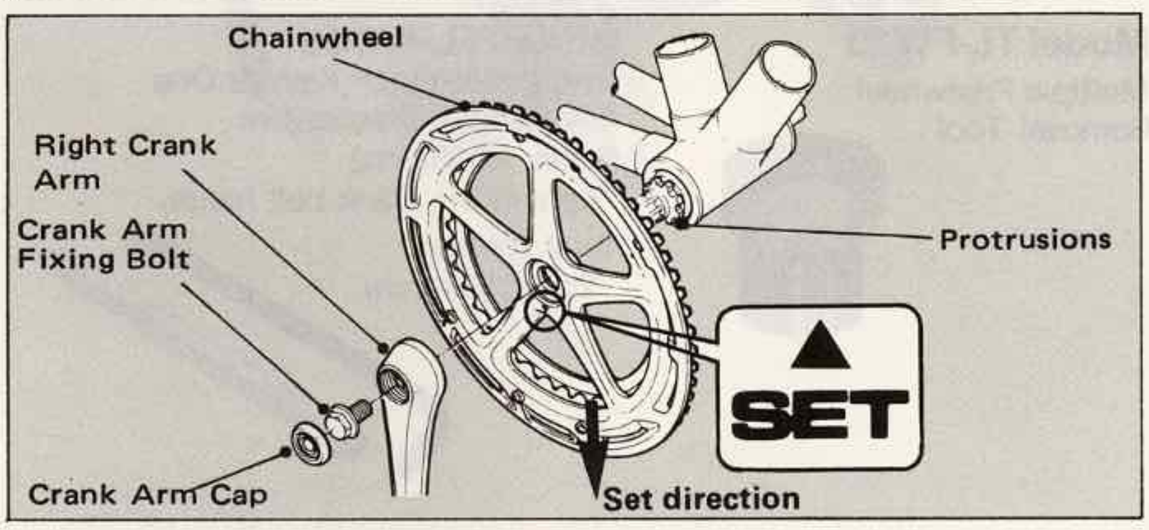
Black Finish Available



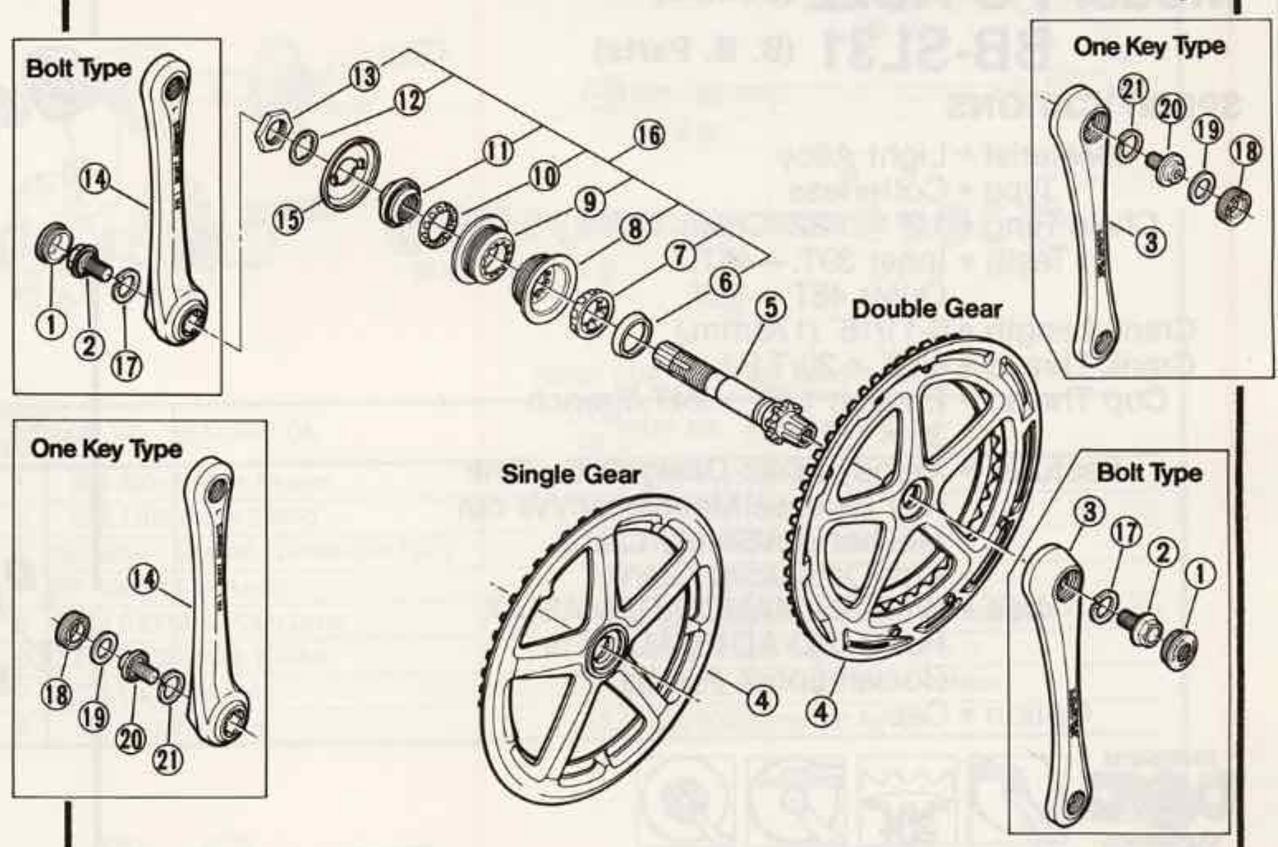
Assembly Notes

When assembling the right and left hand cranks to the bottom bracket spindle, confirm that the "R" and "L" marks (behind the cranks) are correctly positioned to the right and left sides.
And also when assembling right crank be sure to align correctly with the indication mark (▼) of the chain wheel.





SHIMANO ADAMAS AX Front Chainwheel & Bottom Bracket Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	155 0805	Crank Arm Cap (Silver) for Bolt Type
2	155 0701	Crank Arm Fixing Bolt for Bolt Type
3	196 0100-1	Right Crank Arm 165 mm (6-1/2˝) English Thread for Bolt Type
	196 0102-1	Right Crank Arm 165 mm (6-1/2˝) French Thread for Bolt Type
	196 0110-1	Right Crank Arm 170 mm (6-11/16˝) English Thread for Bolt Type
	196 0112-1	Right Crank Arm 170 mm (6-11/16˝) French Thread for Bolt Type
	196 0104	Right Crank Arm 165 mm (6-1/2˝) English Thread for One Key Type
	196 0104-1	Right Crank Arm 165 mm (6-1/2˝) French Thread for One Key Type
	196 0114	Right Crank Arm 170 mm (6-11/16˝) Englsih Thread for One Key Type
	196 0114-1	Right Crank Arm 170 mm (6-11/16˝) French Thread for One Key Type
4	3-196 9003	Chainring 48T-36T (Barrel)
	3-196 9004	Chainring 48T-36T (Dia Cut)
	3-196 9005	Chainring 50T-40T (Barrel)
	3-196 9006	Chainring 50T-40T (Dia Cut)
	3-196 9001	Chainring 52T-42T (Barrel)
	3-196 9002	Chainring 52T-42T (Dia Cut)
	196 1480	Single Chainring 48T
5	167 0100	Bottom Bracket Spindle
6	167 0200	Right Hand Seal
7	3-188 9001	Ball Retainer (1/4˝)
8	188 0300-2	Right Hand Ball Cup

ITEM NO.	PART NO.	DESCRIPTION
9	188 0400-2	Left Hand Ball Cup
10	3-188 9002	Ball Retainer (3/16˝)
11	3-188 9004	Left Hand Cone w/Dust Cap
12	188 1402-1	Key Washer
13	188 0700	Lock Nut
14	196 0200-1	Left Crnak Arm 165 mm (6-1/2˝) English Thread for Bolt Type
	196 0202-1	Left Crnak Arm 165 mm (6-1/2˝) French Thread for Bolt Type
	196 0210-1	Left Crnak Arm 170 mm (6-11/16˝) English Thread for Bolt Type
	196 0212-1	Left Crnak Arm 170 mm (6-11/16˝) French Thread for Bolt Type
	196 0204	Left Crnak Arm 165 mm (6-1/2˝) English Thread for One Key Type
	196 0204-1	Left Crnak Arm 165 mm (6-1/2˝) French Thread for One Key Type
	196 0214	Left Crnak Arm 170 mm (6-11/16˝) English Thread for One Key Type
	196 0214-1	Left Crnak Arm 170 mm (6-11/16˝) French Thread for One Key Type
15	167 0700	Cap (Option)
16	3-167 9801	Ball Cup Assembly
17	155 1200	Spring Washer for Bolt Type
18	165 0600	Crank Arm Cap for One Key Type
19	165 0700	Washer for One Key Type
20	165 0801	Crank Arm Fixing Bolt for One Key Type
21	165 1000	Spring Washer for One Key Type

Model TL-FF20
Cup Removal Tool



Model TL-FC10
Cotterless Crank Extractor



Model TL-FW20
Multiple Freewheel Removal Tool



Model TL-FC15
Clank Arm Bolt Fixing Wrench 14mm. for Front Chainwheel.
*Tighten the crank bolt handly.
Total Torque: 300~450kgfcm.



Model FC-AD22 Front Chainwheel (Double)
Model BB-SL31 Bottom Bracket Assembly

SHIMANO ADAMAS AX-II Front Chainwheel & Bottom Bracket Assembly

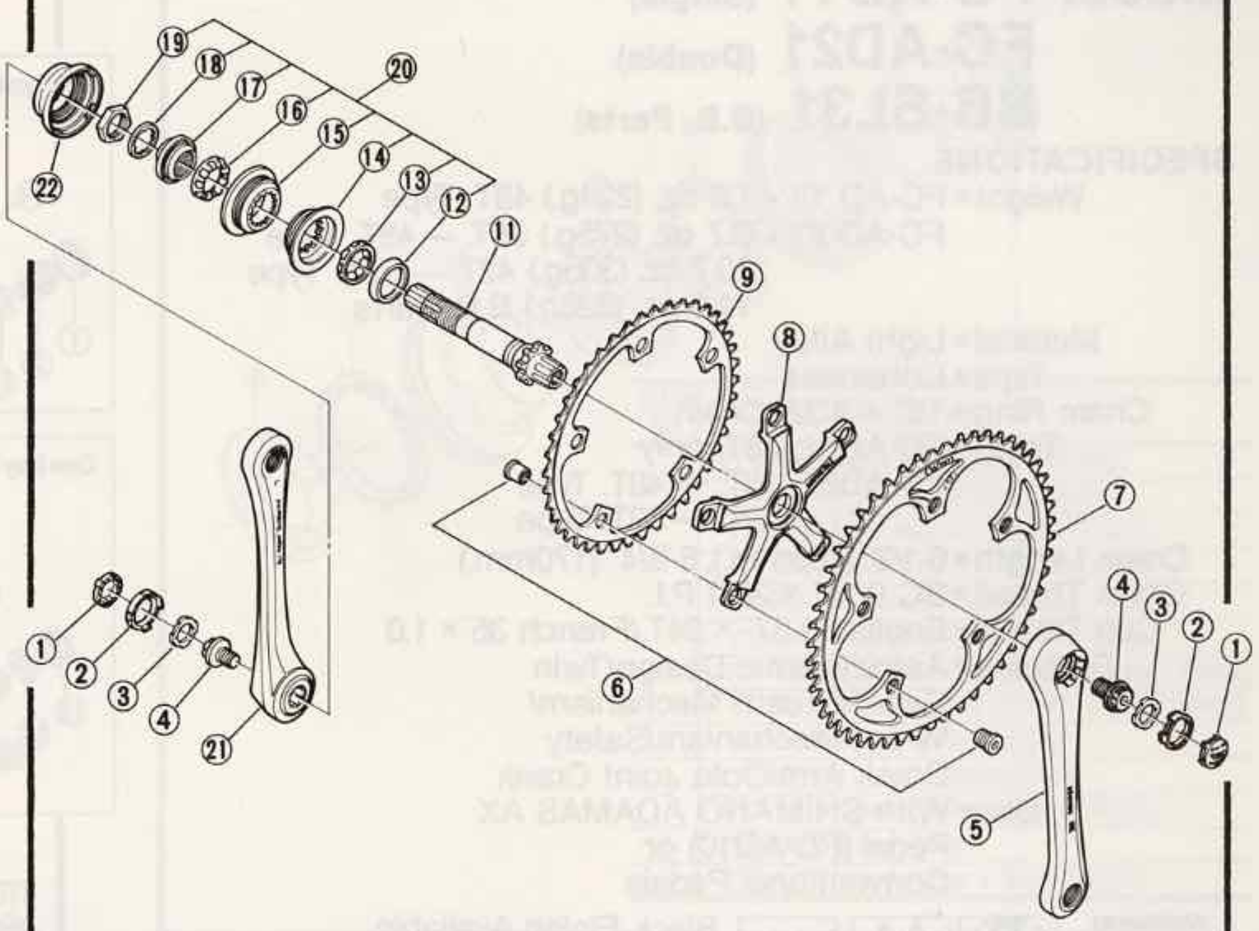
Model FC-AD22 (Double)
BB-SL31 (B. B. Parts)

SPECIFICATIONS

Material • Light Alloy
Type • Cotterless
Chain Ring • 1/2″ × 1/32″ Chain
Teeth • Inner 39T.—45T.
Outer 48T.—53T.
Crank Length • 6-11/16″ (170mm.)
Crank Thread • 9/16″ × 20 T.P.I.
Cup Thread • English 1.37″ × 24T./French 35 × 1.0
Features • Aerodynamic Design/New One Key Release Mechanism/W cut Mechanism/Safety Crank Arm/Octa Joint Crank
Use • With SHIMANO ADAMAS AX Pedal (PD-AD10, AD20) or Conventional Pedals
Option • Cap



SHIMANO ADAMAS AX Front Chainwheel



ITEM NO.	PART NO.	DESCRIPTION
1	195 0060	Crank Arm Cap A
2	195 0070	Crank Arm Cap B
3	195 0080	Spacer
4	195 0050	Crank Arm Fixing Bolt
5	195 0010	Right Crank Arm 170mm (6-11/16″) English Thread
	195 0011	Right Crank Arm 170mm (6-11/16″) French Thread
6	3-132 9015	Chainring Fixing Bolt & Nut (5 pcs.)
7	193 4800	Chainring 48T
	193 4900	Chainring 49T
	193 5000	Chainring 50T
	193 5100	Chainring 51T
	193 5200	Chainring 52T
	193 5300	Chainring 53T
8	195 0090	Chainring Adapter
9	145 3910	Chainring 39T
	145 4010	Chainring 40T
	145 4110	Chainring 41T
9	145 4210	Chainring 42T
	145 4310	Chainring 43T
	145 4410	Chainring 44T
	145 4510	Chainring 45T
11	167 0100	Bottom Bracket Spindle
12	167 0200	Right Hand Seal
13	3-188 9001	Ball retainer (1/4″)
14	188 0300	Right Hand Ball Cup
15	188 0400	Left Hand Ball Cup
16	3-188 9002	Ball Retainer (3/16″)
17	3-188 9004	Left Hand Cone w/Dust Cap
18	188 1402	Key Washer
19	188 0700	Lock Nut
20	3-167 9801	Ball Cup Assembly
21	195 0020	Left Crank Arm 170mm (6-11/16″) English Thread
	195 0021	Left Crank Arm 170mm (6-11/16″) French Thread
22	167 0701	Cap (Option)

Assembly Notes

When assembling the right and left hand cranks to the bottom bracket spindle, confirm that the "R" and "L" marks (behind the cranks) are correctly positioned to the right and left sides.

• **Left hand crank**

• **Right hand crank**

Model TL-FF20
Cup Removal Tool



Model TL-FC10
Cotterless Crank Extractor



Model TL-FW20
Multiple Freewheel Removal Tool



Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6mm. x 130mm.)
*Tighten the crank bolt handly.
Total Torque:
250~350kgfcm.



Model PD-AD10 Pedal
Model PD-AD20 FullFit Pedal

SHIMANO ADAMAS AX Pedal

Model PD-AD10

SPECIFICATIONS

Weight • 18.3 oz. (520g.)
Material • Light Alloy
Crank Thread • BC 9/16″ × 20 T.P.I./M14 × 1.25
Features • Aerodynamic Design/Increased Road Clearance/Specially Wedged Design
Use • With SHIMANO ADAMAS AX Front Chainwheel (FC-AD11, AD21, AD22) or Conventional Chainwheel

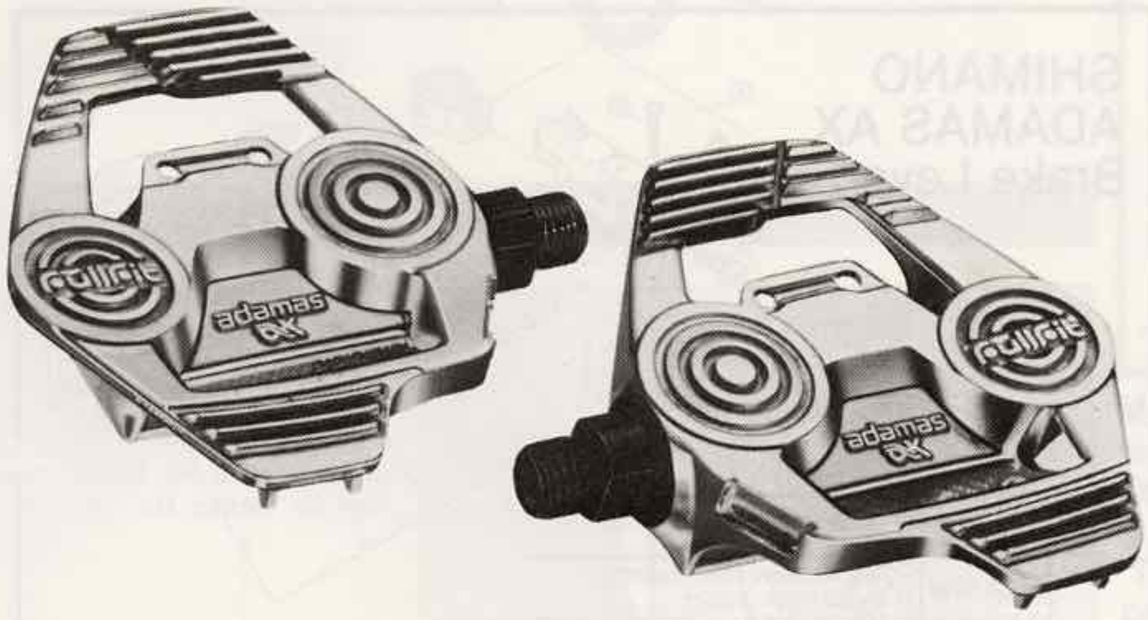


SHIMANO ADAMAS AX FullFit Pedal

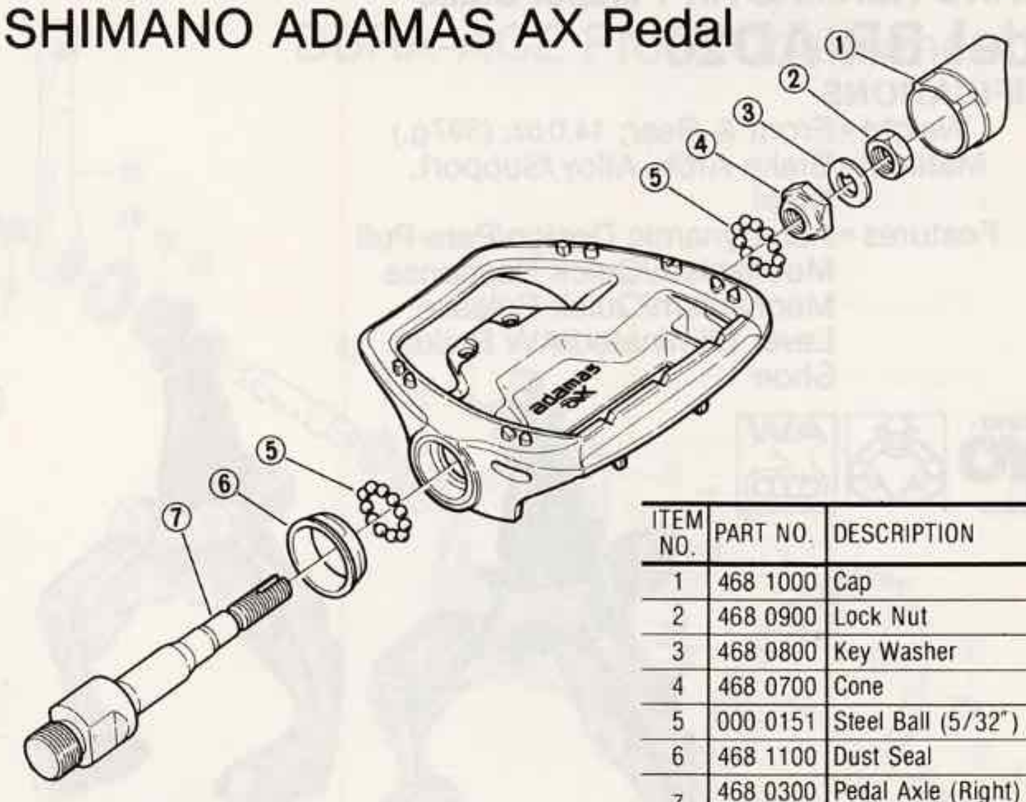
Model PD-AD20

SPECIFICATIONS

Weight • 19.102 (570g)
Material • Light Alloy
Crank Thread • BC9/16″ × 20 T.P.I.
Features • Aerodynamic Design/Fit-well Mechanism/Increased Rood Clearance/ Specially Wedged Design
Use • With SHIMANO ADAMAS AX Front Chainwheel (FC-AD11, AD21, AD22) or Conventional Chainwheel

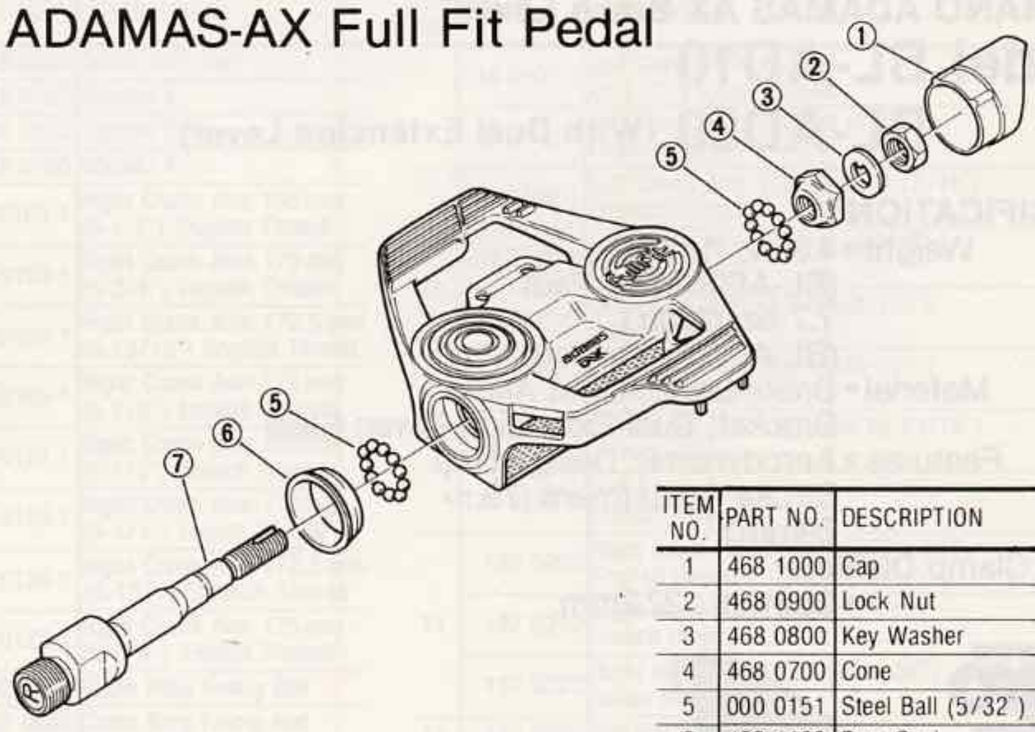


SHIMANO ADAMAS AX Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	468 1000	Cap
2	468 0900	Lock Nut
3	468 0800	Key Washer
4	468 0700	Cone
5	000 0151	Steel Ball (5/32″)
6	468 1100	Dust Seal
7	468 0300	Pedal Axle (Right)
	468 0400	Pedal Axle (Left)

ADAMAS-AX Full Fit Pedal



ITEM NO.	PART NO.	DESCRIPTION
1	468 1000	Cap
2	468 0900	Lock Nut
3	468 0800	Key Washer
4	468 0700	Cone
5	000 0151	Steel Ball (5/32″)
6	468 1100	Dust Seal
7	468 0300	Pedal Axle (Right)
	468 0400	Pedal Axle (Left)

Model TL-FC30
Three Spanners Set for Spindle and Head Parts

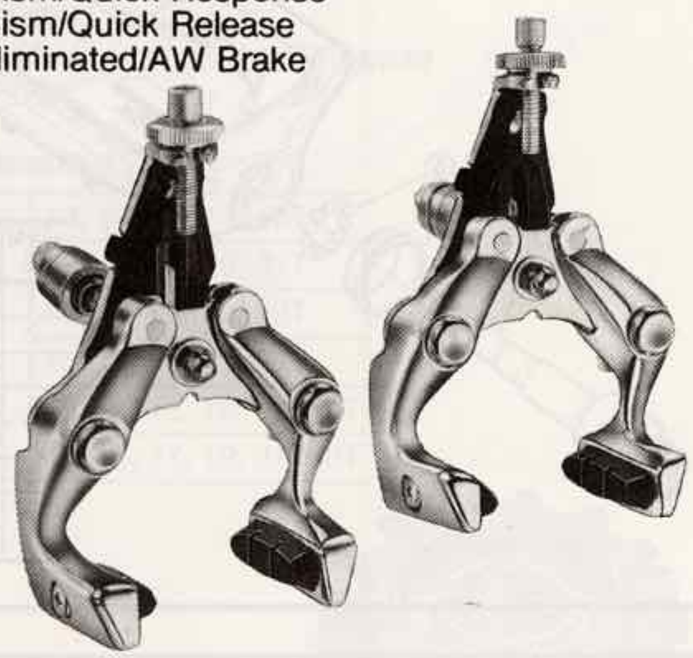


Model BR-AD20 Parapul Brake
Model BL-AD10 Brake Lever
Model BL-AD50 Brake Lever (With Dual Extension Lever)

SHIMANO ADAMAS AX Parapul Brake
Model BR-AD20

SPECIFICATIONS

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



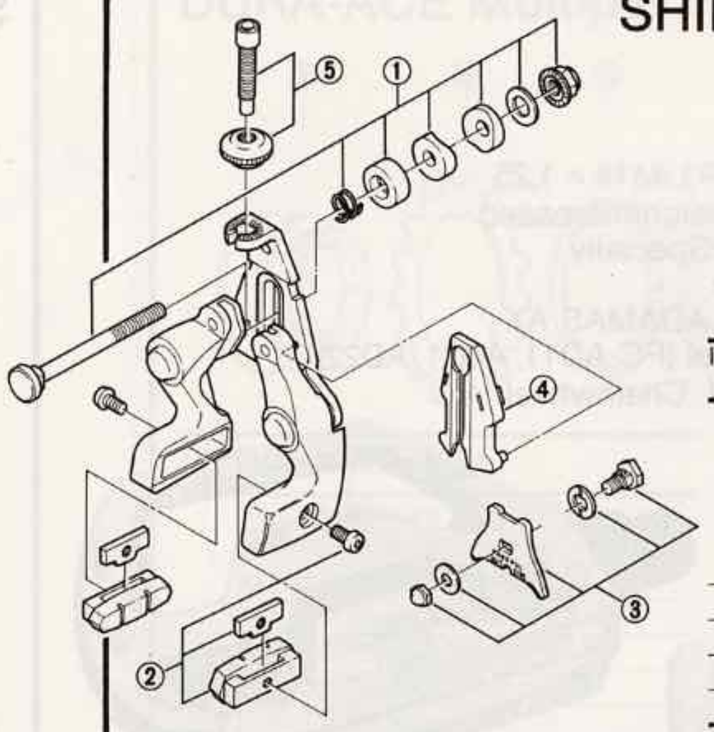
SHIMANO ADAMAS AX Brake Lever
Model BL-AD10
BL-AD50 (With Dual Extension Lever)

SPECIFICATIONS

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

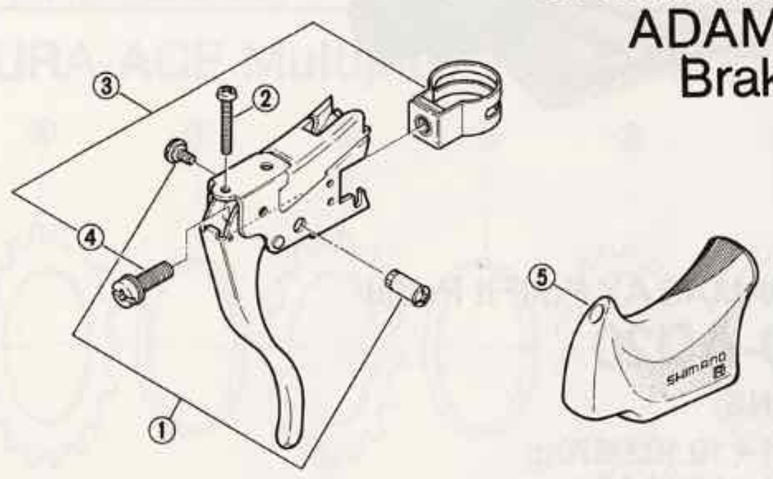


SHIMANO ADAMAS AX Parapul Brake



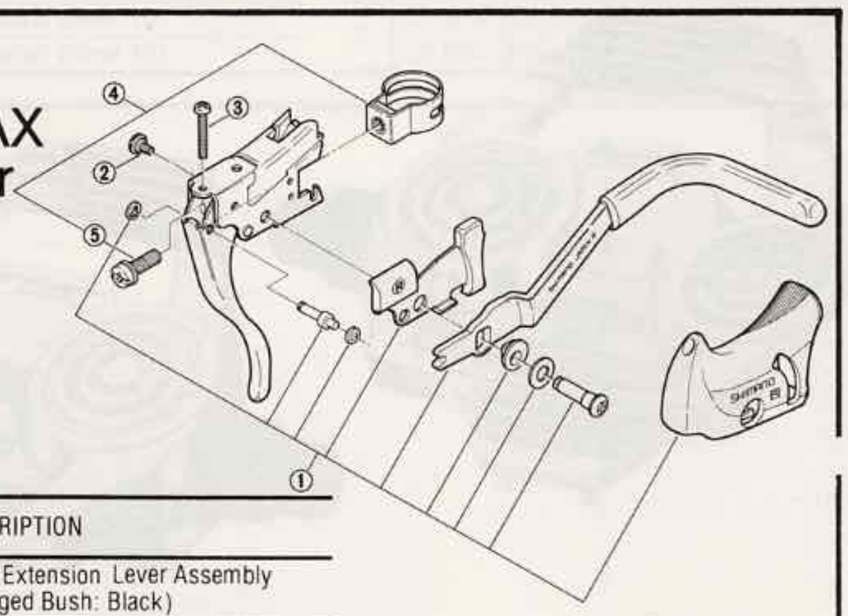
ITEM NO.	PART NO.	ESCRIPTION
1	3-865 9801	Center Bolt Assembly for Front 68 mm (2-11/16")
	3-865 9802	Center Bolt Assembly for Front 61.5 mm (2-13/32")
	3-865 9803	Center Bolt Assembly for Rear 45.5 mm (1-25/32")
2	3-867 9801	Brake Shoe Unite
3	3-867 9802	Carrier Assembly
4	867 1500	Carrier Guide
5	3-867 9803	Cable Adjusting Bolt & Nut

SHIMANO ADAMAS AX Brake Lever



ITEM NO.	PART NO.	ESCRIPTION
1	3-885 9801	Stopper Axle & Screw
2	888 1400	Adjusting Bolt
3	3-888 9805	Clamp Band & Screw (ø22.2 mm)
	3-888 9806	Clamp Band & Screw (ø23.8 mm)
4	888 1100	Clamp Screw (M6 × 20)
5	885 0100	Right Hand Bracket Cover
	885 0101	Left Hand Bracket Cover

SHIMANO ADAMAS AX Brake Lever

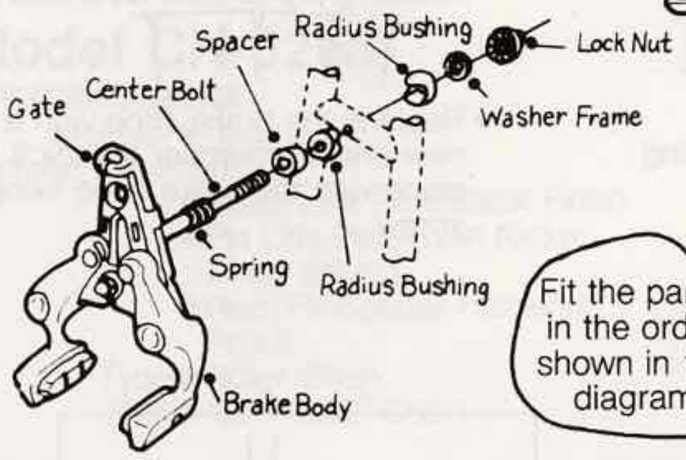


ITEM No.	PART NO.	DESCRIPTION
1	3-888 9801	Right Extension Lever Assembly (Flanged Bush: Black)
	3-888 9802	Left Extension Lever Assembly (Flanged Bush: Black)
	3-888 9101	Right & Left Extension Lever Assembly (Flanged Bush: Black)
2	888 1900	Stopper Bolt
3	888 1400	Adjusting Bolt (M4 × 23)
4	3-888 9805	Clamp Band & Screw (ø22.2 mm)
	3-888 9806	Clamp Band & Screw (ø23.8 mm)
5	888 1100	Clamp Screw (M6 × 20)

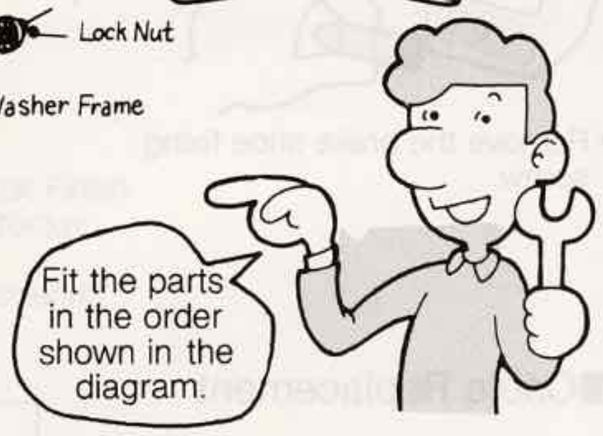
Assembly Notes

■Caliper Brake Assembly

- Fit the brake body to the frame in the same order as shown in the diagram. Fix temporarily with the lock nut.

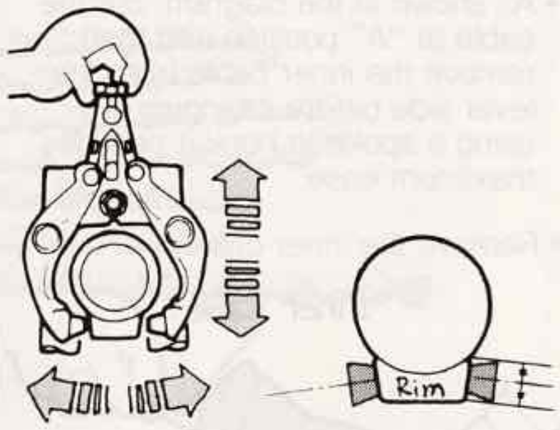






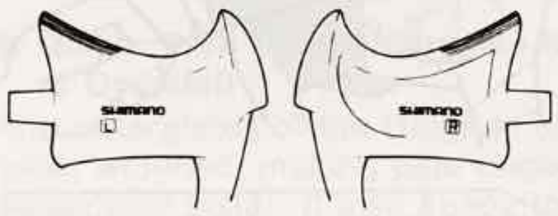
- Align the brake shoes by moving the gate section up and down until the brake shoes are positioned to make proper contact with the rim. Also make sure the rim is centered between the shoes. Next tighten the lock nut.

Tightening torque: 80–100kgfcm. (70–80 in. lbs.)



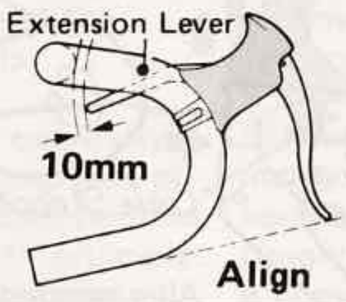
■Brake Lever Assembly

Left Side Lever Right Side Lever



Check the inscription marks R and L on the bracket cover, then assemble securely with the R mark to the right side and the L mark to the left side.

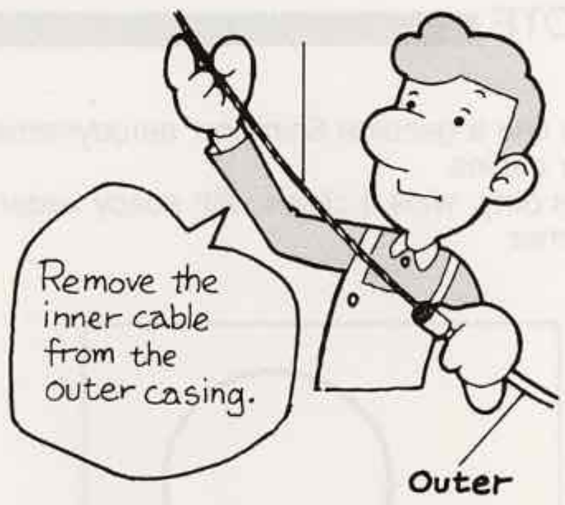
- Assemble the brake lever so that the bottom of the handle bar grip is level with the tip of the brake lever.
- In the case of the extension lever, fit the lever in a position where the clearance between the handle bar and extension lever is approximately 10mm.



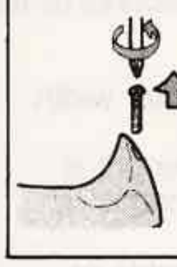
Adjust the line in a straight.

Clamp band fixing torque: 40kgfcm. (35 in. lbs.)

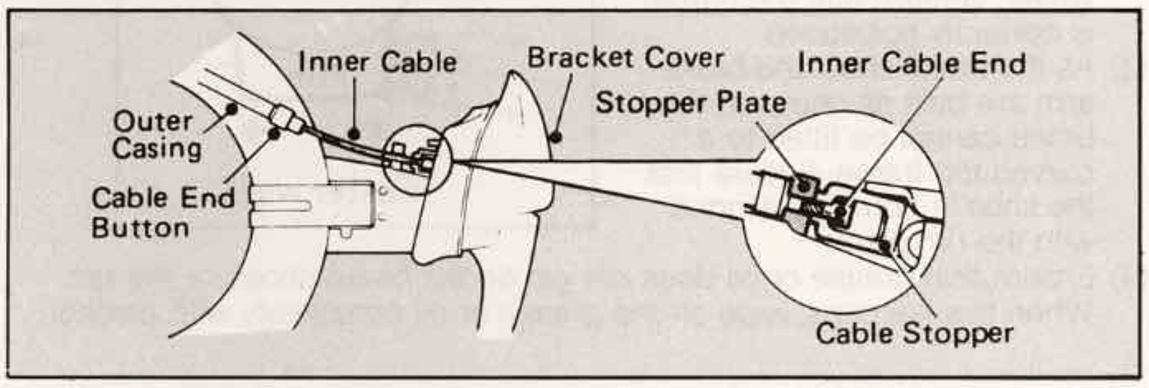
■Cable Connection to Brake lever



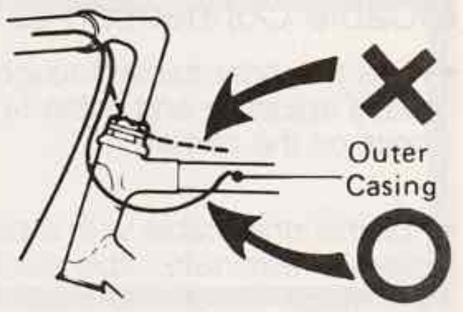
- Peel the bracket cover back and align the cable end button and outer casing with the stopper plate.

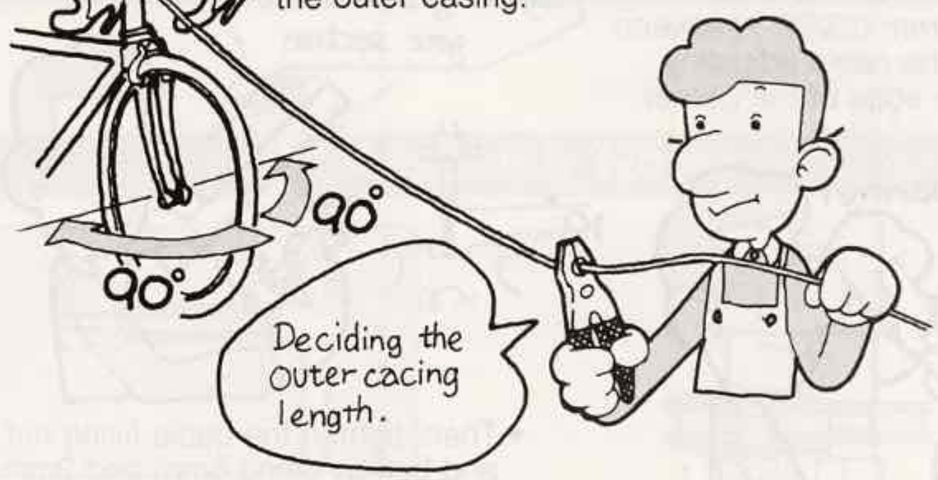


In the case of the extension lever, remove the adjusting bolt so the bracket cover can be easily peeled off.

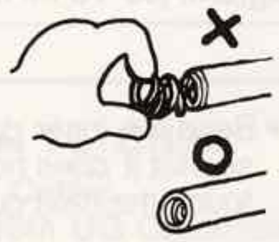


- Adjustment of the outer casing length
  This time, align the outer casing with the back of the handle bar.
  Then check that the outer casing does not make contact with the head parts and that the handle bar can operate both left and right with more than 90 degree movement. And then cut the outer casing.

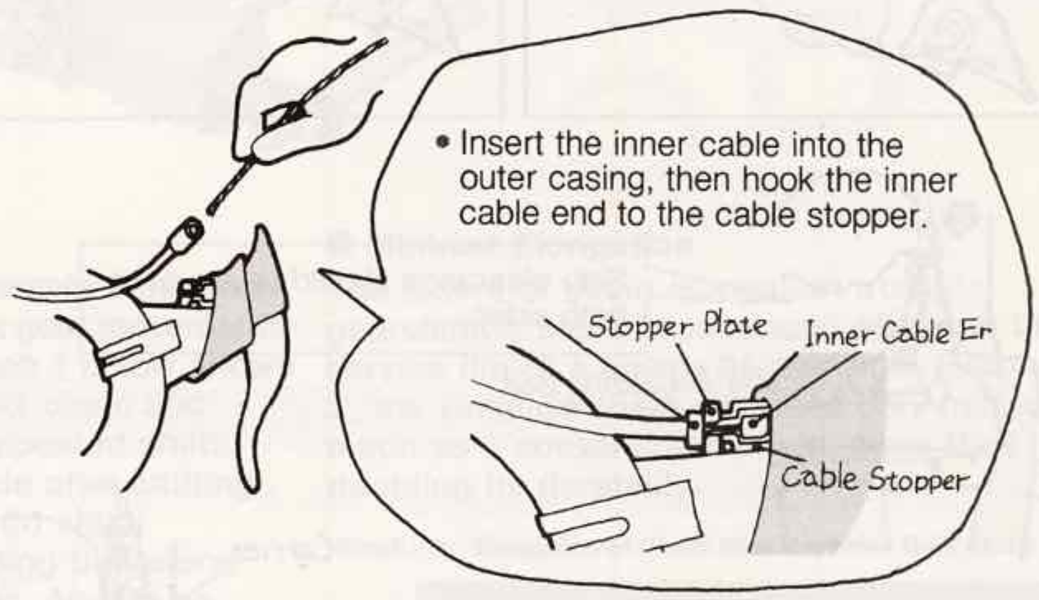




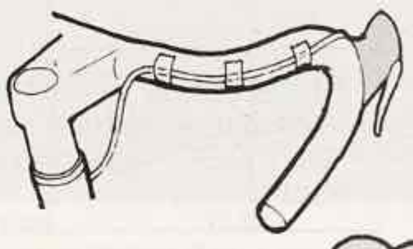
Note:



- Cutting pliers for the outer casing should be very sharp and strong. After cutting the outer casing, take care not to pull out the resin which is necessary inside the casing.
- Check the cut area of the outer casing and if the cut is not clean (i.e., wire is sticking up, thus impeding smooth cable action), please cut again.

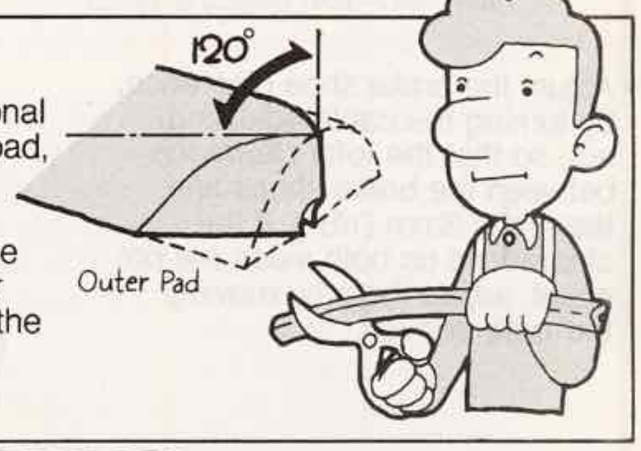


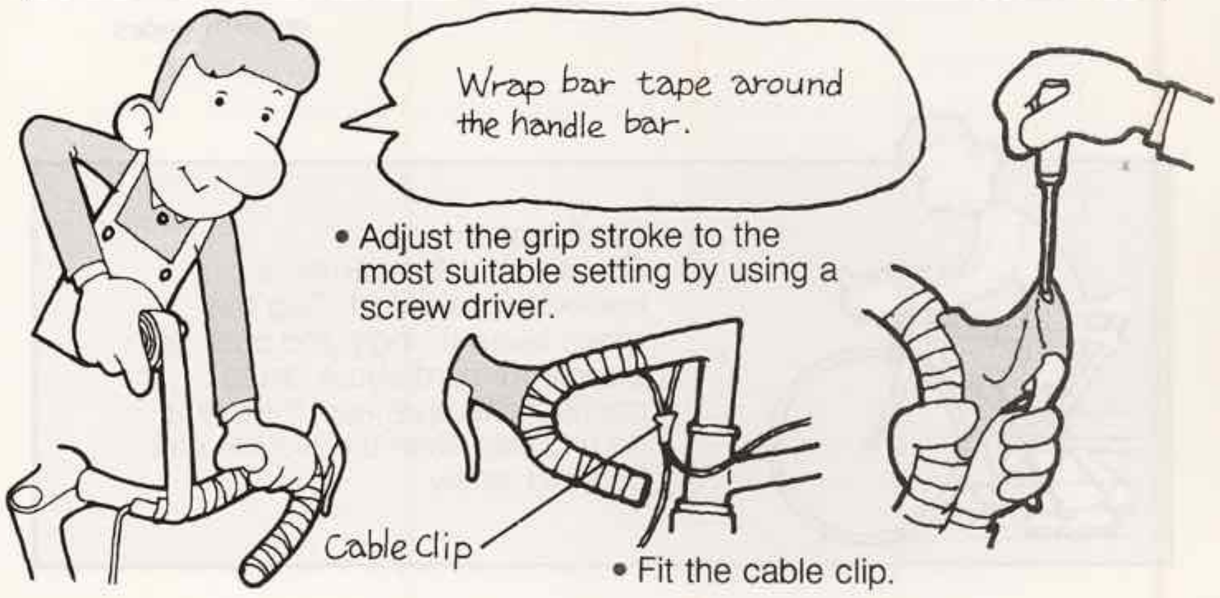
- Insert the inner cable into the outer casing, then hook the inner cable end to the cable stopper.
- Align the outer casing along the back of the handle bar, then fix temporarily with tape.



Note:

When using an outer pad (optional part), cut the end of the outer pad, as shown in the diagram, and align it with the outer casing. Then, fix the outer pad with tape to the handle bar. Cut the outer pad according to the length of the handle bar.

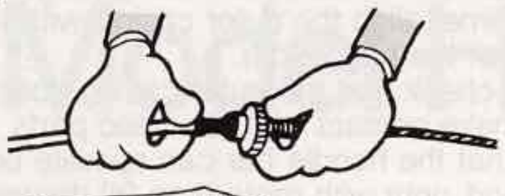




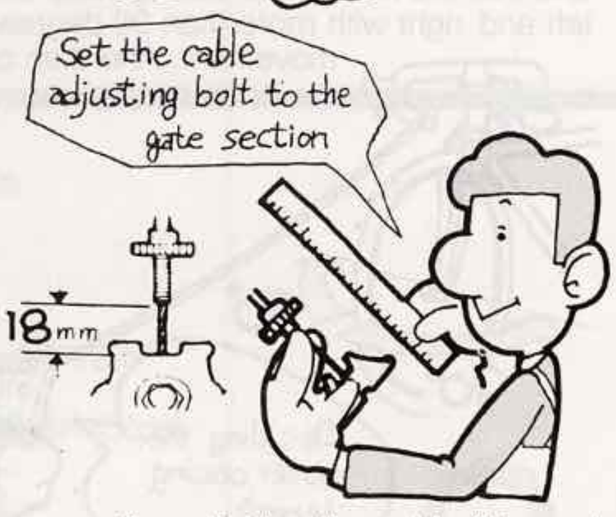
- Adjust the grip stroke to the most suitable setting by using a screw driver.
- Fit the cable clip.

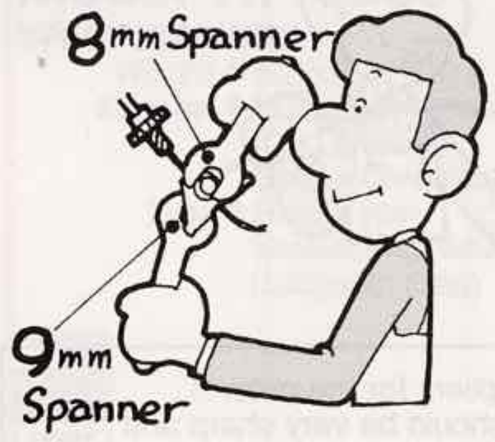
■Cable Connection to Caliper Brake

- Pass the inner cable through the cable adjusting and cable fixing bolts on the carrier.



- Pull the inner cable with a pair of pliers to eliminate cable slack. At this stage, check that cable length is 18mm (23/32") between the end of the cable adjusting bolt and the edge of the carrier.

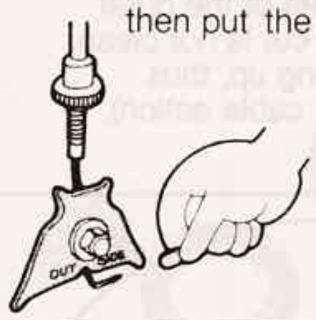




- Then, tighten the cable fixing nut and bolt by using 8mm and 9mm spanners.

Tightening torque: 70–85kgfcm. (60–75 in. lbs.)

- Cut the inner cable and then put the end cap on.

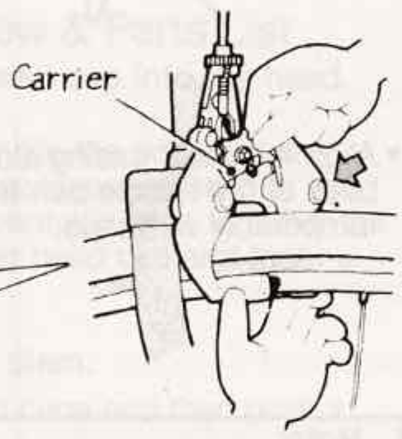


- Bend the inner cable so that it does not touch the mud guard.



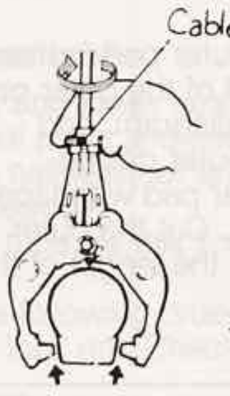


Side clearance should be equal on both sides.



Fit the carrier to the brake arm. Then check that the side marked "OUT SIDE" is positioned to the front.

- Adjust the brake shoe clearance, by turning the cable adjusting nut, so that the total clearance between the brake shoes and the rim is 3mm (1/8"). If the clearances on both sides are not equal, adjust them by moving the gate section.



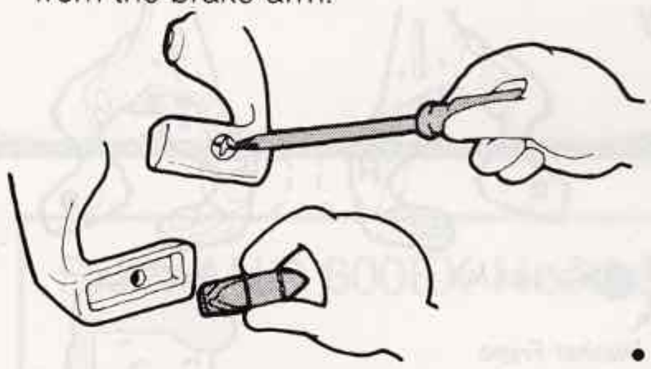
Side clearance shoud be equal on both sides



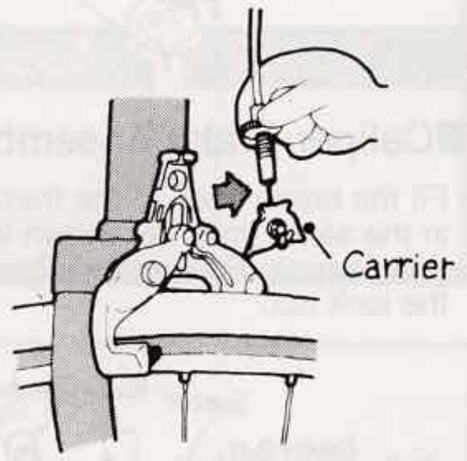
Confirmation:
Confirm that the carrier is correctly positioned. Grip the brake lever strongly and push the bicycle forward about 2m to confirm effectiveness. If there is no problem, then the bicycle can be used safely.

■Replacement of the Brake Shoes

- Loosen the cable adjusting bolt fully and then remove the carrier from the brake arm.



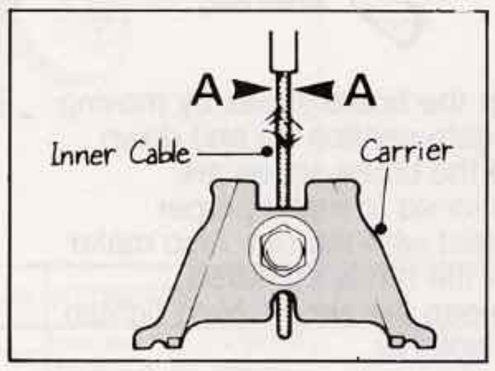
- Remove the brake shoe fixing screw.



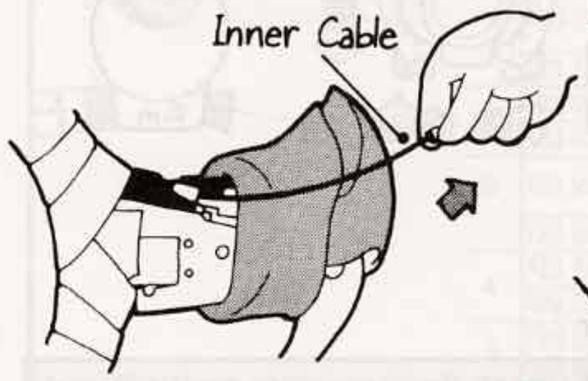
- Replace the brake shoe with a new one. Remember to lock it in place with the brake shoe fixing screw.

■Cable Replacement

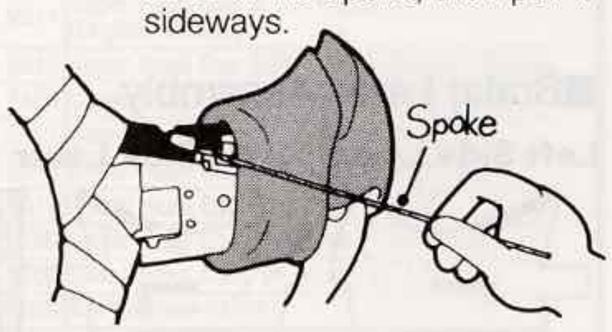
- As shown in the diagram, cut the cable at "A" position and then remove the inner cable from the lever side before changing – using a spoke to hook it provides maximum ease.

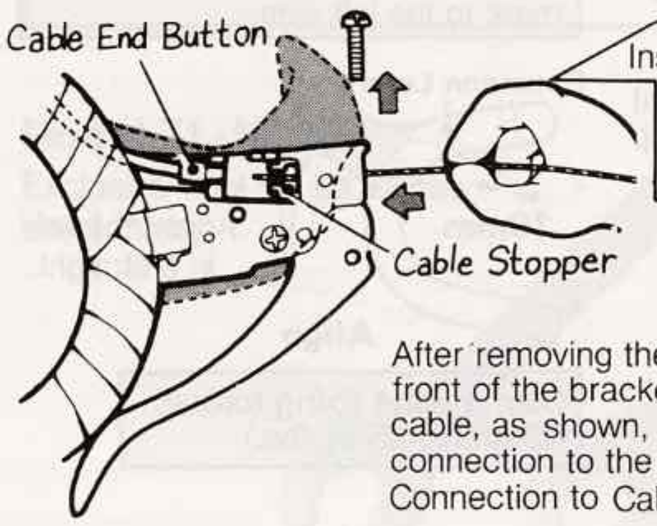


- Remove the inner cable.



- Hook the inner cable with the head of the spoke, then pull it sideways.





Insert the inner cable through the cable end button into the outer casing and then hook the inner cable end to the cable stopper.

After removing the adjusting bolt to peel off the front of the bracket cover, insert a new inner cable, as shown, in the diagram. For inner cable connection to the carrier, refer to the Cable Connection to Caliper Brake.

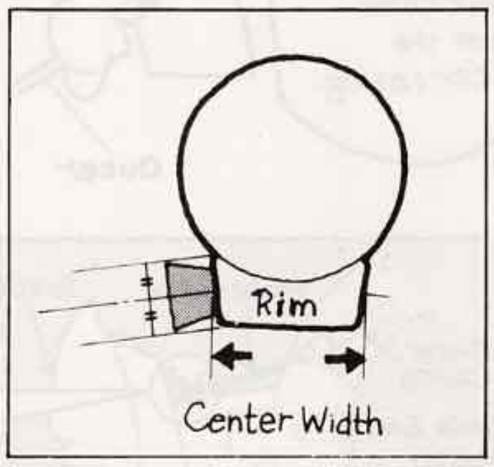
NOTE

Brake Lever

(1) When changing the cable, please use a genuine Shimano aerodynamic cable for outer casings and inner cables.
(2) When the bracket cover becomes dirty, wipe it clean with soapy water. Be sure not to use alcohol or thinner.

Caliper Brake

(1) Use a rim with a center width of 22mm–27mm (7/8"–1-1/16"). The length is measured at the center of a rim.
(2) After changing the cable or wheel, confirm that the carrier is correctly positioned.
(3) As the brake shoe and brake arm are built as one unit, the brake cannot be fitted to a curved top frame. Ensure that the shoe is correctly aligned with the rim plate.
(4) Ensure that grease or oil does not get on the brake shoes or the rim. When this happens, wipe off the grease or oil completely with alcohol.



Model FC-AX21
INTEGER AX
Front Chainwheel

Model BB-SL32
INTEGER AX
Bottom Bracket Assembly

SHIMANO INTEGER AX Front Chainwheel & Bottom Bracket Assembly

Model FC-AX21
BB-SL32 (B.B. Parts)

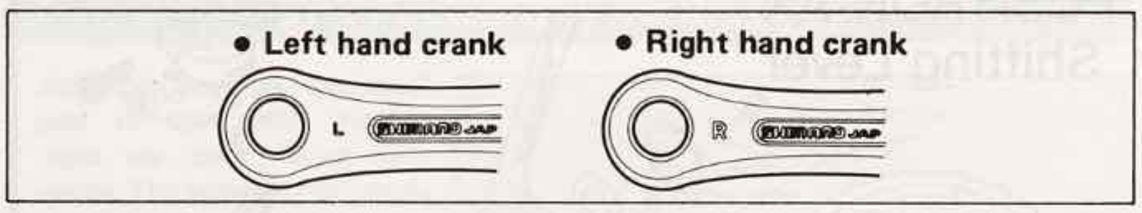
SPECIFICATIONS

Weight • 15.0 oz. (425g.) 39T. — 52T. Type
4.8 oz. (135g.) Top Protector
11.5 oz. (325g.) B.B. Parts
Material • Steel
Type • Cotterless
Chain Ring • 1/2″ × 3/32″ Chain
Teeth • 39T. — 52T. Type
Crank Length • 6-1/2″ (165mm.), 6-3/4″ (170mm.)
Crank Thread • BC 9/16″ × 20 T.P.I.
Cup Thread • English 1.37 × 24T./French 35 × 1.0 (Special Order)
Features • Aerodynamic Design/Top Protector/W-cut Mechanism/ Usable for 12-speed/Safety Crank Arm/Octa Joint Crank

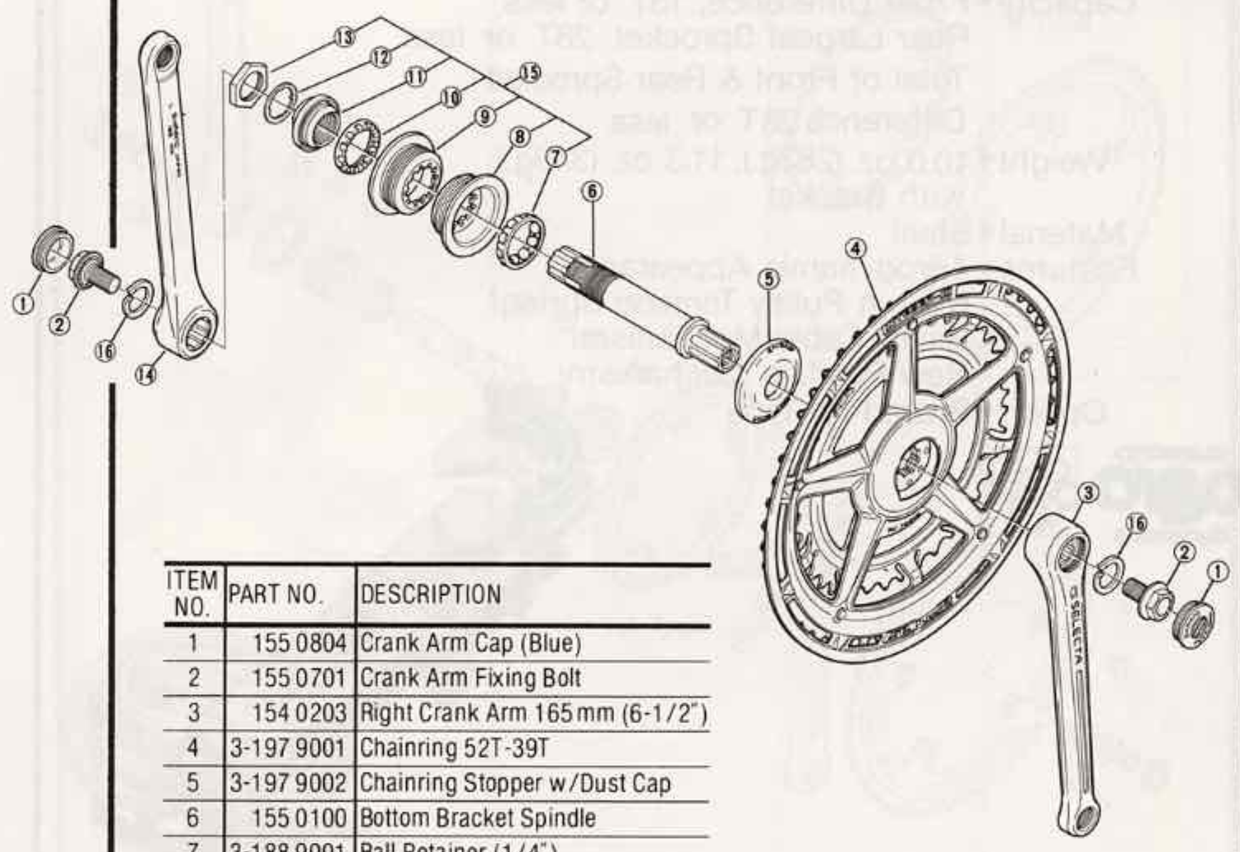


Assembly Notes

1) When assembling the right and left hand cranks to the bottom bracket spindle, confirm that the "R" and "L" marks (behind the cranks) are correctly positioned to the right and left sides.



INTEGER-AX Front Chainwheel & Bottom Bracket Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	155 0804	Crank Arm Cap (Blue)
2	155 0701	Crank Arm Fixing Bolt
3	154 0203	Right Crank Arm 165 mm (6-1/2″)
4	3-197 9001	Chainring 52T-39T
5	3-197 9002	Chainring Stopper w/Dust Cap
6	155 0100	Bottom Bracket Spindle
7	3-188 9001	Ball Retainer (1/4″)
8	188 0300-2	Right Hand Ball Cup
9	188 0400-2	Left Hand Ball Cup
10	3-188 9002	Ball Retainer (3/16″)
11	3-188 9004	Left Hand Cone w/Dust Cap
12	188 1401-1	Key Washer
13	188 0700	Lock Nut
14	154 1203	Left Crank Arm 165 mm (6-1/2″)
15	3-187 9502	Ball Cup Assembly
16	155 1200	Spring Washer

Model TL-FF20
Cup Removal Tool



Model TL-FC10
Cotterless Crank Extractor



Model TL-FW20
Multiple Freewheel Removal Tool



Model TL-FC15
Clank Arm Bolt Fixing Wrench
14mm. for Front Chainwheel.
*Tighten the crank bolt handly.
Total Torque:
300~450kgfcm.



Model RD-AX10 POSITRON AX Rear Derailleur
Model FD-AX10 POSITRON AX Front Derailleur
Model SL-AX10 POSITRON AX Shifting Lever

SHIMANO POSITRON AX Rear Derailleur
Model RD-AX10
SPECIFICATIONS

Capacity • Front Difference; 13T. or less
Rear Largest Sprocket: 28T. or less
Total of Front & Rear Sprocket Difference 28T. or less
Weight • 10.0 oz. (283g.), 11.3 oz. (319g.) with Bracket
Material • Steel
Features • Aerodynamic Appearance/ Built in Pulley Tension Spring/ Direct Cable Mechanism/ New Positive Mechanism/
Option • Brazed-on Type



SHIMANO POSITRON AX Front Derailleur
Model FD-AX10
SPECIFICATIONS

Capacity • 14T. or less
Weight • Body; 6.7 oz. (190g.)
Cable Guide; 1.9 oz. (55g.)
Material • Steel
Inlet Diameter • 1-1/8" (28.6mm.), 1" (25.4mm.)
Features • Aerodynamic Appearance/Inner Chain Protector/Trap-Ease Mechanism/Indent Guide Mechanism/Top Normal Type

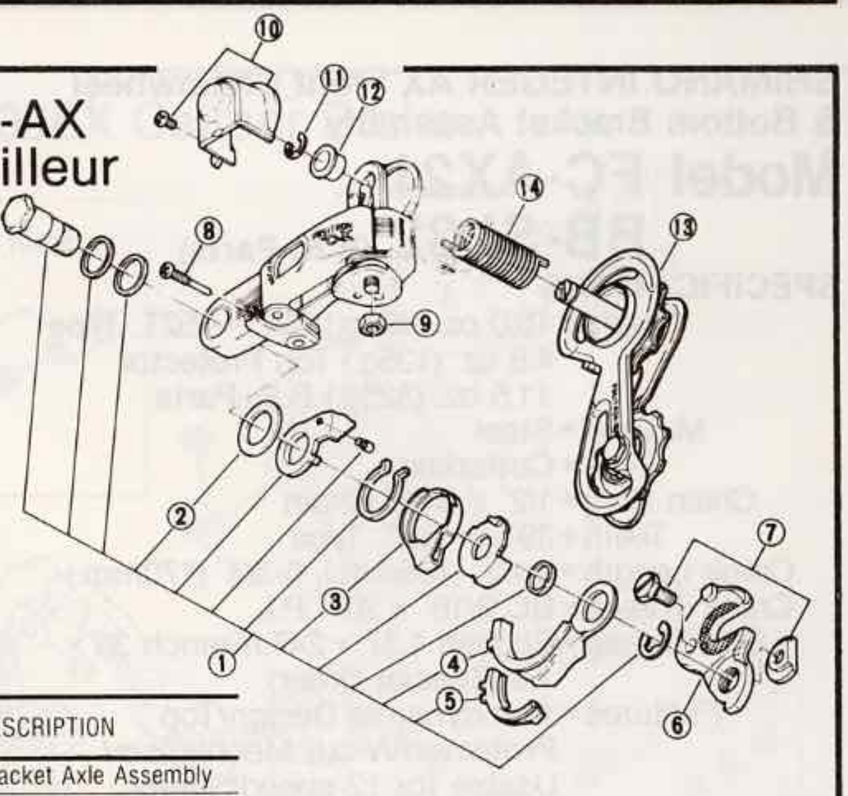


SHIMANO POSITRON AX Shifting Lever
Model SL-AX10
SPECIFICATIONS

Weight • 4.9 oz. (140g.) Bracket
Material • Lever • Resin
Bracket • Zinc & Steel
Type • Friction Type
Attachment Position • Top Tube
Lever Clamp Diameter • 1" (25.4mm.)
Features • Aerodynamic Appearance/ With Fairing Cover

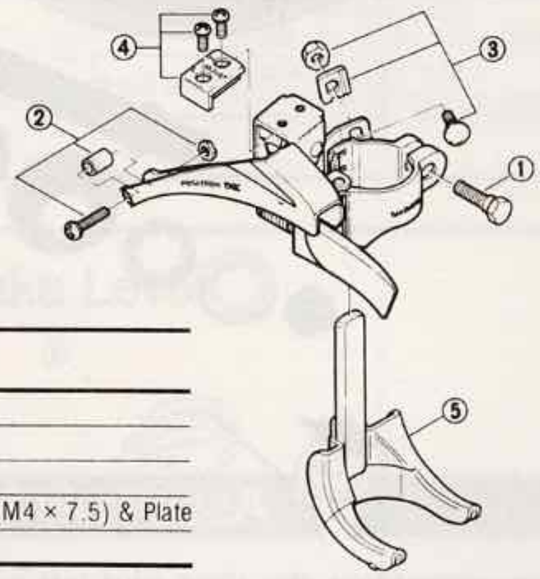


POSITRON-AX Rear Derailleur



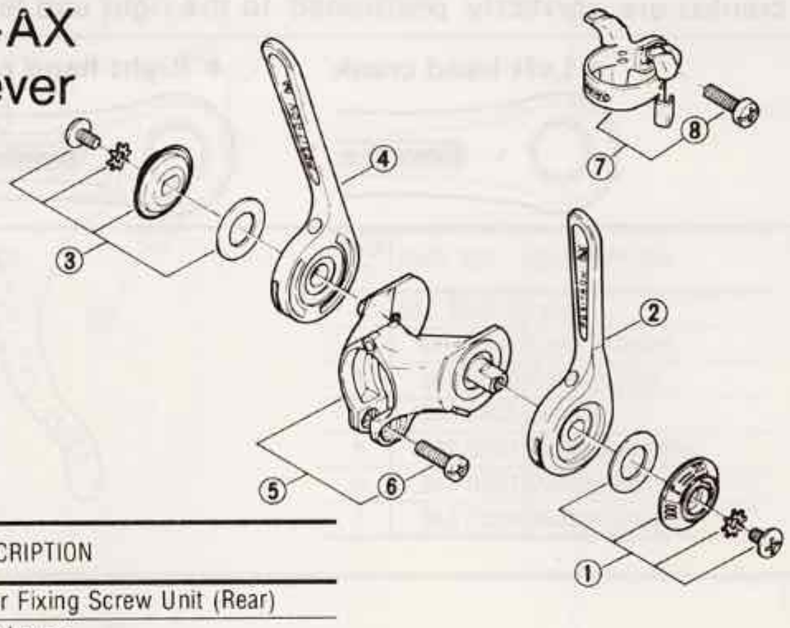
ITEM NO.	PART NO.	DESCRIPTION
1	3-565 9003	Bracket Axle Assembly
2	564 4500	Bracket Sleeve A
3	564 4400	Stopper
4	564 0700	Inner Guide
5	564 3200	Guide Liner
6	564 1401	Adapter
7	3-525 9069	Set Bolt & Nut
8	565 1100	Select Bolt
9	541 2401	Cable Fixing Nut
10	3-565 9801	P-Cover & Screw
11	564 4100	Stop Ring (ø5)
12	564 1900	P-Bushing
13	3-565 9005	Pulley Assembly
14	564 2000	P-Tension Spring

POSITRON-AX Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	583 0202	Clam Bolt
2	3-591 9006	Roller Fixing Screw Unit
3	3-592 9005	Cable Fixing Bolt Unit
4	3-575 9801	Stroke Adjusting Screw (M4 × 7.5) & Plate
5	3-575 9001	Cable Guide

POSITRON-AX Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-645 9801	Lever Fixing Screw Unit (Rear)
2	645 0300	Rear Lever
3	3-645 9802	Lever Fixing Screw Unit (Front)
4	645 0400	Front Lever
5	3-645 9803	Clamp Band & Screw
6	645 1200	Band Fixing Screw (M6 × 16)
7	3-645 9013	Cable Guide & Screw
8	333 0900	Cable Guide Fixing Screw (M5 × 16)

SHIMANO
ALTUS
SELECTA

Model RD-AT12
Rear Derailleur (Short Cage)

Model RD-AT22
Rear Derailleur (Long Cage)

Model FD-AT12
Front Derailleur

Model SL-AT22
DOWN TUBE Shifting Lever (Band Type)

Model SL-AT23
DOWN TUBE Shifting Lever (Brazed-on Type)

Model SL-AT12
Stem Shifting Lever

SHIMANO ALTUS-LT
Rear Derailleur

Model RD-AT12 (Short Cage)

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
Rear Largest Sprocket/28 Teeth or Less
Total of Front & Rear Sprocket
Difference/28 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,
Hatch-Plate Mechanism





SHIMANO ALTUS-LT
Rear Derailleur

Model RD-AT22 (Long Cage)

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
Rear Largest Sprocket/34 Teeth or less
Total of Front & Rear Sprocket
Difference/34 Teeth or Less
Weight: 9.8oz. (277g.)/Except Bracket
Material: Light Alloy/Bracket Body,
Link
: Steel Others
Type: Servo Panta Mechanism,
Centeron Mechanism,
Hatch-Plate Mechanism





SHIMANO ALTUS-LT
Front Derailleur

Model FD-AT12

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



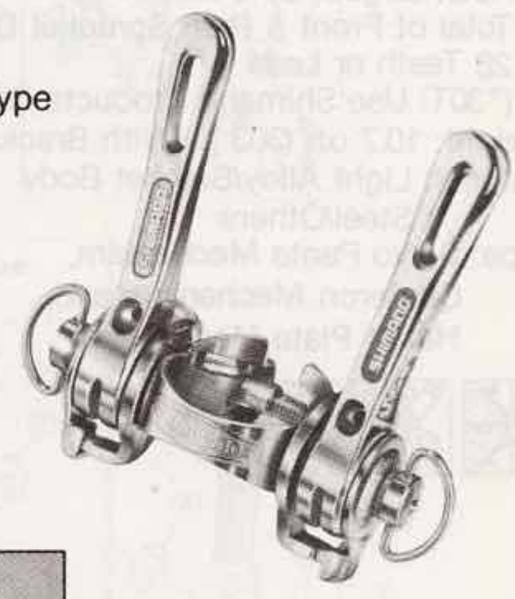


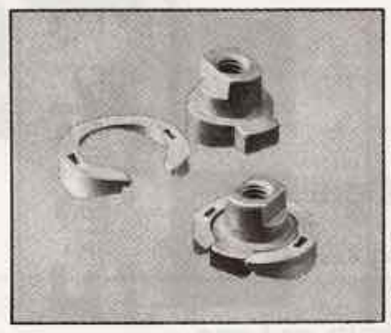
SHIMANO ALTUS-LT DOWN TUBE
Shifting Lever

Model SL-AT22 (Band Type)
SL-AT23 (Brazed-on Type)

SPECIFICATIONS

Weight: 3.0 oz. (85 g.)/Band Type
: 1.7 oz. (46.8 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
Single Lever Available





SEALED
Brazed-on Type Only
(Model SL-AT23)

SHIMANO ALTUS-LT STEM
Shifting Lever

Model SL-AT12

SPECIFICATIONS

Weight: 3.3 oz. (94 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
Single Lever Available





Model TL-WR36
Hexagon Wrench Key
6 mm.



SHIMANO

ALTUS SELECTA

Model RD-AT11
Rear Derailleur (Short Cage)

Model RD-AT21
Rear Derailleur (Long Cage)

Model FD-AT11
Front Derailleur

Model SL-AT21
DOWN TUBE Shifting Lever (Band Type)

Model SL-AT11
Stem Shifting Lever

SHIMANO ALTUS-ST Rear Derailleur

Model RD-AT11 (Short Cage)

SPECIFICATIONS

Capacity: Front difference/13 Teeth or Less
Rear Largest Sprocket/28 Teeth or Less
Total of Front & Rear Sprocket Difference/ 28 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





SHIMANO ALTUS-ST Rear Derailleur

Model RD-AT21 (Long Cage)

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
Rear Largest Sprocket/34 Teeth or Less
Total of Front & Rear Sprocket Difference/ 34 Teeth or Less
Weight: 11.2oz. (318g.)/With Bracket
Material: Light Alloy/Bracket Body
: Steel/Others
Type: Servo Panta Mechanism, Centeron Mechanism and Hatch-Plate Mechanism





SHIMANO ALTUS-ST
Front Derailleur

Model FD-AT11

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





SHIMANO ALTUS-ST DOWN TUBE
Shifting Lever

Model SL-AT21 (Band Type)

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





Single
Lever Available



SHIMANO ALTUS-ST STEM
Shifting Lever

Model SL-AT11

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





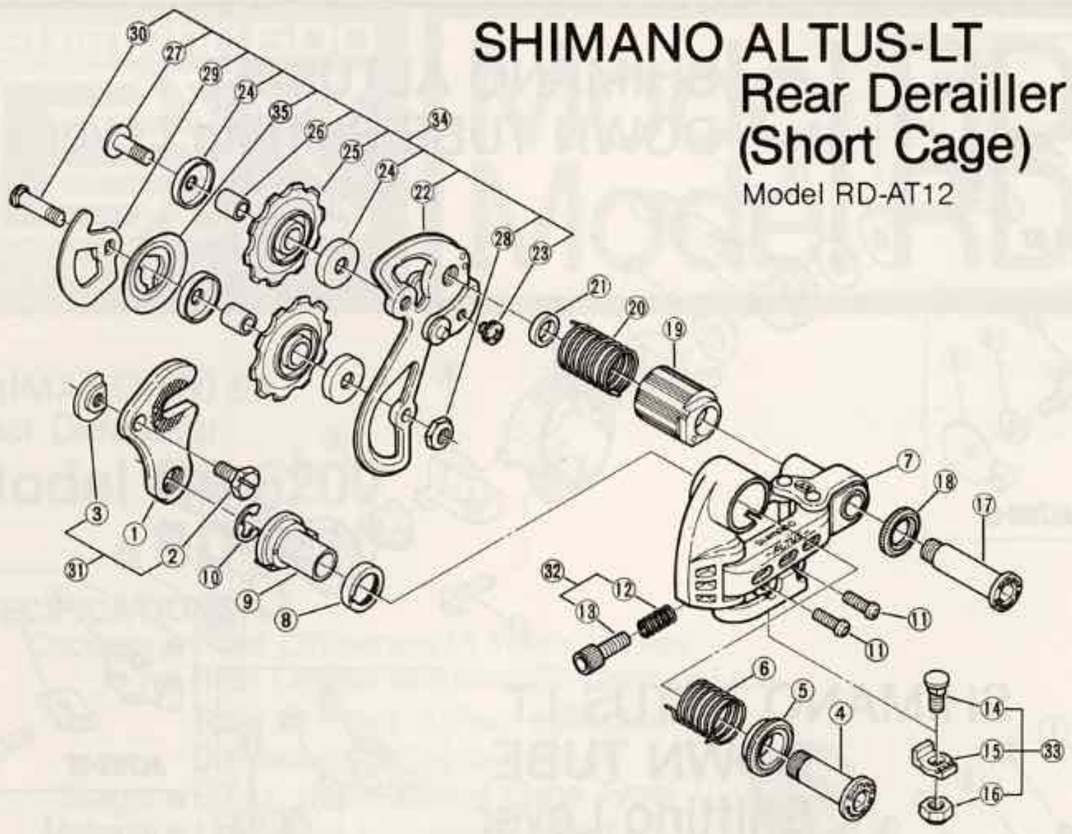
Single
Lever Available



Model TL-WR36
Hexagon Wrench Key
6 mm.



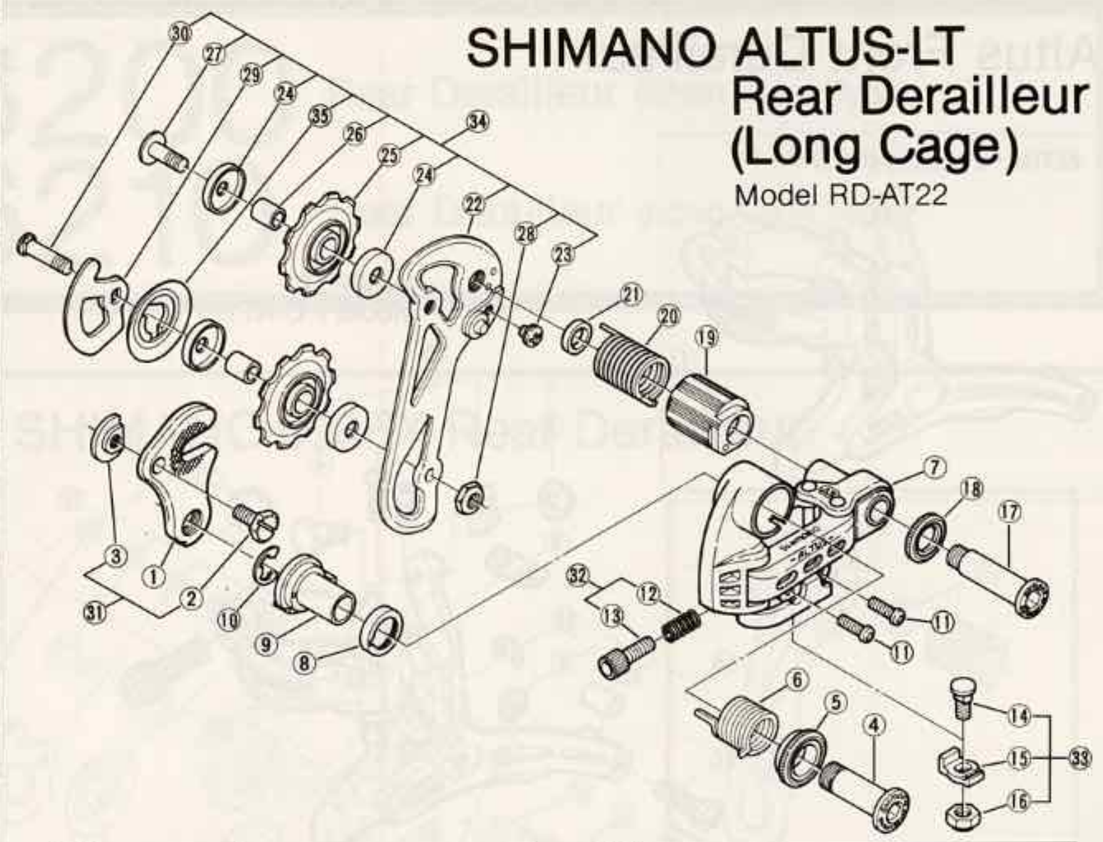
SHIMANO ALTUS-LT
Rear Derailler (Short Cage)
Model RD-AT12



ITEM NO.	PART NO.	DESCRIPTION
1	541 2701	Adapter
2	000 1104-1	Adapter Screw
3	511 3500-1	Adapter Nut
4	541 0700-1	Adapter Mounting Bolt
5	541 2201	Adapter Mounting Collar
6	528 1100	B-Tension Spring
7	3-538 9001	Mechanism Assembly
8	541 3500	Sleeve
9	3-541 9004-1	Adapter Bushing
10	528 1200	Stop Ring (ø7 mm)
11	000 1003	Stroke Adjusting Screw
12	541 1100	Cable Adjusting Spring
13	541 1200	Cable Adjusting Barrel
14	541 3400	Cable Fixing Bolt
15	541 2300	Cable Fixing Plate
16	541 2400	Cable Fixing Nut
17	541 0800-1	Plate Mounting Bolt
18	541 2101	Plate Mounting Collar

ITEM NO.	PART NO.	DESCRIPTION
19	541 2601	Spring Cover
20	541 0900	P-Tension Spring
21	541 2500	Plate Mounting Bush
22	3-538 9002	Inner Cage Plate
23	3-537 9003	Hatch Plate Fixing Bolt
24	511 2700-1	Pulley Cap
25	521 3100	Pulley
26	511 2900	Pulley Bushing
27	537 1300	Pulley Bolt A
28	545 5400	Pulley Nut
29	534 2401	Outer Cage Plate
30	534 2200	Pulley Bolt E
31	3-525 9069	Adapter Screw & Nut
32	3-541 9002	Cable Adjusting Barrel & Spring
33	3-541 9001	Cable Fixing Bolt Unit
34	3-538 9004-1	Pulley Plate Assembly
35	534 2500	S.B. Cap

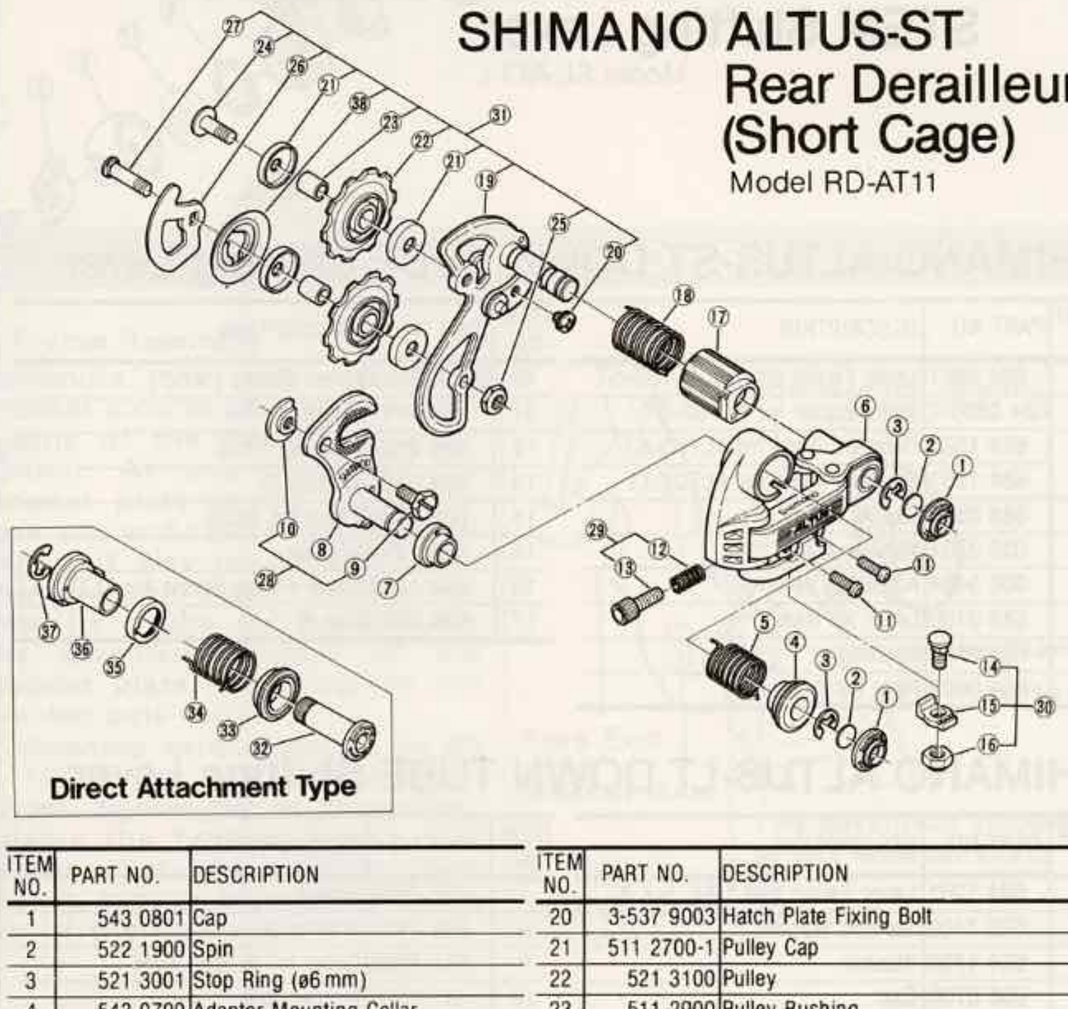
SHIMANO ALTUS-LT
Rear Derailleur (Long Cage)
Model RD-AT22



ITEM NO.	PART NO.	DESCRIPTION
1	541 2701	Adapter
2	000 1104-1	Adapter Screw
3	511 3500-1	Adapter Nut
4	541 0700-1	Adapter Mounting Bolt
5	541 2201	Adapter Mounting Collar
6	541 3100	B-Tension Spring
7	3-538 9007	Mechanism Assembly
8	541 3500	Sleeve
9	3-541 9004-1	Adapter Bushing
10	528 1200	Stop Ring (ø7 mm)
11	000 1003	Stroke Adjusting Screw
12	541 1100	Cable Adjusting Spring
13	541 1200	Cable Adjusting Barrel
14	541 3400	Cable Fixing Bolt
15	541 2300	Cable Fixing Plate
16	541 2400	Cable Fixing Nut
17	541 0800-1	Plate Mounting Bolt
18	541 2101	Plate Mounting Collar

ITEM NO.	PART NO.	DESCRIPTION
19	541 2601	Spring Cover
20	541 3000	P-Tension Spring
21	541 2500	Plate Mounting Bush
22	3-538 9008	Inner Cage Plate
23	3-537 9003	Hatch Plate Fixing Bolt
24	511 2700-1	Pulley Cap
25	521 3100	Pulley
26	511 2900	Pulley Bushing
27	537 1300	Pulley Bolt A
28	545 5400	Pulley Nut
29	534 2401	Outer Cage Plate
30	534 2200	Pulley Bolt E
31	3-525 9069	Adapter Screw & Nut
32	3-541 9002	Cable Adjusting Barrel & Spring
33	3-541 9001	Cable Fixing Bolt Unit
34	3-538 9009-1	Pulley Plate Assembly
35	534 2500	S.B. Cap

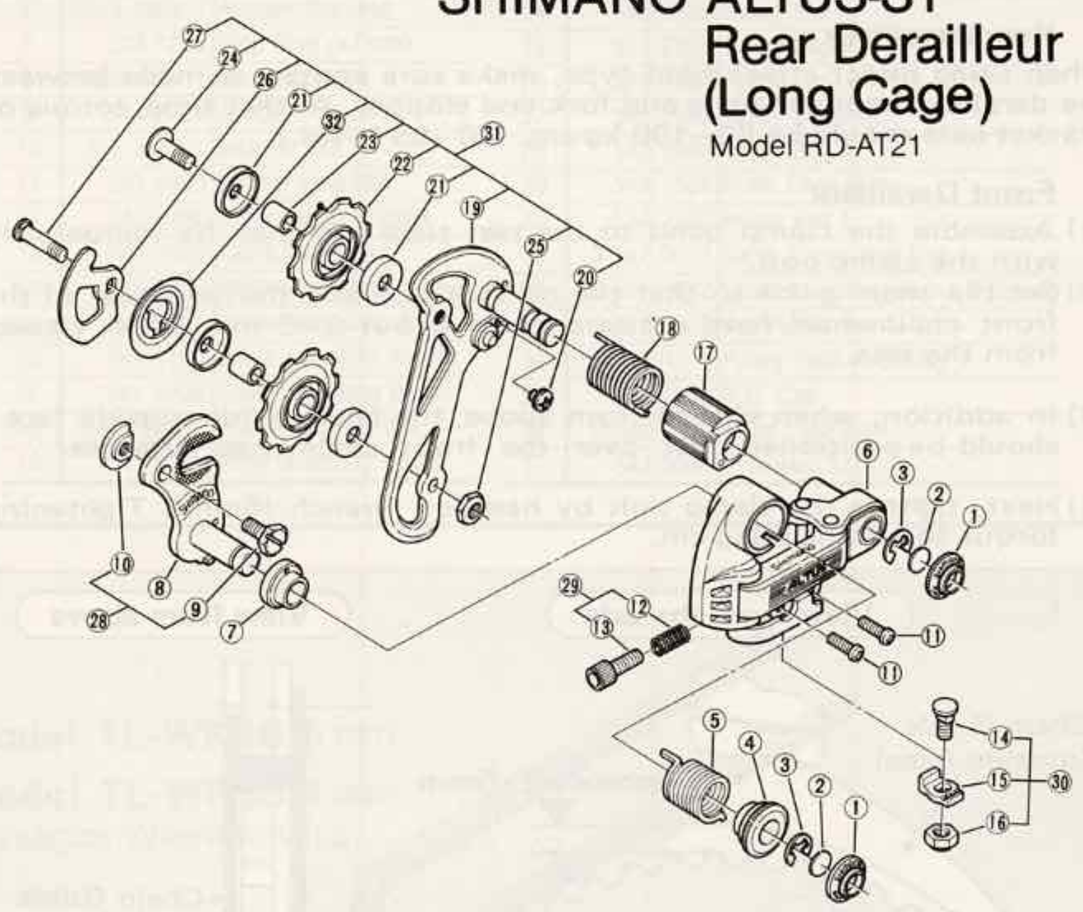
SHIMANO ALTUS-ST
Rear Derailleur (Short Cage)
Model RD-AT11



ITEM NO.	PART NO.	DESCRIPTION
1	543 0801	Cap
2	522 1900	Spin
3	521 3001	Stop Ring (ø6 mm)
4	543 0700	Adapter Mounting Collar
5	543 0502	B-Tension Spring
6	3-537 9001	Mechanism Assembly
7	543 0600	Adapter Bushing
8	3-543 9004	Adapter w/Mounting Shaft
9	000 1104-1	Adapter Screw
10	511 3500-1	Adapter Nut
11	000 1003	Stroke Adjusting Screw
12	541 1100	Cable Adjusting Spring
13	541 1200	Cable Adjusting Barrel
14	541 3400	Cable Fixing Bolt
15	541 2300	Cable Fixing Plate
16	541 2400	Cable Fixing Nut
17	541 2601	Spring Cover
18	541 0900	P-Tension Spring
19	3-537 9002	Inner Cage Plate w/Mounting Shaft

ITEM NO.	PART NO.	DESCRIPTION
20	3-537 9003	Hatch Plate Fixing Bolt
21	511 2700-1	Pulley Cap
22	521 3100	Pulley
23	511 2900	Pulley Bushing
24	537 1300	Pulley Screw A
25	545 5400	Pulley Nut
26	534 2400	Outer Cage Plate
27	534 2200	Pulley Bolt E
28	3-525 9069	Adapter Screw & Nut
29	3-541 9002	Cable Adjusting Barrel & Spring
30	3-541 9001	Cable Fixing Bolt Unit
31	3-537 9004-1	Pulley Plate Assembly
32	541 0700-1	Adapter Mounting Bolt (Direct Attachment Type)
33	541 2201	Adapter Mounting Collar (Direct Attachment Type)
34	528 1100	B-Tension Spring (Direct Attachment Type)
35	541 3500	Sleeve (Direct Attachment Type)
36	3-541 9004-1	Adapter Bushing (Direct Attachment Type)
37	528 1200	Stop Ring ø7 mm (Direct Attachment Type)
38	534 2500	S.B. Cap

SHIMANO ALTUS-ST
Rear Derailleur (Long Cage)
Model RD-AT21

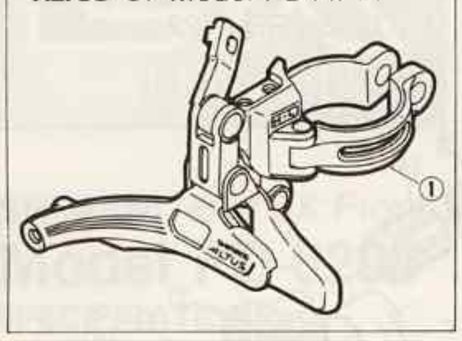


ITEM NO.	PART NO.	DESCRIPTION
1	543 0801	Cap
2	522 1900	Spin
3	521 3001	Stop Ring (ø6 mm)
4	543 0700	Adapter Mounting Collar
5	543 0500	B-Tension Spring
6	3-537 9010	Mechanism Assembly
7	543 0600	Adapter Bushing
8	3-543 9004	Adapter w/Mounting Shaft
9	000 1104-1	Adapter Screw
10	511 3500-1	Adapter Nut
11	000 1003	Stroke Adjusting Screw
12	541 1100	Cable Adjusting Spring
13	541 1200	Cable Adjusting Barrel
14	541 3400	Cable Fixing Bolt
15	541 2300	Cable Fixing Plate
16	541 2400	Cable Fixing Nut

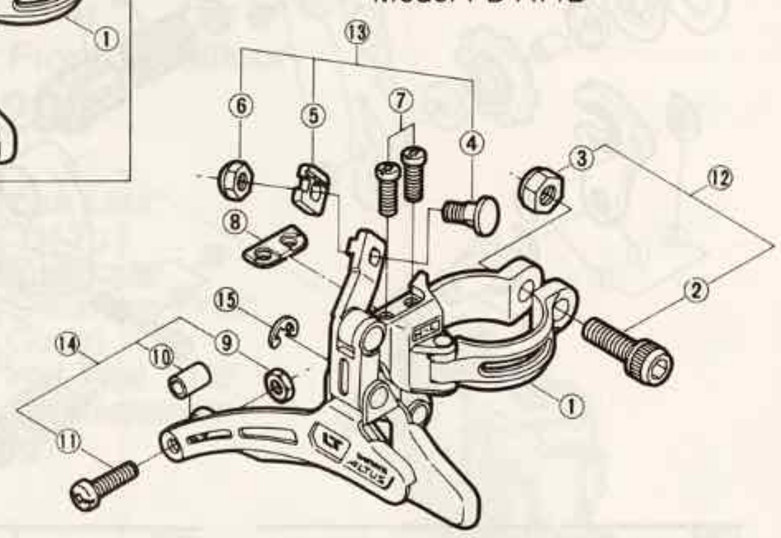
ITEM NO.	PART NO.	DESCRIPTION
17	541 2601	Spring Cover
18	541 3000	P-Tension Spring
19	3-537 9008	Inner Cage Plate w/Mounting Shaft
20	3-537 9003	Hatch Plate Fixing Bolt
21	511 2700-1	Pulley Cap
22	521 3100	Pulley
23	511 2900	Pulley Bushing
24	537 1300	Pulley Screw A
25	545 5400	Pulley Nut
26	534 2400	Outer Cage Plate
27	534 2200	Pulley Bolt E
28	3-525 9069	Adapter Screw & Nut
29	3-541 9002	Cable Adjusting Barrel & Spring
30	3-541 9001	Cable Fixing Bolt Unit
31	3-537 9009-1	Pulley Plate Assembly
32	534 2500	S.B. Cap

Altus Front Derailleur

ALTUS-ST Model FD-AT11



ALTUS-LT
Model FD-AT12



ITEM NO.	PART NO.	DESCRIPTION
1	3-594 9001	Clamp & Chain Guide Assembly for ALTUS-ST (1-1/8")
	3-594 9006	Clamp & Chain Guide Assembly for ALTUS-ST (1")
	3-595 9011	Clamp & Chain Guide Assembly for ALTUS-LT (1-1/8")
	3-595 9012	Clamp & Chain Guide Assembly for ALTUS-LT (1")
2	594 0400	Clamp Bolt
3	525 1801	Clamp Nut
4	594 0900	Cable Fixing Bolt
5	594 0800	Cable Fixing Plate
6	541 2401	Cable Fixing Nut

ITEM NO.	PART NO.	DESCRIPTION
7	582 3001	Stroke Adjusting Screw
8	586 4500	Stroke Adjusting Plate
9	581 2000-1	Roller Fixing Nut
10	582 1200-2	Roller
11	000 1001	Roller Fixing Screw
12	3-594 9002	Clamp Bolt & Nut
13	3-594 9003	Cable Fixing Bolt Assembly
14	3-594 9004	Roller Fixing Bolt Assembly
15	582 3600	Stop Ring ø3.5 mm



Assembly Notes

- **Rear Derailleur**

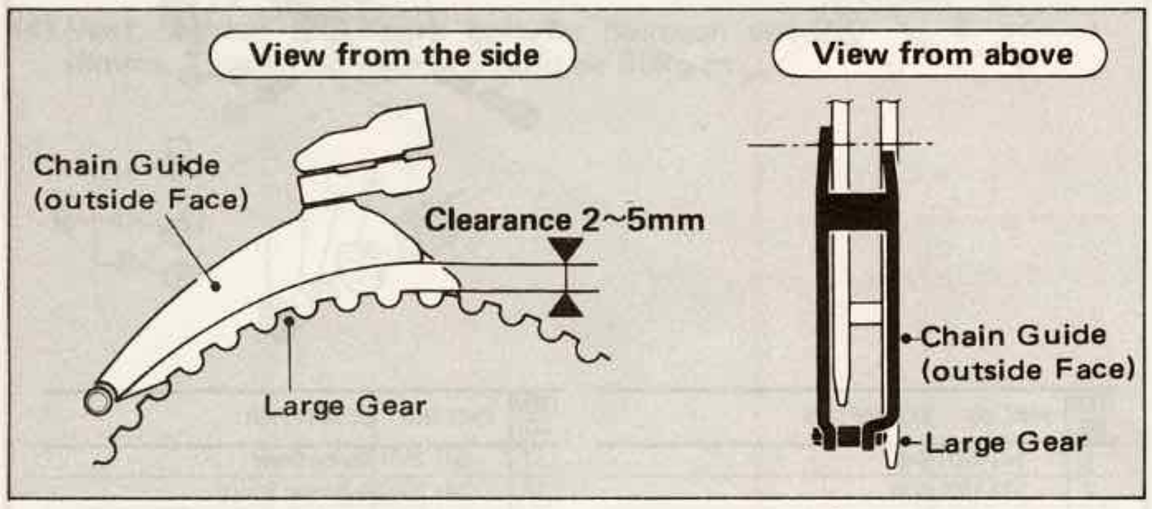
When using direct attachment type, make sure contact is made between the derailleur stopper plate and fork end stopper. At that time, torque of bracket axle should be 80—100 kg-cm. (70—85 in-lbs.)

- **Front Derailleur**

(1) Assemble the clamp band to the seat tube and then fix temporarily with the clamp bolt.
(2) Set the chain guide so that the outside face and the large gear of the front chainwheel have a clearance of about 2—5 mm when viewed from the side.

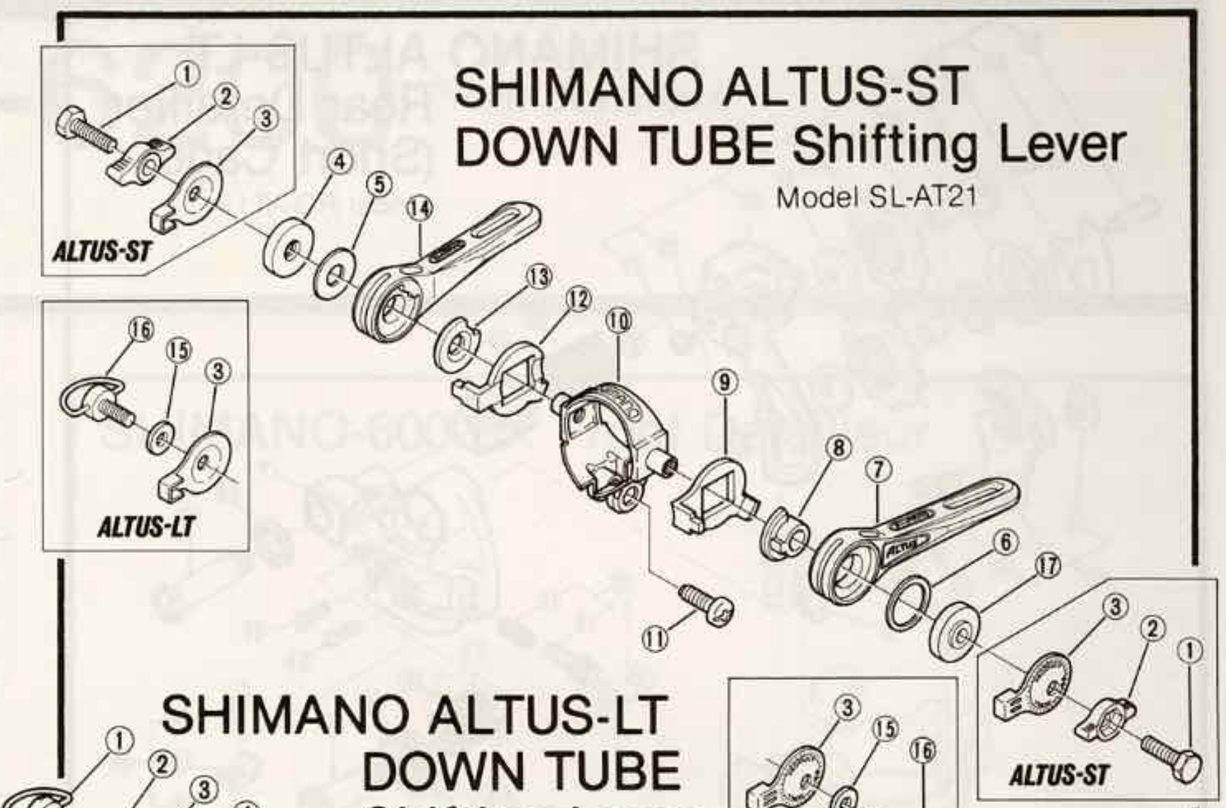
(3) In addition, when viewed from above, the chain guide outside face should be positioned just over the front chainwheel large gear.

(4) Next, tighten the clamp bolt by hexagon wrench (6mm). Tightening torque should be 60kg-cm.



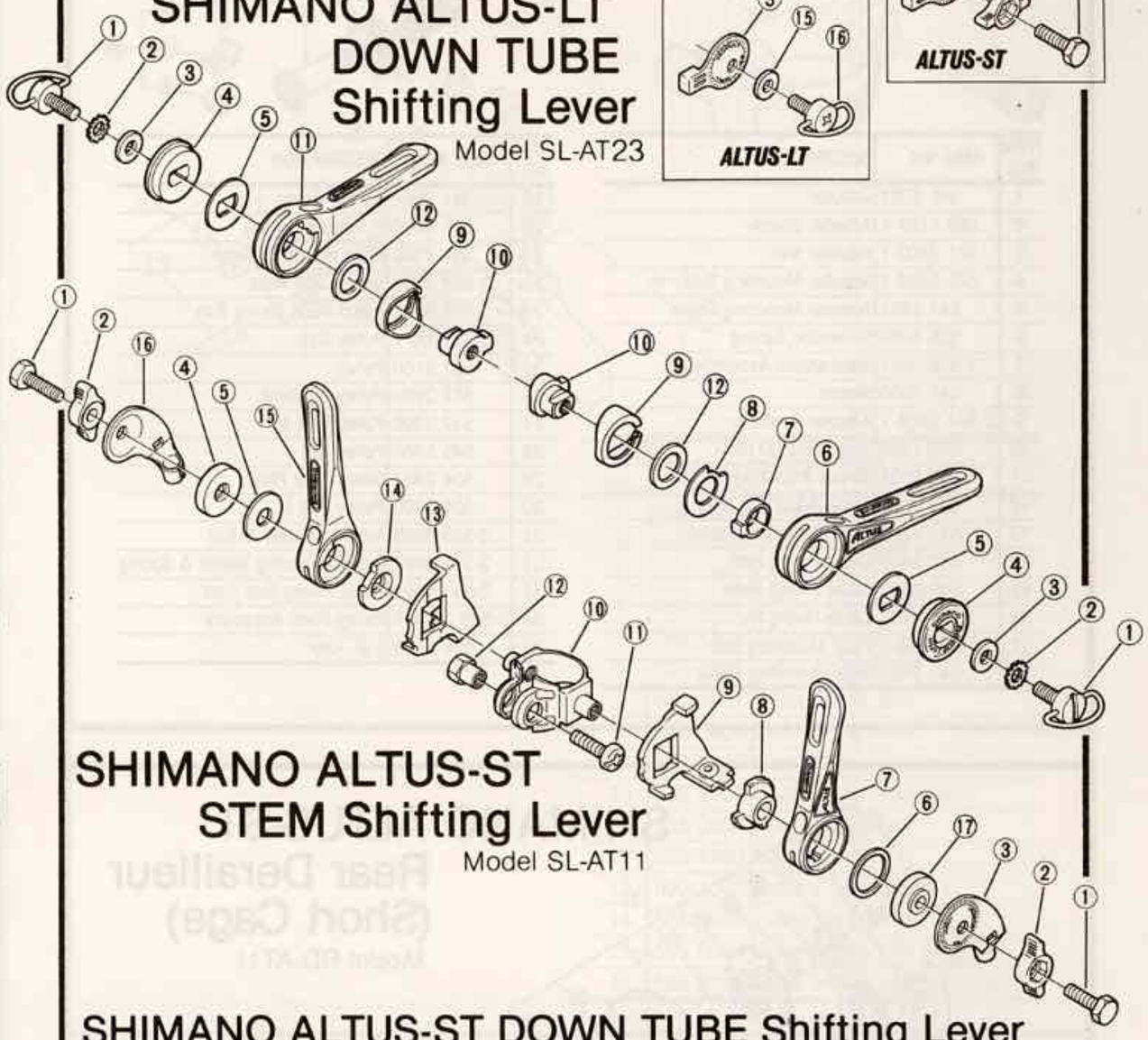
SHIMANO ALTUS-ST DOWN TUBE Shifting Lever

Model SL-AT21



SHIMANO ALTUS-LT DOWN TUBE Shifting Lever

Model SL-AT23



SHIMANO ALTUS-ST STEM Shifting Lever

Model SL-AT11

SHIMANO ALTUS-ST DOWN TUBE Shifting Lever

ITEM NO.	PART NO.	DESCRIPTION
1	684 0901	Lever Fixing Bolt for ALTUS-ST
2	684 0800-1	Bolt Adapter for ALTUS-ST
3	684 1502	Pressure Plate fro ALTUS-ST
	684 1501	Pressure Plate for ALTUS-LT
4	688 0500	Cap A
5	000 3701	Washer A
6	000 3454	Adjusting Washer
7	688 0100	Lever for Rear
8	688 0600	Bushing
9	684 0402	Plate for Rear

ITEM NO.	PART NO.	DESCRIPTION
10	684 0201-1	Lever Clamp (1-1/")
11	000 1111	Clamp Screw
12	684 0502	Plate for Front
13	688 0400	Washer B
14	688 0200	Lever for Front
15	684 1700	Washer
16	684 1200	Lever Fixing Screw for ALTUS-LT
17	688 0501	Cap B

SHIMANO ALTUS-LT DOWN TUBE Shifting Lever

ITEM NO.	PART NO.	DESCRIPTION
1	684 1201	Lever Fixing Bolt (M4. 5 × 8)
2	623 7400	Teethed Washer
3	684 1700	Washer
4	688 0700	Cap
5	681 3500	Washer B
6	688 0100	Lever for Rear

ITEM NO.	PART NO.	DESCRIPTION
7	688 0800	Sleeve
8	688 0900	Washer A
9	681 4600	Cover for Brazed Axle
10	681 4500	Brazed Axle
11	688 0200	Lever for Front
12	000 3901	Specer A

SHIMANO ALTUS-ST STEM Shifting Lever

ITEM NO.	PART NO.	DESCRIPTION
1	684 0901	Lever Fixing Bolt
2	684 0800-1	Bolt Adapter
3	684 0602	Pressure Plate for Rear
4	688 0500	Cap A
5	000 3701	Washer A
6	000 3454	Adjusting Washer
7	688 0100	Lever for Rear
8	688 0300	Bushing
9	684 0405	Plate for Rear

ITEM NO.	PART NO.	DESCRIPTION
10	684 0301	Lever Clamp (7/8")
11	333 0900	Clamp Screw
12	622 0200-2	Clamp Nut
13	684 0406	Plate for Front
14	688 0400	Washer B
15	688 0200	Lever for Front
16	684 0701	Pressure Plate for Front
17	688 0501	Cap B

FRONT FREEWHEELING FF SYSTEM

Model FC-FF33
Double Chainwheel

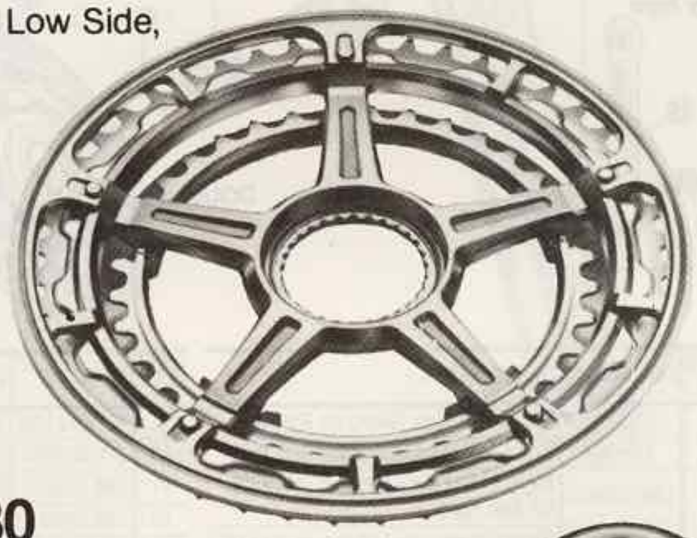
Model BB-FF30
Bottom Bracket Assembly

DOUBLE CHAINWHEEL
For Three-Piece Crank

Model FC-FF33

SPECIFICATIONS

Weight: 13.9oz. (393g) 52T-42T
Type: Twin Gear Double Chainwheel
Material: Body/Light Alloy
Outer Chain Ring/Steel
Standard Sprocket Teeth: 48T-36T, 52T-42T
Chain Size: 1/2″ × 3/32″ Chain
With Resin Protector on Low Side,
Ornamental Cap.



Bottom Bracket Set
& OCTA Joint Crank

Model BB-FF30

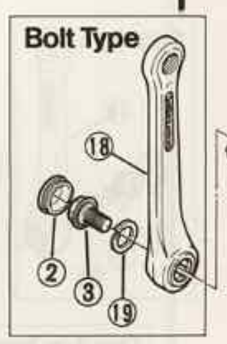
SPECIFICATIONS

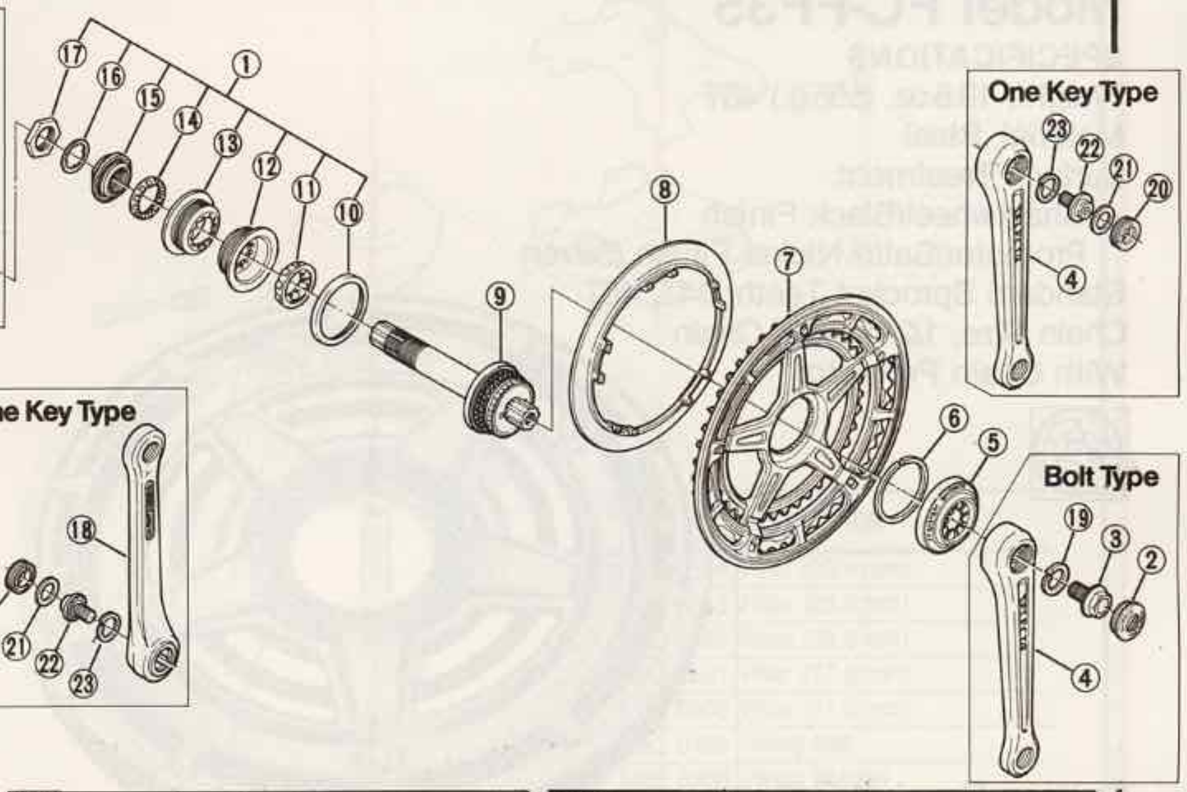
Crank Length: 6-1/2″ (165mm.), 6-3/4″ (170mm.)
Cup Thread: BC 1.37″ × 24 T.P.I.
Material of Crank: Alloy
OCTA Joint Crank





Double Chainwheel For Three-piece Crank





ITEM NO.	PART NO.	DESCRIPTION
1	3-187 9501	Ball Cup Assembly
2	155 0804	Crank Arm Cap (Blue) for Bolt Type
3	155 0701	Crank Arm Fixing Bolt for Bolt Type
4	165 0104-1	Right Crank Arm 165 mm (6-1/2") for Bolt Type
	165 0102-1	Right Crank Arm 170 mm (6-11/16") for Bolt Type
	165 0122	Right Crank Arm 165 mm (6-1/2") for One Key Type
	165 0121	Right Crank Arm 170 mm (6-11/16") for One Key Type
5	188 5501	Cap
6	188 2000-1	Snap Ring
7	3-182 9801	Double Chainring 48T-36T
8	164 0300	Low Side Protector
9	3-188 9501	Bottom Bracket Assembly
10	188 2200	Seal
11	3-188 9001	Ball Retainer (1/4")
12	188 0300-2	Right Hand Ball Cup

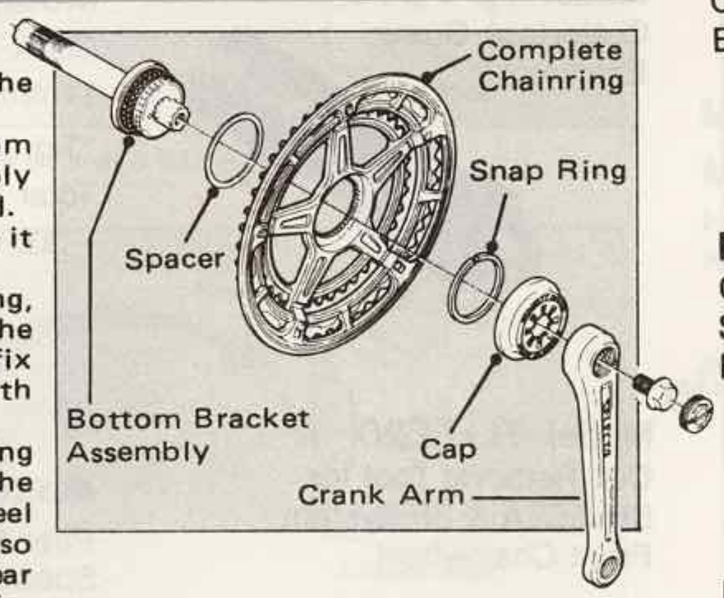
ITEM NO.	PART NO.	DESCRIPTION
13	188 0400-2	Left Hand Ball Cup
14	3-188 9002	Ball Retainer (3/16")
15	3-188 9004	Cone w/Dust Cap
16	188 1401-1	Key Washer
17	188 0700	Left Hand Lock Nut
18	165 0504-1	Left Crank Arm 165 mm (6-1/2") for Bolt Type
	165 0502-1	Left Crank Arm 170 mm (6-11/16") for Bolt Type
	165 0522	Left Crank Arm 165 mm (6-1/2") for One Key Type
	165 0521	Left Crank Arm 170 mm (6-11/16") for One Key Type
19	155 1200	Spring Washer for Bolt Type
20	165 0600	Crank Arm Cap for One Key Type
21	165 0700	Washer for One Key Type
22	165 0801	Crank Arm Fixing Bolt for One Key Type
23	165 1000	Spring Washer for One Key Type

Assembly Notes

■ **Replacing Front Chainring**

(1) Unscrew the pedel on the chainring side of the bike.
(2) Remove the snap ring from the front freewheel assembly with a snap ring removal tool.
(3) Remove chainring and slide it off the crank arm.
(4) After replacing the chainring, mount the chainring on the freewheel body and then fix the chainring securely with snap ring.

Note: Ensure that the snap ring is securely fixed in the groove of the freewheel body. Failure to do so could cause excessive gear vibration resulting in chainring loosening or coming off.



Model TL-FC10
Cotterless Crank
Extractor



Model TL-FF20
Cup Removal Tool for
SELECTA & FF System
Front Chainwheel



Model TL-FC15
Clank Arm Bolt Fixing Wrench
14mm. for Front Chainwheel.
*Tighten the crank bolt handly.
Total Torque: 300~450kgfcm.



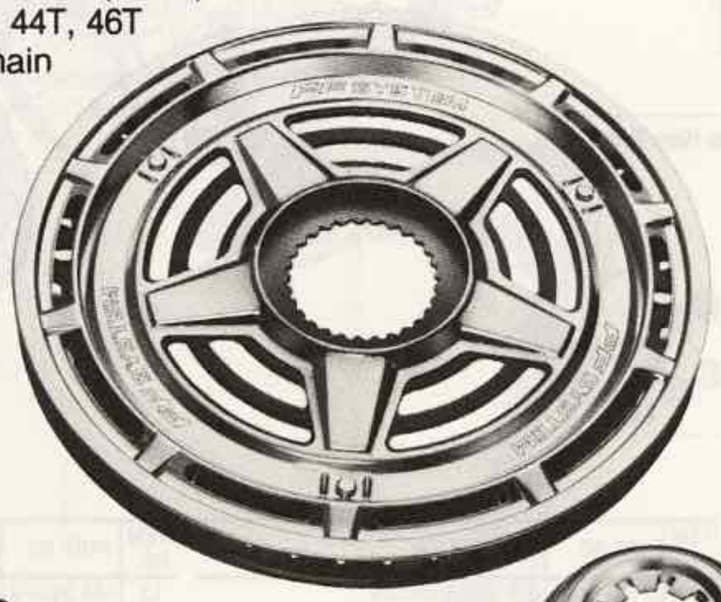
FRONT FREEWHEELING FF SYSTEM

Model FC-FF35 Single Chainwheel
Model BB-FF30 Bottom Bracket Assembly

SINGLE CHAINWHEEL
For Three-piece Crank

Model FC-FF35

SPECIFICATIONS
Weight: 19.6oz. (555g.) 46T
Material: Steel
Surface Treatment:
Chainwheel/Black Finish
Protector/Satin Nickel Finish (Silver)
Standard Sprocket Teeth: 44T, 46T
Chain Size: 1/2″ × 3/32″ Chain
With Chain Protector



Bottom Bracket Set
& OCTA Joint Crank

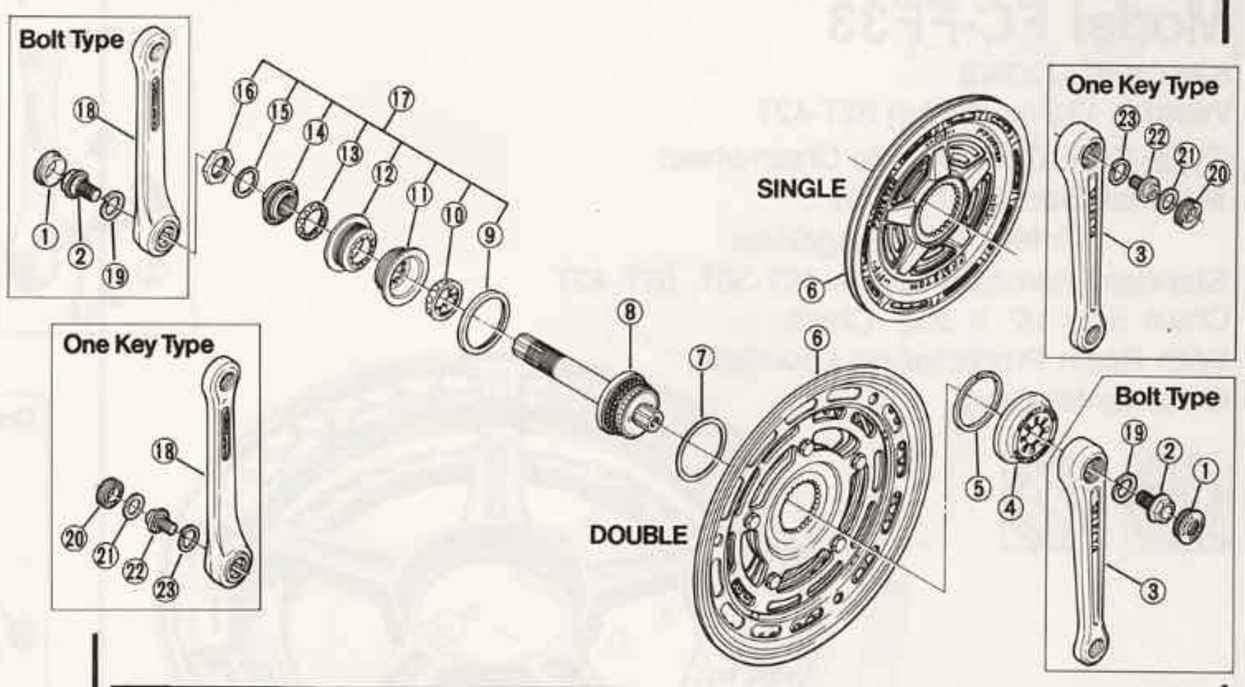
Model BB-FF30

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





Single Chainwheel For Three-piece Crank



ITEM NO.	PART NO.	DESCRIPTION
1	155 0804	Crank Arm Cap (Blue) for Bolt Type
2	155 0701	Crank Arm Fixing Bolt for Bolt Type
3	165 0104-1	Right Crank Arm 165mm (6-1/2″) for Bolt Type
	165 0102-1	Right Crank Arm 170mm (6-11/16″) for Bolt Type
	165 0122	Right Crank Arm 165mm (6-1/2″) for One Key Type
	165 0121	Right Crank Arm 170mm (6-11/16″) for One Key Type
4	188 5500	Cap
5	188 2000-1	Snap Ring
6	3-181 9003	Complete Single Chainring 40T
	3-181 9001	Complete Single Chainring 44T
	3-181 9002	Complete Single Chainring 46T
	3-182 9003	Complete Double Chainring 48T-36T
	3-182 9005	Complete Double Chainring 52T-40T
	3-182 9011	Complete Double Chainring 52T-40T (Semi Alloy)
7	188 1900	Spacer 2.3mm
	188 1902	Spacer 1.4mm for Semi Alloy
8	3-188 9501	Bottom Bracket Assembly

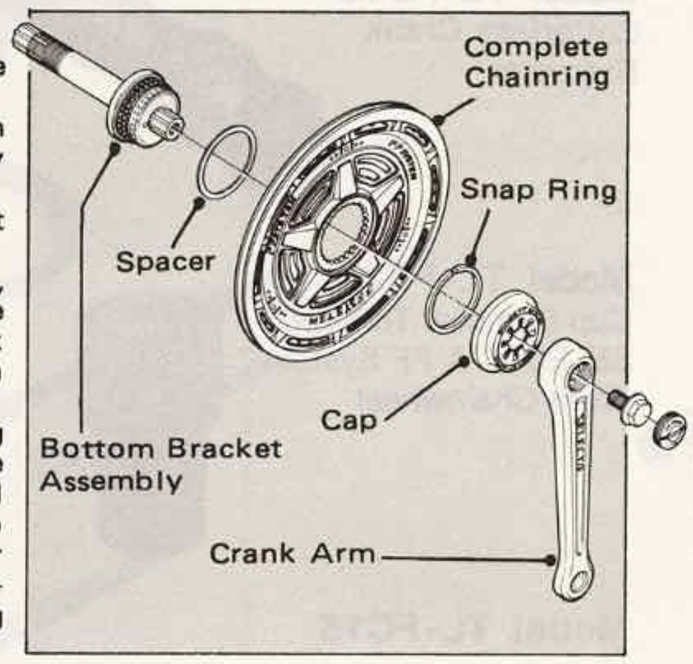
ITEM NO.	PART NO.	DESCRIPTION
9	188 2200	Seal
10	3-188 9001	Ball Retainer (1/4″)
11	188 0300-2	Right Hand Ball Cup
12	188 0400-2	Left Hand Ball Cup
13	3-188 9002	Ball Retainer (3/16″)
14	3-188 9004	Cone w/Dust Cap
15	188 1401-1	Key Washer
16	188 0700	Left Hand Lock Nut
17	3-187 9501	Ball Cup Assembly
18	165 0504-1	Left Crank Arm 165mm (6-1/2″) for Bolt Type
	165 0502-1	Left Crank Arm 170mm (6-11/16″) for Bolt Type
	165 0522	Left Crank Arm 165mm (6-1/2″) for One Key Type
	165 0521	Left Crank Arm 170mm (6-11/16″) for One Key Type
19	155 1200	Spring Washer for Bolt Type
20	165 0600	Crank Arm Cap for One Key Type
21	165 0700	Washer for One Key Type
22	165 0801	Crank Arm Fixing Bolt for One Key Type
23	165 1000	Spring Washer for One Key Type

Assembly Notes

■ **Replacing Front Chainring**

(1) Unscrew the pedel on the chainring side of the bike.
(2) Remove the snap ring from the front freewheel assembly with a snap ring removal tool.
(3) Remove chainring and slide it off the crank arm.
(4) After replacing the chainring, mount the chainring on the freewheel body and then fix the chainring securely with snap ring.

Note: Ensure that the snap ring is securely fixed in the groove of the freewheel body. Failure to do so could cause excessive gear vibration resulting in chainring loosening or coming off.



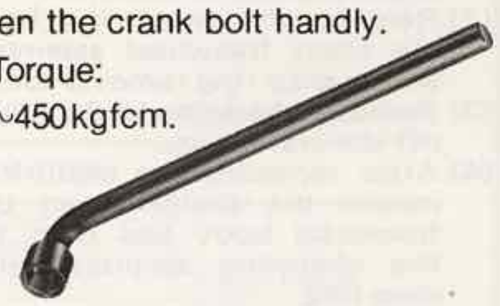
Model TL-FC10
Cotterless Crank Extractor



Model TL-FF20
Cup Removal Tool for SELECTA & FF System Front Chainwheel



Model TL-FC15
Clank Arm Bolt Fixing Wrench 14mm. for Front Chainwheel.
*Tighten the crank bolt handly.
Total Torque:
300~450kgfcm.



Model TL-3S10
Plier for Three Speed Hub Snap Ring Removal



FRONT FREEWHEELING FF SYSTEM

Model FC-FF14
Integer Double Chainwheel

Model BB-FF10
Bottom Bracket Assembly

INTERGER DOUBLE CHAINWHEEL
For One-piece Crank

Model FC-FF14

SPECIFICATIONS

Use: FF System Only
Weight: 18.0oz. (510g.) 52T-39T
Material: Steel
Sprocket Teeth: 52T-39T
Chain Size: 1/2″x 3/32″ Chain
Without Bottom Bracket Set and Crank
Available Single Chainwheel (Model FC-FF15)

Bottom Bracket Set
For One-piece Crank

Model BB-FF10

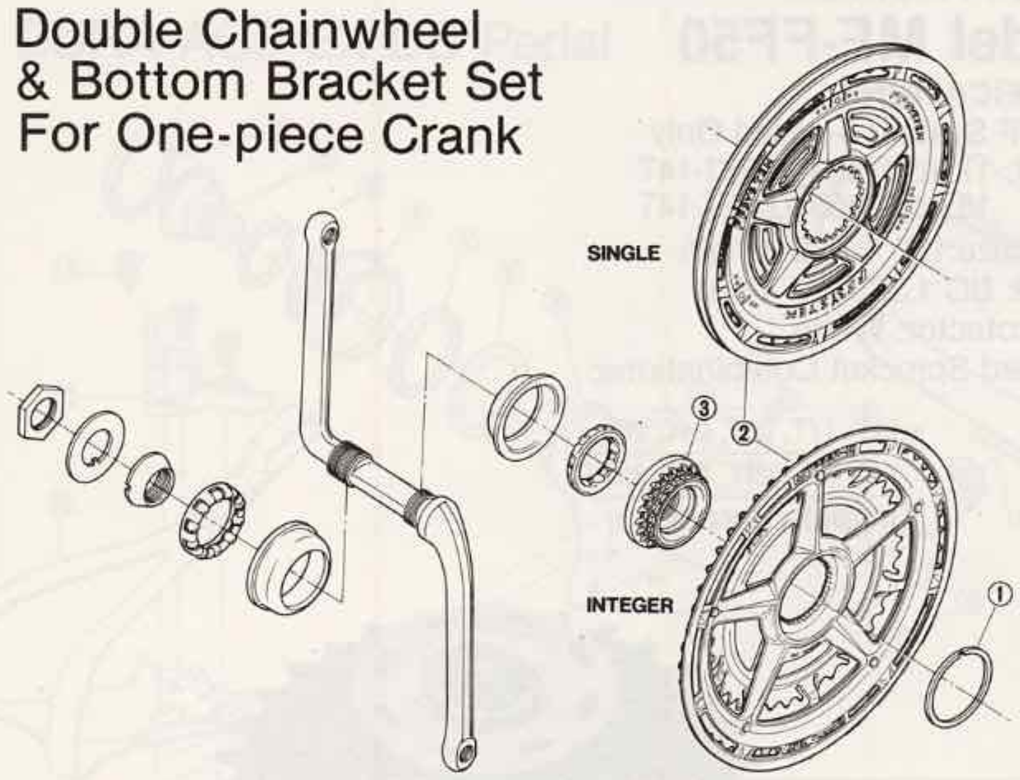
SPECIFICATIONS

Type: One-Piece Crank
Material: Steel





Double Chainwheel
& Bottom Bracket Set
For One-piece Crank



ITEM NO.	PART NO.	DESCRIPTION
1	187 0700	Snap Ring
2	184 9003	Complete Single Chainring 46T
	182 9603	Complete Double Chainring 52T-39T for INTEGER
3	187 9002	Complete Freewheel Body

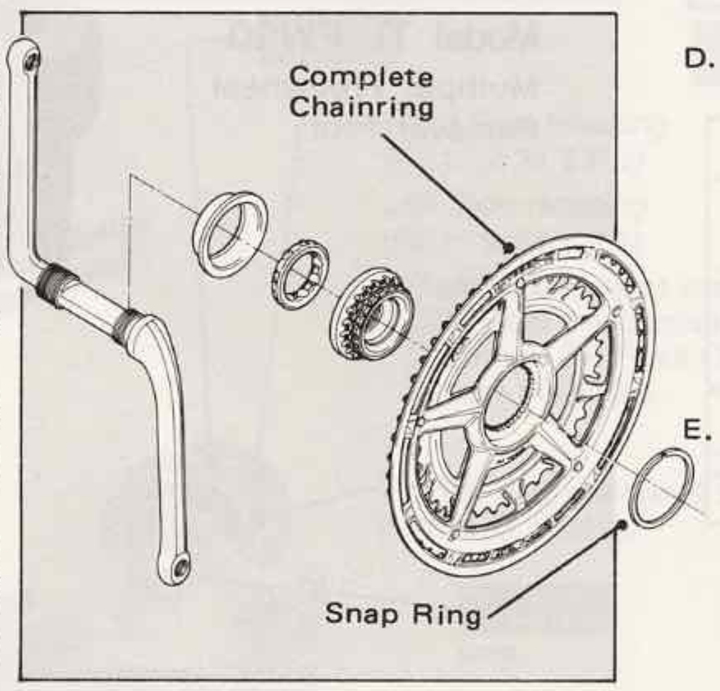
Assembly Notes

■ **Replacing Front Chainring**

In order to remove the chainring from the one piece crank, it is not necessary to disassemble the bottom bracket.

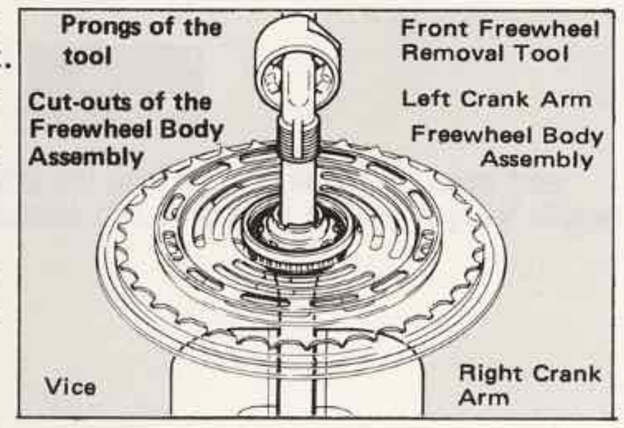
(1) Unscrew the pedel on the chainring side of the bike.
(2) Remove the snap ring from the front freewheel assembly with a snap ring removal tool.
(3) Remove chainring and slide it off the crank arm.
(4) After replacing the chainring, mount the chainring on the freewheel body and then fix the chainring securely with snap ring.

Note: Ensure that the snap ring is securely fixed in the groove of the freewheel body. Failure to do so could cause excessive gear vibration resulting in chain-ring loosening or coming off.

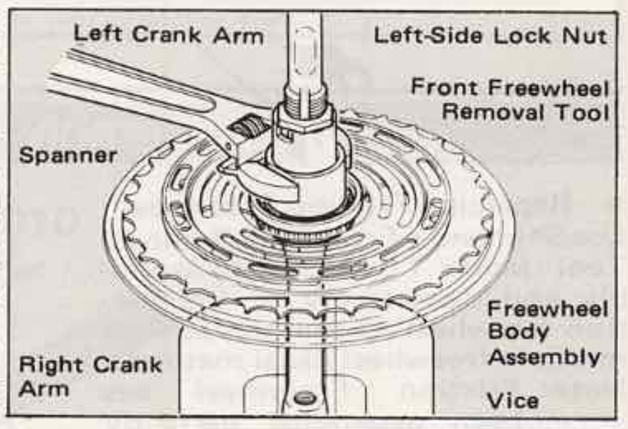


To remove the freewheel body assembly from the one piece crank.

A. Place right-side crank arm in a vice and secure it tightly. (To protect the finish of the crank arm, wrap it before putting into the vice.)
B. Mount the Front Freewheel Romoval Tool from the left side, Make sure that the prongs of the tool are inserted into the cut-outs in the freewheel body assembly.



C. Mount the left-side lock nut and thread, by hand, until snug. Then back it off two or three turns.
D. Unscrew the freewheel body assembly approximately two turns with the Front Freewheel Removal Tool, using a 35 mm (1-3/8″) wrench. Unscrew the lock nut two or three more turns. If the front freewheel can now be easily turned by hand, remove the left-side lock nut completely and unscrew the front freewheel body assembly.
E. The front freewheel body assembly may be somewhat difficult to remove from the one piece crank after it has been unscrewed. However, by utilizing the cut away portions of the freewheel body assembly, it can be removed by hand without excessive force.



Model TL-FF10

Front Chainwheel Removal Tool for FF System
(One Piece Crank)



FRONT FREEWHEELING FF SYSTEM

Model MF-FF50 Friction Freewheel (Wide/5-speed)
Model MF-FF51 Friction Freewheel (Narrow/5-speed)
Model MF-FF61 Friction Freewheel (Narrow/6-speed)

Friction Freewheel
Model MF-FF50
SPECIFICATIONS
Use: FF System 5-speed Only
Weight: 17.0oz. (483g.) 28T-14T
16.4oz. (465g.) 32T-14T
Chain Size:1/2″ × 3/32″ Chain
Thread: BC 1.37″ × 24 T.P.I.
Top Protector: White
Standard Sprocket Combinations:

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

Uniglide Sprockets

UNIGLIDE



Friction Freewheel (5-speed)
Model MF-FF51 (Narrow)
Top Protector: Black

Friction Freewheel (6-speed)
Model MF-FF61 (Narrow)
SPECIFICATIONS
Use: FF System Only
Weight: 16.9oz. (478g.) 28T-14T
16.2oz. (460g.) 32T-13T
16.1oz. (456g.) 28T-13T
Chain Size: 1/2″ × 3/32″ Chain
Thread: BC 1.37″ × 24 T.P.I.

Type	Standard Sprocket Combinations
MF-FF51 (5-speed)	14T • 17T • 20T • 24T • 28T
MF-FF61 (6-speed)	13T • 15T • 17T • 21T • 26T • 32T
	13T • 15T • 17T • 20T • 24T • 28T

Uniglide Sprockets

UNIGLIDE







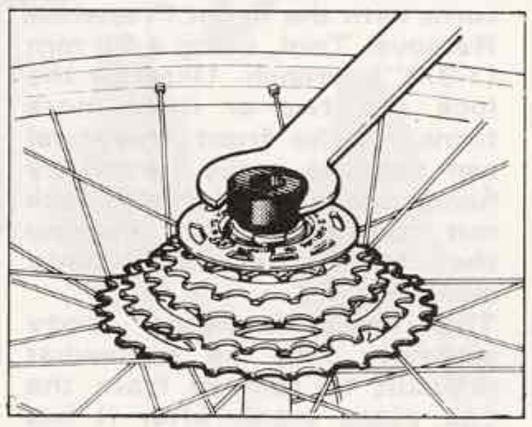
Chain Protector for MF-FF61

*Can be used with POSITRON-FH Rear Derailleur



Assembly Notes

■ **Replacing Friction Freewheel**
Use Shimano's Freewheel Removal Tool (Model TL-FW20) for assembly and disassembly of the friction freewheel to the hub as with multiple freewheel usual method.
Note: Friction Freewheel has been assembled perfectly at the factory, so please do not disassemble unless absolutely necessary.



Model TL-FW20
Multiple Freewheel Removal Tool



NEW POSITRON PPS SYSTEM

Model RD-PF10 Rear Derailleur (Short Cage)
Model RD-PF20 Rear Derailleur (Middle Cage)
Model RD-PF40 Rear Derailleur

POSITRON-FH

POSITRON-FH Rear Derailleur

Model RD-PF10 (Short Cage)

RD-PF20 (Middle Cage)

SPECIFICATIONS

Use: Shimano Freehubs & PPS-FH Plus FF System Only

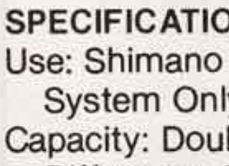
Capacity: Double Front Sprockets/Front Difference 13T or Less
Rear Freewheel 13T~28T (Short Cage)
13T~32T (Middle Cage)

Single Front Sprocket/Rear Freewheel
13T~32T (Short Cage)
13T~34T (Middle Cage)

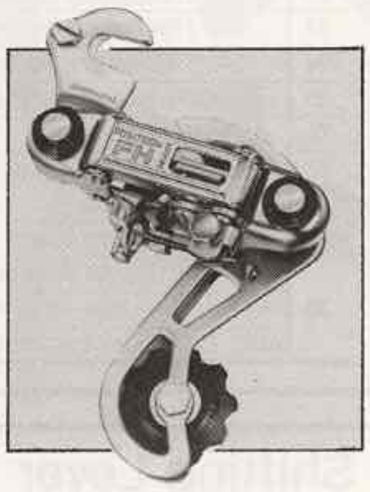
Weight: 11.1oz. (316g.)/Short Cage
: 11.6oz. (328g.)/Middle Cage

Material: Steel

Type: Positive Mechanism with Pre-Select Mechanism, Servo Panta Mechanism
Changeover of 10 (5)-speed to 12 (6)-speed is possible







Middle Cage
(Model RD-PF 20)

POSITRON-FH 400
Rear Derailleur

Model RD-PF40

SPECIFICATIONS

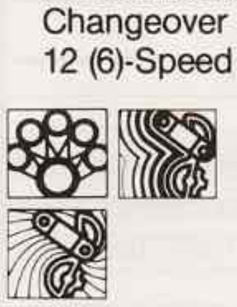
Use: Shimano Freehubs & PPS-FH Plus FF System Only

Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less

Weight: 11.6oz. (329g.)

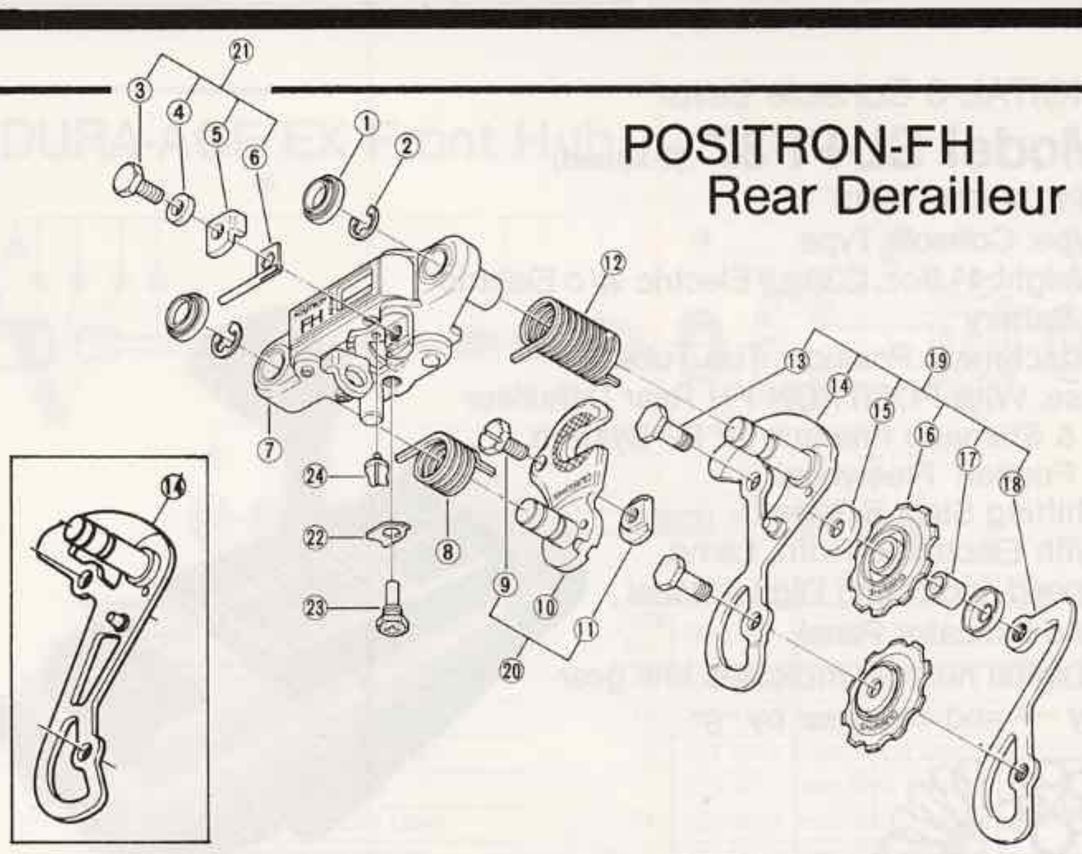
Material: Light Alloy • Steel

Type: Positive Mechanism with Pre-Select Mechanism, Servo Panta Mechanism
Changeover of 10 (5)-Speed to 12 (6)-Speed is possible





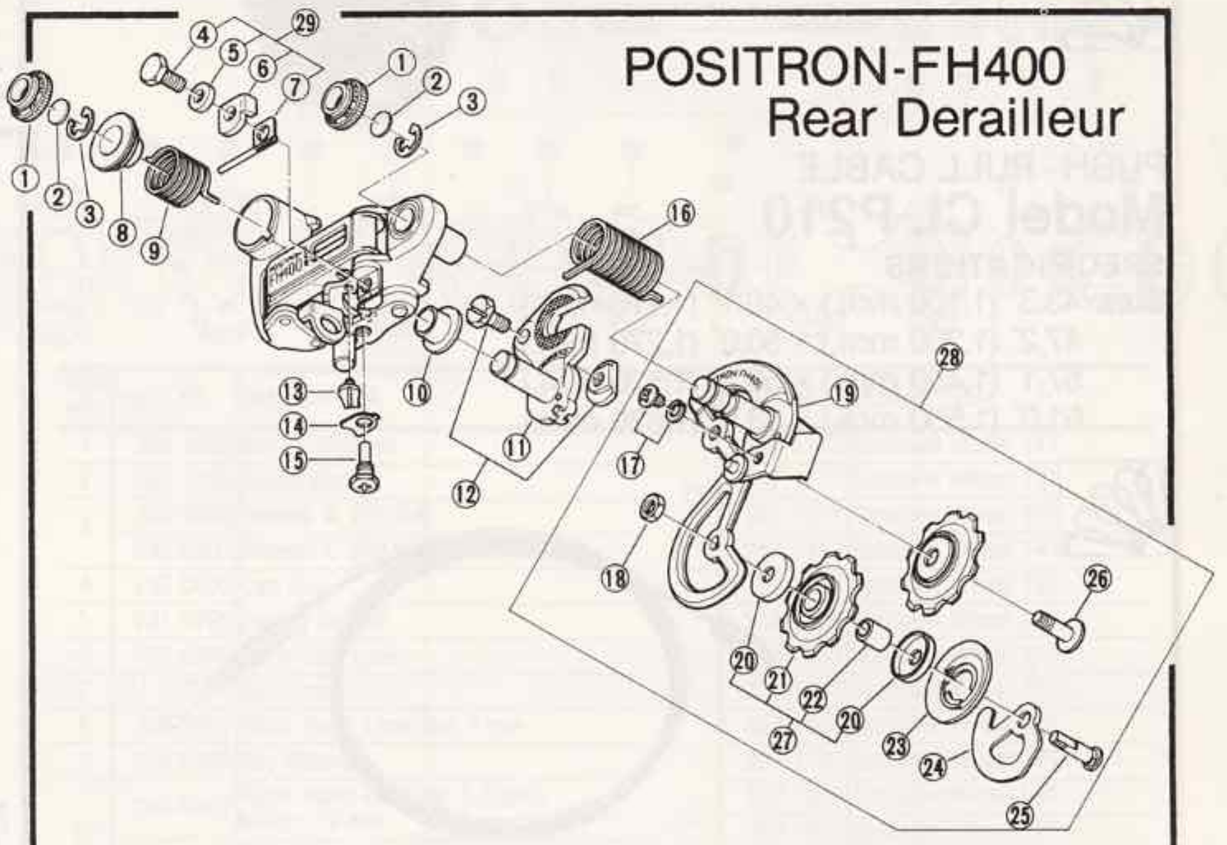
POSITRON-FH
Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	526 4500	Cap
2	521 3001	Stop Ring (ø6 mm)
3	533 1300	Cable Fixing Bolt
4	533 2300	Cable Fixing Washer
5	533 1400	Cable Fixing Plate
6	533 1200-1	Inner Sleeve
7	539 9001-1	Mechanism Assembly
8	522 2702	B-Tension Spring
9	000 1104-1	Adapter Screw
10	522 9071-1	Adapter w/Mounting Shaft
11	511 3500-1	Adapter Nut
12	522 2802	P-Tension Spring (Short Cage)
	522 2801	P-Tension Spring (Middle Cage)
13	551 0400	Pulley Bolt

ITEM NO.	PART NO.	DESCRIPTION
14	539 9003	Inner Cage Plate w/Mounting Shaft (Short Cage)
	539 9006	Inner Cage Plate w/Mounting Shaft (Middle Cage)
15	551 1100	Pulley Cap
16	551 1000	Pulley
17	551 1200	Pulley Bushing
18	551 0300	Outer Cage Plate
19	539 9002	Pulley Plate Assembly (Short Cage)
	539 9007	Pulley Plate Assembly (Middle Cage)
20	525 9069	Adapter Screw & Nut
21	533 9004	Cable Fixing Bolt Set
22	533 2400-2	Washer
23	533 1700-2	Stopper Pin
24	539 0801	Stopper Plate

POSITRON-FH400
Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	543 0801	Cap
2	522 1900	Spin
3	521 3001	Stop Ring (ø6 mm)
4	533 1300	Cable Fixing Bolt
5	533 2300	Cable Fixing Washer
6	533 1400	Cable Fixing Plate
7	533 1200-1	Inner Sleeve
8	543 0700	Adapter Mounting Collar
9	534 2100	B-Tension Spring
10	543 0600	Adapter Bushing
11	3-534 9013	Adapter w/Mounting Shaft
12	3-525 9069	Adapter Screw & Nut
13	539 0801	Stopper Plate
14	533 2400-2	Washer

ITEM NO.	PART NO.	DESCRIPTION
15	533 1700-1	Stopper Pin
16	522 2802	P-Tension Spring
17	3-537 9003	Hatch Plate Fixing Screw & Washer
18	545 5400	Pulley Nut
19	3-534 9014	Inner Cage Plate w/Mounting Shaft
20	511 2700-1	Pulley Cap
21	521 3100	Pulley
22	511 2900	Pulley Bushing
23	534 2500	S.B. Cap
24	534 2400	Outer Cage Plate
25	534 2200	Pulley Bolt E
26	542 1900	Pulley Bolt C
27	3-521 9019	Pulley Unit
28	3-534 9012	Pulley Plate Assembly
29	3-533 9004	Cable Fixing Bolt Unit

NEW POSITRON
PPS
SYSTEM

Model SL-PF37 DIGITAL-6 Console Lever (6-speed)
Model SL-PF13 POSITRON-FH STEM Shifting Lever (12-speed)
Model CL-P210 Push-Pull Cable

DIGITAL-6 Console Lever

Model SL-PF37 (6-speed)

SPECIFICATIONS

Type: Console Type
Weight: 11.9 oz. (338 g.)/ Electric w/o Electric Battery
Attachment Position: Top Tube
Use: With POSITRON-FH Rear Derailleur & Shimano Freehub or FF System Friction Freewheel
Shifting Step: 6-Speed
With Electronic Horn, Lamp, Speed-indicating Digital Panel and Indicator Panel
*Digital number indicates low gear by "1" and top gear by "6".

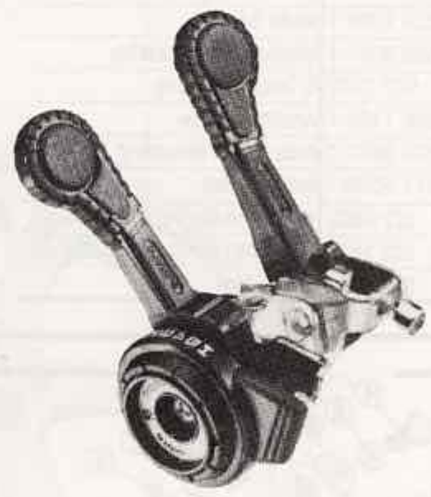


PPS-FH STEM Shifting Lever

Model SL-PF13 (12-Speed)

SPECIFICATIONS

Use: With POSITRON-FH Rear Derailleur Only
Material: Resin
Type: Friction Type
Attachment Position: Handle Stem
Lever Clamp Diameter: 0.833"
Single Lever Available 7/8" (22.2 mm.)



PUSH-PULL CABLE

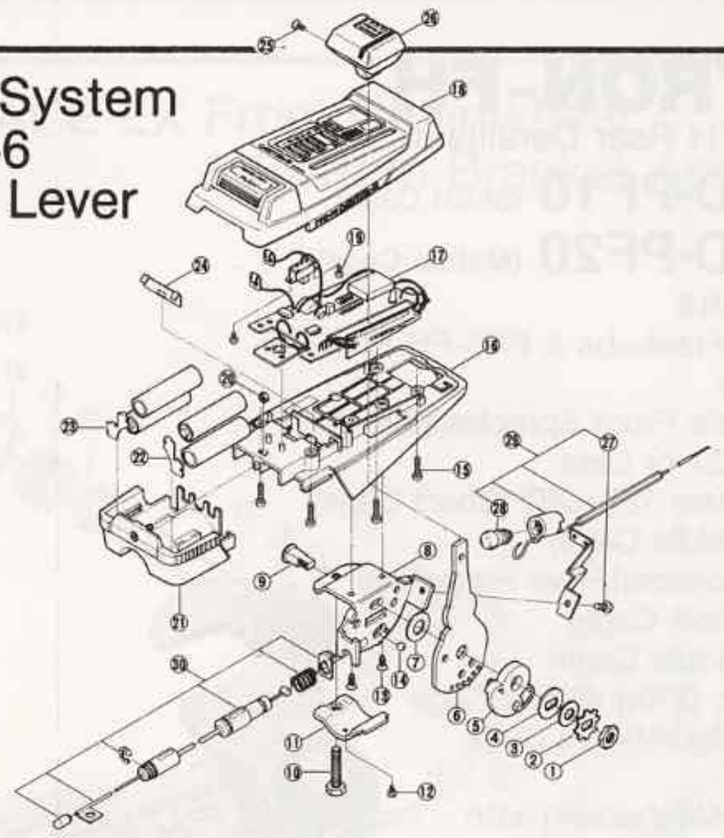
Model CL-P210

SPECIFICATIONS

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



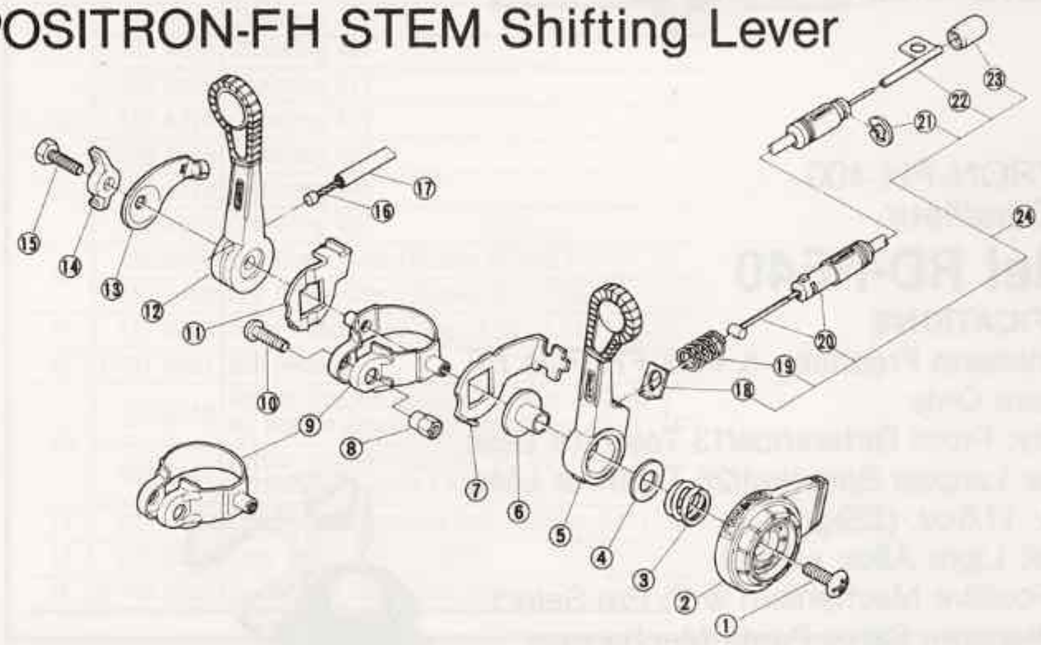
PPS-FH System DIGITAL-6 Console Lever



ITEM NO.	PART NO.	DESCRIPTION
1	671 1400	Lock Nut
2	662 1200	Teethed Washer
3	693 0900	Dished Spring
4	693 1700	Non-Tuning Washer
5	693 0400-1	Guide Plate
6	646 1100	Lever Plate
7	615 1203	Washer
8	3-697 9002	Lever Frame Assembly
9	693 0300	Lever Axle
10	657 0101	Clamp Fixing Screw
11	693 7700	Clamp Band
12	000 5402	Grounding Screw
13	655 0700	Cover "A" Fixing Screw
14	000 0151	Steel Ball (5/32")
15	646 1200	Cover "B" Fixing Screw
16	646 0200	Cover "A"

ITEM NO.	PART NO.	DESCRIPTION
17	3-646 9010	Electronic Circuit
18	3-646 9011	Cover "B"
19	646 1900	Switch Fixing Screw
20	646 1600	Battery Case Fixing Nut
21	3-646 9012	Battery Case
22	646 1703	Battery Terminal "D"
23	646 1704	Battery Terminal "E"
24	646 1700	Battery Terminal "A"
25	644 1300-1	Grip Fixing Screw
26	3-646 9013	Grip
27	644 1300	Holder Fixing Screw
28	693 8241	Lamp
29	3-646 9014	Lamp Holder Assembly
30	3-692 9133	Cable Assembly 900 mm (35-7/16")
	3-692 9101-1	Cable Assembly 950 mm (37-13/32")
	3-692 9102-1	Cable Assembly 1,050 mm (41-11/32")

POSITRON-FH STEM Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	687 0800	Lever Fixing Screw for Rear
2	692 9009	Pressure Plate for Rear (5-Speed)
	692 9008	Pressure Plate for Rear (6-Speed)
3	692 0600	Spring
4	692 1900	Washer
5	692 0100	Lever for Rear
6	692 0500	Flanged Bushing
7	692 0300	Plate for Rear
8	622 0200-2	Clamp Nut
9	692 1300	Lever Clamp for Double Lever (0.833"-7/8")
	692 1301	Lever Clamp for Single Lever (0.833"-7/8")
10	333 0900	Clamp Screw
11	684 0501	Plate for Front
12	692 0200	Lever for Front

ITEM NO.	PART NO.	DESCRIPTION
13	684 0701	Pressure Plate for Front
14	684 0800-1	Bolt Adapter
15	684 0900	Lever Fixing Bolt for Front
16		Front Inner Cable
17		Front Outer Casing
18	692 0900-2	Casing Plate
19	692 1000	Casing Spring
20	608 3032	Rear Complete Cable 1450 mm × 1520 mm
	608 3042	Rear Complete Cable 1550 mm × 1620 mm
21	521 3001	Stop Ring
22	533 1200-1	Inner Sleeve
23	620 2030-1	Inner End Cap
24	692 9103	Rear Cable Assembly 1450 mm × 1520 mm
	692 9104	Rear Cable Assembly 1550 mm × 1620 mm

NEW POSITRON PPS SYSTEM

Model SL-PF31 CELC Console Lever
Model SL-PF32 CELC Console Lever

CELC Console Lever

Model SL-PF31 (Separate Type)

SPECIFICATIONS

Weight: 16.1 oz. (456g)
Type: Console Type
Material: Resin (Body)
Attachement Position: Top Tube
Use: With POSITRON-FH Rear Derailleur & Shimano Freehub or FF System Friction Freewheel
Shifting Step: 6-speed
Features: Five information displays are possible—shift position*, speed, timer, distance Meter and speed warning.

*Digital number indicates low gear by "1" and top gear by "6".



CELC Console Lever

Model SL-PF32 (Integrated Type)

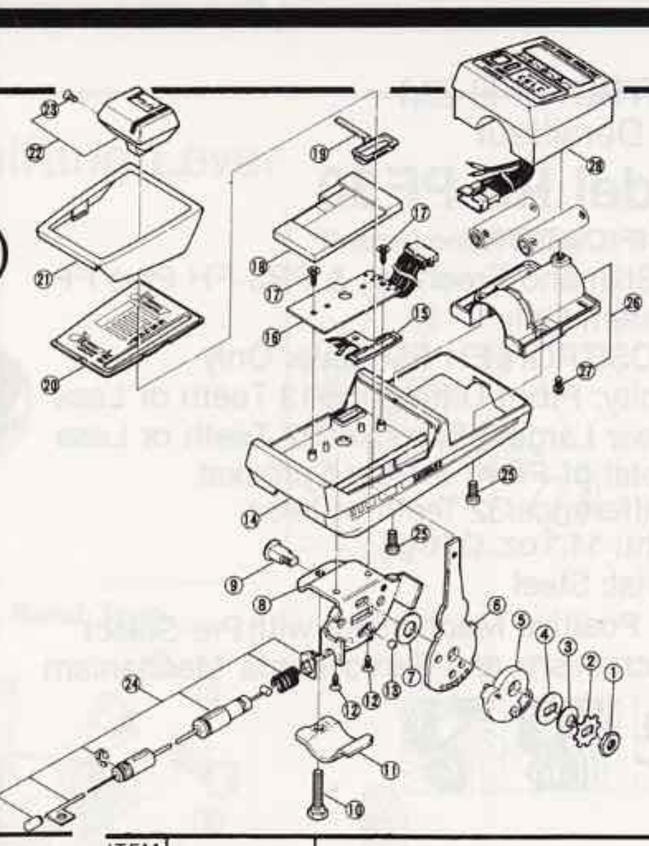
SPECIFICATIONS

Weight: 13.3oz. (378g.)
Type: Console Type
Material: Resin (Body)
Attachement Position: Top Tube
Use: With POSITRON-FH Rear Derailleur & Shimano Freehub or FF System Friction Freewheel
Shifting Step: 6-speed
Features: Five information displays are possible—shift position*, speed, timer, distance Meter and speed warning.

*Digital number indicates low gear by "1" and top gear by "6".

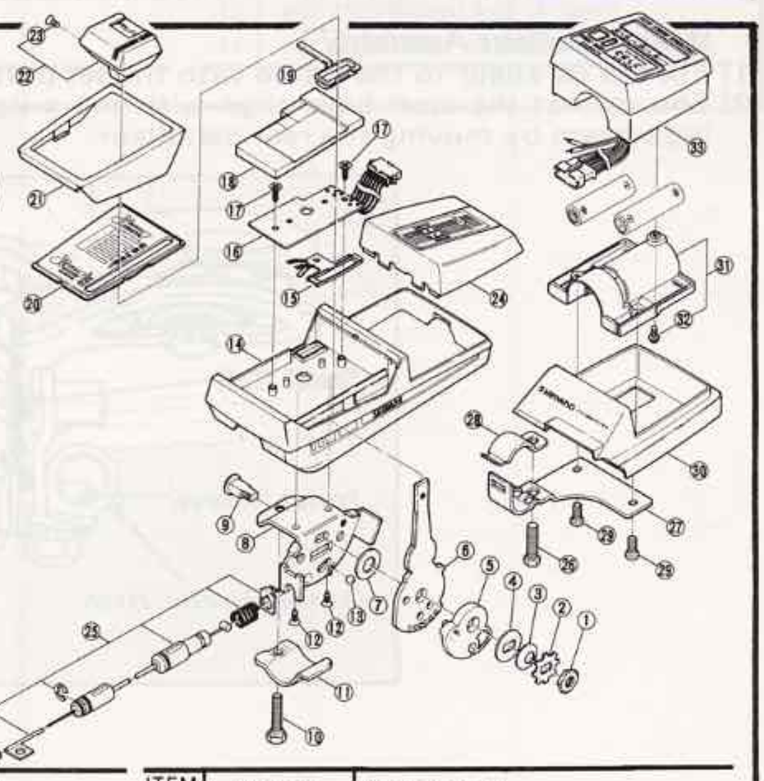


CELC Console Lever (Integrated Type)



ITEM NO.	PART NO.	DESCRIPTION
1	511 3400	Lock Nut
2	662 1200	Toothed Washer
3	693 0900	Dished Washer
4	693 1700	Non-turn Washer
5	693 0400-1	Cable Guide
6	647 0600	Lever Plate
7	615 1203	Washer
8	3-697 9200	Lever Frame Assembly
9	693 0300	Lever Axle
10	657 0101	Clamp Bolt
11	693 7700	Clamp Band
12	655 0700	Cover Fixing Screw
13	000 0151	Steel Ball
14	3-647 9100	Lower Cover
15	647 0800	Switch Connector
16	647 0700	Switchboard
17	647 0900	Switchboard Fixing Screw
18	3-647 9101	Switchboard Cover
19	647 0400	Indicator
20	647 0300	Upper Plate
21	647 0200	Upper Cover
22	3-647 9102	Grip & Screw
23	644 1300-1	Grip Fixing Screw
24	3-692 9101-1	Cable assembly 950 mm (3' 1-3/8") × 1020 mm (3' 4-5/32")
25	647 1800	Panel Fixing Screw (M4 × 6)
26	3-647 9801	Battery Case & Screw
27	647 2100	Battery Case Fixing Screw
28	647 1110	Panel Section

CELC Console Lever (Separate Type)



ITEM NO.	PART NO.	DESCRIPTION
1	511 3400	Lock Nut
2	662 1200	Tothed Washer
3	693 0900	Dished Washer
4	693 1700	Non-turn Washer
5	693 0400-1	Cord Guide
6	647 0600	Lever Plate
7	615 1203	Washer
8	3-697 9200	Lever Frame Assembly
9	693 0300	Lever Axle
10	657 0101	Clamp Bolt
11	693 7700	Clamp Band
12	655 0700	Cover Fixing Screw
13	000 0151	Steel Ball
14	3-647 9100	Lower Cover
15	647 0800	Switch Connector
16	647 0700	Switchboard
17	647 0900	Switchboard Fixing Screw
18	3-647 9101	Switchboard Cover
19	647 0400	Indicator
20	647 0300	Upper Panel
21	647 0200	Upper Cover
22	3-647 9102	Grip & Screw
23	644 1300-1	Grip Fixing Screw
24	3-647 9103	Front Cover
25	3-692 9101-1	Cable Assembly 950 mm (3' 1-3/8") × 1020 mm (3' 4-5/32")
26	647 1400	Bracket Fixing Bolt
27	647 1200	Bracket
28	647 1300	Bracket Fixing Band
29	647 1600	Panel Fixing Screw (M4 × 8)
30	647 1500	Holder Case
31	3-647 9801	Battery Case & Screw
32	647 2100	Battery Case Fixing Screw
33	647 1100	Panel Section

NEW POSITRON
PPS SYSTEM

Model RD-PF30 Rear Derailleur
Model SL-PF45 Shifting Lever

POSITRON-FH EM
Rear Derailleur

Model RD-PF30

SPECIFICATIONS

Use: Shimano Freehubs & PPS-FH Plus FF System Only
: POSITRON-FH EM Lever Only
Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/32 Teeth or Less
Total of Front & Rear Sprocket Difference/32 Teeth or Less
Weight: 11.1oz. (316g.)
Material: Steel
Type: Positive Mechanism with Pre-Select Mechanism and Servo Panta Mechanism



PPS-FH EM Shifting Lever

Model SL-PF45

SPECIFICATIONS

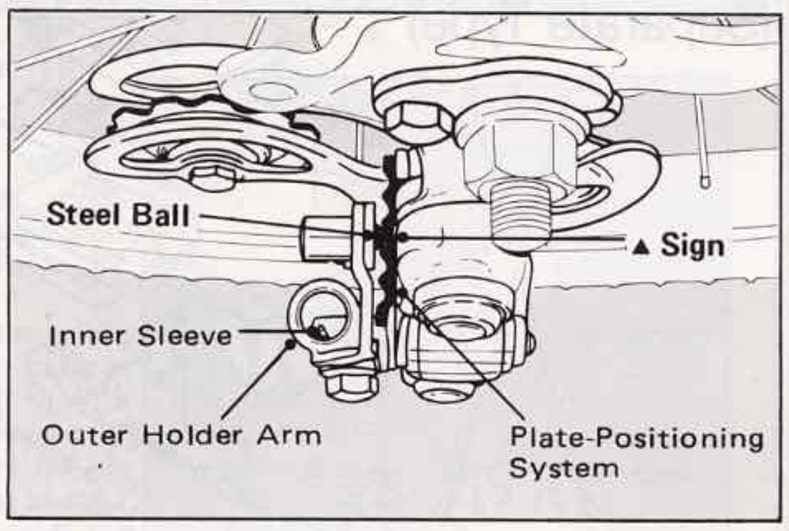
Use: PPS-FH System 5-Speed Only
: POSITRON-FH EM Rear Derailleur Only
Weight: 2.3oz. (66g.)
Type: Friction Type
Attachment Position: Handle Bar
Lever Clamp Diameter: 7/8" (22.2mm.)



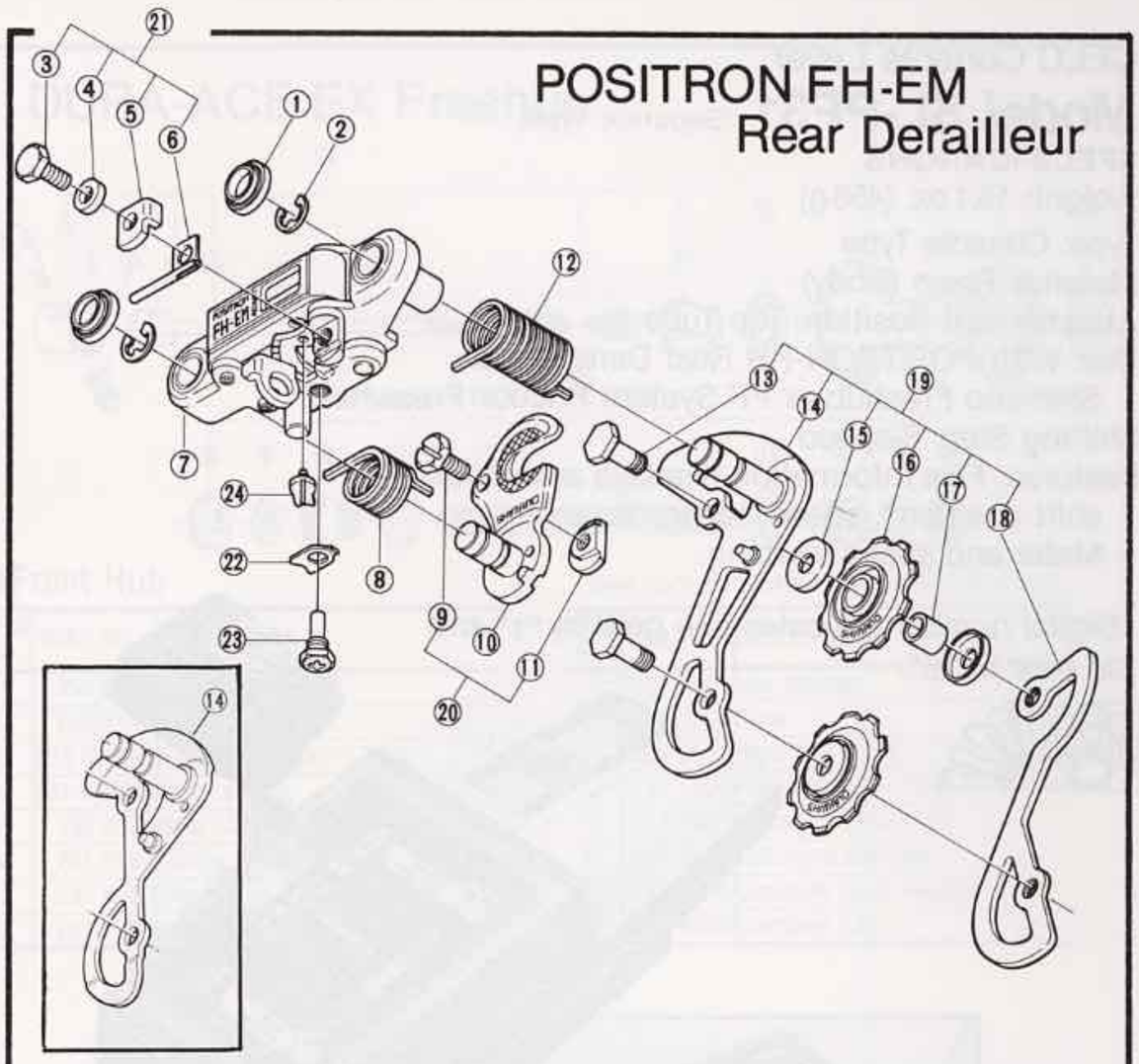
Assembly Notes

■ **Rear Derailleur Assembly**

(1) Fix the derailleur to the frame with the set bolt nut.
(2) Ensure that the steel balls align with the ▲ sign on the plate-positioning system by moving the rear derailleur.



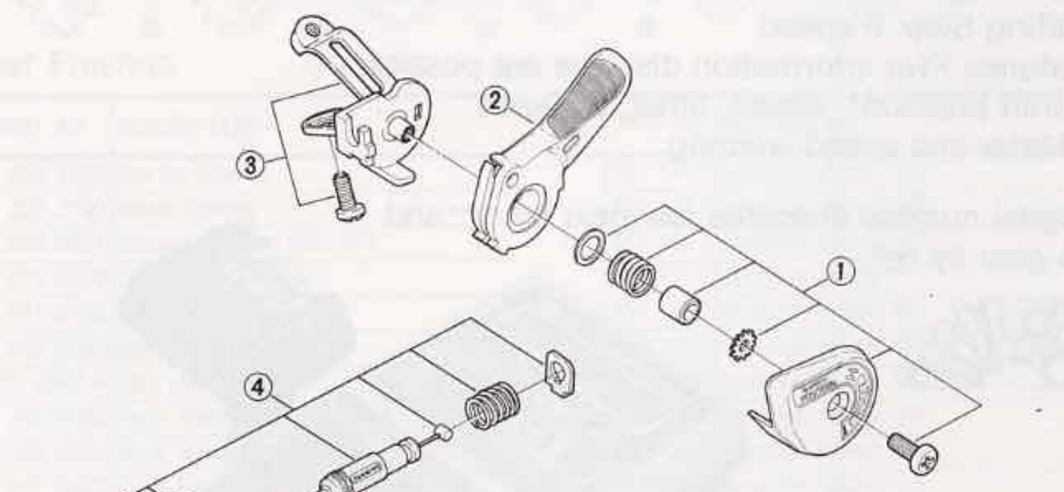
POSITRON FH-EM Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	526 4500	Cap
2	521 3001	Stop Ring (ø6mm)
3	533 1300	Cable Fixing Bolt
4	533 2300	Cable Fixing Washer
5	533 1400	Cable Fixing Plate
6	533 1200-1	Inner Sleeve
7	539 9001-1	Mechanism Assembly
8	522 2702	B-Tension Spring
9	000 1104-1	Adapter Screw
10	522 9071-1	Adapter w/Mounting Shaft
11	511 3500-1	Adapter Nut
12	522 2802	P-Tension Spring (Short Cage)
	522 2801	P-Tension Spring (Middle Cage)
13	551 0400	Pulley Bolt

ITEM NO.	PART NO.	DESCRIPTION
14	539 9003	Inner Cage Plate w/Mounting Shaft (Short Cage)
	539 9006	Inner Cage Plate w/Mounting Shaft (Middle Cage)
15	551 1100	Pulley Cap
16	551 1000	Pulley
17	551 1200	Pulley Bushing
18	551 0300	Outer Cage Plate
19	539 9002	Pulley Plate Assembly (Short Cage)
	539 9007	Pulley Plate Assembly (Middle Cage)
20	525 9069	Adapter Screw & Nut
21	533 9004	Cable Fixing Bolt Set
22	533 2400-2	Washer
23	533 1700-2	Stopper Pin
24	539 0801	Stopper Plate

PPS-FH Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-691 9801	Cover Unit
2	617 0200	Lever
3	3-617 9802	Clamp Band
4	3-692 9105	Cable Assembly (1700 × 1770mm) White
	3-692 9106	Cable Assembly (1800 × 1870mm) White

NEW POSITRON
PPS
SYSTEM

Model RD-P210 Rear Derailleur
Model RD-P240 Rear Derailleur

POSITRON-II

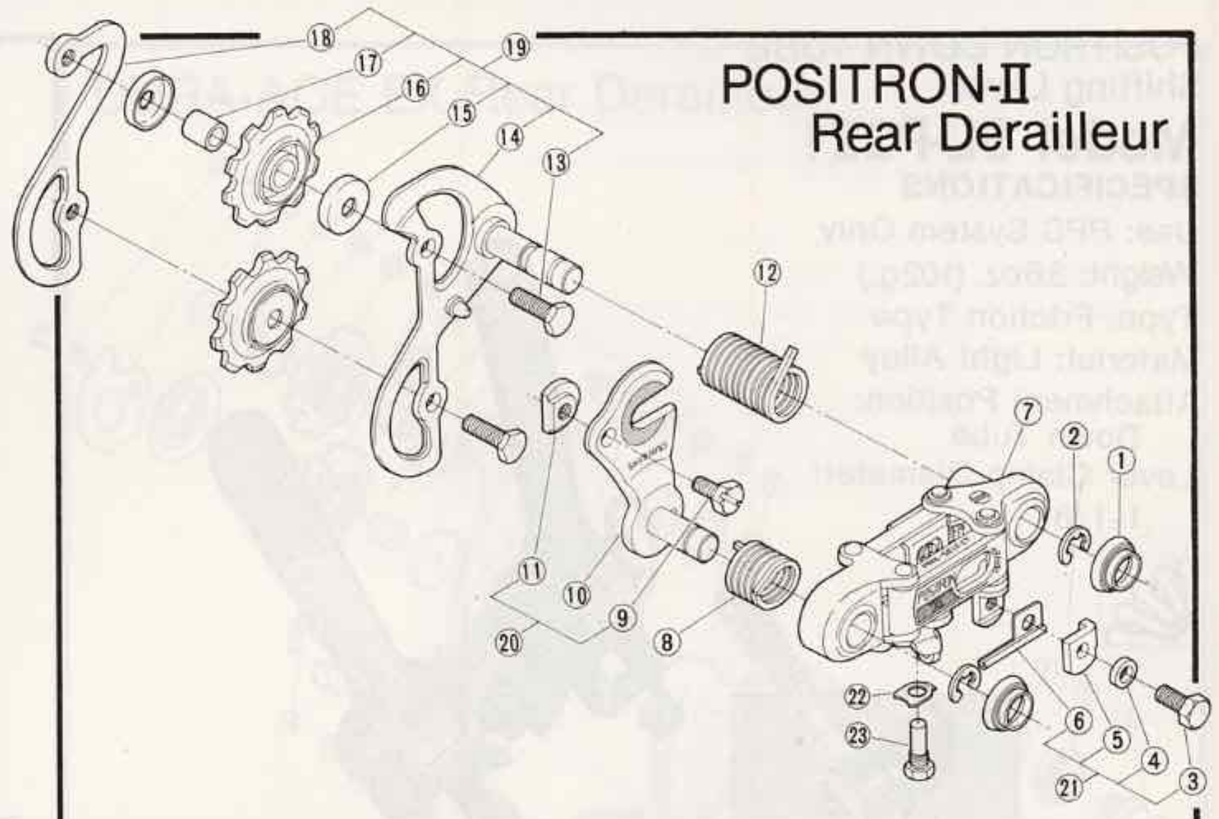
POSITRON-II
Rear Derailleur

Model RD-P210

SPECIFICATIONS

Use: PPS System & FF System Only
Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Total of Front & Rear Sprocket Difference/
28 Teeth or Less
Weight: 10.9 oz. (310 g.)
Material: Steel
Type: Positive Mechanism with Pre-Select
Mechanism and Servo Panta
Mechanism
10 (5)-speed





ITEM NO.	PART NO.	DESCRIPTION
1	526 4500	Cap
2	521 3001	Stop Ring (6ø)
3	533 1300	Cable Fixing Bolt
4	533 2300	Cable Fixing Washer
5	533 1400	Cable Fixing Plate
6	533 1200-1	Inner Sleeve
7	533 9001-1	Mechanism Assembly
8	522 2700	B-Tension Spring
9	000 1104-1	Adapter Screw
10	522 9071	Adapter w/Mounting Shaft
11	511 3500-1	Adapter Nut
12	522 2800	P-Tension Spring

ITEM NO.	PART NO.	DESCRIPTION
13	524 7200	Pulley Bolt
14	533 9002	Inner Cage Plate w/Mounting Shaft
15	511 2700-1	Pulley Cap
16	521 3100	Pulley
17	511 2900	Pulley Bushing
18	522 1403	Outer Cage Plate
19	533 9003	Pulley Plate Assembly
20	525 9069	Adapter Screw & Nut
21	533 9004	Cable Fixing Bolt Set
22	533 2400-2	Washer
23	533 1700-2	Stopper Pin

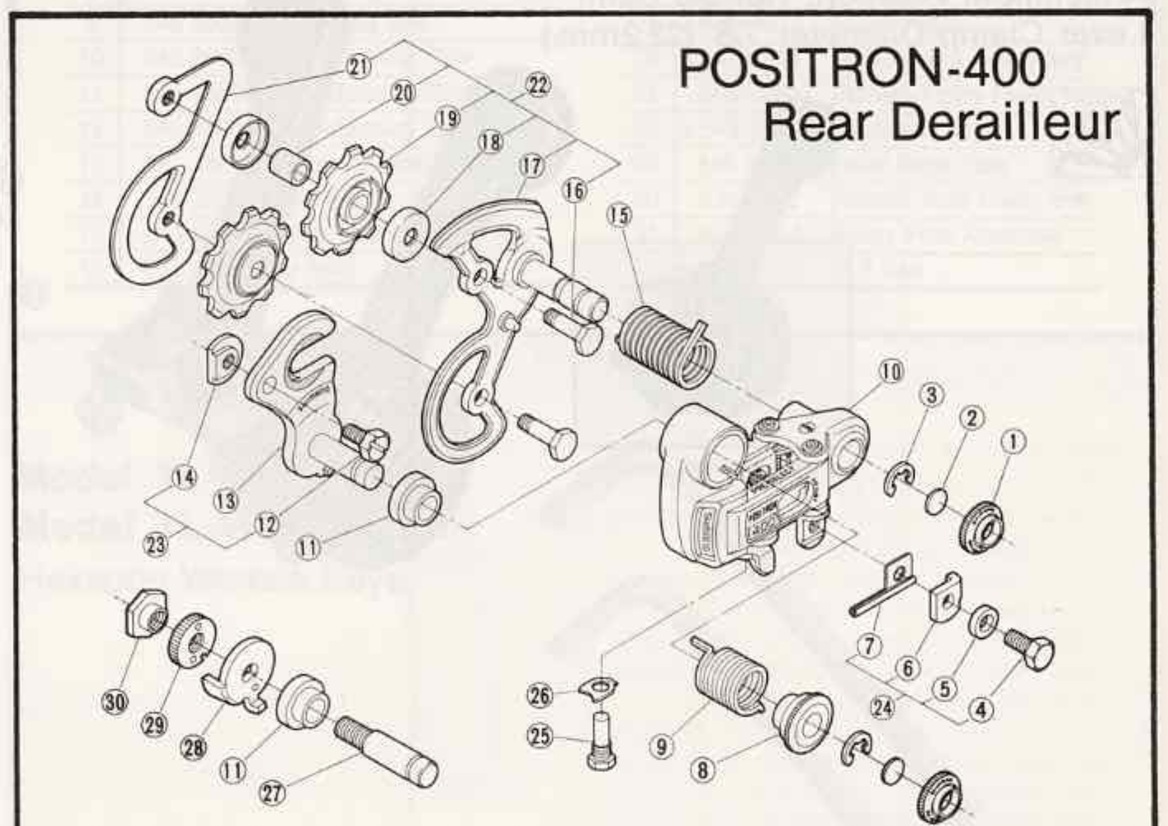
POSITRON-400
Rear Derailleur

Model RD-P240

SPECIFICATIONS

Use: PPS System & FF System Only
Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/28 Teeth or Less
Total of Front & Rear Sprocket Difference/
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





ITEM NO.	PART NO.	DESCRIPTION
1	543 0800	Cap
2	522 1900	Spin
3	521 3001	Stop Ring (6ø)
4	533 1300	Cable Fixing Bolt
5	533 2300	Cable Fixing Washer
6	533 1400	Cable Fixing Plate
7	533 1200-1	Inner Sleeve
8	543 0700	Adapter Mounting Collar
9	543 0501	B-Tension Spring
	534 1300	B-Tension Spring for Direct
10	534 9001-2	Mechanism Assembly
11	543 0600	Adapter Bushing
12	000 1104-1	Adapter Screw
13	543 9002	Adapter w/Mounting Shaft

ITEM NO.	PART NO.	DESCRIPTION
14	511 3500-1	Adapter Nut
15	533 2800	P-Tension Spring
16	511 2600-1	Pulley Bolt
17	524 9002	Inner Cage Plate w/Mounting Shaft
18	511 2700-1	Pulley Cap
19	521 3100	Pulley
20	511 2900	Pulley Bushing
21	541 0600	Outer Cage Plate
22	534 9003	Pulley Plate Assembly
23	525 9069	Adapter Screw & Nut
24	533 9004	Cable Fixing Bolt Set
25	533 1700-2	Stopper Pin
26	533 2400-2	Washer

NEW POSITRON PPS SYSTEM

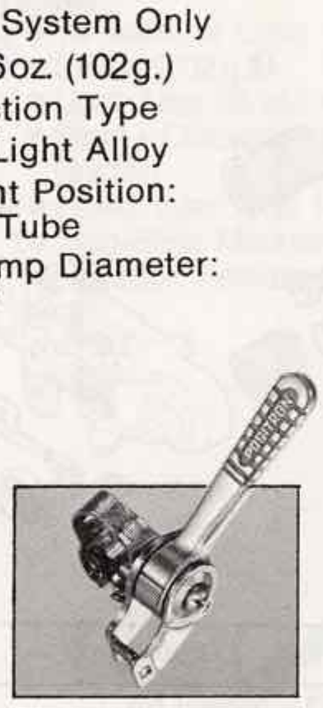
Model SL-P221 Shifting Lever
Model SL-P211 Shifting Lever

POSITRON DOWN TUBE
Shifting Lever

Model SL-P221

SPECIFICATIONS

Use: PPS System Only
Weight: 3.6oz. (102g.)
Type: Friction Type
Material: Light Alloy
Attachment Position:
Down Tube
Lever Clamp Diameter:
1-1/8″



Single Lever



POSITRON STEM Shifting Lever

Model SL-P211 (10-speed)

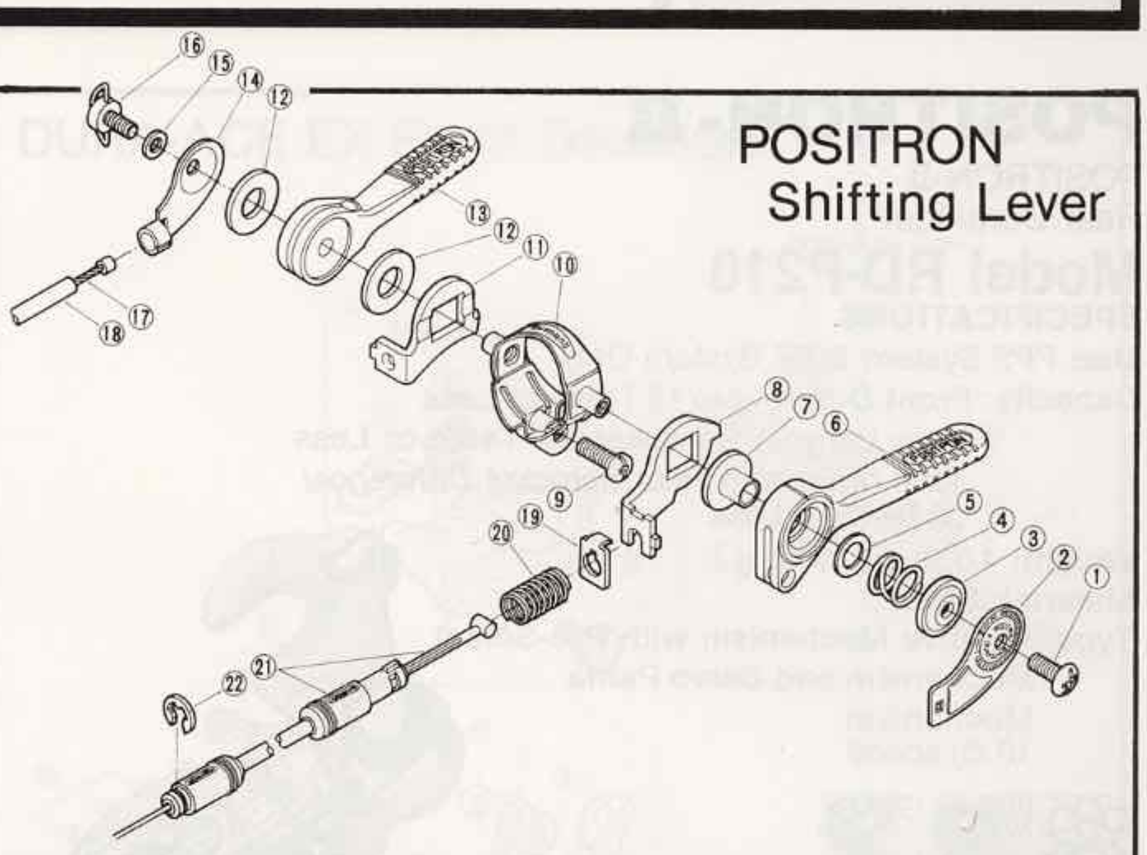
SPECIFICATIONS

Use: PPS System Only
Weight: 3.0oz. (85g.)
Type: Friction Type
Material: Resin
Attachment Position: Handle Stem
Lever Clamp Diameter: 7/8″ (22.2mm.)



Single Lever

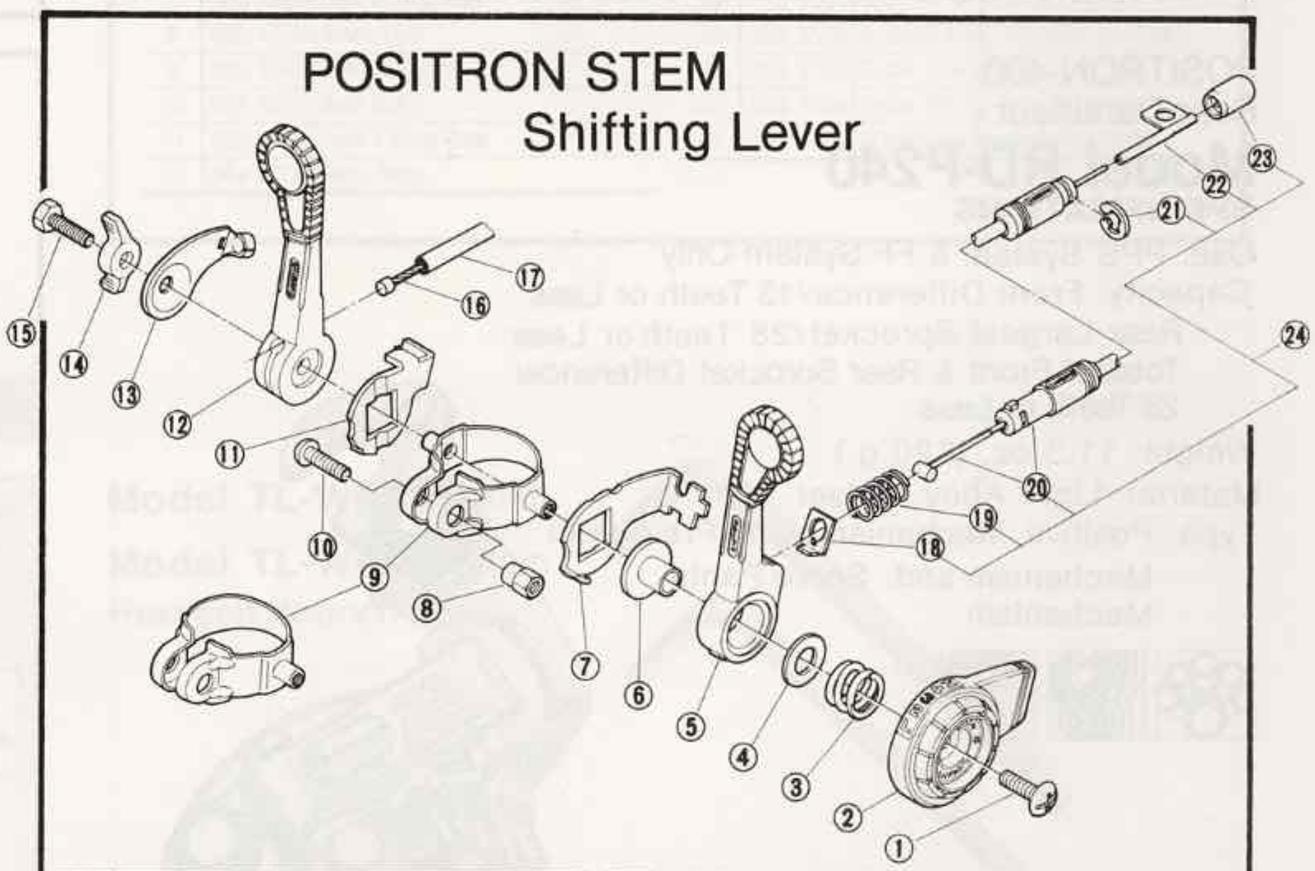




POSITRON
Shifting Lever

ITEM NO.	PART NO.	DESCRIPTION
1	687 0800	Lever Fixing Screw
2	692 5200	Pressure Plate for Rear
3	692 3800	Washer A
4	692 3700	Spring
5	692 1900	Adjusting Washer
6	692 3500	Lever for Rear
7	692 4000	Flanged Bushing
8	692 5300	Plate for Rear
9	000 1111	Clamp Bolt
10	684 0201-1	Lever Clamp for 10-Speed
11	684 0500	Plate for Front
12	684 1000	Spacer

ITEM NO.	PART NO.	DESCRIPTION
13	692 3600	Lever for Front
14	684 0701	Pressure Plate for Front
15	684 1700	Washer B
16	684 1200	Lever Fixing Bolt
17		Front Inner Cable
18		Front Outer Casing
19	692 0900-1	Casing Plate
20	692 1000	Casing Spring
21	608 3070	Rear Complete Cable 1100 × 1170
	608 3080	Rear Complete Cable 1200 × 1270
22	521 3001	Stop Ring



POSITRON STEM
Shifting Lever

ITEM NO.	PART NO.	DESCRIPTION
1	687 0800	Lever Fixing Screw for Rear
2	692 9009	Pressure Plate for Rear (5-Speed)
	692 9008	Pressure Plate for Rear (6-Speed)
3	692 0600	Spring
4	692 1900	Washer
5	692 0100	Lever for Rear
6	692 0500	Flanged Bushing
7	692 0300	Plate for Rear
8	622 0200-2	Clamp Nut
9	692 1300	Lever Clamp for Double Lever (0.833″·7/8″)
	692 1301	Lever Clamp for Single Lever (0.833″·7/8″)
10	333 0900	Clamp Screw
11	684 0501	Plate for Front
12	692 0200	Lever for Front

ITEM NO.	PART NO.	DESCRIPTION
13	684 0701	Pressure Plate for Front
14	684 0800-1	Bolt Adapter
15	684 0900	Lever Fixing Bolt for Front
16		Front Inner Cable
17		Front Outer Casing
18	692 0900-2	Casing Plate
19	692 1000	Casing Spring
20	608 3032	Rear Complete Cable 1450 mm × 1520 mm
	608 3042	Rear Complete Cable 1550 mm × 1620 mm
21	521 3001	Stop Ring
22	533 1200-1	Inner Sleeve
23	620 2030-1	Inner End Cap
24	692 9103	Rear Cable Assembly 1450 mm × 1520 mm
	692 9104	Rear Cable Assembly 1550 mm × 1620 mm

SHIMANO

multiple freehub

Model FH-Q620
Freehub (Small/6-speed)

Model FH-Q520
Freehub (Small/5-speed)

Model FH-N620
Freehub (Small/6-speed)

Model FH-N520
Freehub (Small/5-speed)

Model FH-K610
Freehub (Small/6-speed)

Model FH-K510
Freehub (Small/5-speed)

FREEHUB-SQ (FH-SQ)

Model FH-Q620
Small/6-speed

FH-Q520
Small/5-speed

SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish:

		Weight	Over Lock Nut Dimensions	Amount Dish
Front		8.6 oz. (245 g.)	3.78″ (96 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
Sprocket: Black Finish
Teeth: Threaded Sprocket 13T~15T
Spline Sprocket 14T~28T
Spoke Holes: 36H
Type: Quick Release, Uni Balance Mechanism, Uniglide Teeth, Cassette Gear
Use: With Hatch-Plate Rear Derailleur





Model FH-Q620

FREEHUB-SN (FH-SN)

Model FH-N620
Small/6-speed

FH-N520
Small/5-speed

FREEHUB-SK (FH-SK)

Model FH-K610
Small/6-Speed

FH-K510
Small/5-Speed

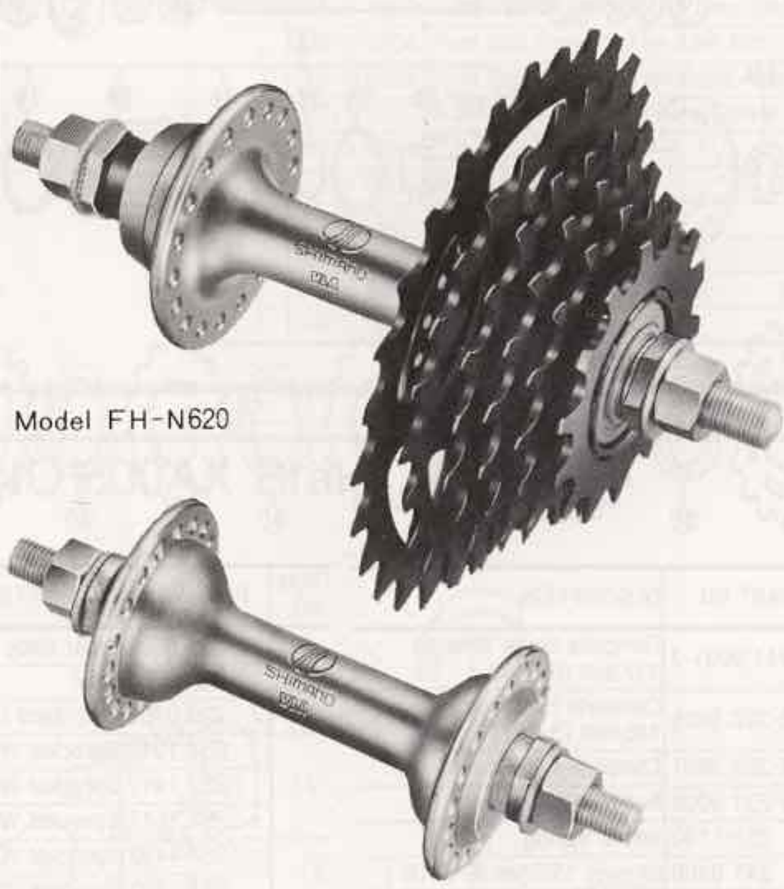
SPECIFICATIONS

Weight • Over Lock Nut Dimensions • Amount of Dish:

		Weight	Over Lock Nut Dimensions	Amount of Dish
Front		6.3 oz. (180 g.)	3.66″ (93 mm.)	—
Rear (Except Cassette Gears)	5-speed	12.8 oz. (364 g.)	4.88″ (124 mm.)	0″ (0 mm.)
	6-speed	12.8 oz. (364 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: Uni Balance Mechanism, Uniglide Teeth, Cassette Gear, Sealed Mechanism
Use: With Hatch-Plate Rear Derailleur





Model FH-N620

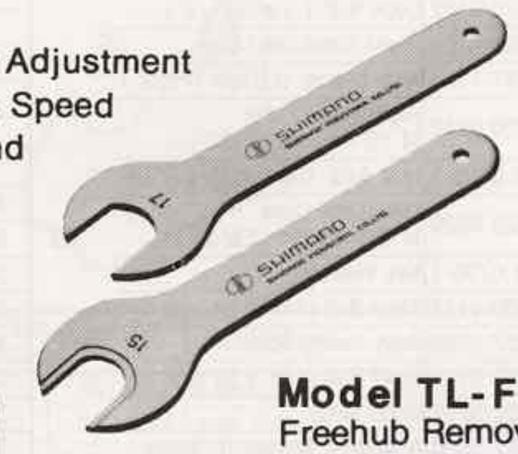
Model TL-FC20
Screw Peg Spanner



Model TL-SR20
Rear Sprocket Removal Tool



Model TL-HS20
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake; and Coaster Brake
Width: 15mm., 17mm.



Model TL-FH40
Freehub Removal Tool

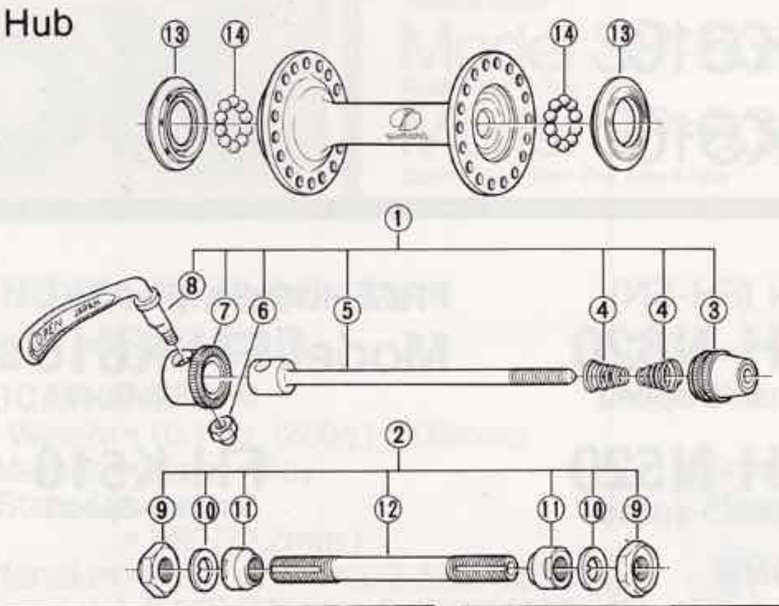


Model TL-FH30
Freehub Removal Tool



Freehub SQ (FH-SQ)

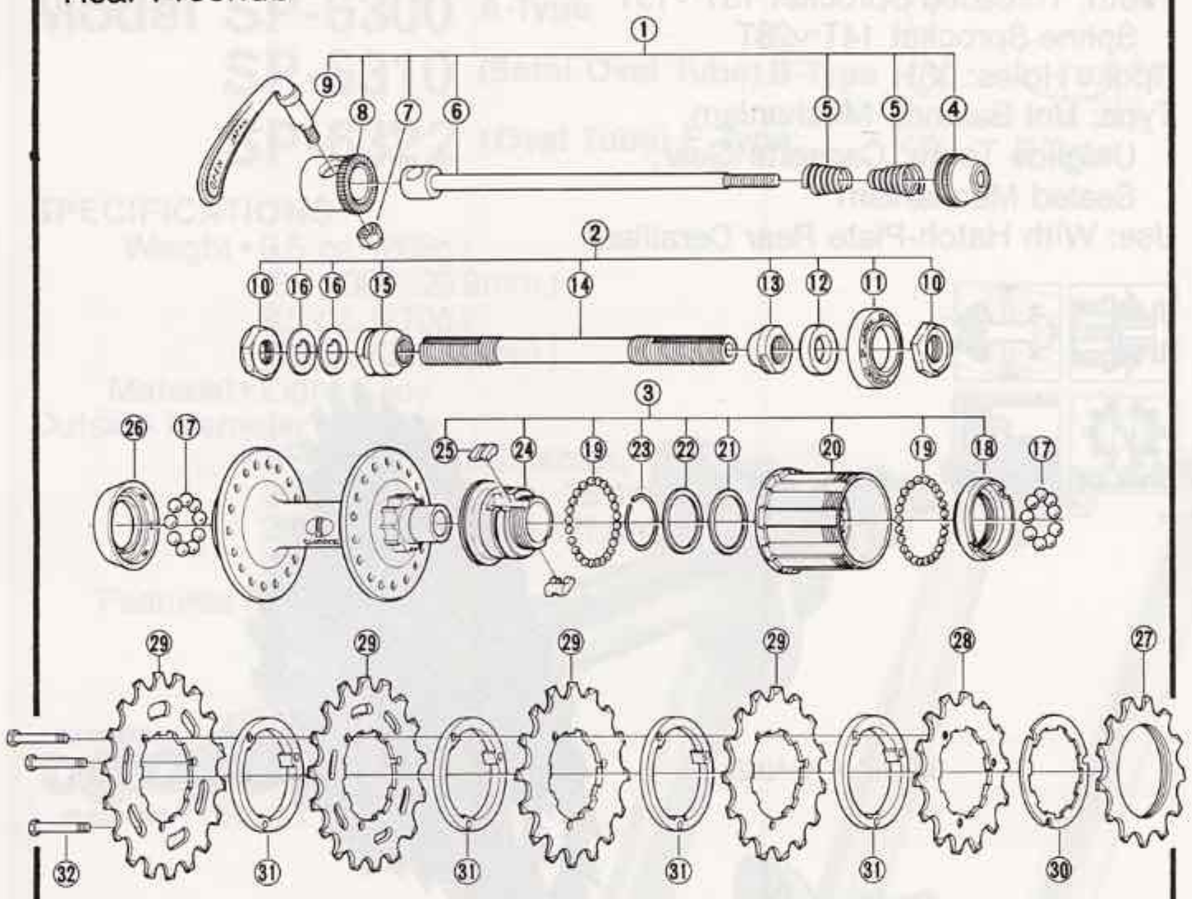
Front Hub



ITEM NO.	PART NO.	DESCRIPTION
1	3-231 9001-2	Complete Quick Release 125 mm (4-29/32")
2	3-231 9003	Complete Hub Axle 104 mm (4-3/32")
3	3-231 9008	Nut for Skewer
4	231 1100	Volute Spring
5	231 0900	Skewer 125 mm (4-29/32")
6	231 0800	Cap Nut
7	231 0500-1	Body Cam Lever

ITEM NO.	PART NO.	DESCRIPTION
8	231 0600-4	Cam Lever
9	231 1400	Lock Nut
10	231 1500	Key Washer
11	231 0400	Cone M 9 × 10.4 mm
12	231 0300	Hub Axle 104 mm (4-3/32")
13	210 0907	Dust Cap
14	000 0121	Steel Ball (3/16") 20 pcs.

Rear Freehub

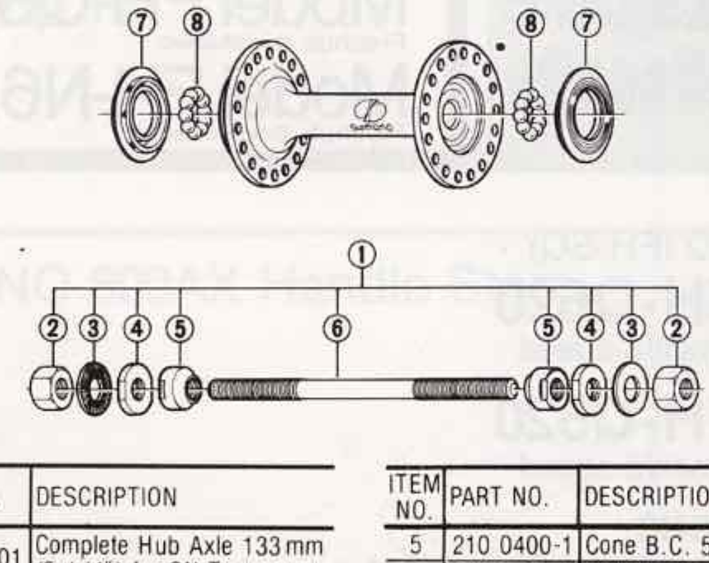


ITEM NO.	PART NO.	DESCRIPTION
1	3-241 9001-2	Complete Quick Release 157 mm (6-3/16")
2	3-220 9805	Complete Hub Axle 136 mm (5-11/32")
3	3-353 9801	Complete Freewheel Body
4	3-231 9008	Nut for Skewer
5	231 1100	Volute Spring
6	241 0400	Skewer 157 mm (6-3/16")
7	231 0800	Cap Nut
8	231 0500-1	Body Cam Lever
9	231 0600-4	Cam Lever
10	220 0502	Lock Nut 3.5 mm (1/8")
11	357 5702	Right Hand Dust Cap
12	241 1100	Axle Spacer 5.5 mm (7/32")
13	220 0850	Right Hand Cone M 10 × 5 mm (7/32")
14	241 0300-1	Hub Axle 136 mm (5-11/32")
15	220 0820	Left Hand Cone M10 × 15 mm (19/32")
16	241 0700-1	Key Washer
17	000 0131	Steel Ball (1/4") 18 pcs
18	357 5300	Body Fixing Race
19	000 0111	Steel Ball (1/8") 50 pcs.
20	357 5201	Outer Body
21	357 5500	Adjusting Washer 0.05 mm
	357 5501	Adjusting Washer 0.10 mm
	357 5502	Adjusting Washer 0.17 mm
	357 5503	Adjusting Washer 0.30 mm
22	357 5400	Spacer 1.0 mm
23	357 5600-1	Pawl Spring

ITEM NO.	PART NO.	DESCRIPTION
24	361 0301	Inner Body
25	256 0700	Pawl
26	220 0708	Left Hand Dust Cap
27	357 1312	Sprocket Wheel 13T
	357 1412	Sprocket Wheet 14T
	357 1512	Sprocket Wheel 15T
28	357 1422	Sprocket Wheel 14T
	357 1522	Sprocket Wheel 15T
	357 1622	Sprocket Wheel 16T
	357 1722	Sprocket Wheel 17T
29	357 1532	Sprocket Wheel 15T
	357 1632	Sprocket Wheel 16T
	357 1732	Sprocket Wheel 17T
	357 1832	Sprocket Wheel 18T
	357 1932	Sprocket Wheel 19T
	357 2032	Sprocket Wheel 20T
	357 2132-1	Sprocket Wheel 21T
	357 2232-1	Sprocket Wheet 22T
	357 2332-1	Sprocket Wheet 23T
	357 2432-1	Sprocket Wheel 24T
	357 2632-1	Sprocket Wheel 26T
	357 2832-1	Sprocket Wheel 28T
	357 3032-1	Sprocket Wheel 30T
	357 3232-1	Sprocket Wheel 32T
	357 3432-1	Sprocket Wheel 34T
30	357 5800	Sprocket Spacer A
31	357 5900	Sprocket Spacer B
32	357 6001	Sprocket Fixing Bolt

Freehub-SN (FH-SN)

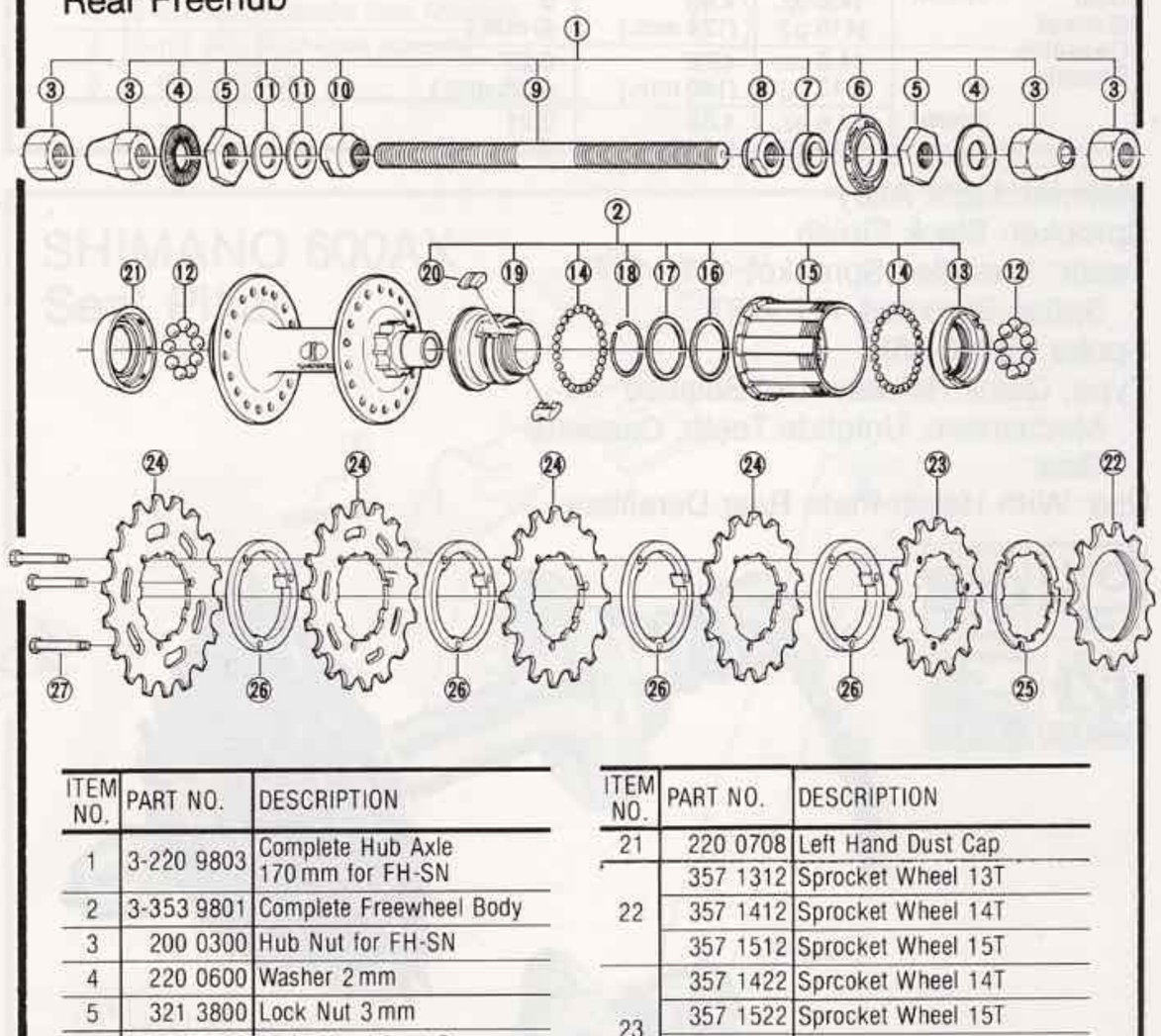
Front Hub



ITEM NO.	PART NO.	DESCRIPTION
1	3-210 9801	Complete Hub Axle 133 mm (5-1/4") for SN-Type
2	210 0530	Cap Nut w/Hexagonal Hole for SK-Type
	210 0500	Hub Nut for SN-Type
3	210 0700	Washer
4	210 0810	Lock Nut

ITEM NO.	PART NO.	DESCRIPTION
5	210 0400-1	Cone B.C. 5/16" × 10.5 mm
6	210 0300	Hub Axle 127 mm (5") for SK-Type
	210 0310	Hub Axle 133 mm (5-1/4") for SN-Type
7	210 0907	Dust Cap
8	000 0121	Steel Ball (3/16") 20 pcs.

Rear Freehub



ITEM NO.	PART NO.	DESCRIPTION
1	3-220 9803	Complete Hub Axle 170 mm for FH-SN
2	3-353 9801	Complete Freewheel Body
3	200 0300	Hub Nut for FH-SN
4	220 0600	Washer 2 mm
5	321 3800	Lock Nut 3 mm
6	357 5702	Right Hand Dust Cap
7	351 1100	Axle Spacer 5.3 mm
8	220 0860	Right Hand Cone B.C. 3/8" × 9 mm
9	220 0310	Hub Axle 170 mm (6-11/16") for FH-SN
10	220 0810-1	Left Hand Cone B.C. 3/8" 16 16.5 mm
11	220 0400-1	Axle Washer 1.5 mm
12	000 0131	Steel Ball (1/4") 18 pcs.
13	357 5300	Body Fixing Race
14	000 0111	Steel Ball (1/8") 50 pcs.
15	357 5201	Outer Body
16	357 5500	Adjusting Washer 0.05 mm
	357 5501	Adjusting Washer 0.10 mm
	357 5502	Adjusting Washer 0.17 mm
	357 5503	Adjusting Washer 0.30 mm
17	357 5400	Spacer 1.0 mm
18	357 5600-1	Pawl Spring
19	361 0301	Inner Body
20	256 0700	Pawl

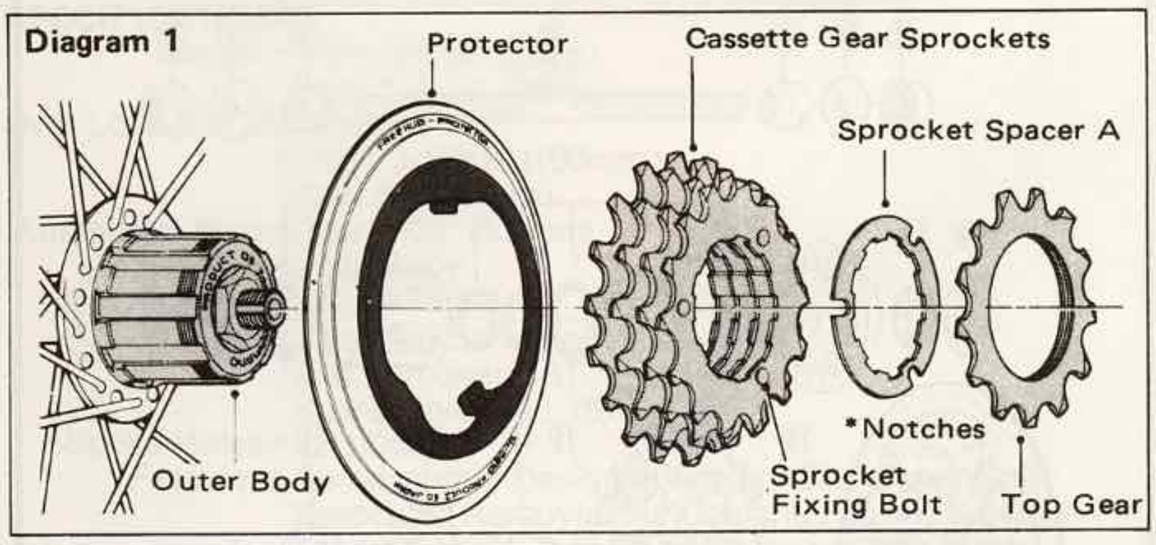
ITEM NO.	PART NO.	DESCRIPTION
21	220 0708	Left Hand Dust Cap
22	357 1312	Sprocket Wheel 13T
	357 1412	Sprocket Wheel 14T
	357 1512	Sprocket Wheel 15T
23	357 1422	Sprcoket Wheel 14T
	357 1522	Sprocket Wheel 15T
	357 1622	Sprocket Wheel 16T
	357 1722	Sprocket Wheel 17T
24	357 1532	Sprocket Wheel 15T
	357 1632	Sprocket Wheel 16T
	357 1732	Sprocket Wheel 17T
	357 1832	Sprcoket Wheel 18T
	357 1932	Sprocket Wheel 19T
	357 2032	Sprocket Wheel 20T
	357 2132-1	Sprocket Wheel 21T
	357 2232-1	Sprocket Wheel 22T
	357 2332-1	Sprocket Wheel 23T
	357 2432-1	Sprocket Wheel 24T
	357 2632-1	Sprcoket Wheel 26T
	357 2832-1	Sprocket Wheel 28T
	357 3032-1	Sprocket Wheel 30T
	357 3232-1	Sprocket Wheel 32T
	357 3432-1	Sprocket Wheel 34T
25	357 5800	Sprocket Spacker A
26	357 5900	Sprocket Spacer B
27	357 6001	Sprocket Fixing Bolt

Assembly Notes

■Assembly

(1) Assemble the hub in the usual rim assembly way.
(2) Then assemble the spoke protector, making sure that it suits the specificaions of the Freehub used. Precise assembly instructions are given further on.
(3) Now assemble the cassette gear sprockets and align with the outer grooves. Next, position sprocket spacer A and then screw on the top gear. (Diagram 1)
(4) Lastly, assemble the tire to the wheel rim and fix the wheel to the center of the frame.

Diagram 1



Tightening the Quick Release Mechanism

Adjust the adjusting nut and fix the wheel to the frame by tightening the cam lever in the direction of the "CLOSE" sign. Continue to tighten firmly until full limit is reached. Cam lever tightening torque should be 90 ~ 120 kg/cm. (80 ~ 105 in. lbs.) (Diagrams 2, 3)

Diagram 2

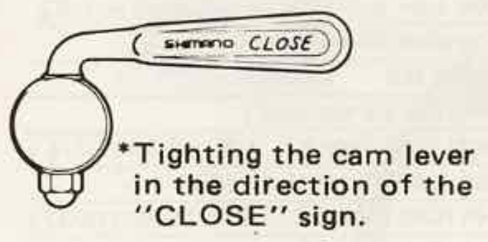
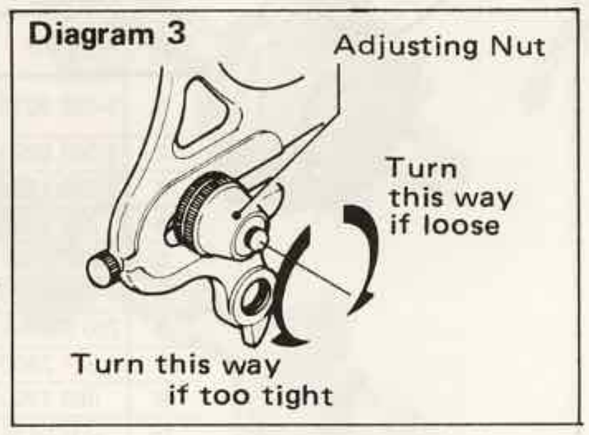


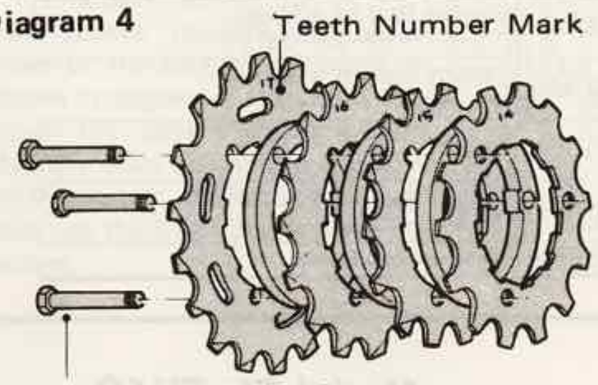
Diagram 3



■Replacing Sprockets

- To change the sprockets first remove the top gear (smallest sprocket) by means of the 2 sprocket turning tools. Then the other sprockets can be easily removed.
- To change the cassette sprocket combinations remove the 3 sprocket fixing bolts. By utilizing the outer grooves, sprocket changes will be easier. To correctly position sprockets, the side with the teeth number indicated should face the top gear. Final step, tighten the sprocket fixing bolt with due care. Sprocket fixing bolt tightening torque should be 12 ~ 15 kg/cm. (10 ~ 13 in. lbs.). Although it is possible to tighten sprockets by use of a pair of pliers, we recommend the Peg Spanner (TL-FC20) which is perfectly suited for this purpose. (Diagram 4)

Diagram 4

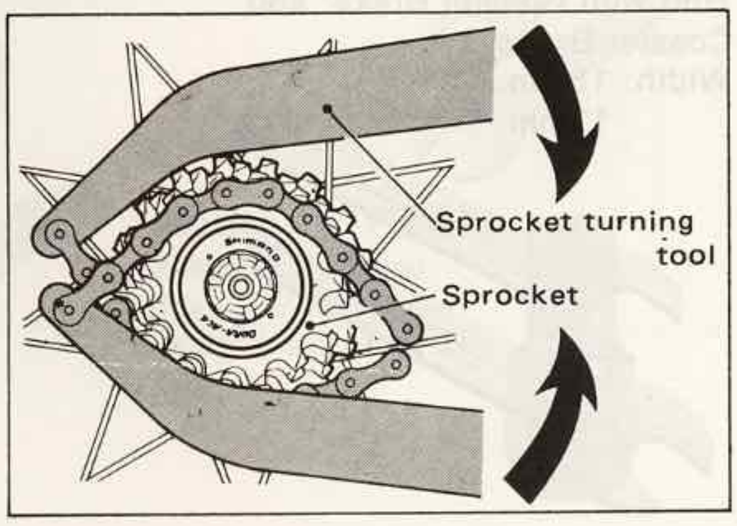


Model TL-FC20
Screw Peg Spanner

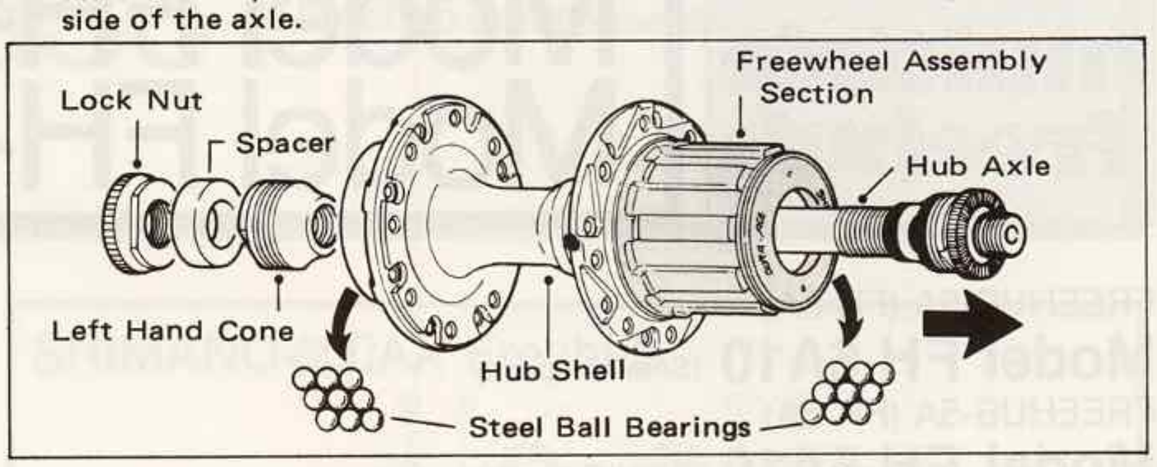


■Replacing Freewheel Section

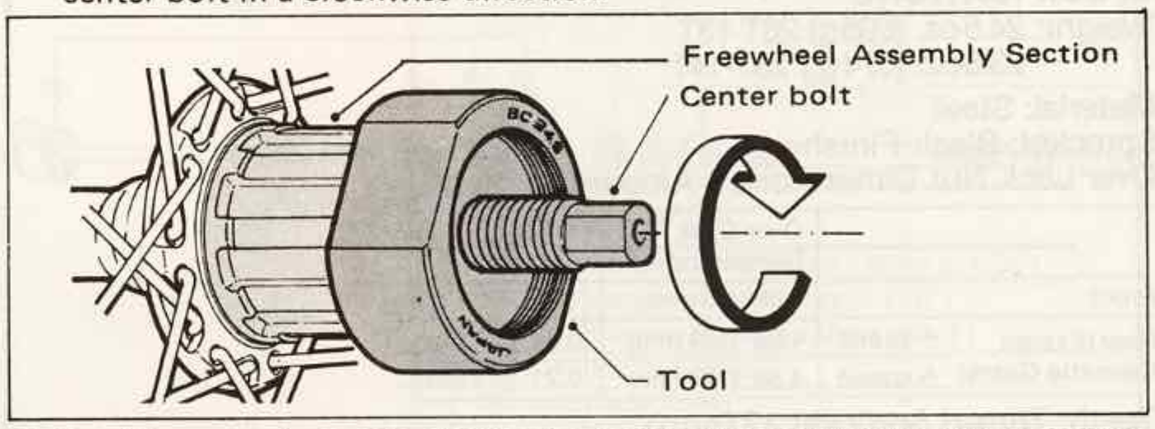
1) First, remove top gear by using two sprocket turning tools and then remove the other gears from the freewheel selection.



2) Next, remove the left side (opposite side to freewheel) lock nut and left hand cone. Then remove the hub axle from the freewheel side. At this time, take care not to lose the 9 steel ball bearings from each side of the axle.

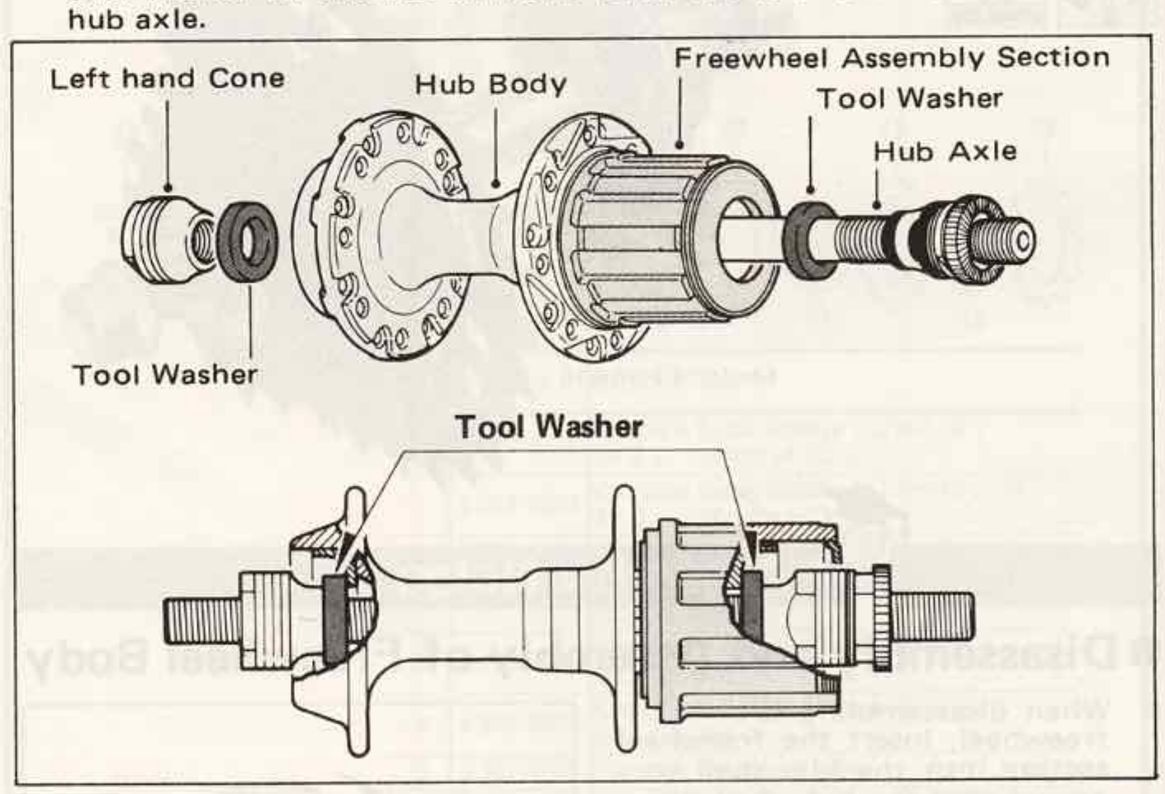


3) Screw the tool onto the freewheel assembly section until it grips. Then remove the freewheel assembly section by turning the tool's center bolt in a clockwise direction.

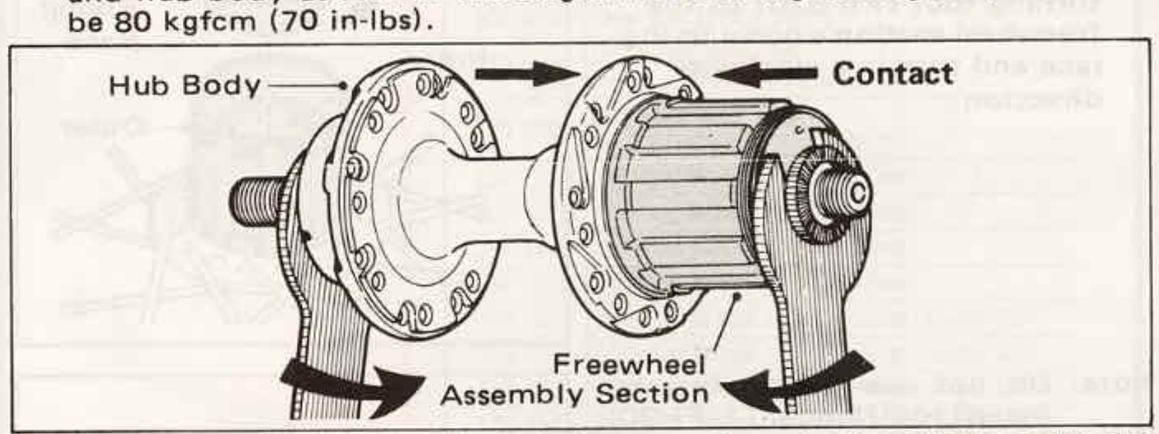


Note: There are two sets of grooves inside the tool body. These can be identified by the description B.C. 32, which is for use on Dura-Ace Freehub, and B.C. 34.6 which is for use on other freegubs which are not Dura-Ace. The description are clearly seen on each face end.

4) When reassembling, after changing the freewheel assembly section, insert the freewheel section to the hub by aligning the protrusions. Place the tool washer on the hub axle. And then thread the hub axle throuth the hub body from the freewheel side. Next, place the other tool washer on the hub axle and screw the left hand cone on to the hub axle.



5) Tighten the left hand cone until contact is made between freewheel and hub body as seen in the diagram below. Tightening torque should be 80 kgfcm (70 in-lbs).



Note: When proper contact is made between freewheel and hub body, do not continue to secure left hand cone.

6) After contact is made, unscrew the left hand cone and take out the two tool washers. And then assemble the hub axle. The assembly of the hub axle is the reverse of the disassembly procedure. The hub axle should be assembled so that there is no play on the hub body and smooth rotation is possible.

Model TL-FH30
Freehub Removal Tool



SHIMANO

multiple freehub

Model FH-6A10 Free Hub (Small/6-speed)
Model FH-5A10 Free Hub (Small/5-speed)

FREEHUB-6A (FH-6A)
Model FH-6A10 (Small/6-speed)
FREEHUB-5A (FH-5A)
Model FH-5A10 (Small/5-speed)

SPECIFICATIONS
Weight: 24.5oz. (695g) 28T-13T
23.8oz. (674g.) 28T-14T
Material: Steel
Sprocket: Black Finish
Over Lock Nut Dimensions • Amount of Dish:

		Over Lock Nut Dimension	Amount of Dish
Front		3.66" (93 mm.)	
Rear (Except Cassette Gears)	6-speed	4.88" (124 mm)	0.21" (5.3 mm)
	5-speed	4.88" (124 mm)	0.21" (5.3 mm)

Teeth: Thread Sprocket 13T~15T
: Spline Sprocket 14T~30T
Spoke Holes: 28H, 36H
Type: Uni Balance Mechanism, Uniglide Teeth
Use: With Exclusive Rear Derailleur (SHIMANO-RS, ALTUS) Only

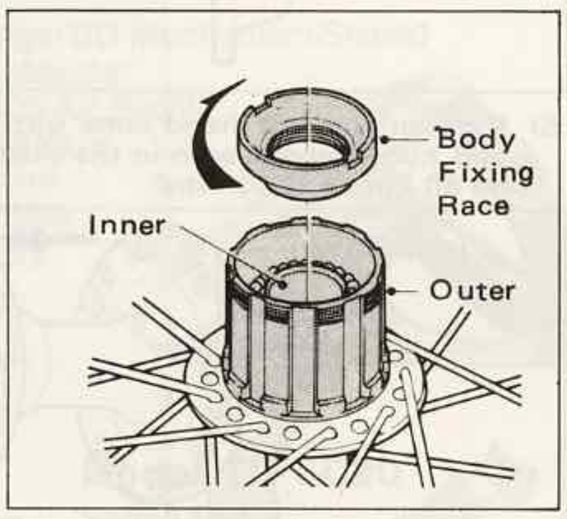


Model FH-6A10

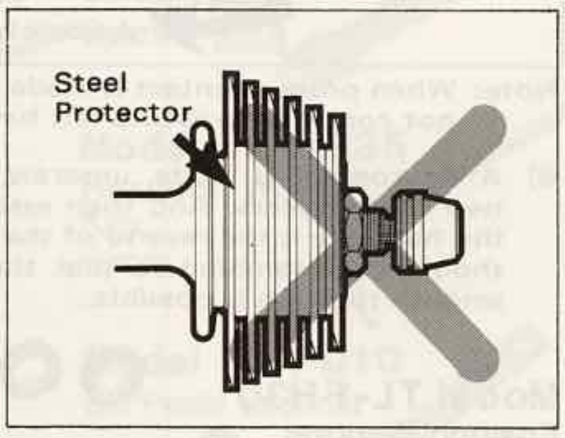
Assembly Notes

■ Disassembly and Assembly of Freewheel Body

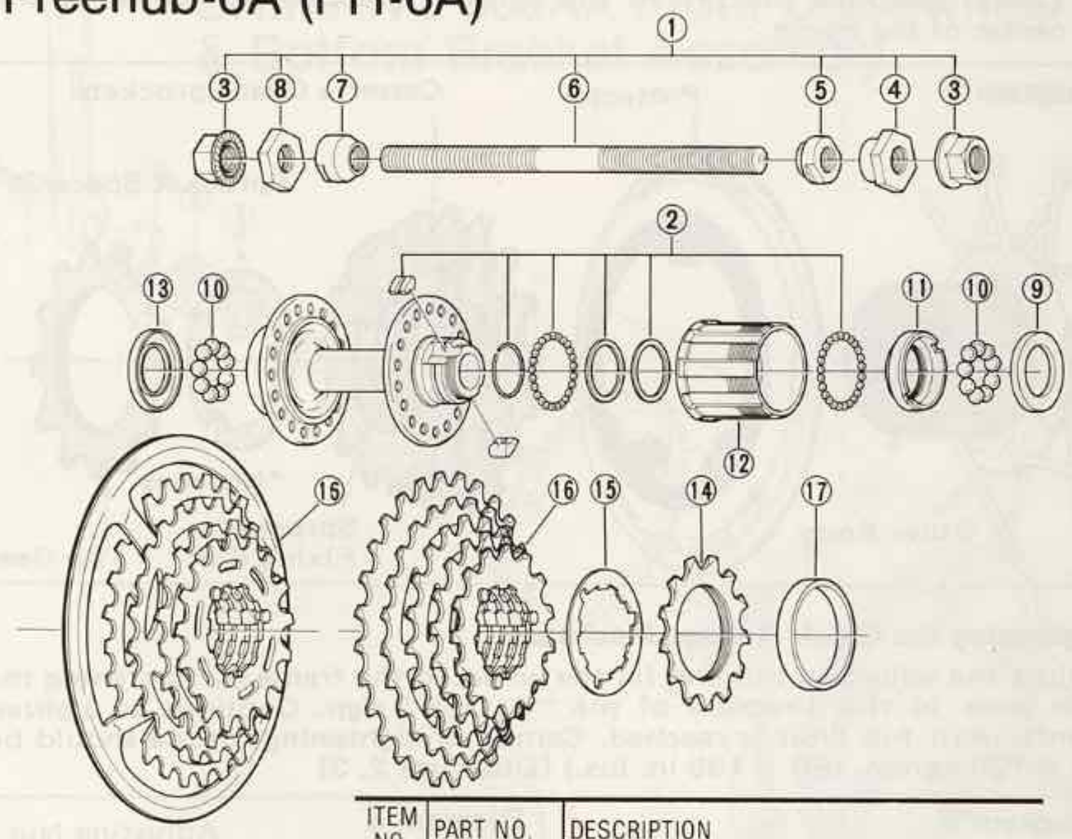
- When disassembling the freewheel, insert the freewheel section into the hub shell to ensure that the hub shell does not move. Then, fix the turning tool (XB-520) to the freewheel section's body fixing race and turn in a clockwise direction .



Note: Do not use the freehub removed tool (Model TL-FH30) for replacing the freewheel section. Because the inner body of the freewheel section is fixed to the hub shell.



Freehub-6A (FH-6A)



ITEM NO.	PART NO.	DESCRIPTION
1	3-363 9019	Complete Hub Axle 170mm (6-11/16") Over Lock Nut Dimension: 124mm (4-7/8")
2	3-363 9020	Freewheel Small Parts
3	220 1501	Flange Nut
4	220 1601	Long Nut 9.6mm (3/8")
5	256 0501	Right Hand Cone B.C. 3/8" × 9.3mm (3/8")
6	220 0310	Hub Axle 170mm (6-11/16")
7	220 0820-1	Left Hand Cone B.C. 3/8" × 15mm (19/32")
8	321 3800	Lock Nut 3mm (1/8")
9	363 1900	Right Hand Dust Cap
10	000 0131	Steel Ball (1/4") 18pcs
11	363 1300	Body Fixing Race
12	363 1200	Outer Body
13	256 0600	Left Hand Dust Cap
14	357 1312	Sprocket Wheel 13T
	357 1412	Sprocket Wheel 14T
	357 1512	Sprocket Wheel 15T
	357 1612	Sprocket Wheel 16T
15	363 1700	Spacer
16	3-116 9501	Cassette Gear for 5-Speed (17—19—21—24T)
	3-116 9502	Cassette Gear for 5-Speed (17—20—24—28T)
	3-116 9503	Cassette Gear w/Protector for 5-Speed (17—20—24—28T)
	3-116 9601	Cassette Gear for 6-Speed (15—17—19—23—28T)
	3-116 9602	Cassette Gear for 6-Speed (15—18—21—25—30T)
	3-116 9603	Cassette Gear for 6-Speed (16—18—20—23—28T)
	3-116 9604	Cassette Gear for 6-Speed (16—18—20—23—30T)
17	363 1800	Cover (5-Speed Only)

Model TL-HS20
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake; and Coaster Brake
Width: 15mm., 17mm.



Model TL-FH40
Freehub Removal Tool



SHIMANO

freewheel

Model MF-1500 Multiple Freewheel
Model SF-1100 Single Freewheel

UNIGLIDE FREEWHEEL

Model MF-1500 (Black/5-speed)

SPECIFICATIONS

Weight: 13.6oz. (385g.) 28T-14T
Material : Surface Treatment:
Steel : Black Finish
Chain Size: 1/2″ x 3/32″ Chain
Thread: 1.37″ x 2.4 T.P.I.

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

UNIGLIDE





Cross Cut Teeth

The four shortened teeth, facing each other, have been designed to release the chain at the perfect point for engaging the next gear. A smoother gear change every time is the result!

SINGLE FREEWHEEL

Model SF-1100

SPECIFICATIONS

Weight: 6.0oz. (170g.) 18T
Thread: 1.37″ x 24 T. P. I.

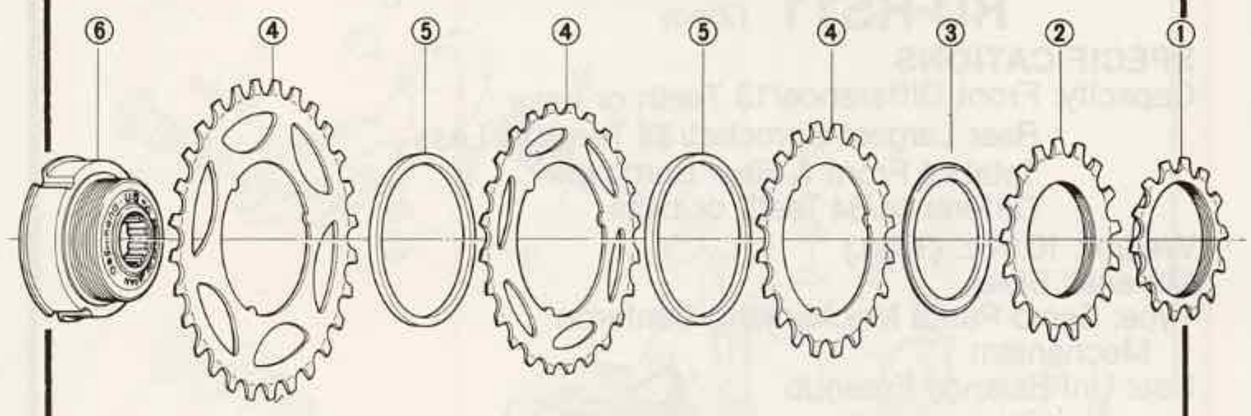
Sprocket:

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





Multiple Freewheel (SD-Type)

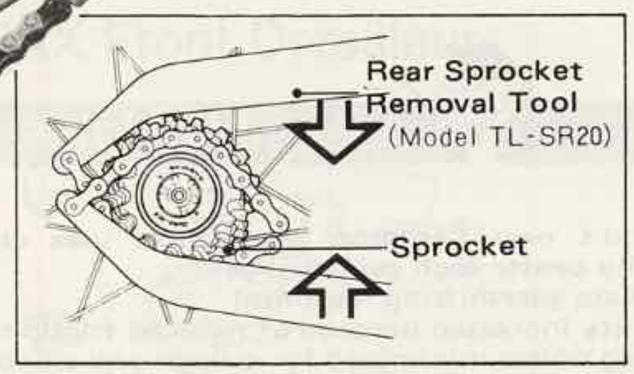


ITEM NO.	PART NO.	DESCRIPTION
1	121 1451	Sprocket Wheel 14T
	121 1556	Sprocket Wheel 15T
2	121 1557	Sprocket Wheel 15T
	121 1657	Sprocket Wheel 16T
	121 1757	Sprocket Wheel 17T
3	126 0800	Spacer A
4	121 1858	Sprocket Wheel 18T
	121 1958	Sprocket 19T
	123 2023	Sprocket Wheel 20T
	123 2123	Sprocket Wheel 21T
	123 2223	Sprocket Wheel 22T
	123 2323	Sprocket Wheel 23T
	123 2423	Sprocket Wheel 24T
	123 2623	Sprocket Wheel 26T
	123 2823	Sprocket Wheel 28T
5	126 0900	Spacer B
6	126 9001	Freewheel Body

Model TL-SR20

Rear Sprocket
Removal Tool





Model TL-FW40

Single Freewheel
Removal Tool



Model TL-FW30

Multiple Freewheel
Removal Tool



SHIMANO

rear derailleur

Model RD-RS12 Rear Derailleur (Chrome)
Model RD-RS11 Rear Derailleur (Zinc)

SHIMANO-RS

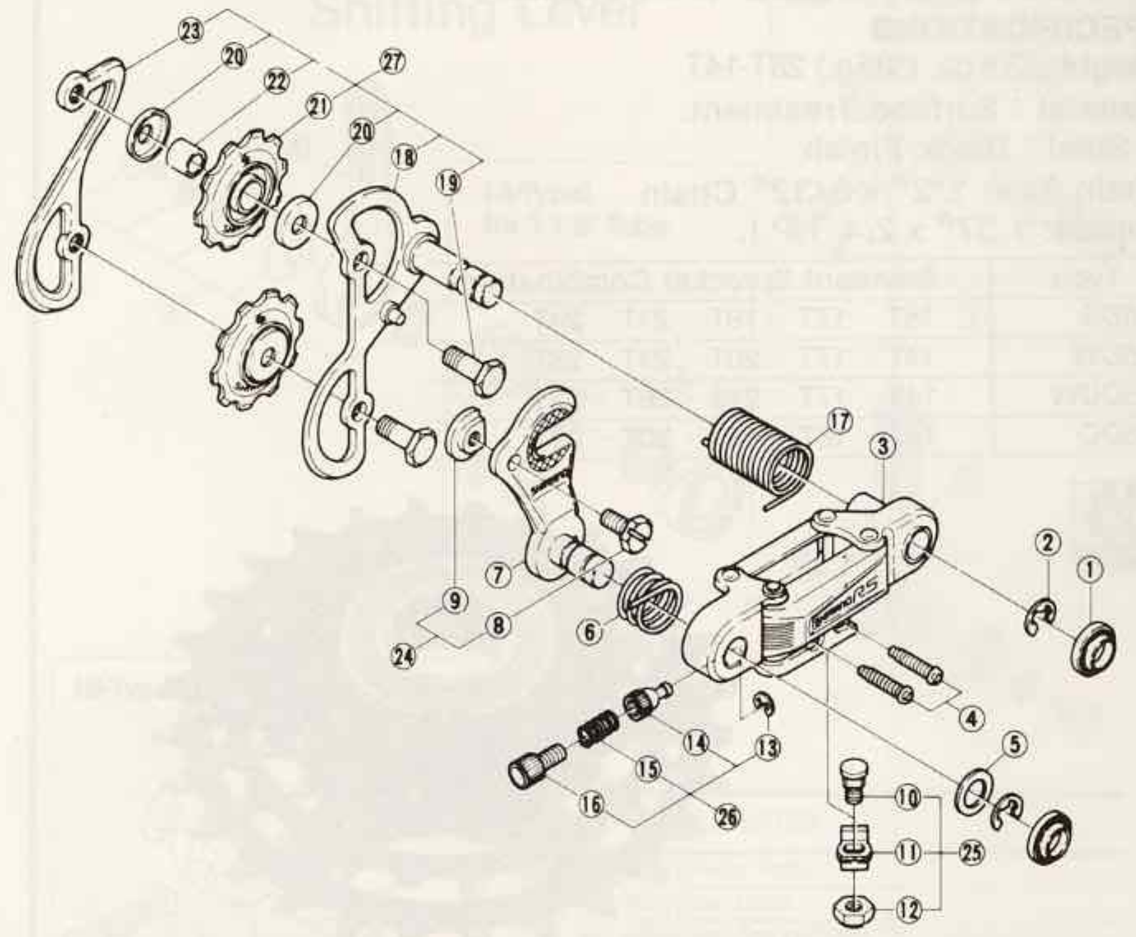
Model RD-RS12 (Chrome)
RD-RS11 (Zinc)

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Total of Front & Rear Sprocket
Difference/34 Teeth or Less
Weight: 10.9oz. (308g.)
Material: Steel
Type: Servo Panta Mechanism, Centeron Mechanism
Use: Uni Balance Freehub



Shimano-RS Rear Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	526 4500	Cap
2	521 3001	Stop ring (ø6)
3	551 9001	Mechanism Assembly (Standard Type)
	552 9001	Mechanism Assembly (Economy Type)
4	000 1003	Stroke Adjusting Screw
5	521 3500	Spacer
6	521 2601	B-Tension Spring
7	522 9071	Adapter w/Mounting Shaft
8	000 1104-1	Adapter Screw
9	511 3500-1	Adapter Nut
10	541 3400	Cable Fixing Bolt
11	541 2300	Cable Fixing Plate
12	541 2401	Cable Fixing Nut
13	522 3000	Stop Ring (ø3)

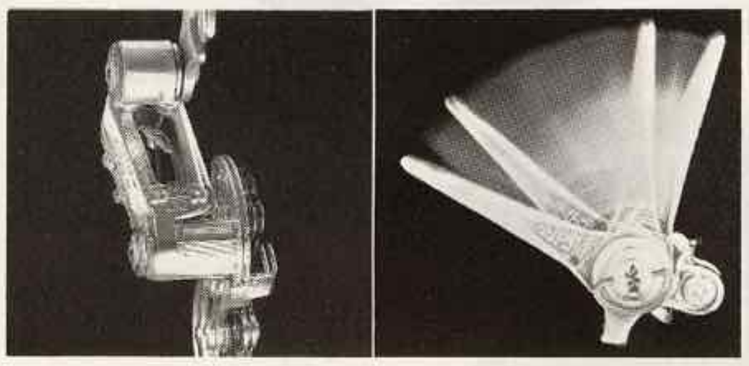
ITEM NO.	PART NO.	DESCRIPTION
14	522 2900	Swivel Barrel
15	532 2100	Cable Adjusting Spring
16	522 2500	Cable Adjusting Barrel
17	521 1400-1	P-Tension Spring
18	551 9002	Inner Cage Plate w/Mounting Shaft
19	551 0400	Pulley Bolt (M6)
20	551 1100	Pulley Cap
21	551 1000	Pulley
22	551 1200	Pulley Bushing
23	551 0300	Outer Plate
24	525 9069	Adapter Screw & Nut
25	525 9079	Cable Fixing Bolt Assembly
26	522 9076	Adjusting Barrel Assembly
27	551 9003	Pulley Plate Assembly



Assembly Notes

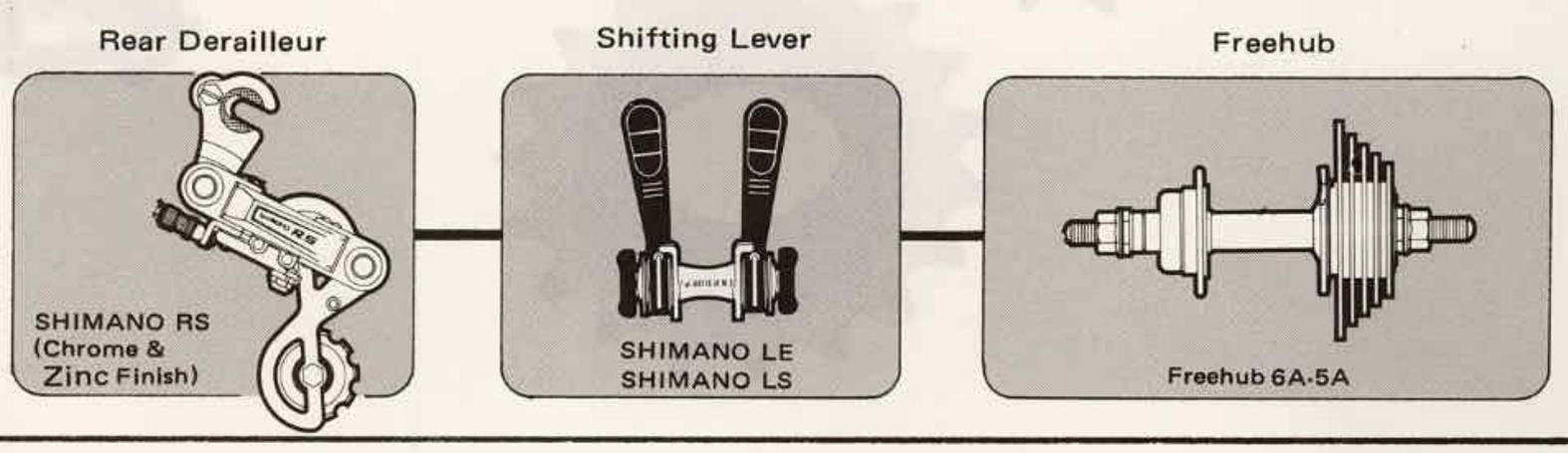
Features:

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!



System Combination Chart

Use the LE & LS shifting lever only with RS rear derailleur. The RS rear derailleur can be used separetely but the "Centeron Mechanism" will not function.



SHIMANO
rear derailleur

Model RD-401F Rear Derailleur
Model RD-EG10 Rear Derailleur

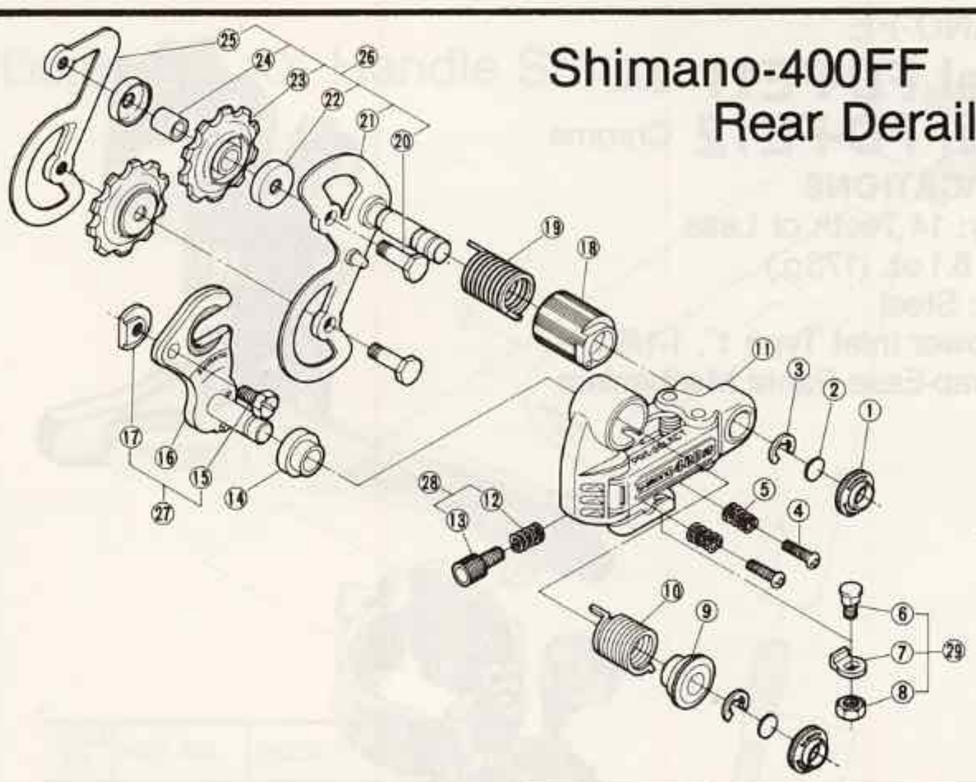
SHIMANO-400FF
Rear Derailleur

Model RD-401F

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Total of Front & Rear Sprocket
Difference/34 Teeth or Less
Weight: 11.1oz. (315g.)
Material: Light Alloy and Steel
Type: Pre-Select Mechanism with
Servo Panta Mechanism





Shimano-400FF Rear Derailleur

ITEM NO.	PART NO.	DESCRIPTION
1	543 0801	Cap (Old Part No. 543 0801)
2	522 1900	Spin
3	521 3001	Stop Ring
4	000 1003	Adjusting Screw
5	543 2900	Adjusting Spring
6	541 3400	Cable Fising Bolt (Old Part No. 583 2300-2)
7	583 2500-1	Cable Fixing Plate
8	541 2400	Cable Fixing Nut
9	543 0700	Adapter Mounting Collar
10	543 0501	B-Tension Spring
11	543 9011-1	Mechanism Assembly
12	541 1100	Cable Adjusting Spring
13	541 1200	Cable Adjusting Barrel
14	543 0600	Adapter Bushing
15	000 1104-1	Adapter Screw
16	543 9014	Adapter w/Mounting Shaft (Old Part No. 543 9004)
17	511 3500-1	Adapter Nut
18*	541 2601	Spring Cover (Old Part No. 541 2603)
19	543 2700	P-Tension Spring
20	511 2600-1	Pulley Bolt
21	543 9012	Lnner Cage Plate w/ Mounting Shaft
22	511 2700-1	Pulley Cap
23	521 3100	Pulley (Old Part No. 521 3100-1)
24	511 2900	Pulley Bushing
25	541 0600	Outer Cage Plate
26	543 9013	Pulley Plate Assembly (Old Part No. 543 9003)
27	525 9069	Adapter Screw & Nut
28	541 9002	Cable Adjusting Barrel & Spring
29	586 9003	Cable Fixing Bolt Assembly

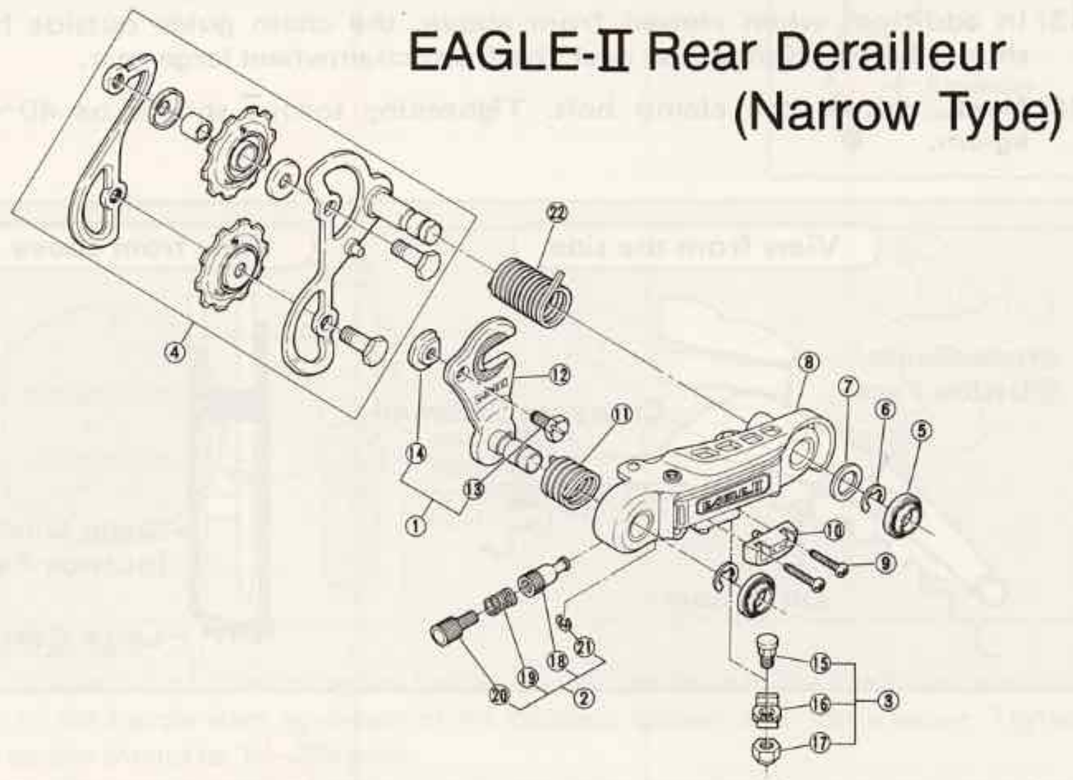
EAGLE-II

Model RD-EG10

SPECIFICATIONS

Capacity: Front Difference/13 Teeth or Less
: Rear Largest Sprocket/34 Teeth or Less
Total of Front & Rear Sprocket
Difference/34 Teeth or Less
Weight: 12.3 oz. (350 g.)
Material: Steel
Type: Pre-Select Mechanism with
Servo Panta Mechanism





EAGLE-II Rear Derailleur (Narrow Type)

ITEM NO.	PART NO.	DESCRIPTION
1	3-525 9069	Adapter Screw & Nut
2	3-522 9076	Adjusting Barrel Unit
3	3-522 9079	Cable Fixing Bolt Unit
4	3-551 9007	Pulley Plate Assembly
5	526 4500	Cap
6	521 3001	Stop Ring (ø6)
7	521 3500	Spacer
8	3-525 9074	Mechanism Assembly
9	000 1003	Adjusting Screw
10	522 2400	Adjusting Plate
11	522 2700	B-Tension Spring
12	3-522 9071-1	Adapter w/Mounting Shaft
13	000 1104-1	Adapter Screw
14	511 3500-1	Adapter Nut
15	541 3400	Cable Fixing Bolt
16	541 2300	Cable Fixing Washer
17	541 2401	Cable Fixing Nut
18	522 2900	Swivel Barrel
19	532 2100	Cable Adjusting Spring
20	522 2500	Cable Adjusting Barrel
21	522 3000	Stop Ring (ø3)
22	522 2800	P-Tension Spring

SHIMANO

front derailleur

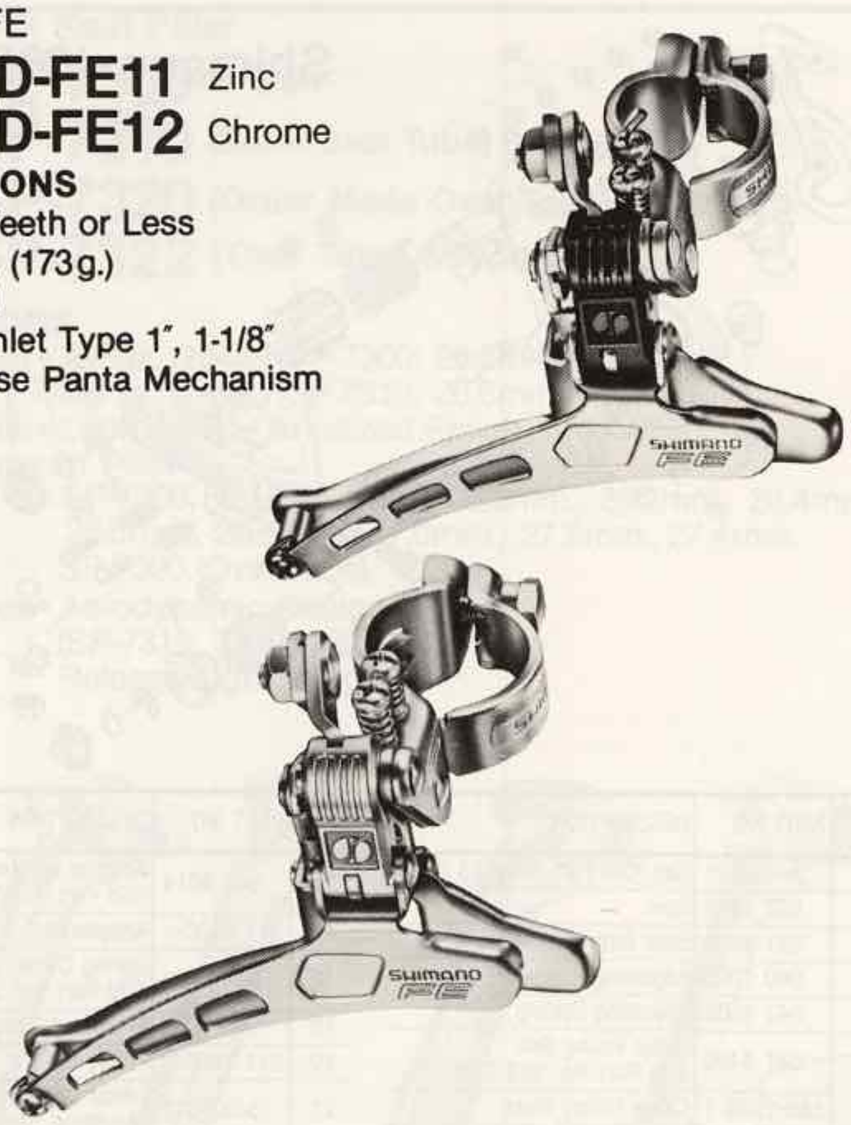
Model FD-FE11 Front Derailleur (Zinc)
Model FD-FE12 Front Derailleur (Chrome)

SHIMANO-FE

Model FD-FE11 Zinc
Model FD-FE12 Chrome

SPECIFICATIONS

Capacity: 14 Teeth or Less
Weight: 6.1 oz. (173 g.)
Material: Steel
Type: Lower Inlet Type 1", 1-1/8"
Trap-Ease Panta Mechanism



Shimano-FE Front Derailleur



ITEM NO.	PART NO.	DESCRIPTION
1	583 0302	Clamp Bolt
2	592 0101	Clamp (1") Standard Type
	592 0100	Clamp (1") Economy Type
	592 0103	Clamp (1-1/8") Standard Type
	592 0102	Clamp (1-1/8") Economy Type
3	592 9001	Mounting Plate (1") Standard Type
	593 9001	Mounting Plate (1") Economy Type
	592 9002	Mounting Plate (1-1/8") Standard Type
	593 9002	Mounting Plate (1-1/8") Economy Type
4	592 0700	Adjusting Spring
5	000 1201	Stroke Adjusting Bolt (M4 × 15mm)
6	592 9006	Chain Guide Assebley (Standard Type)
	593 9006	Chain Guide Assebley (Economy Type)

ITEM NO.	PART NO.	DESCRIPTION
7	582 3600	Stop Ring ø3.5mm
8	592 9004	Saver Plate
9	592 1100	Sleeve A
10	591 1500	Saver Spring
11	592 1200	Sleeve B
12	594 0900	Cable Fixing Bolt
13	591 1000	Cable Fixing Plate
14	541 2401	Cable Fixing Nut
15	581 2000-1	Roller Fixing Nut
16	582 1200-2	Roller
17	000 1001	Roller Fixing Bolt
18	592 9005	Cable Fixing Bolt Assembly
19	591 9006	Roller Assembly

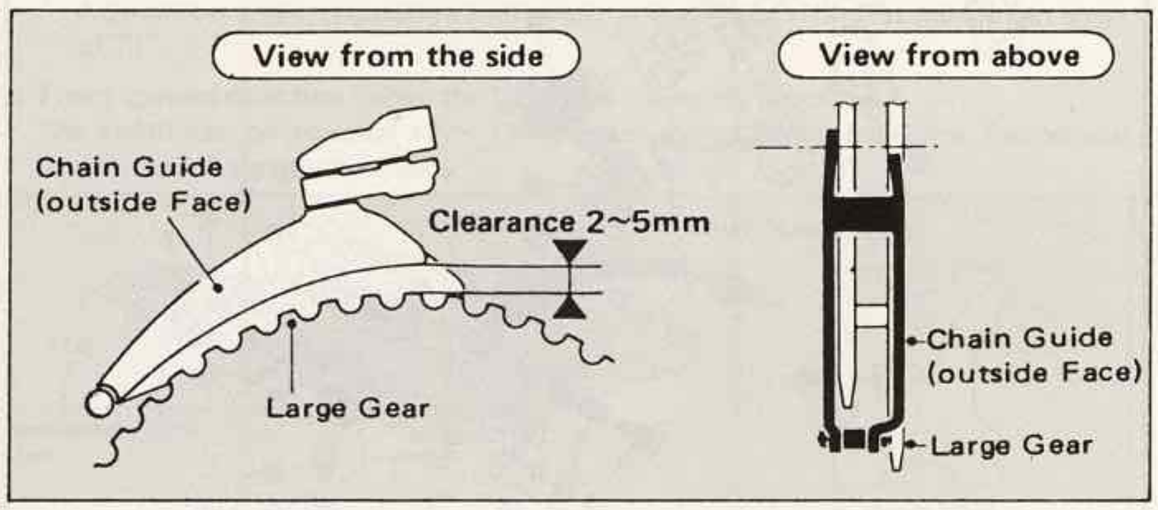
Assembly Notes

(1) Assemble the clamp band to the seat tube and then fix temporarily with the clamp bolt.

(2) Set the chain guide so that the outside face and the large gear of the front chainwheel have a clearance of about 2—5mm when viewed from the side.

(3) In addition, when viewed from above, the chain guide outside face should be positioned just over the front chainwheel large gear.

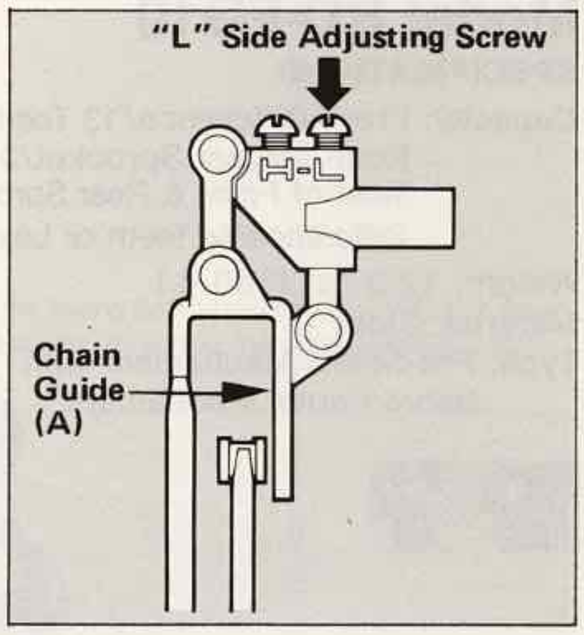
(4) Next, tighten the clamp bolt. Tightening torque should be 40~60 kg·cm.



■ Stroke Adjustment

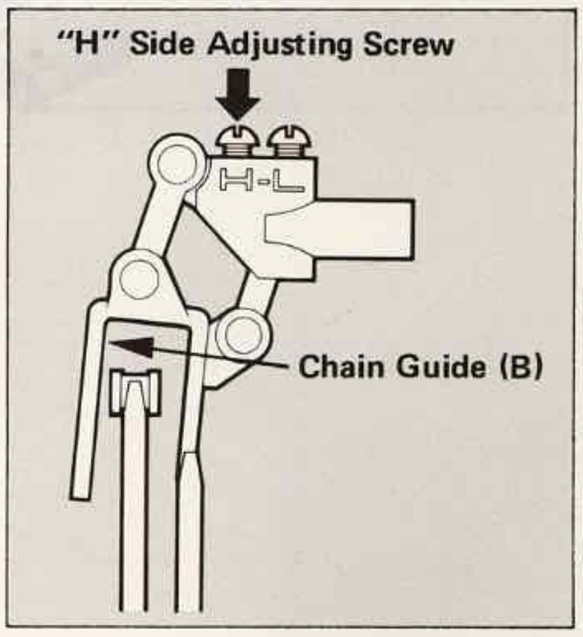
• Low (L) Side Adjustment

Set the chain on the small gear of the front chainwheel and the largest gear of the freewheel. Then adjust the clearance between the chain and the chain guide inside face (A) to the absolute minimum without touching by turning the "L" adjusting screw.



• High (H) Side Adjustment

Set the chain on the large gear of the front chinwheel and the smallest gear of the freewheel. Then adjust the clearance between the chain and the chain guide inside face (B) to the absolute minimum without touching by turning the "H" adjusting screw.



SHIMANO

shifting lever

Model SL-LE10
Shimano-LE Shifting Lever

Model SL-LS10
Shimano-LS Shifting Lever

SHIMANO-LE LEVER

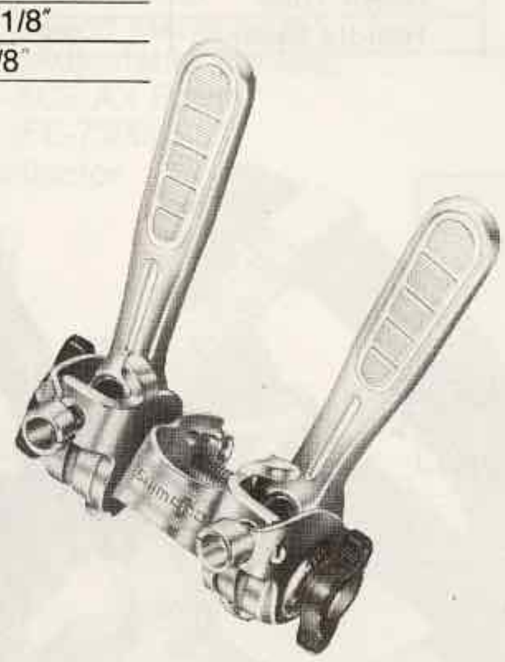
Model SL-LE10

SPECIFICATIONS

Weight: 3.5oz. (95g.)
Type: Friction Type
: Centeron Mechanism
Material: Light Alloy
Use: Rear Derailleur with Centeron Mechanism Only

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





SHIMANO-LS LEVER

Model SL-LS10

SPECIFICATIONS

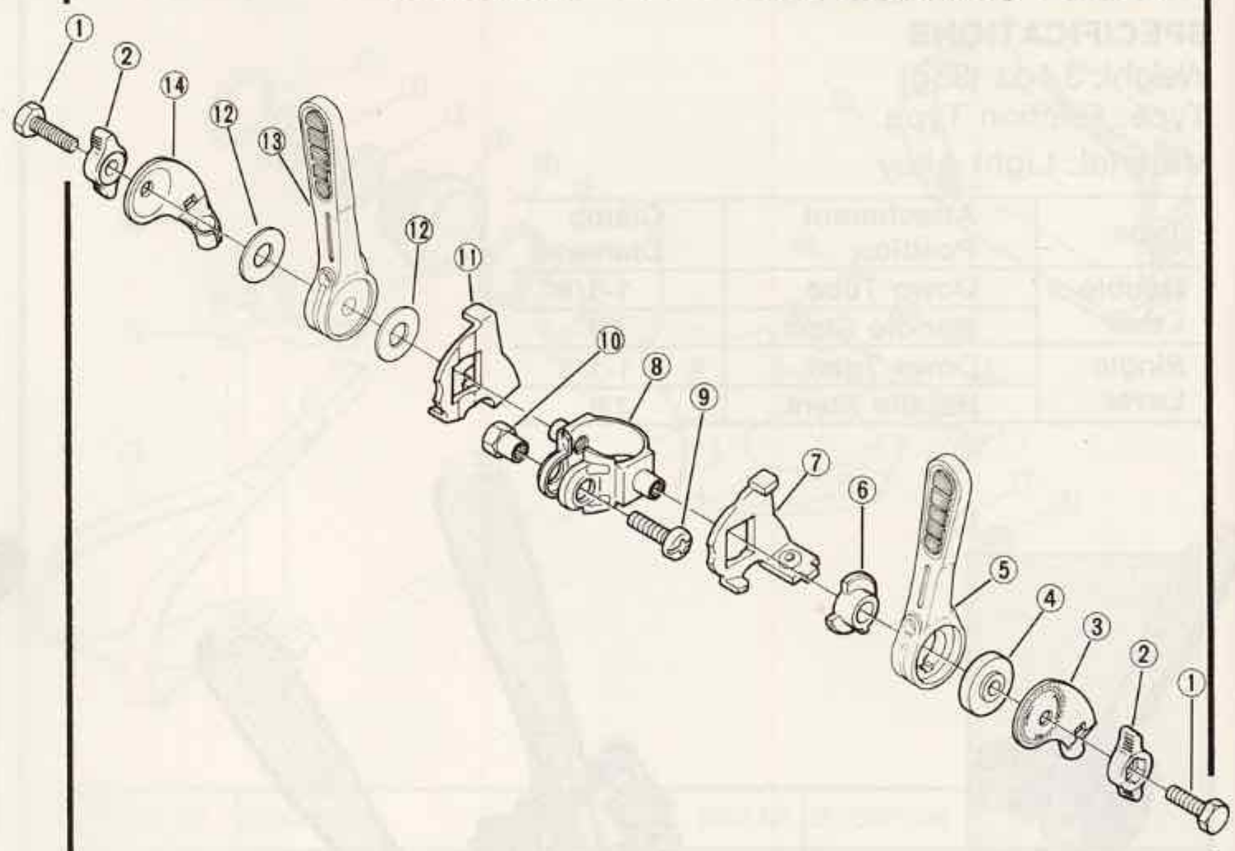
Weight: 2.9oz. (92g.)
Type: Friction Type
: Centeron Mechanism
Material: Resin
Use: Rear Derailleur with Centeron Mechanism Only

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





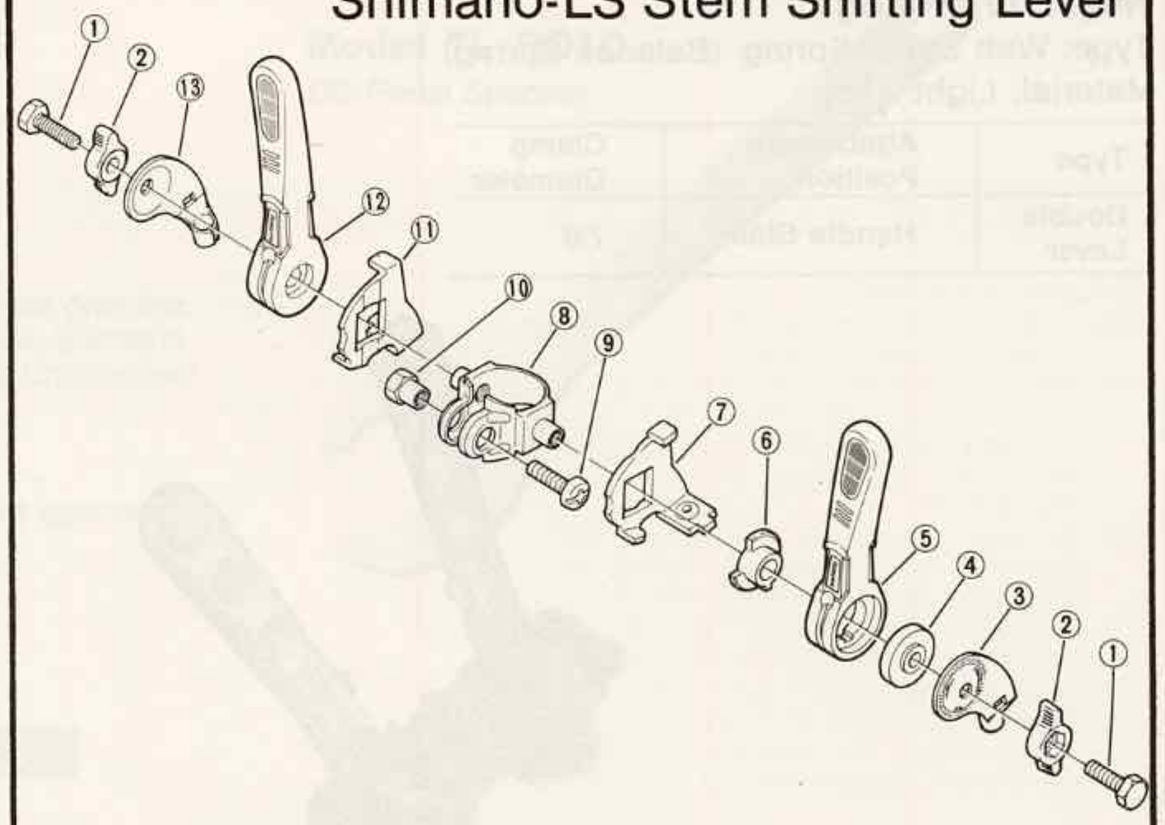
Shimano-LE Stem Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	684 0900	Lever Fixing Bolt
2	684 0800-1	Bolt Adapter
3	684 0602	Pressure Plate for Rear
4	632 0200-1	Cap
5	632 0100	Lever for Rear
6	688 0300	Bushing
7	684 0405	Plate for Rear

ITEM NO.	PART NO.	DESCRIPTION
8	684 0301	Lever Clamp (7/8")
9	333 0900	Clamp Screw
10	622 0200-2	Clamp Nut
11	684 0406	Plate for Front
12	684 1000	Washer B
13	684 0100	Lever for Front
14	684 0701	Pressure Plate for Front

Shimano-LS Stem Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	684 0900	Lever Fixing Bolt
2	684 0800-1	Bolt Adapter
3	684 0602	Pressure Plate for Rear
4	632 0200-1	Cap
5	631 0100-1	Lever for Rear
6	688 0300	Bushing
7	684 0405	Plate for Rear

ITEM NO.	PART NO.	DESCRIPTION
8	684 0301	Lever Clamp (7/8")
9	333 0900	Clamp Screw
10	622 0200-2	Clamp Nut
11	684 0406	Plate for Front
12	684 0102	Lever for Front
13	684 0701	Pressure Plate for Front

SHIMANO

shifting lever

Model SL-QS10 QS Shifting Lever
Model SL-QP10 QP Shifting Lever
Model SL-FT10 FINGER-TIP Shifting Lever

QS-LEVER

Model SL-QS10

SPECIFICATIONS

Weight: 3.4oz. (95g)
Type: Friction Type
Material: Light Alloy

Type	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″





QP-LEVER

Model SL-QP10

SPECIFICATIONS

Weight: 3.0oz. (85g.)
Type: Friction Type
Material: Resin

Type	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″





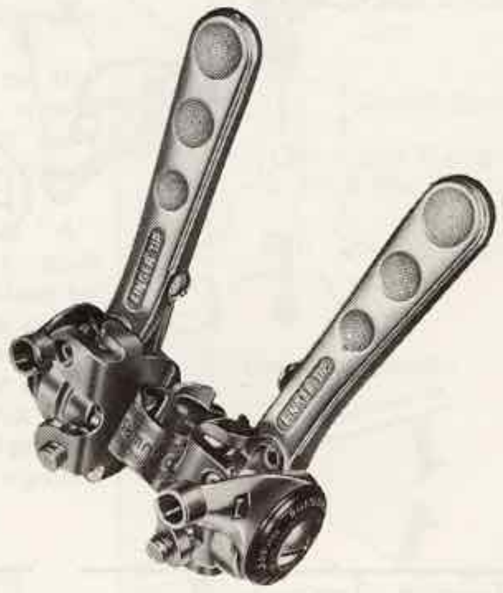
FINGER-TIP LEVER

Model SL-FT10

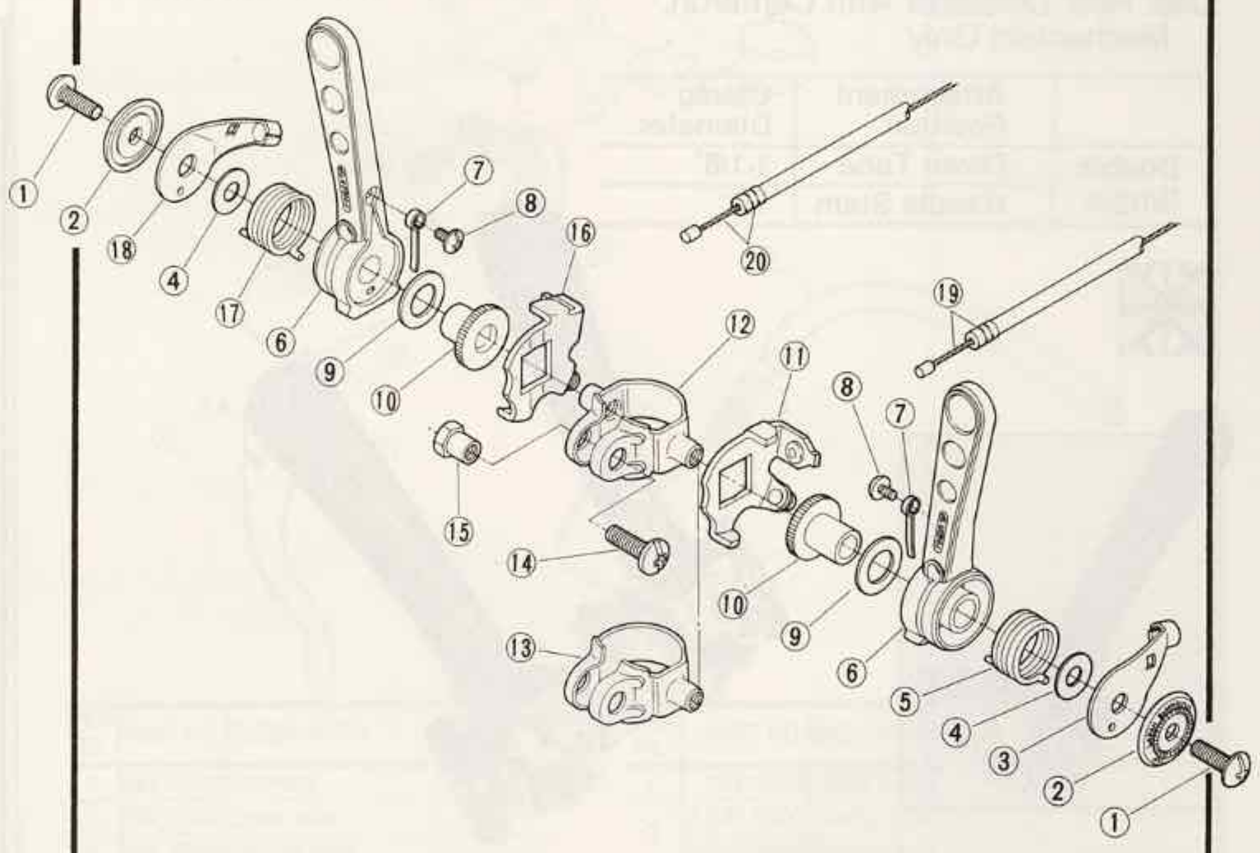
SPECIFICATIONS

Weight: 3.7oz. (105g.)
Type: With Spiral Spring (Balance Spring)
Material: Light Alloy

Type	Attachment Position	Clamp Diameter
Double Lever	Handle Stem	7/8″



FINGER TIP Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	625 1400	Lever Bolt (M4.5 × 10)
2	627 1600	Cap
3	627 1700	Pressure Plate A for Rear
4	627 0601	Washer
5	627 0502	Spring A for Rear
6	627 0102-1	Lever
7	627 1101	Leaf Spring
8	627 1000	Screw (M3 × 4.5)
9	627 0701	Coned Disc Spring
10	627 1900	Flanged Bushing

ITEM NO.	PART NO.	DESCRIPTION
11	627 1202-1	Plate A for Rear
12	684 0301	Lever Clamp for 10 speed (7/8″, 0.833″)
13	684 0300	Lever Clamp for 5 speed (7/8″, 0.833″)
14	333 0900	Clamp Bolt (M5 × 16)
15	622 0200-2	Clamp Nut
16	627 1301-1	Plate B for Front
17	627 0503	Spring B for Front
18	627 1800	Pressure Plate B for Front
19		Complete Cable for Rear
20		Complete Cable for Front

SHIMANO

hub small&large

Model HB-AQ11
SMALL FLANGE HUB WITH QUICK RELEASE

Model HB-AN11
SMALL FLANGE HUB

Model HB-AQ21
LARGE FLANGE HUB WITH QUICK RELEASE

Model HB-AN21
LARGE FLANGE HUB

Model HB-SN11
STEEL HUB

Model HB-SB11
STEEL HUB

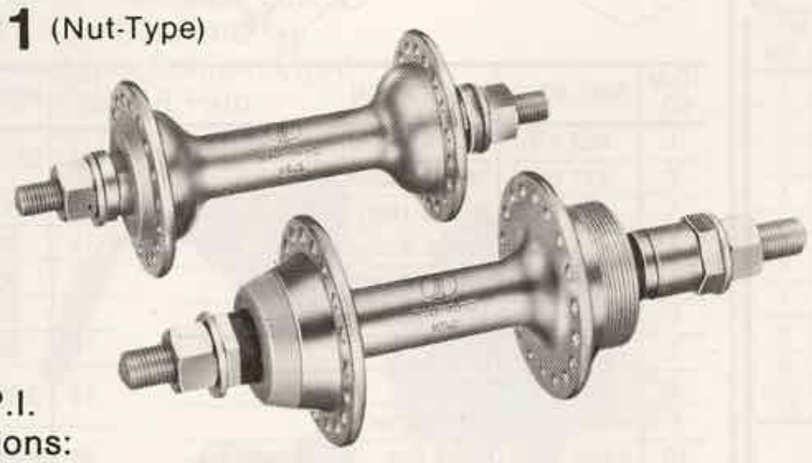
SMALL FLANGE HUB
WITH QUICK RELEASE
Model HB-AQ11
SPECIFICATIONS

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



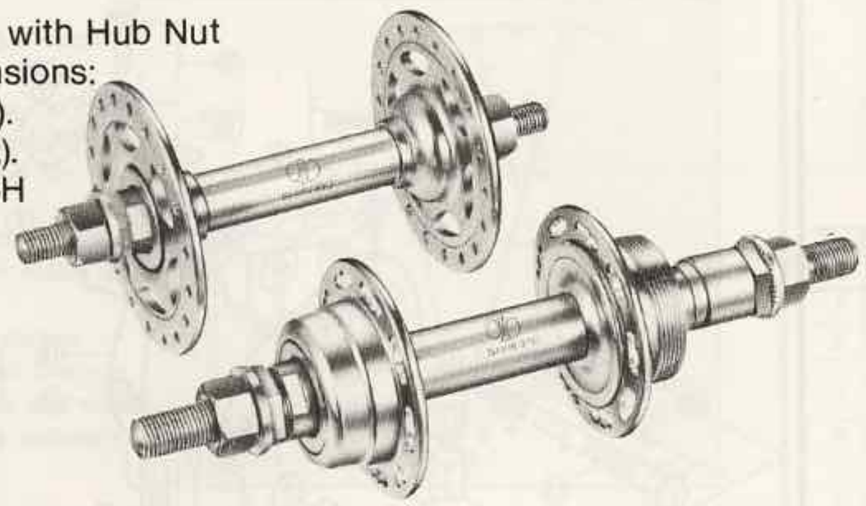
SMALL FLANGE HUB
Model HB-AN11 (Nut-Type)
SPECIFICATIONS

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



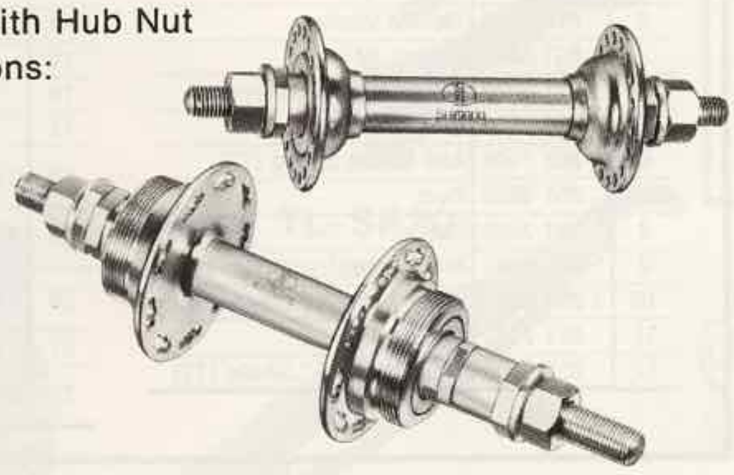
STEEL HUB
Model HB-SB11
SPECIFICATIONS

Weight: 25.0 oz. (710g.)/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



STEEL HUB
Model HB-SN11
SPECIFICATIONS

Weight: 23.6oz. (668g.)/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



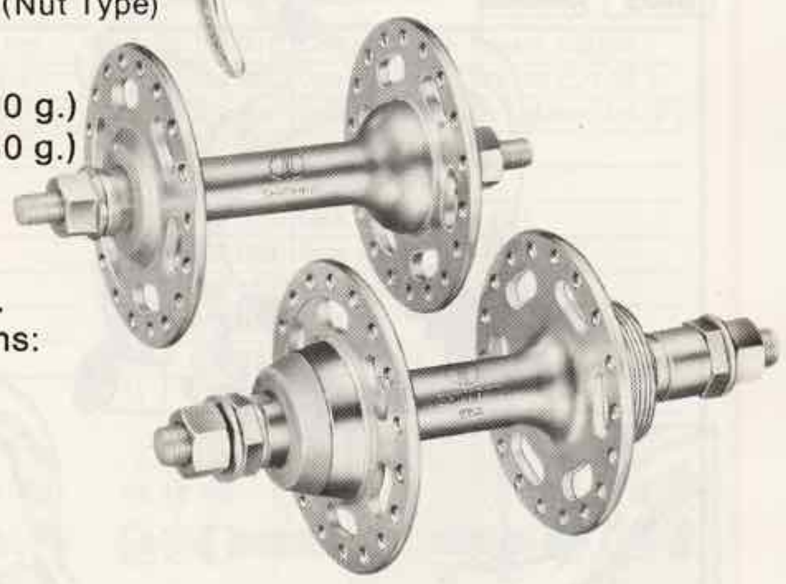
LARGE FLANGE HUB WITH QUICK RELEASE
Model HB-AQ21
SPECIFICATIONS

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

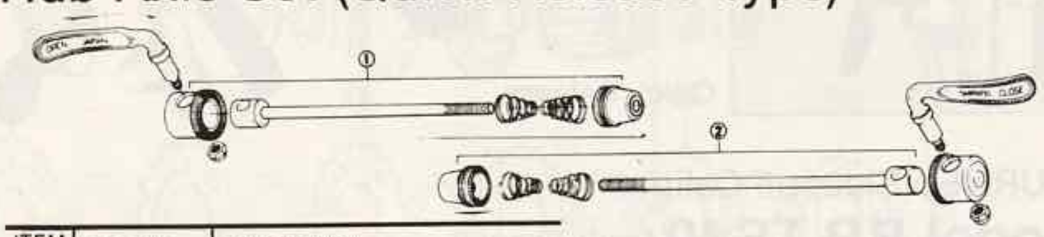


LARGE FLANGE HUB
Model HB-AN21 (Nut Type)
SPECIFICATIONS

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

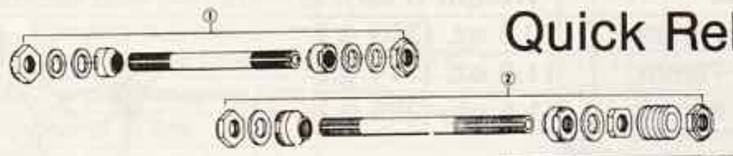


Hub Axle Set (Quick Release Type)



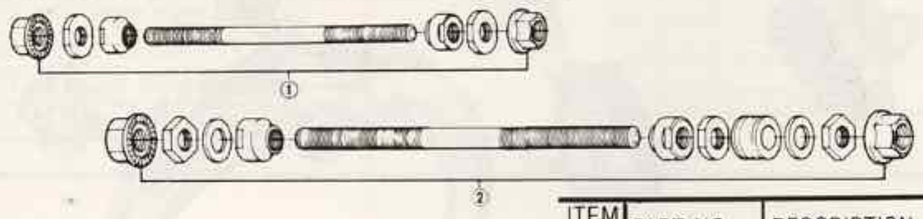
ITEM NO.	PART NO.	DESCRIPTION
1	3-231 9001 -2	Complete Quick Release 125 mm (4-29/32″)—Front
2	3-241 9001 -2	Complete Quick Release 157 mm (6-3/16″)—Rear

Quick Release Set



ITEM NO.	PART NO.	DESCRIPTION
1	3-231 9003	Complete Hub Axle 104 mm (4-3/32″)—Front
2	3-241 9003	Complete Hub Axle 136 mm (5-11/32″)—Rear

Hub Axle Set (Nut Type)



ITEM NO.	PART NO.	DESCRIPTION
1	3-232 9003	Complete Hub Axle 133 mm (5-1/4″)—Front
2	3-220 9802	Complete Hub Axle 170 mm (6-11/16″)—Rear

SHIMANO

brake & lever

Model BR-TS30 TOURNEY Sidepull Caliper Brake
Model BR-TS60 TOURNEY Sidepull Caliper Brake
Model BR-TS40 TOURNEY Sidepull Caliper Brake

TOURNEY Sidepull Caliper

Model BR-TS30 (with Synpul & Quick Release)

SPECIFICATIONS

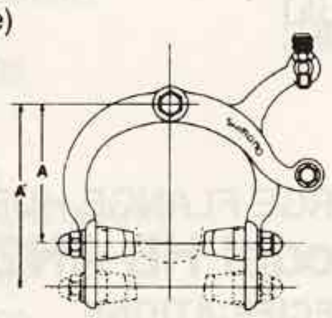
Material: Light Alloy

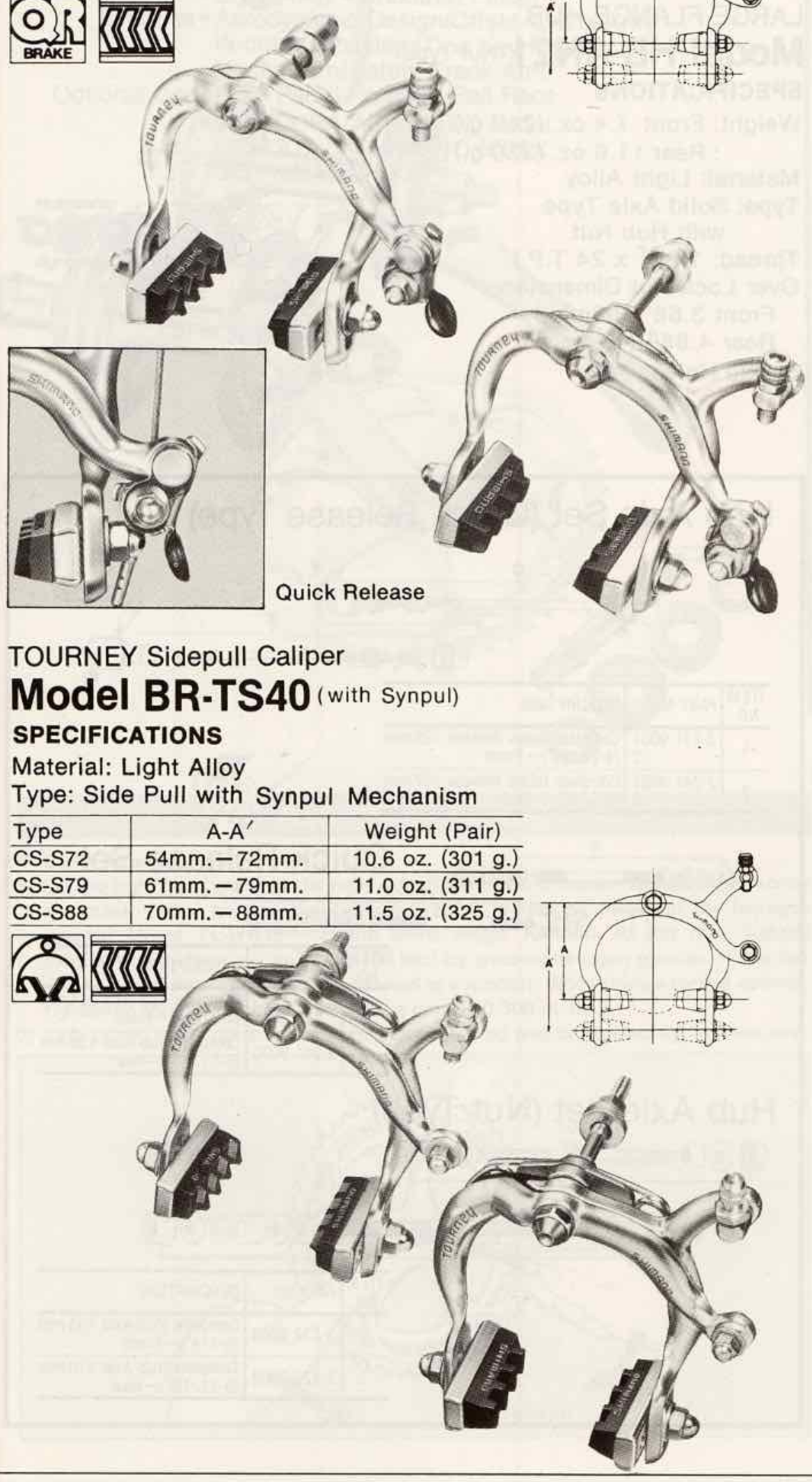
Type: Side Pull with Synpul Mechanism and Quick Release Mechanism

Type	A-A'	Weight (Pair)
CS-S72	54mm.—72mm.	10.9 oz. (309 g.)

Model BR-TS60 (with Quick Release)
BR-TS10 (without Quick Release)

Type	A-A'	Weight (Pair)
CS-57	43mm.—57mm.	10.7oz. (303g.)





Quick Release

TOURNEY Sidepull Caliper

Model BR-TS40 (with Synpul)

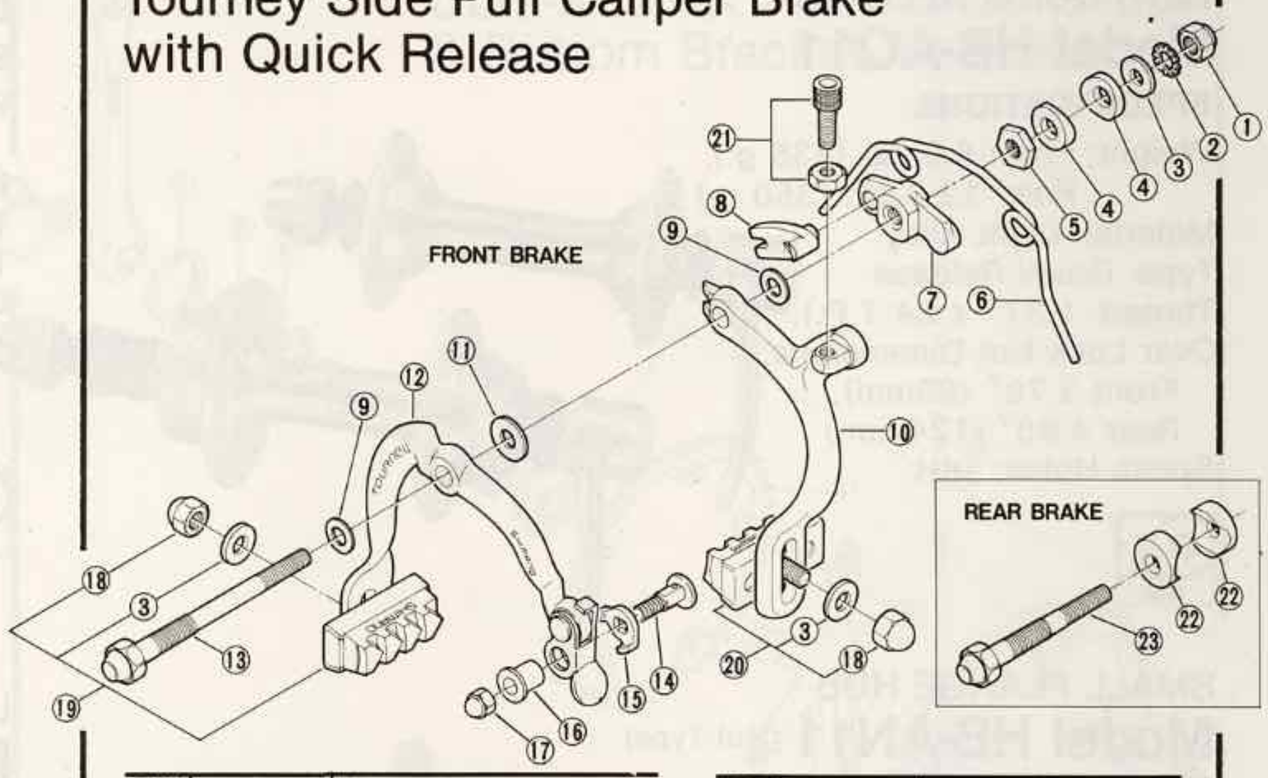
SPECIFICATIONS

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.)

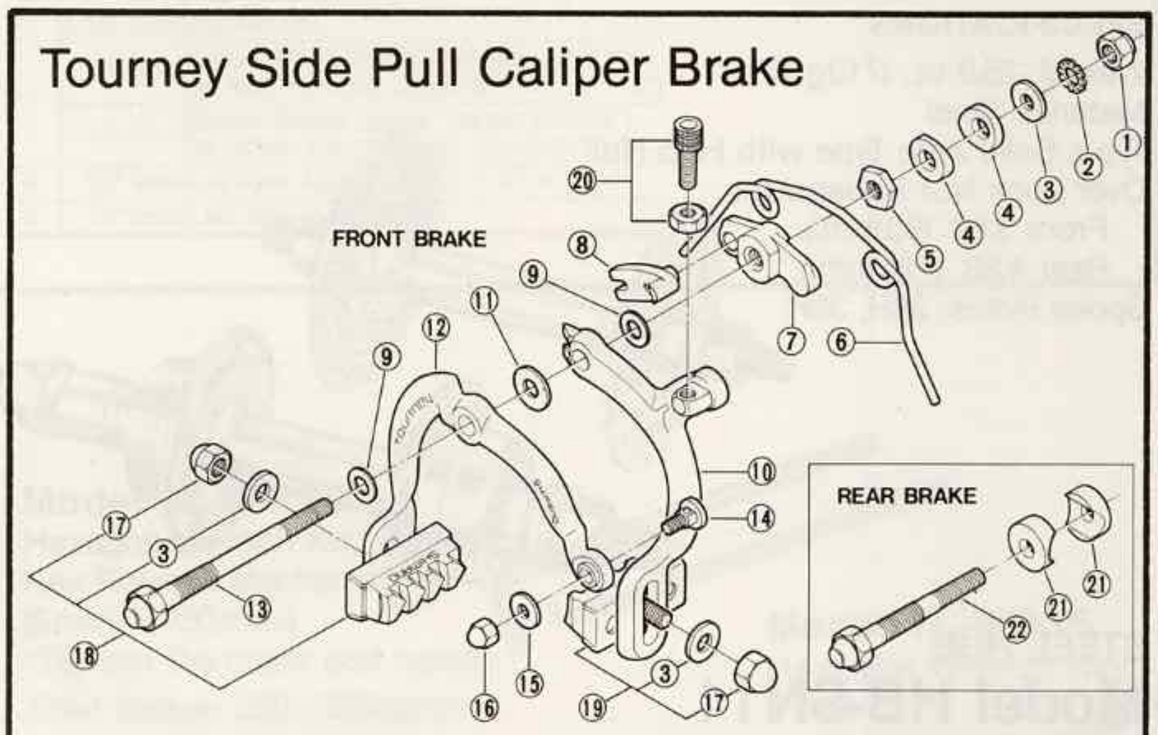
Tourney Side Pull Caliper Brake with Quick Release



ITEM NO.	PART NO.	DESCRIPTION
1	863 2702	Lock Nut (M6) for Pivot Bolt
2	811 6100	Teethed Washer
3	831 0600	Washer (M6)
4	811 6030	Radius Bushing (Front)
5	851 2500	Lock Nut (M6)
6	851 1104	Arm Return Spring (72)
7	851 3800	Pivot
8	851 3900	Cam
9	851 2101	Arm Washer
10	3-851 9061	Brake Arm "Y" Shape (72)
11	851 2201	Arm Spacer
12	3-851 9101	Brake Arm "C" Shape (72)

ITEM NO.	PART NO.	DESCRIPTION
13	851 3301-1	Pivot Bolt (Front) 47 mm (1-27/32")
14	851 5101-1	Cable Fixing Bolt
15	851 6000	Cable Fixing Washer
16	851 6800	Bushing
17	851 5200	Cable Fixing Nut
18	851 4303	Shoe Fixing Nut
19	3-851 9084	Brake Shoe Assembly (Right)
20	3-851 9085	Brake Shoe Assembly (Left)
21	3-851 9005	Cable Adjusting Barrel & Lock Nut
22	811 6040	Radius Bushing
23	851 3400-1	Pivot Bolt (Rear) 30 mm (1-3/16")

Tourney Side Pull Caliper Brake



ITEM NO.	PART NO.	DESCRIPTION
1	863 2702	Lock Nut (M6) for Pivot Bolt
2	811 6100	Teethed Washer
3	831 0600	Washer (M6)
4	811 6030	Radius Bushing (Front)
5	851 2500	Lock Nut (M6)
6	851 1104	Arm Return Spring (72)
7	851 3800	Pivot
8	851 3900	Cam
9	851 2101	Arm Washer
10	3-851 9061	Brake Arm "Y" Shape (72)
11	851 2201	Arm Spacer
12	851 0408	Brake Arm "C" Shape (72)

ITEM NO.	PART NO.	DESCRIPTION
13	851 3301-1	Pivot Bolt (Front) 47 mm (1-27/32")
14	851 5100	Cable Fixing Bolt
15	851 6800	Cable Fixing Bolt
16	851 5200	Cable Fixing Nut
17	831 4303	Shoe Fixing Nut
18	3-851 9084	Brake Shoe Assembly (Right)
19	3-851 9083	Brake Shoe Assembly (ßLeft)
20	3-851 9005	Cable Adjusting Barrel & Lock Nut
21	811 6040	Radius Bushing
22	851 3400-1	Pivot Bolt (Rear) 30 mm (1-3/16")

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brake & lever

Model BR-TC30 TOURNEY Centerpull Caliper Brake
Model BR-TC10 TOURNEY Centerpull Caliper Brake

TOURNEY Centerpull Caliper

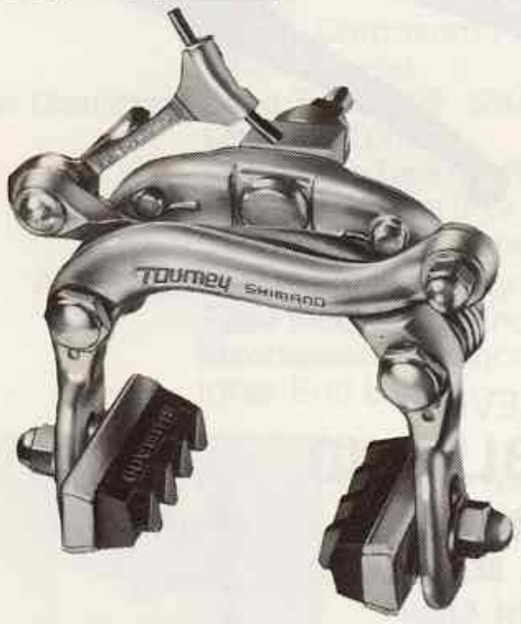
Model BR-TC30

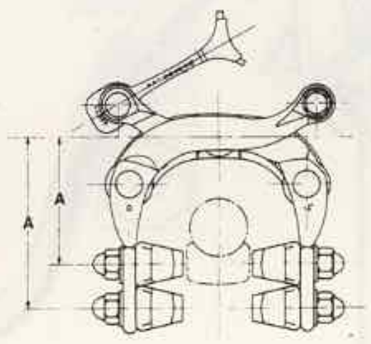
SPECIFICATIONS

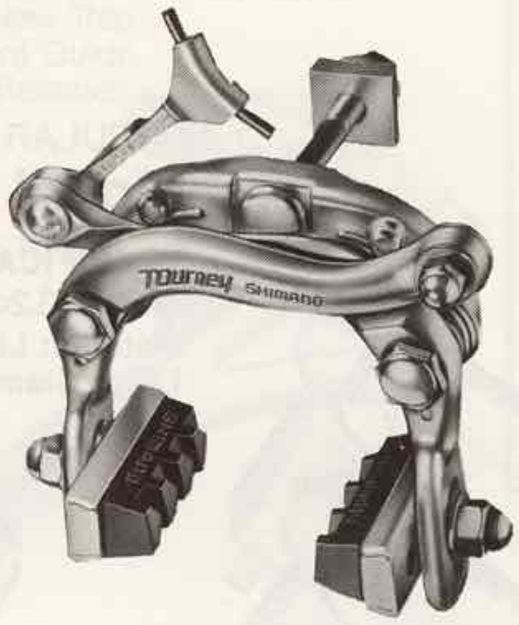
Material: Light Alloy
Type: Center Pull with Quick Release and Link Mechanism

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



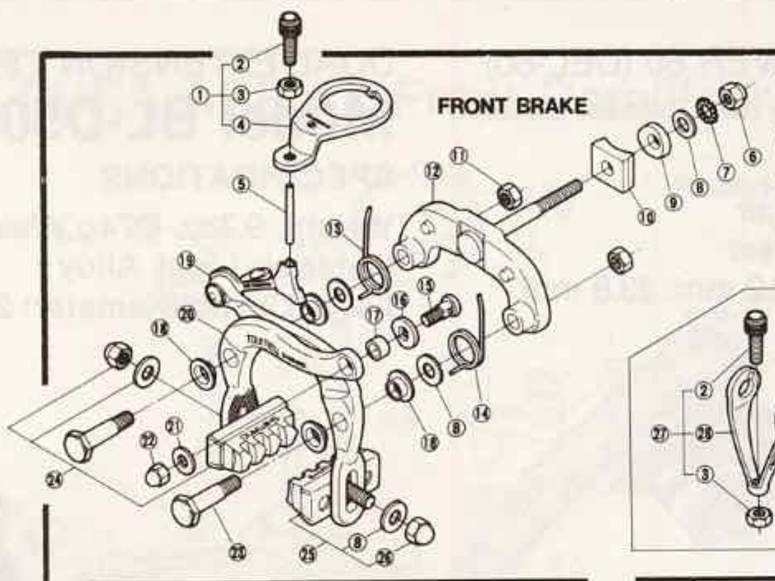


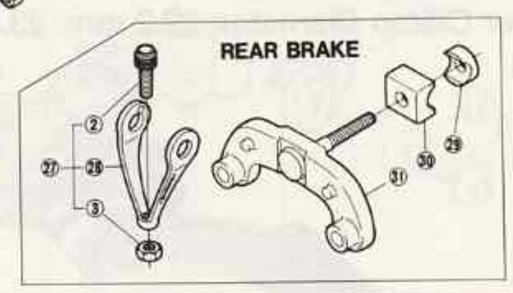




Tourney Cariper Brake

Center Pull Link Type with Quick Release





ITEM NO.	PART NO.	DESCRIPTION
1	831 9092	Front Cable Hanger Assembly
2	831 6600	Cable Adjusting Barrel
3	831 6700	Cable Adjusting Nut
4	831 6131	Front Cable Hanger
5	831 1500	Protective Tube
6	831 3700	Lock Nut for Center Bolt
7	811 6100	Teethed Lock Washer
8	831 0600	Washer
9	811 6000	R-Washer (Front)
10	831 3300-1	Square Seating Pad (Front)
11	831 0700	Lock Nut for Pivot Bolt
12	831 9051	Arm Bridge w/ Center Bolt 63 mm (2-15/32")
	831 9052	Arm Bridge w/ Center Bolt 71 mm (2-25/32")
13	831 2101-1	Arm Return Spring (Left)
14	831 2100-1	Arm Return Spring (Right)
15	831 5302	Cable Fixing Bolt
16	831 8301	Non-Turn Washer

ITEM NO.	PART NO.	DESCRIPTION
17	831 1400	Sleeve
18	831 0500-1	Flanged Thurust Washer
19	831 9090	Inner Brake Arm (62-Type)
	831 9091	Inner Brake Arm (75-Type)
20	831 0214-1	Outer Brake Arm (62-Type)
	831 0204-1	Outer Brake Arm (75-Type)
21	831 6800	Cable Fixing Washer
22	851 5201	Cable Fixing Nut
23	851 0300-3	Pivot Bolt
24	851 9084	Brake Shoe Assembly (Right)
25	851 9083	Brake Shoe Assembly (Left)
26	831 4301	Shoe Fixing Nut
27	831 9093	Rear Cable Hanger Assembly
28	831 6531	Rear Cable Hanger
29	811 6010-1	R-Washer (Rear)
30	831 3400-2	Square Seating Pad (Rear)
31	831 9053	Arm Bridge w/ Center Bolt 42 mm (1-21/32")

TOURNEY Centerpull Caliper

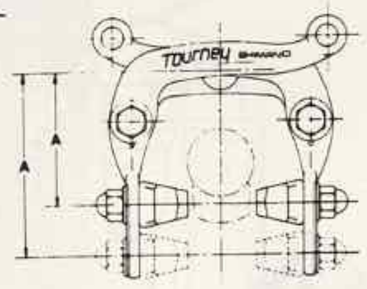
Model BR-TC10

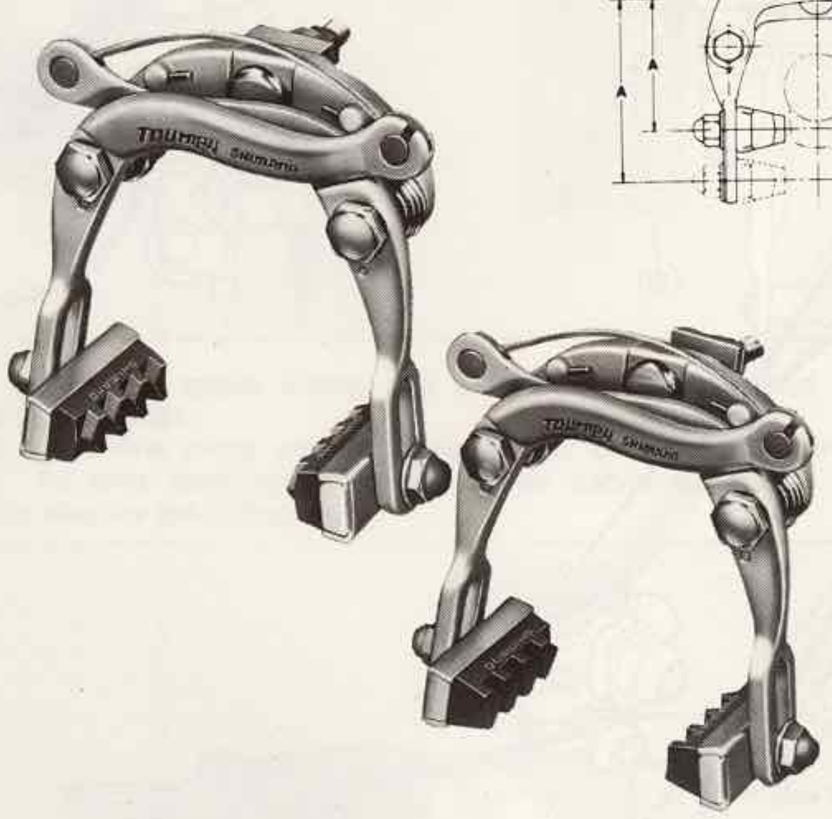
SPECIFICATIONS

Material: Light Alloy
Type: Center Pull

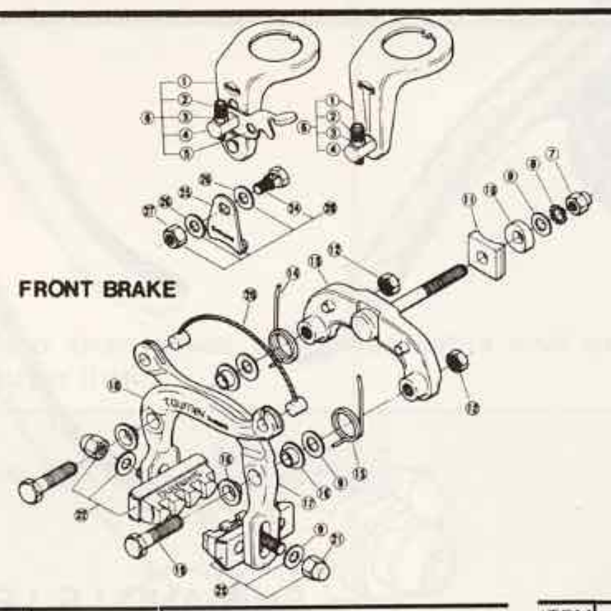
Type	A-A′	Weight (Pair)
CC-62	47mm.—62mm.	12.7 oz. (360 g.)
CC-75	57mm.—75mm.	13.1 oz. (370 g.)

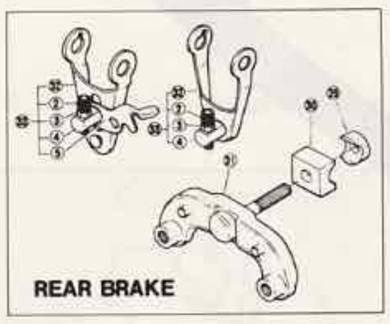






TOURNEY Caliper Brake Center Pull





ITEM NO.	PART NO.	DESCRIPTION
1	831 6100-1	Front Cable Hanger for Quick Release
	831 6101-1	Front Cable Hanger
2	831 6600	Cable.Adjusting Barrel
3	831 6700	Cable Adjusting Nut
4	831 6400-1	Barrel Supporter for Quick Release
	831 6401-1	Barrel Supporter
5	831 6300-1	Quick Lever
6	831 9004-1	Front Cable Hanger Assembly W/Quick Release
	831 9005	Front Cable Hanger Assembly
7	831 3700	Lock Nut for Center Bolt
8	811 6100	Teethed Lock Washer
9	831 0600	Washer
10	811 6000	T-Washer (front)
11	831 3300-1	Square Seating Pad (Front)
12	831 0700	Lock Nut for Pivot Bolt
13	831 9051	Arm Bridge w/ Center Bolt 63 mm (2-1/2")
	831 9052	Arm Bridge w/ Center Bolt 71 mm (2-13/16")
14	831 2101-1	Arm Return Spring (Left)
15	831 2100-1	Arm Return Spring (Right)
16	831 0500-1	Flanged Thrust Washer

ITEM NO.	PART NO.	DESCRIPTION
17	831 0201-2	Inner Brake Arm (75-Type)
	831 0211-2	Inner Brake Arm (62-Type)
18	831 0200-2	Outer Brake Arm (75-Type)
	831 0210-2	Outer Brake Arm (62-Type)
19	831 0300-3	Pivot Bolt
20	831 5101	Center Cable 80 mm (3-5/32")
21	831 4301	Shoe Fixing Nut
22	851 9084	Brake Shoe Assembly (Right)
23	851 9083	Brake Shoe Assembly (Left)
24	831 5300	Cable Anchor Bolt
25	831 5200	Cable Carrier
26	831 5400	Cable Anchor Washer
27	831 0700	Cable Anchor Nut
28	831 9010	Cable Carrier Assembly
29	811 6010-1	R-Washer (Rear)
30	831 3400-2	Square Seating Pad (Rear)
31	831 9053	Arm Bridge W/ Center Bolt 42 mm (1-11/16")
32	831 6501	Rear Cable Hanger for Quick Release
	831 6503	Rear Cable Hanger
33	831 9007-1	Rear Cable Hanger Assembly w/ Quick Release
	831 9008	Rear Cable Hanger Assembly

SHIMANO

brake & lever

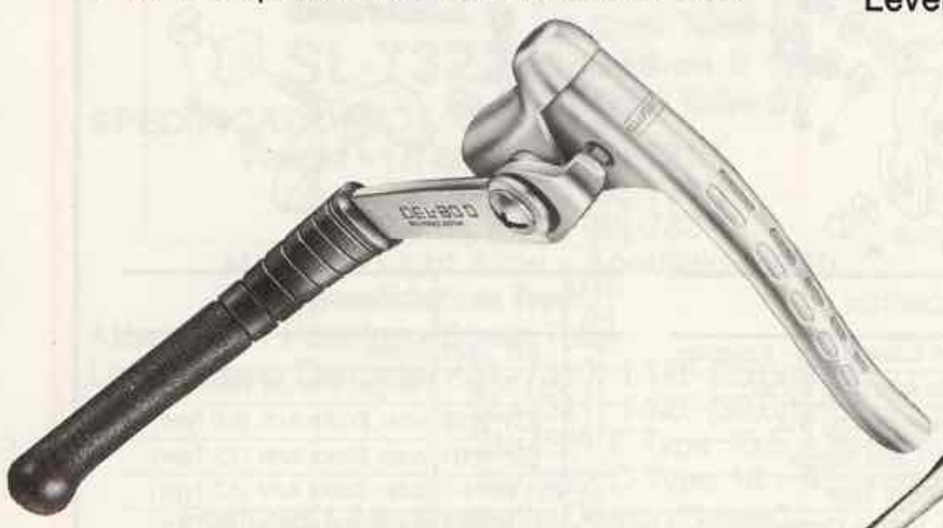
Model BL-D800 Dual Extension Lever 80 (DEL-80)
Model BL-D805 Dual Extension Lever 80 (DEL-80)
Model BL-HD85 Hooded Lever
Model BL-D500 Dual Extension Lever
Model BL-HD30 Hooded Lever
Model BL-LF10 POPULAR Lever
Model BL-LM10 SOFT LM Lever
Model BL-PL10 Shimano-F Lever

DUAL EXTENSION LEVER 80 (DEL-80)

Model BL-D800 (w/o Bracket Cover)

SPECIFICATIONS

Weight: 16.4 oz. (464 g.)/Pair
Material: Light Alloy & Steel
Lever Clamp Diameter: 22.2 mm. 23.8 mm.



DUAL EXTENSION LEVER

Model BL-D500

SPECIFICATIONS

Weight: 9.7oz. (274g.)/Pair
Material: Light Alloy
Lever Clamp Diameter: 22.2mm., 23.8mm.



SOFT LM LEVER

Model BL-LM10

SPECIFICATIONS

Weight: Brake Lever 4.5 oz. (128 g.)/Pair
Grip 4.4 oz. (124 g.)/Pair
Material: Brake Lever/Steel • Resin Grip/Resin
Lever Clamp Diameter: 22.2mm.



DUAL EXTENSION LEVER 80 (DEL-80)

Model BL-D805 (W/Bracket Cover)

SPECIFICATIONS

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



HOODED LEVER

Model BL-HD30

SPECIFICATIONS

Weight: 3.5oz. (100g.)/Pair
Material: Light Alloy
Lever Clamp Diameter: 22.2mm., 23.8mm.



POPULAR LEVER

Model BL-PL10

SPECIFICATIONS

Weight: 3.2oz. (92g.)/Pair
Material: Light Alloy
Lever Clamp Diameter: 22.2mm.



HOODED LEVER

Model BL-HD85 (w/Bracket Cover)

SPECIFICATIONS

Weight: 8.5oz. (240g.)/Pair
Material: Light Alloy & Steel
Lever Clamp Diameter: 22.2 mm., 23.8 mm.

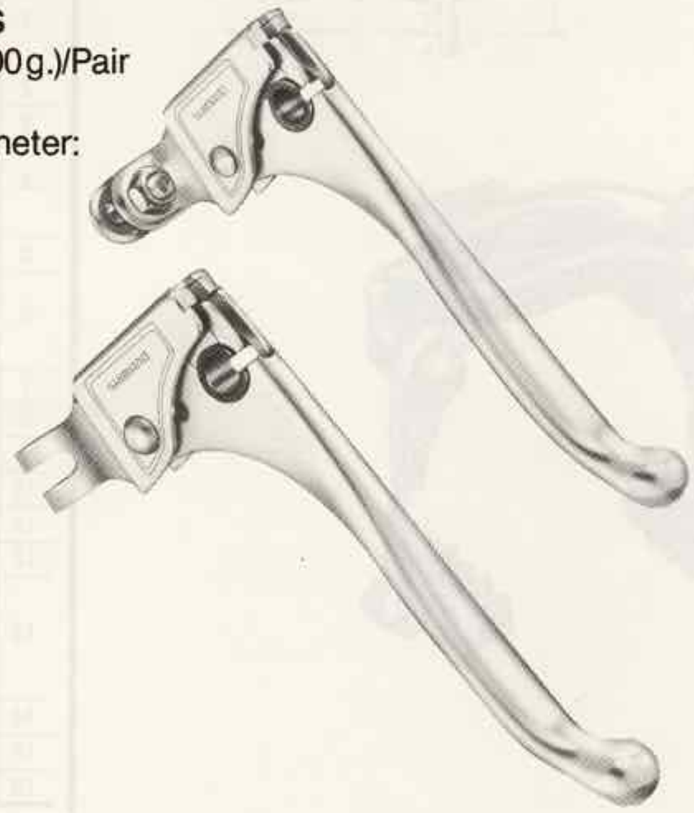


SHIMANO-LF LEVER

Model BL-LF10

SPECIFICATIONS

Weight: 7.0oz. (200g.)/Pair
Material: Steel
Lever Clamp Diameter: 22.2 mm.



SHIMANO
coaster brake

Model CB-D110 Coaster Brake D-Type

COASTER BRAKE D-TYPE
Model CB-D110
SPECIFICATIONS

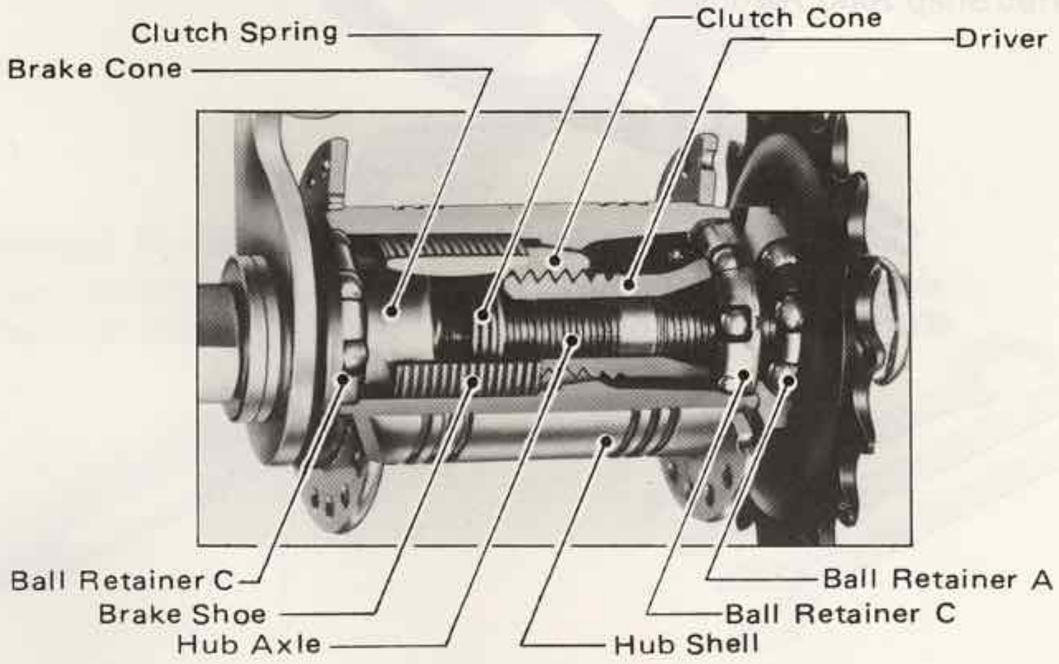
Weight: 30.0 oz. (850 g.)
Teeth: 14T, 15T, 16T, 18T, 19T, 20T
Over Lock Nut Dimension: 4.29″ (109mm.)
Chain Size: 1/2″ x 1/8″ Chain
Spoke Holes: 20H, 24H, 28H, 36H
Black Finish Available



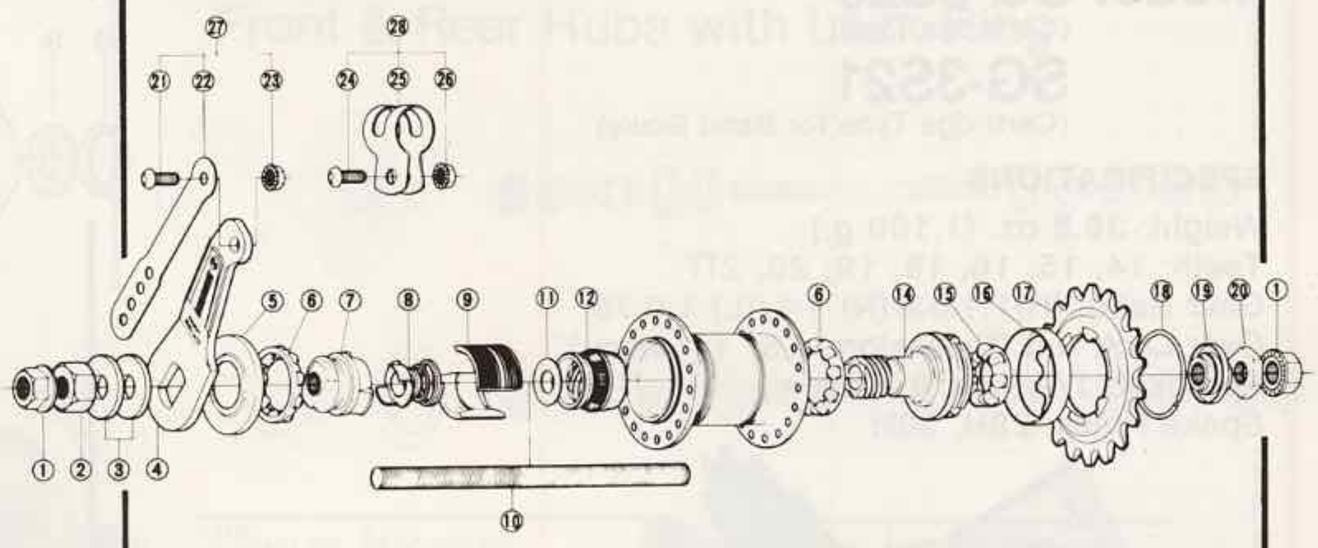
Assembly Notes

■ATTACHMENT TO THE FRAME

1) Assemble the hub in the usual rim assembly way.
2) Fit the chain over the sprocket.
3) Screw the flange nuts onto the axle, one on each side, and turn by hand until limit. Pull the wheel backward to make the chain taut. Tighten the hub nuts on both sides alternately while making adjustment so that the wheel is aligned with the center of the frame.
4) Then fix the brake arm to the chain stay with the arm clip.
5) Finally, tighten the hub nuts securely.
6) Checking procedure:
   A) Confrim the brake arm is fixed securely to the frame. If there is any play between the brake arm and the chain-stay, braking angle will be changed and hub nuts may come loose.
   B) Check to make sure there is no lateral play at the rim. If lateral play occurs, readjust the hub cone on the sprocket side so that it is eliminated, and the rim turns smoothly.



Coaster Brake D-Type



ITEM NO.	PART NO.	DESCRIPTION
1	282 3000	Flange Nut
2	283 0900-1	Arm Nut
3	283 1600-1	Arm Washer
4	283 1400-1	Brake Arm
5	283 1300-1	Left Hand Dust Cap
6	282 9005	Ball Retainer C
7	283 1100	Brake Cone
8	283 9033	Complete Clutch Spring
9	283 1000	Brake Shoe
10	283 0504	Hub Axle 158 mm (6-7/32″)
	283 0501	Hub Axle 163 mm (6-13/32″)
	283 0503	Hub Axle 170 mm (6-11/16″)
11	283 1500	Clutch Washer
12	283 1200	Clutch Cone
13	283 9012	Hub Shell 24 Holes ø2.5 mm
	283 9003	Hub Shell 28 Holes ø2.8 mm
	283 9004	Hub Shell 28 Holes ø3.2 mm
	283 9031	Hub Shell 28 Holes ø3.2 mm (Black)
	283 9005	Hub Shell 36 Holes ø2.8 mm
14	283 0700	Driver
15	321 9022	Ball Retainer A
16	282 2000	Right Hand Dust Cap

ITEM NO.	PART NO.	DESCRIPTION
17	321 0300	Sprocket Wheel 14T
	321 0311	Sprocket Wheel 15T (Flat Gear)
	321 0320	Sprocket Wheel 16T
	321 0330	Sprocket Wheel 17T
	321 0340	Sprocket Wheel 18T
	322 0350	Sprocket Wheel 19T
	322 0360	Sprocket Wheel 20T
18	321 2000	Snap Ring
19	281 9013	Cone w/Dust Cap
20	281 2100	Lock Nut
21	333 0900-1	Clip Screw M5 × 14 mm (9-16″)
22	282 2804-2	Brake Arm Clip (Flat Type)
23	282 2901	Clip Nut (M5)
24	333 0700-1	Clip Screw M6 × 14 mm (9/16″)
25	282 2801	Brake Arm Clip (Band type) 16 mm (5/8″)
	282 2807	Brake Arm Clip (Band type) 19 mm (3/4″)
26	282 2900	Clip Nut (M6)
27	283 9007-1	Brake Arm Clip Assembly (Flat Type)
28	283 9008	Brake Arm Clip Assembly (Band Type) 16 mm (5/8″)
	283 9009	Brake Arm Clip Assembly (Band Type) 19 mm (3/4″)

Model TL-HS20
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake: and Coaster Brake
Width: 15mm., 17mm.



Model TL-3S10
Plier for Three Speed Hub Snap Ring Removal



SHIMANO **hub gear**

Model SG-3S20
NEW THREE SPEED HUB (Cartridge Type)

Model SG-3S21
NEW THREE SPEED HUB (Cartridge Type for Band Brake)

NEW THREE SPEED HUB

Model SG-3S20
(Cartridge Type)

SG-3S21
(Cartridge Type for Band Brake)

SPECIFICATIONS

Weight: 38.8 oz. (1,100 g.)
Teeth: 14, 15, 16, 18, 19, 20, 21T
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



Assembly Notes

Cable Adjustment

- If the bell crank adjusting bolt is not facing in the direction of the cable , as shown in the diagram , loosen the bell crank and adjust it so that it conforms to the cable (Dia. 1)
- The bell crank adjusting nut and the cable adjusting nut should contact, but first place the shift lever in position 2 or N mark.
- There are two methods of attaching the cable – Caliper Method and Universal Method.

● **Caliper Method**

Screw the cable's adjusting nut so that the (N) sign of the bell crank appears at the center of the hole, and then tighten the lock nut. Adjustment is correct if the N mark appears in the round hole of the complete bell crank when the shift lever is at N or 2. (Dia. 2-A)

● **Universal Method**

Screw the cable's adjusting nut so that the (N) sign of the bell crank appears at the center of the hole, and then tighten the lock nuts. If the (N) sign does not align with the center of the hole despite turning the adjusting nut, loosen the cable fixing nut and stretch the cable until rectified. (Dia. 2-B)

Diagram 1

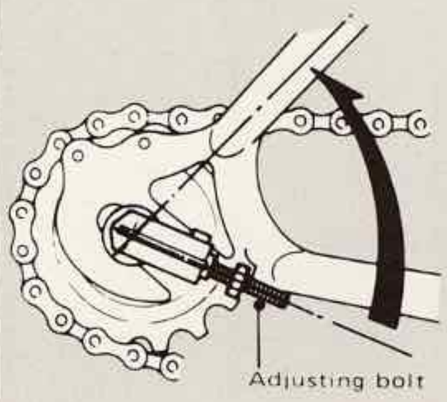
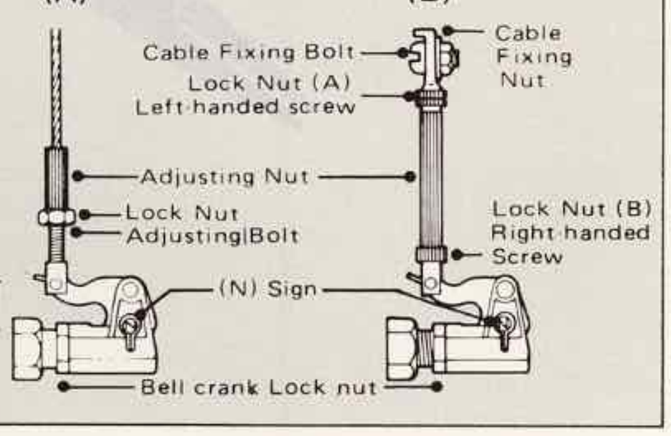
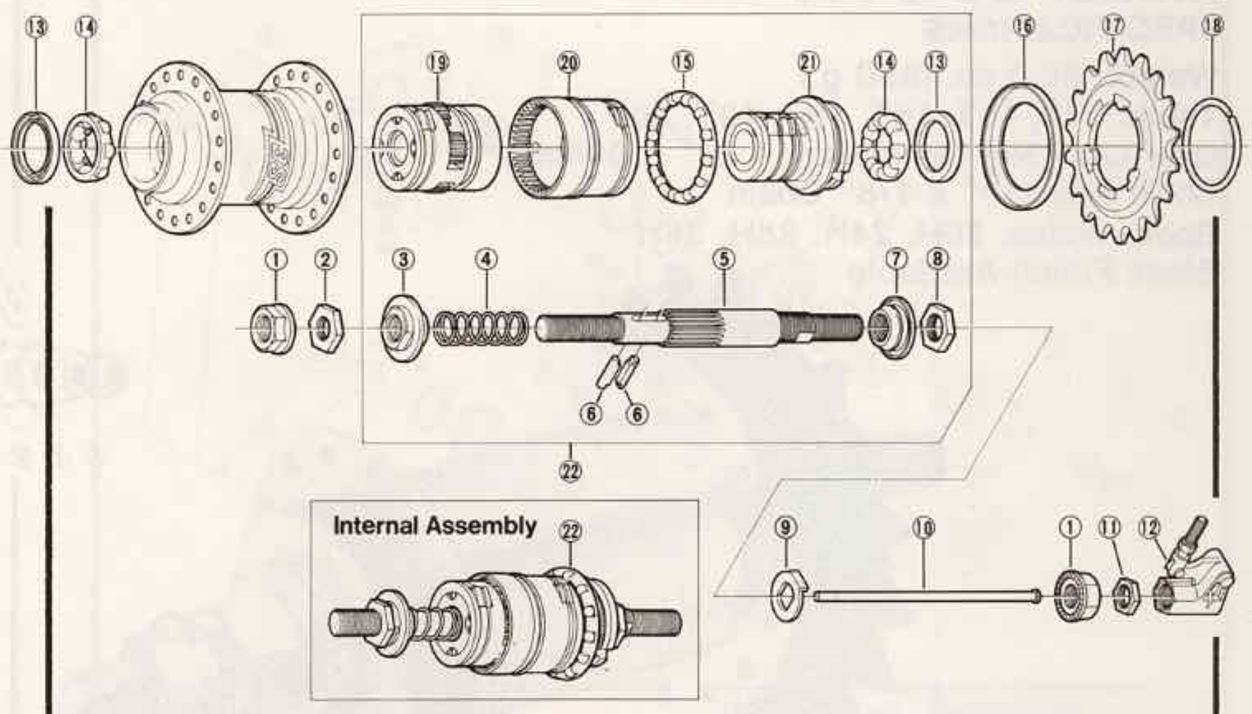


Diagram 2



NEW THREE SPEED HUB

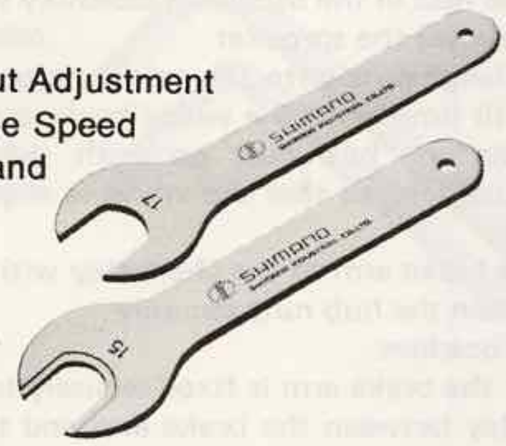


ITEM NO.	PART NO.	DESCRIPTION
1	220 1501-1	Flange Nut
2	220 0510-1	Lock Nut 4.5 mm
3	3-322 9025-1	Left Hand Cone w/Dust Cap B
4	321 3000	Clutch Spring
5	322 5200	Hub Axle 153 mm (6-1/2″)
6	321 2500	SLIDING Key A
7	3-321 9024	Right Hand Cone w/Dust Cap B
8	321 3900	Lock Nut B 3 mm
9	321 6400	Non-turn Washer
10	321 7300-1	Push Rod 108.4 mm (4-9/32″)
11	321 8300	Bell Crank Lock Nut
12	3-321 9029-1	Complete Bell Crank
13	321 2700	Dust Cap A
14	3-321 9022	Ball Retainer (1/4″)
15	3-321 9081	Ball Retainer (3/16″)

ITEM NO.	PART NO.	DESCRIPTION
16	321 2900	Dust Cap
17	321 0300	Sprocket Wheel 14T
	321 0310	Sprocket Wheel 15T
	321 0320	Sprocket Wheel 16T
	321 0330	Sprocket Wheel 17T
	322 0340	Sprocket Wheel 18T
	322 0350	Sprocket Wheel 19T
	322 0360	Sprocket Wheel 20T
	321 0370	Sprocket Wheel 21T
18	321 2000	Snap Ring C
19	3-322 9017-1	Complete Ratchet B
20	3-322 9014	Complete Ratchet A
21	3-322 9009-2	Complete Driver
22	3-322 9010	Internal Assembly for Axle Length 153 mm (6-1/32″)

Model TL-HS20

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



Model TL-3S10

Plier for Three Speed Hub Snap Ring Removal



SHIMANO **hub gear**

Model SG-3C22
Model SL-3S45

New Positron Three Speed Hub with Coaster Brake

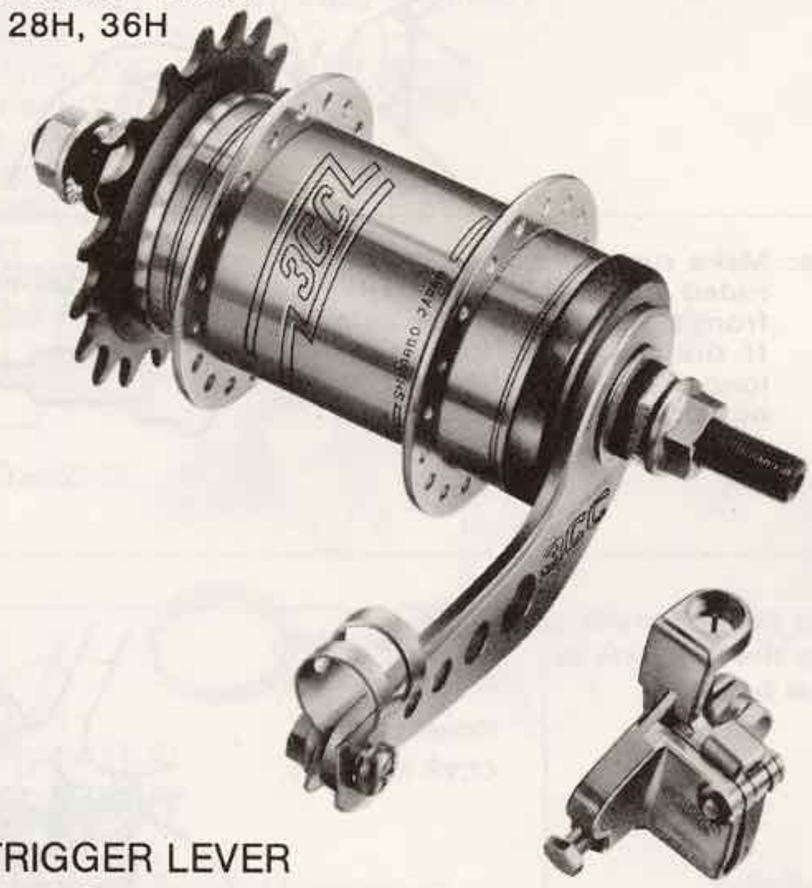
1·2·3 Change Shifting Lever

NEW POSITRON THREE SPEED HUB
WITH COASTER BRAKE

Model SG-3C23

SPECIFICATIONS

Weight: 46.6 oz. (1,320 g.)
Teeth: 16, 18, 19, 20T
Gear Ratio: (H) 1:1.33/(N) 1:1/(L) 1:0.75
Over Lock Nut Dimension: 4-3/4" (120mm.)
Sprocket: 1/2" x 1/8" Chain
Spoke Holes: 28H, 36H



POSITRON TRIGGER LEVER

Model SL-3S45

Use: Positron Three Speed Hub with Coaster Brake (Model SG-3C23) Only
Attachment Position: Handle Bar
Light Alloy
Weight: 2.3oz. (66g.)
Material: Resin & Steel
Type: Friction Type
Lever Clamp Diameter: 7/8" (22.2mm.)



Model TL-HS20

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

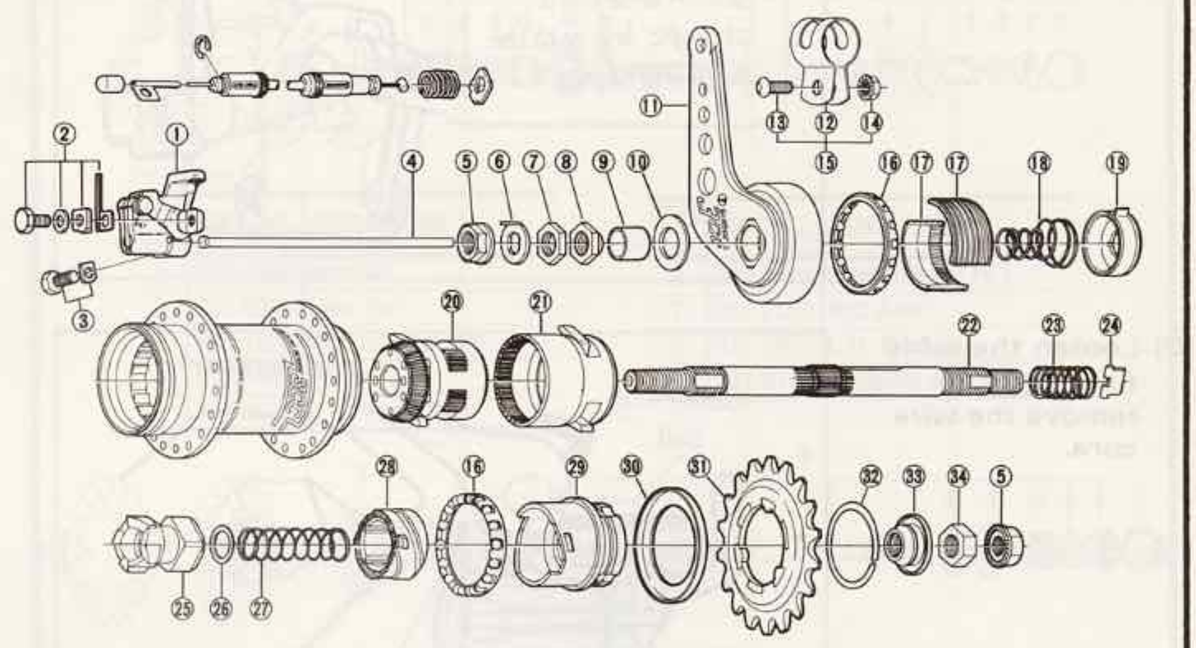


Model TL-3S10

Plier for Three Speed Hub Snap Ring Removal

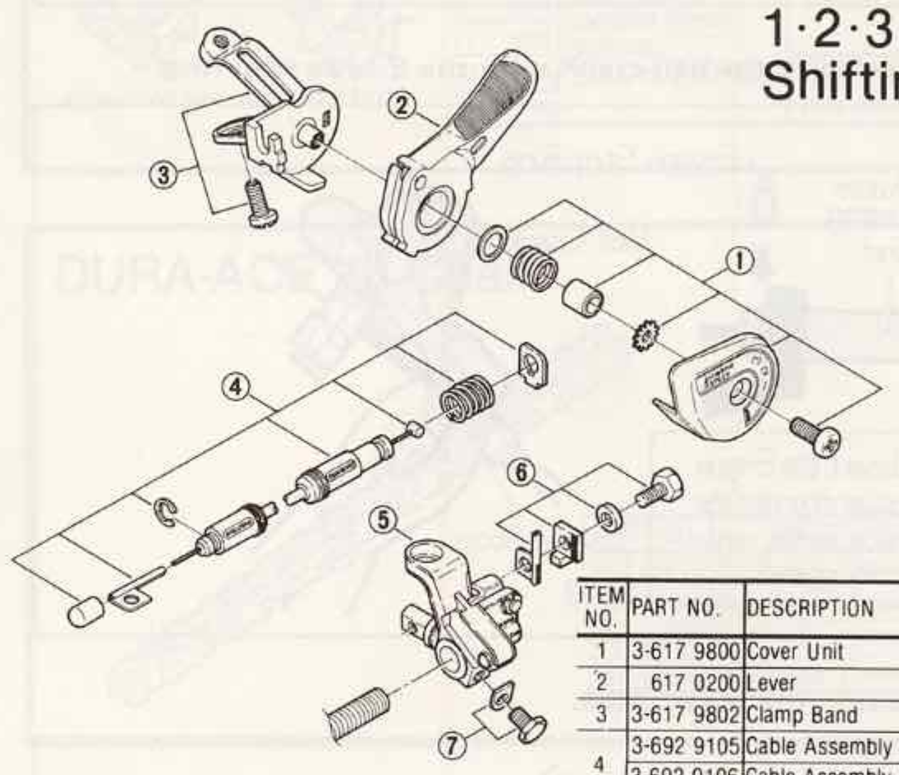


NEW THREE SPEED HUB
WITH COASTER BRAKE



ITEM NO.	PART NO.	DESCRIPTION
1	3-331 9804	Bell Crank Body
2	3-331 9801	Cable Fixing Bolt Unit
3	3-331 9802	Bell Crank Fixing Bolt Unit
4	321 7300-1	Push Rod 108.4 mm (4-9/32")
5	220 1501-1	Flange Nut
6	321 6400	Non-Turn Washer
7	321 3900	Lock Nut B
8	331 0100	Stop Nut
9	334 0400-1	Sleeve
10	334 1600	Brake Arm Washer
11	3-334 9007	Brake Arm Assembly
12	282 2810	Brake Arm Clip (Band Type) 16 mm (5/8")
	282 2807	Brake Arm Clip (Band Type) 19 mm (3/4")
13	333 0700-1	Clip Screw M6 × 14 mm (9/16")
14	282 2900	Clip Nut (M6)
15	3-283 9036	Brake Arm Clip Assembly (Band Typ) 16 mm (5/8")
	3-283 9009	Brake Arm Clip Assembly (Band Typ) 19 mm (3/4")
16	3-321 9023	Ball Retainer B
17	3-334 9008	Brake Shoe Assembly
18	334 0800	Return Spring
19	3-333 9032	Spring Guide & Slide Spring
20	3-334 9009	Carrier Assembly
21	3-334 9010	Ring Gear Assembly
22	334 1500-1	Hub Axle 168 mm (6-5/8")
23	332 3400	Clutch Spring B
24	333 3300	Axle Key
25	334 1200-1	Sliding Clutch
26	333 3400	Clutch Washer
27	333 3500	Clutch Spring A
28	334 1300	Lead
29	3-334 9015	Driver w/Ball Retainer & Dust Cap
30	321 2900	Dust Cap
31	321 0320	Sprocket Wheel 16T
	322 0340	Sprocket Wheel 18T
	322 0350	Sprocket Wheel 19T
	322 0360	Sprocket Wheel 20T
32	321 2000	Snap Ring
33	3-321 9024	Right Hand Cone
34	321 4000	Right Hand Lock Nut

1·2·3 Change Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-617 9800	Cover Unit
2	617 0200	Lever
3	3-617 9802	Clamp Band
4	3-692 9105	Cable Assembly (1700 × 1770 mm) White
	3-692 9106	Cable Assembly (1800 × 1870 mm) White
5	3-331 9804	Complete Bell Crank
6	3-331 9801	Cable Fixing Bolt Unit
7	3-331 9802	Bell Crank Fixing Bolt Unit

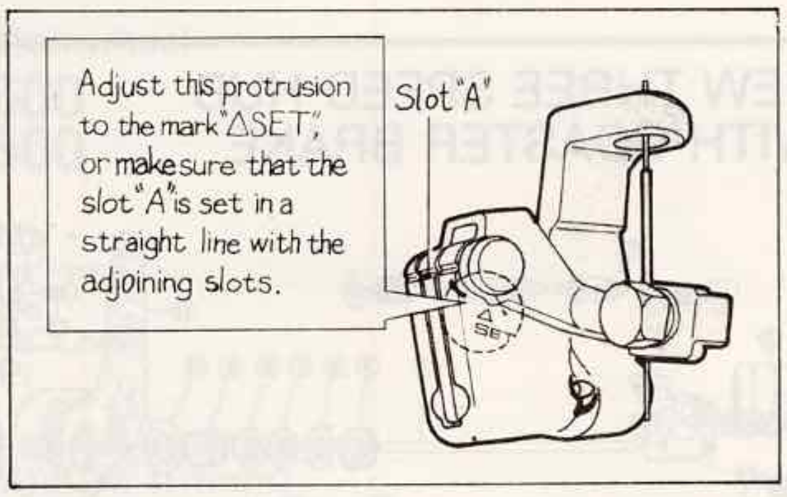
Assembly Notes

■ Shifting lever and bell crank assembly

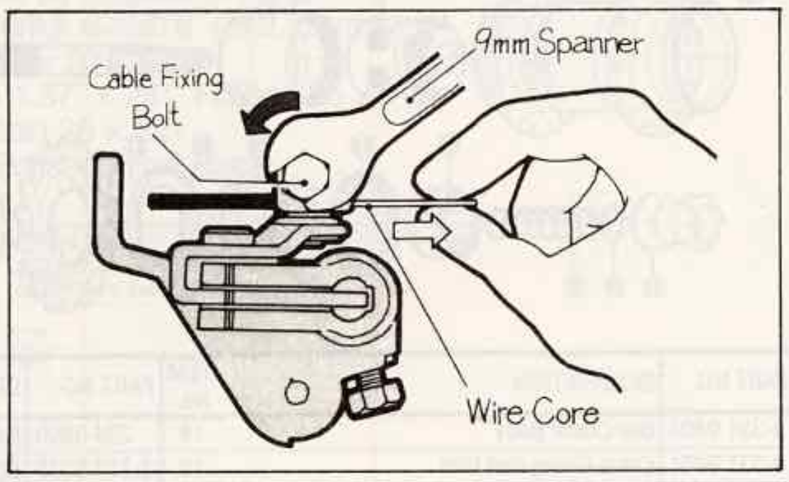
(1) Put the cable along the frame.

Adjust the cable so that it will be long enough to avoid stretching when the handle moves.

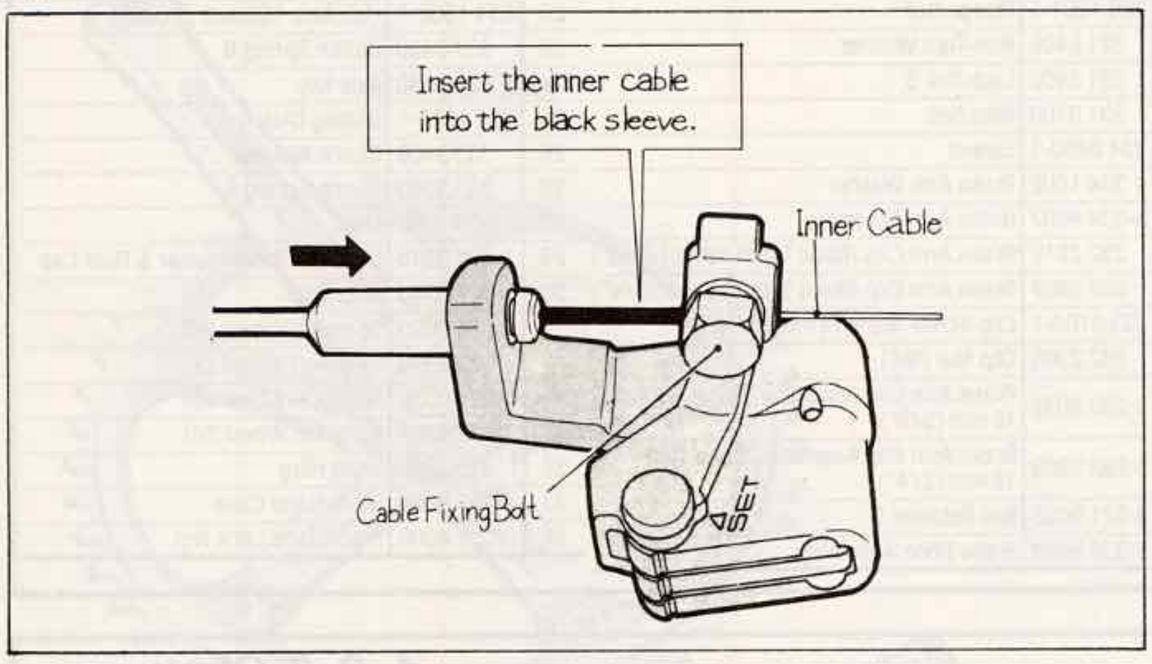
(2) Set the bell crank.



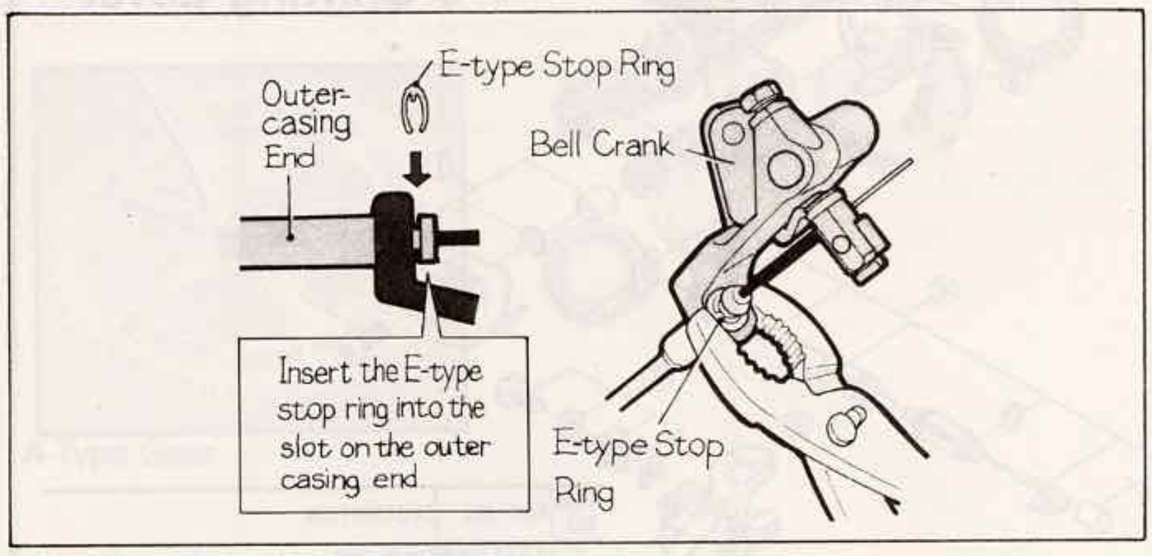
(3) Loosen the cable-fixing bolt to remove the wire core.



(4) Insert the inner cable.

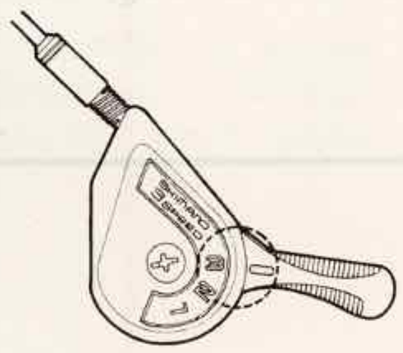


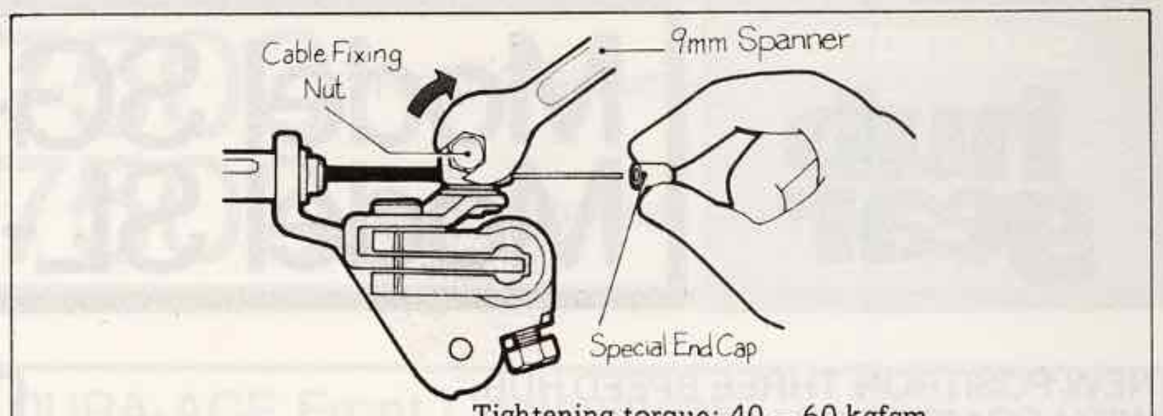
(5) Fix the outer casing to the bell crank with the E-type stop ring.



(6) Accurately position the inner cable.

Before fixing the inner cable, set the lever to the "3" position. Then, tighten the cable fixing nut.
Finally, attach the specialend cap to the inner cableend.

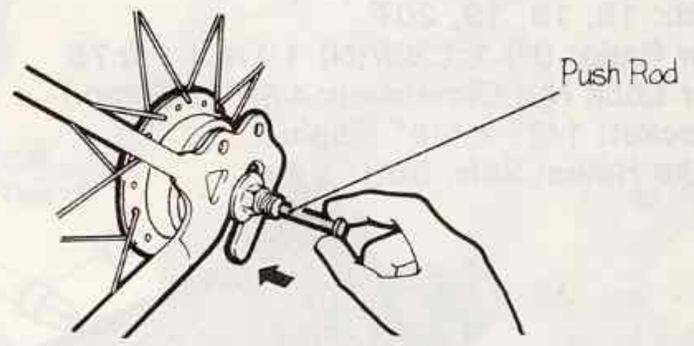




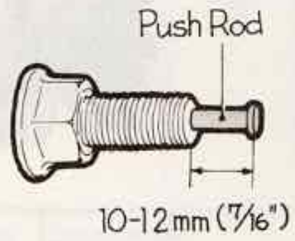
Tightening torque: 40 – 60 kgfcm
(35 – 50 in. lbs.)

■ Bell crank assembly

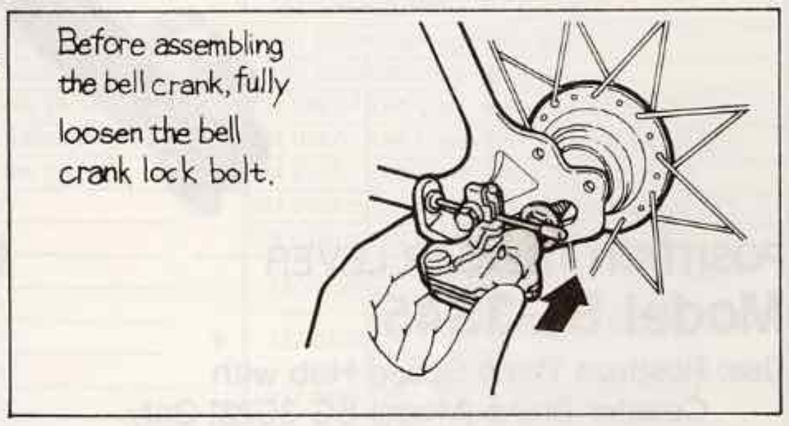
(7) Insert the push rod into the hub axle.



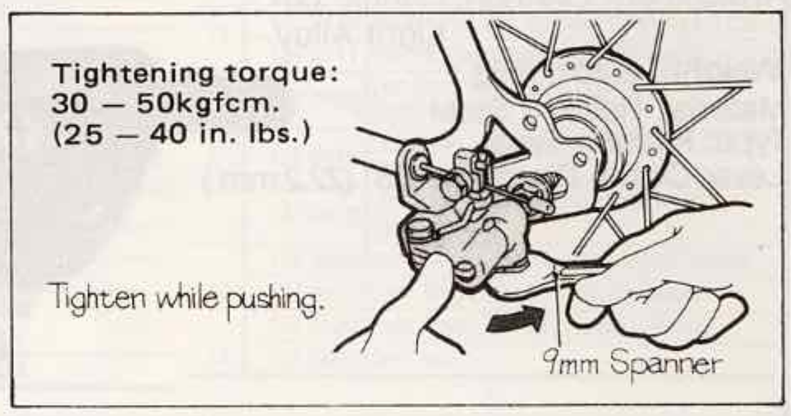
Note: Make sure the push rod protruded 10 ~ 12 mm(7/16") from the end of the hub axle. If the push rod itself is too long or short, exchange it for one of the right length.



(8) Push the bell crank onto the hub axle as far as possible.

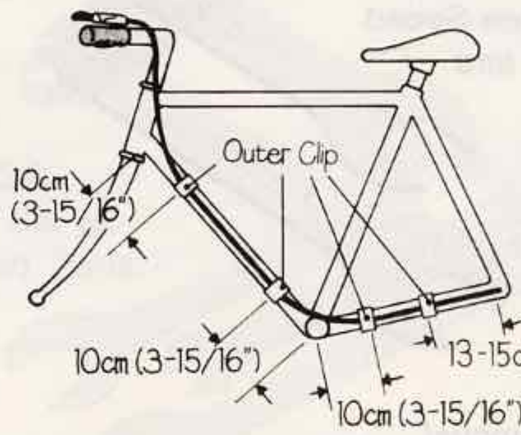


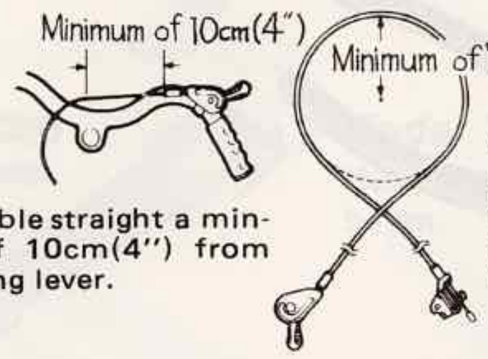
(9) Tighten the bell crank lock bolt.



■ Cable Assembly

(10) Fix the cable to the frame with an outer crip or an aluminium band.





Set the cable straight a minumum of 10cm(4") from the shifting lever.

When bending the cable to set, make sure that the radius of any circle is a minimum of 7.5cm(3"), as illustrated.

SHIMANO **hub gear**

Model SG-3C20

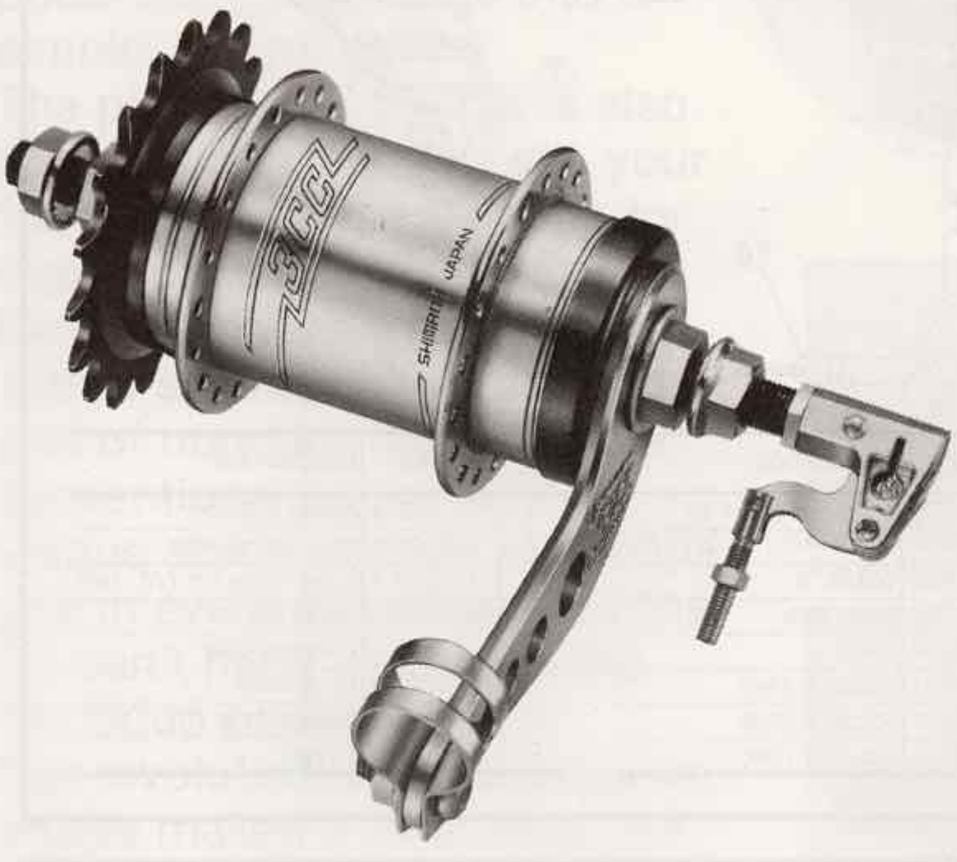
New Three Speed Hub
with Coaster Brake

NEW THREE SPEED HUB
WITH COASTER BRAKE

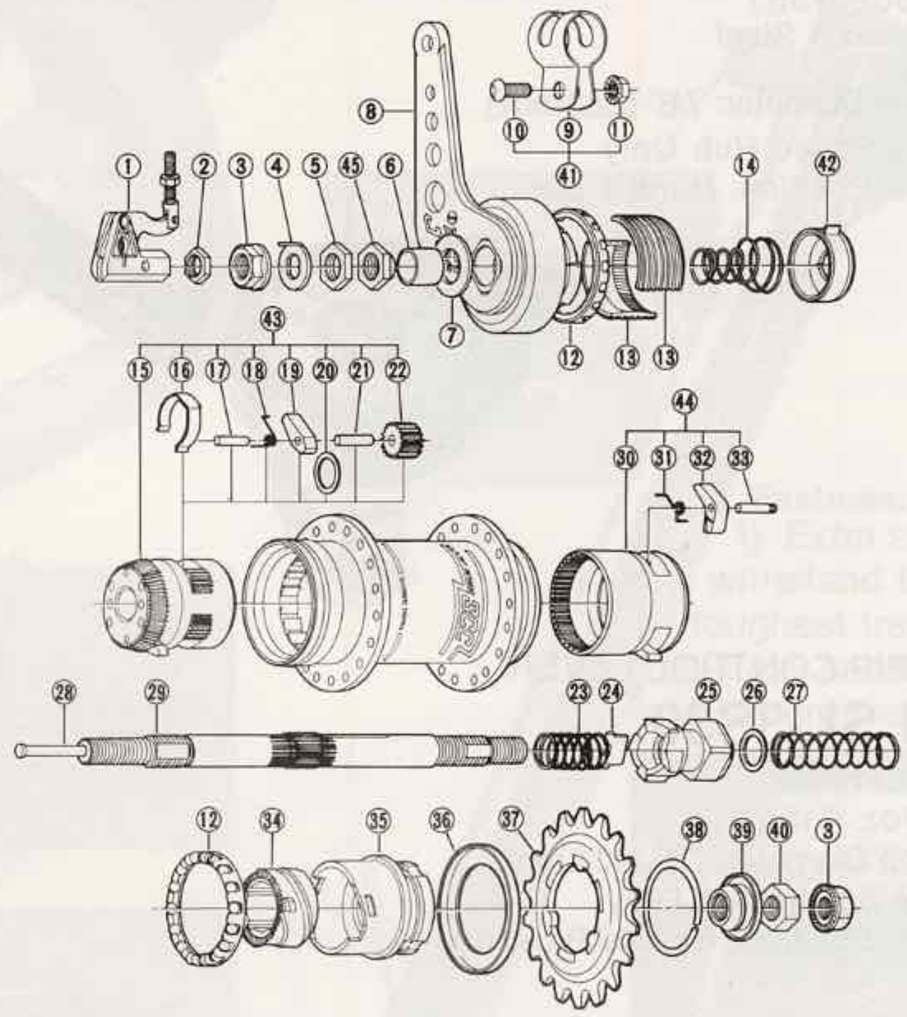
Model SG-3C20

SPECIFICATIONS

Weight: 45.9 oz. (1,300g.)
Teeth: 16, 18, 19, 20T
Gear Ratio: (H) 1:1.33/(N) 1:1/(L) 1:0.75
Over Lock Nut Dimension: 4-3/4" (120mm.)
Sprocket: 1/2" x 1/8" Chain
Spoke Holes: 28H, 36H



NEW THREE SPEED HUB
WITH COASTER BRAKE



ITEM NO.	PART NO.	DESCRIPTION
1	3-321 9029-1	Complete Bell Crank
2	321 8300	Bell Crank Lock Nut
3	220 1501-1	Flange Nut
4	321 6400	Non-Turn Washer
5	321 3900	Lock Nut B
6	334 0400-1	Sleeve
7	334 1600	Brake Arm Washer
8	3-334 9007	Brake Arm Assembly
9	282 2810	Brake Arm Clip (Band Type) 16mm (5/8")
	282 2807	Brake Arm Clip (Band Type) 19mm (3/4")
10	333 0700-1	Clip Screw M6 × 14mm (9/16")
11	282 2900	Clip Nut (M6)
12	3-321 9023	Ball Retainer B
13	3-334 9008	Brake Shoe Assembly
14	334 0800	Return Spring
15	333 2200	Carrier
16	333 4800	Stop Spring
17	333 2600	Pawl Pin D
18	333 2700	Pawl Spring D
19	333 2500	Pawl D
20	333 2400	Thrust Washer
21	333 2300-1	Pinion Pin
22	321 5500	Planet Pinion
23	332 3400	Clutch Spring B
24	333 3300	Axle Key
25	334 1200-1	Sliding Clutch

ITEM NO.	PART NO.	DESCRIPTION
26	333 3400	Clutch Washer
27	333 3500	Clutch Spring A
28	321 7300-1	Push Rod 108.4mm (4-9/32")
29	334 1500-1	Hub Axle 168mm (6-5/8")
30	334 1100	Ring Gear
31	333 3000	Pawl Spring E
32	333 2900	Pawl E
33	333 4600	Pawl Pin E
34	334 1300	Lead
35	3-334 9015	Driver w/Ball Retainer & Dust Cap
36	321 2900	Dust Cap
37	321 0320	Sprocket Wheel 16T
	322 0340	Sprocket Wheel 18T
	322 0350	Sprocket Wheel 19T
	322 0360	Sprocket Wheel 20T
38	321 2000	Snap Ring
39	3-321 9024	Right Hand Cone
40	321 4000	Right Hand Lock Nut
41	3-283 9036	Braket Arm Clip Assembly (Band Type) 16mm (5/8")
	3-283 9009	Brake Arm Clip Assembly (Band Type) 19mm (3/4")
42	3-333 9032	Spring Guide & Slide Spring
43	3-334 9009	Carrier Assembly
44	3-334 9010	Ring Gear Assembly
45	331 0100	Stop Nut

Model TL-HS20
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake: and Coaster Brake
Width: 15mm.
17mm.



Model TL-3S10
Plier for Three Speed Hub Snap Ring Removal



SHIMANO

hub gear

Model SL-3S20 Trigger Lever
Model SL-3S30 Grip Control Lever
Model SL-C310 GT-3 Console Lever

TRIGGER LEVER

Model SL-3S20

SPECIFICATIONS

Weight: 2.6oz. (73g.)
Material: Resin & Steel
Type: Clike
Lever Clamp Diameter: 7/8" (22.2mm.)
Use: Three Speed Hub Only
Attachment Position: Handle Bar



TWIST GRIP CONTROL LEVER

Model SL-3S30

SPECIFICATIONS

Weight: 4.0oz. (115g.)
Lever Clamp Diameter: 7/8" (22.2mm.)
Use: Three Speed Hub Only
Attachment Position: Handle Bar-End





GT-3 CONSOLE LEVER

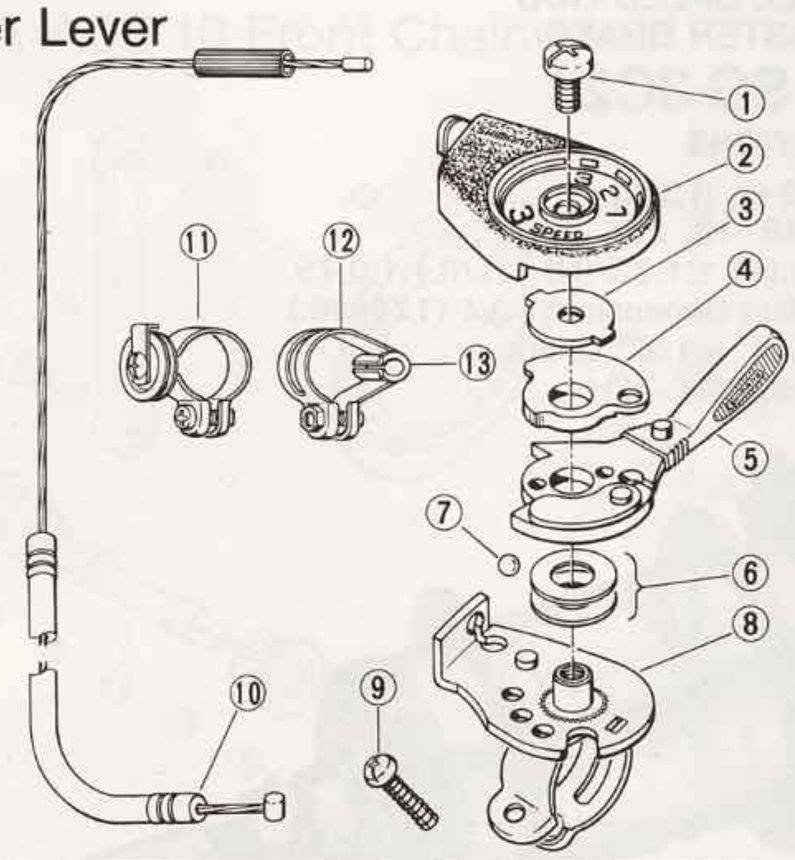
Model SL-C310

SPECIFICATIONS

Use: Three Speed Hub Only
Weight: 8.0oz. (228g.)
Material: Resin (Body)
Attachment Position: Top Tube
Lever Clamp Diameter: 1" (25.4mm.)
Type: Click
: Single Lever
: Pre-Select Mechanism



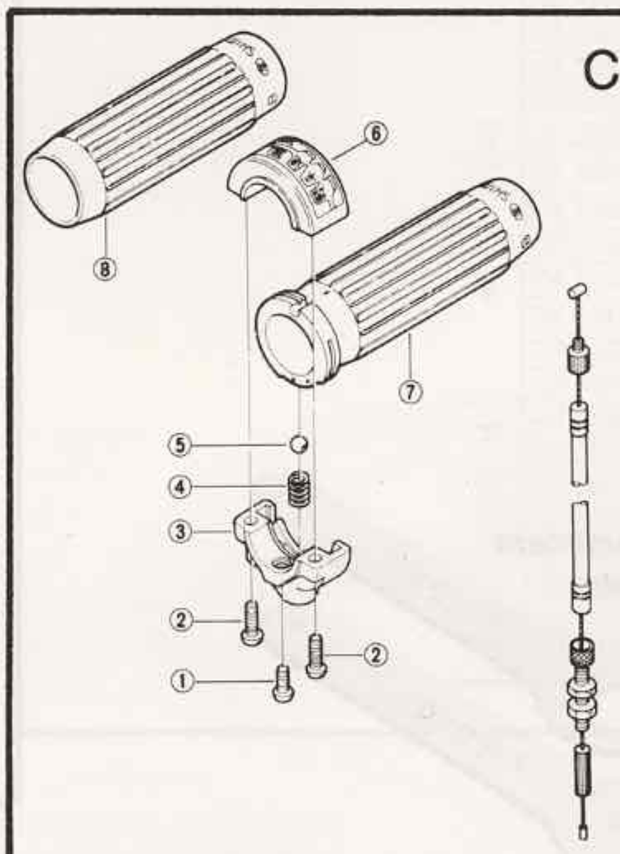
Triger Lever



ITEM NO.	PART NO.	DESCRIPTION
1	615 0700	Lever Bolt (M5 × 8)
2	615 9055	Cover
3	615 0600	Washer B
4	615 1300	Guide Plate
5	615 9054-1	Lever
6	615 1203-1	Spacer 0.3mm
	615 1200-1	Spacer 0.2mm
	615 1201-1	Spacer 0.1mm

ITEM NO.	PART NO.	DESCRIPTION
6	615 1202-1	Spacer 0.05mm
7	000 0121	Steel Ball (3/16")
8	615 9051-2	Lever Flame For 7/8" Tube
9	333 0900-1	Clamp Bolt
10		Complete Cable
11	611 9002-2	Guide Roller (1")
12	611 9006-2	Stopper Band (1")
13	611 0200	Stopper

CONTROL LEVER TWIST GRIP



ITEM NO.	PART NO.	DESCRIPTION
1	611 0700	Stop Screw
2	611 0300	Holder Fixing Screw
3	612 0700	Lower Holder
4	611 1200	Grip Spring
5	000 0134	Steel Ball (1/4")
6	3-611 9107	Upper Holder
7	3-611 9106	Right Hand Grip
8	611 2101-1	Left Hand Grip

SHIMANO

1·2 change

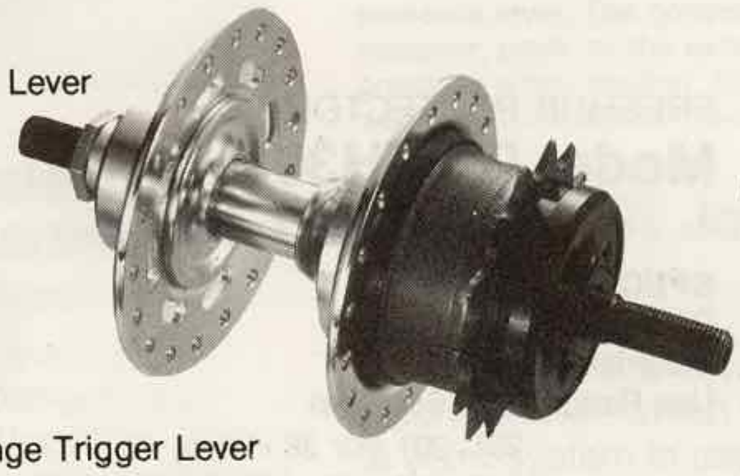
Model SG-2S10 1·2 Change Hub
Model SL-2S11 1·2 Change Shifting Lever
Model SL-2S21 1·2 Change Trigger Lever

Shimano 1 • 2 Change Hub

Model SG-2S10 (MX Look-alike)

SPECIFICATIONS

Weight: 26oz. (736g.)
Sprocket: 1/2″ × 1/8″ Chain
Spoke Holes: 28H, 36H
Spoke Size: #14 (2.0 mm.)
Spare Teeth: 14T, 15T
Gear Ratio: 1/0.727
Use: 1 • 2 Change Shifting Lever



Shimano New 1 • 2 Change Trigger Lever

Model SL-2S31 (MX Look-alike)

SPECIFICATIONS

Use: 1 • 2 Change Rear Hub Only
Weight: 4.9oz. (130g.)
Material: Resin & Steel
Lever Clamp Diameter: 22.2mm.
Attachment Position: Handle Bar



Shimano New 1 • 2 Change Trigger Lever

Model SL-2S21 (MX Look-alike)

SPECIFICATIONS

Use: 1 • 2 Change Rear Hub Only
Weight: 2.3oz. (64g.)
Material: Resin & Steel
Lever Clamp Diameter: 22.2mm.
Attachment Position: Handle Bar



1 • 2 Change Shifting Lever

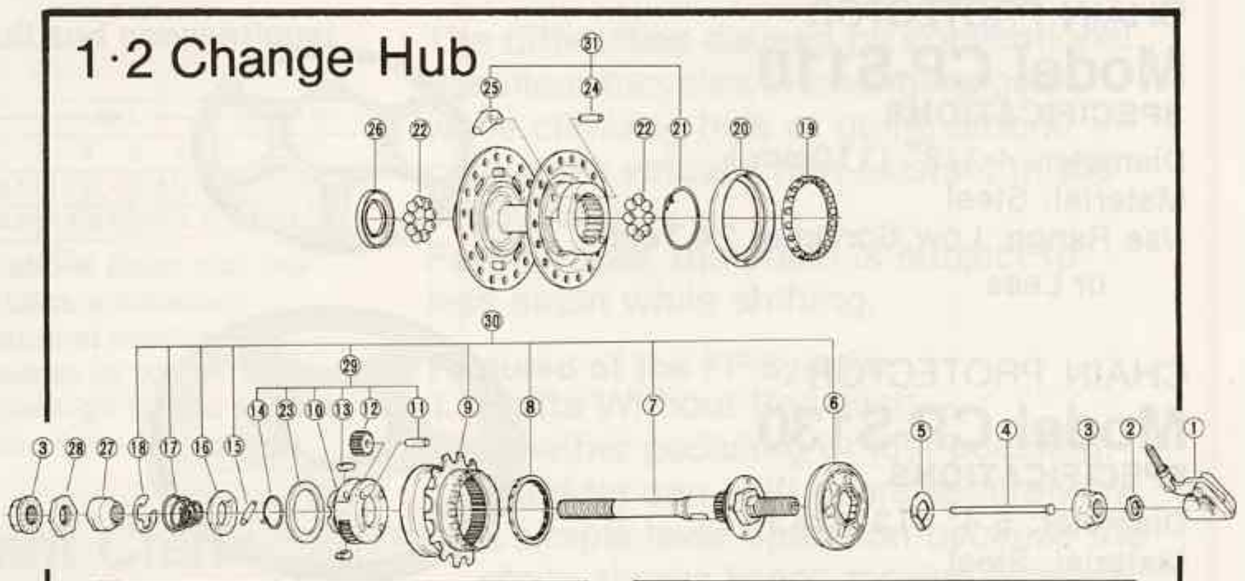
Model SL-2S11

SPECIFICATIONS

Use: 1 • 2 Change Rear Hub Only
Weight: 4.1oz. (117g.)
Material: Light Alloy
Lever Clamp Diameter: 22.2 mm.
Straight Area Handle Bar for
Attachment: 39 mm. or more
With Shift-Indicator

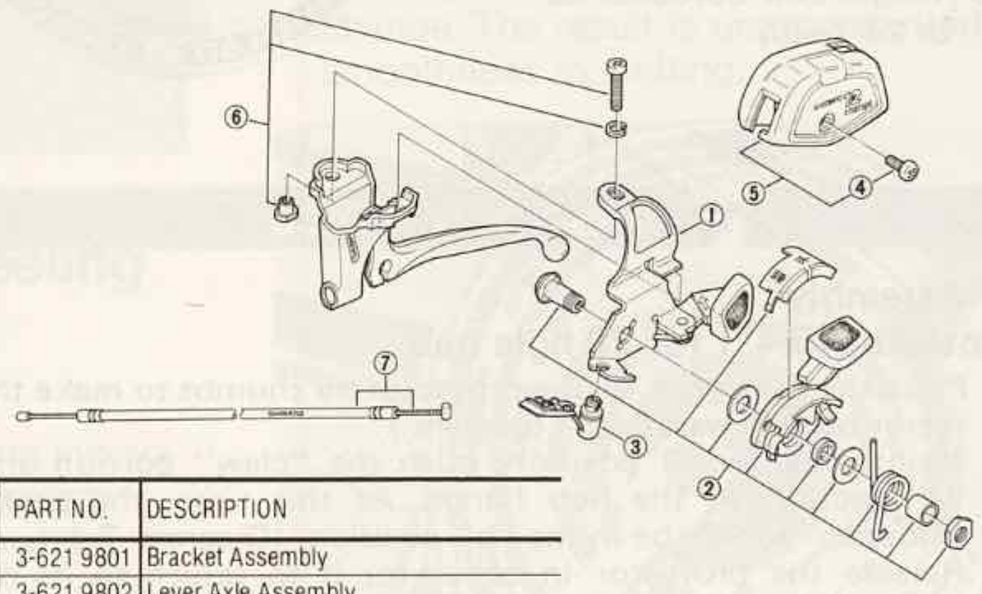


1·2 Change Hub



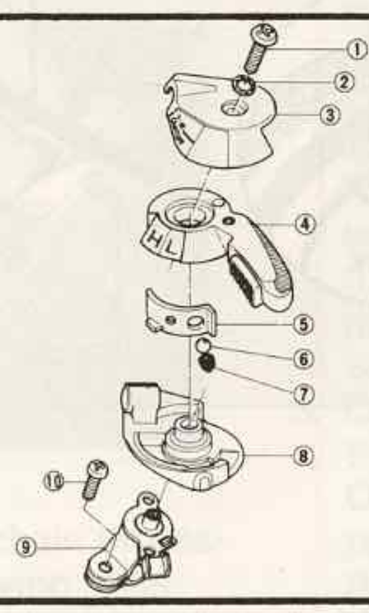
ITEM NO.	PART NO.	DESCRIPTION
1	3-321 9029-1	Complete Bell Crank
2	321 8300	Bell Crank Lock Nut
3	220 1501-1	Flange Nut (B.C. 3/8")
4	312 2101	Push Rod 63.8mm (2-1/2")
5	321 6400	Non-Turn Washer
6	312 0701	Cover
7	3-312 9017	Hub Axle 151.7mm (6") w/Right Hand Cone
8	3-312 9003	Ball Retainer B (5/32") 16 pcs.
9	3-312 9018	Ring Gear w/14T Sprocket
10	312 0500	Pinion Frame
11	312 1500	Pinion Pin
12	312 1000	Planet Pinion
13	312 1200	Pawl H
14	312 1800	Pawl Spring H
15	312 1300	Sliding Key
16	312 0600	Clutch
17	312 1400	Clutch Spring
18	312 2200	Stop Ring
19	3-312 9004	Ball Retainer A (5/32") 20 pcs.
20	312 3400	Dust Seal
21	312 1700	Pawl Spring G
22	000 0131	Steel Ball (1/4")
23	312 5200	Washer
24	312 1600	Pawl Pin
25	312 1100	Pawl G
26	256 0600	Left Hand Dust Cap
27	256 0900	Left Hand Cone (B.C. 3/8" × 13)
28	321 3800	Left Hand Lock Nut
29	3-312 9010	Pinion Frame Assembly
30	3-312 9021	Driving Section Assembly
31	3-312 9020	Pawl G Unit

1·2 Change Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-621 9801	Bracket Assembly
2	3-621 9802	Lever Axle Assembly
3	621 1400	Outer End Button
4	621 1800	Cover Fixing Screw (M4 × 10)
5	3-621 9803	Cover & Screw
6	3-846 9801	Clamp Bolt & Nut
7	2-609 00010	Cmoplete Cable (1480 × 1542 mm) White
	2-609 00020	Cmoplete Cable (1520 × 1582 mm) White

1·2 Change Trigger Lever



ITEM NO.	PART NO.	DESCRIPTION
1	000 1114	Lever Fixing Screw (M5 × 16)
2	000 3423	Teethed Washer
3	614 9001	Cover
4	614 9002	Lever
5	614 1200	Stopper Plate
6	000 1310	Steel Ball (1/4")
7	614 0800	Spring
8	614 0400	Lower Holder
9	614 9003	Lever Clamp
10	333 0900	Clamp Screw (M5 × 16)

SHIMANO

chain protector

Model CP-S110 CHAIN PROTECTOR	Model CP-A110 UG CHAIN PROTECTOR	Model CP-FH40 FREEHUB PROTECTOR
Model CP-S130 CHAIN PROTECTOR	Model CP-A120 UG CHAIN PROTECTOR	Model CP-FH50 FREEHUB PROTECTOR
Model CP-S150 CHAIN PROTECTOR	Model CP-FH30 FREEHUB PROTECTOR	Model CP-FH51 FREEHUB PROTECTOR

CHAIN PROTECTOR

Model CP-S110

SPECIFICATIONS

Diameter: 4-1/2″ (110mm.)
Material: Steel
Use Range: Low Sprocket 24 Teeth or Less

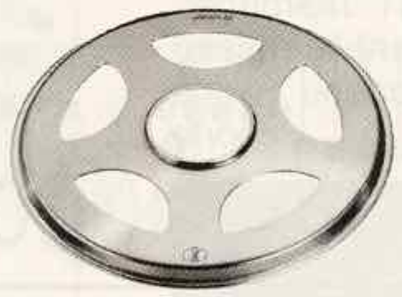


CHAIN PROTECTOR

Model CP-S130

SPECIFICATIONS

Diameter: 5.4″ (137mm.)
Material: Steel
Use Range: Low Sprocket 26 or 28 Teeth

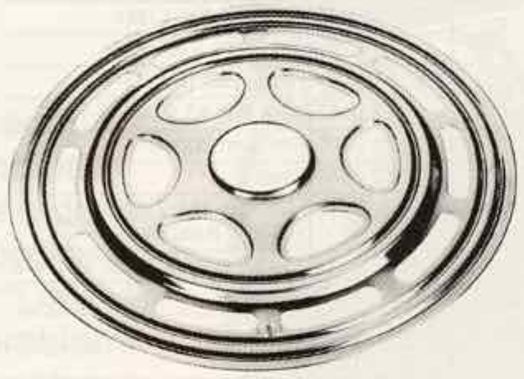


CHAIN PROTECTOR

Model CP-S150

SPECIFICATIONS

Diameter: 7-1/2″ (190mm.)
Material: Steel
Use Range: Low Sprocket 26 or 28 Teeth



UG CHAIN PROTECTOR

Model CP-A110

SPECIFICATIONS

Diameter: 5.5″ (140mm.)
Material: Light Alloy
Use Range: Low Sprocket 22 or 24 Teeth



UG CHAIN PROTECTOR

Model CP-A120

SPECIFICATIONS

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



FREEHUB PROTECTOR

Model CP-FH30 (For 36 Holes)
CP-FH40 (For 28 Holes)

SPECIFICATIONS

Diameter: 5.4″ (137 mm.)
Material: Resin
Use Range: Low Sprocket
28T, 30T (for 28 Holes)
24T, 26T, 28T, 30T (for 36 Holes)



FREEHUB PROTECTOR

Model CP-FH50
CP-FH51

SPECIFICATIONS

Diameter: 7-1/2″ (190 mm.)
Material: Resin
Use Range: 36 Holes Only Low Sprocket
28T, 30T/Model CP-FH50
32T, 34T/Model CP-FH51





Assembly Notes

● Assembly

Protector (5.4″) for 28 hole hub

1) Press the inner rim of the protector by thumbs to make the protector bend inwards as in diagram 1.
2) Maintaining No. 1 position, push the "claw" portion onto the "a" section of the hub flange. At this time, the protruding "stopper" should be in the "b" position. (Diagram 2)
3) Release the protector in order for it to return to its original shape. When removing the protector, bend it in the same way as No. 1.

Protector (5.4″) for 36 hole hub

1) Push the "A" section (with "claw") by thumb and then press it onto the hub flange. Follow in the same way with "B" and "C" sections, in that order. The "claw" should be pushed into "b" position. (Diagram 3 , 4).
2) When removing, push the "A" section and pull the protector's outer rim ("D" section) at the same time to release. (Diagram 5)

Protector (7-1/2″, 5.4″) for 36 hole hub

Claws should be positioned the same as 5″ method. And removal follows the 5.4″ method of the 28 hole hub.

Diagram 1

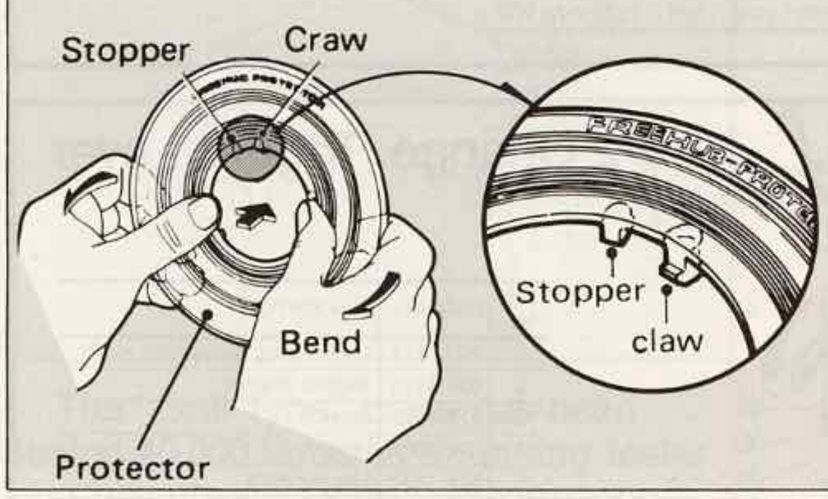


Diagram 2

Diagram 3

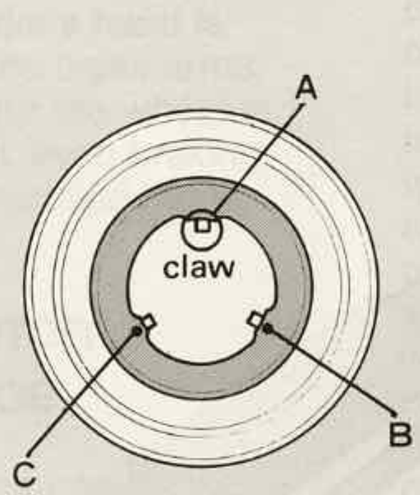


Diagram 4

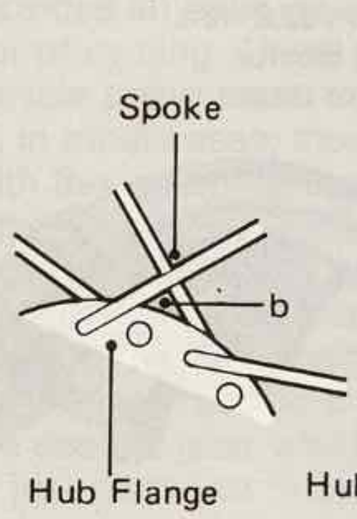
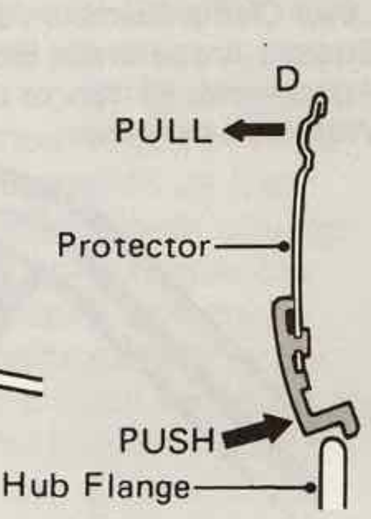


Diagram 5



Model FC-MX61 Shimano-DX Front Chainwheel (Single)
Model FC-MX62 Shimano-DX Front Chainwheel (Double)
Model BB-MX60 Conversion Axle Set

Shimano-DX Front Chainwheel

Model FC-MX61 (Single)

SPECIFICATIONS

Material: Light Alloy
Type: Cotterless Type, Use with Model BB-MX60
Chain Ring: 39T~44T (Use Shimano Dura-Ace Type Chain Ring)
Crank Length: 170, 172.5, 175, 177.5, 180mm.
Crank Arm can be altered to 5 different lengths (Color: Red, Blue, Gold or Silver)
Crank Thread: 9/16″ × 20T
Chain Line: 45.75mm.
Chain Size: 1/2″ × 3/32″
Mechanism: One Key Release and Z-Line Crank Arm

Shimano-DX Front Chainwheel

Model FC-MX62 (Double)

SPECIFICATIONS

Material: Light Alloy & Steel
Type: Cotterless Type, Use with Model BB-MX60
Chain Ring: Outer 40T (Material: Steel Velour Nickel Finish)
Inner 34~38T (Material: Light Alloy/Color: Red, Blue, Gold or Silver)
Crank Length: 170, 172.5, 175, 177.5, 180mm.
Crank Arm can be altered to 5 different lengths (Color: Red, Blue, Gold or Silver)
Crank Thread: 9/16″ × 20T
Chain Line: 42mm.
Chain Size: 1/2″ × 3/32″
Mechanism: Super W-Cut Mechanism, One Key Release, Z-Line Crank Arm



Conversion Axle Set

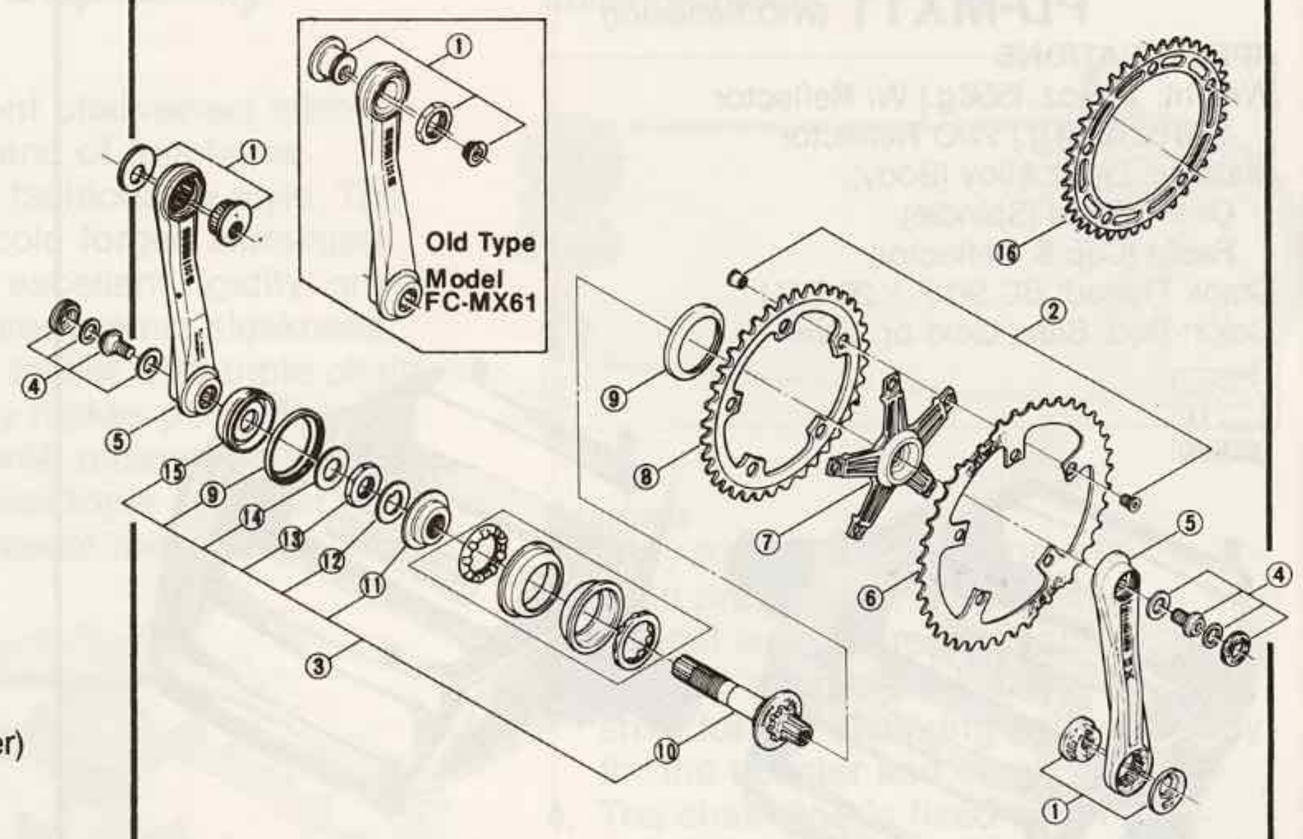
Model BB-MX60

SPECIFICATIONS

Material: Cr-Mo
Axle Length: 133mm.
Type: Octa Joint Type with Sealed Mechanism



Shimano-DX Front Chainwheel & Conversion Axle Set



ITEM NO.	PART NO.	DESCRIPTION
1	3-175 9801	Right Pedal Adapter & Nut
	3-175 9003	Right Pedal Adapter & Nut (Old Type)
	3-175 9802	Left Pedal Adapter & Nut
	3-175 9004	Left Pedal Adapter & Nut (Old Type)
2	3-132 9015	Chainring Fixing Bolt & Nut
3	3-177 9002	Bottom Bracket Assembly
4	3-148 9002	Crank Arm Fixing Bolt Unit
5	175 1100	Right Crank Arm (Silver) 170mm (6-11/16″)
	175 1101	Right Crank Arm (Gold) 170mm (6-11/16″)
	175 1102	Right Crank Arm (Blue) 170mm (6-11/16″)
	175 1103	Right Crank Arm (Red) 170mm (6-11/16″)
6	173 4000	Chainring 40T
7	173 0100	Chainring Adapter (Silver)
	173 0101	Chainring Adapter (Gold)
	173 0102	Chainring Adapter (Blue)
	173 0103	Chainring Adapter (Red)

ITEM NO.	PART NO.	DESCRIPTION
8	145 3411	Chainring 34T
	145 3511	Chainring 35T
	145 3611	Chainring 36T
	145 3711	Chainring 37T
9	177 0700	Dust Cap
10	3-177 9001	Bottom Bracket Spindle
11	177 0300	Left Hand Cone
12	177 0400	Key Washer
13	177 0500	Lock Nut
14	177 0800	Spindle Washer
15	177 0600	Left Hand Dust Cap
16	132 3900	Chainring 39T
	132 4000	Chainring 40T
	132 4100	Chainring 41T
	132 4200	Chainring 42T
	132 4300	Chainring 43T
	132 4400	Chainring 44T

Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism (6mm. x 130mm.)



Model TL-FC30
Three Spanners Set for Spindle and Head Parts



Model TL-FC20
Screw Peg Spanner



Model TL-WR35
Hexagon Wrench Key
5 mm.



Model PD-MX10 Shimano-DX Pedal (With Reflector)
Model PD-MX11 Shimano-DX Pedal (Without Reflector)
Model SP-MX20 Shimano-DX Seat Pillar

Shimano-DX Pedal

Model PD-MX10 (W/ Reflector)
PD-MX11 (W/O Reflector)

SPECIFICATIONS

Weight: 19.6oz. (556g.) W/ Reflector
18.8oz. (534g.) W/O Reflector
Material: Light Alloy (Body),
Cr-Mo Steel (Spindle),
Resin (Cap & Reflector)
Crank Thread: BC 9/16" × 20 T.P.I.
Color: Red, Blue, Gold or Silver



Shimano-DX Seat Pillar

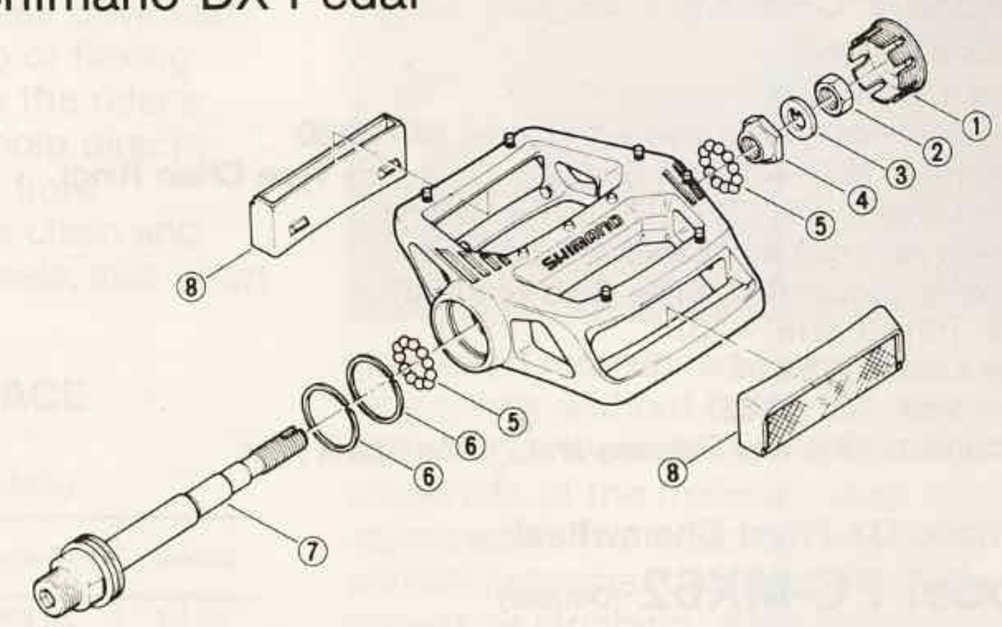
Model SP-MX20

SPECIFICATIONS

Weight: 13.2oz. (375g.)
Material: Light Alloy • Anodized Finish
Outside Diameter of Pillar: 0.87" (22.2mm.)
Length: 8.46" (215mm.)



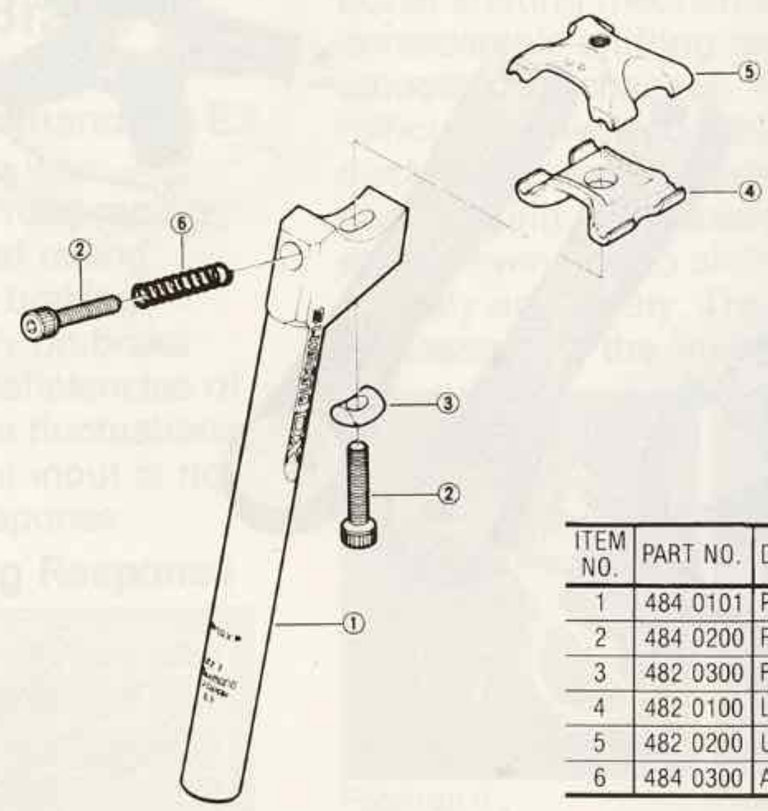
Shimano-DX Pedal



ITEM NO.	PART NO	DESCRIPTION
1	469 0300	Cap
2	469 1300	Lock Nut
3	469 1200	Key Washer
4	469 1100	Cone
5	000 0182	Steel Ball (5/32" × 44)

ITEM NO.	PART NO.	DESCRIPTION
6	469 1500	Seal Ring
7	3-469 9001	Pedal Axle (Right)
	3-469 9002	Pedal Axle (Left)
8	3-469 9003	Reflector

Shimano-DX Seat Piller



ITEM NO.	PART NO.	DESCRIPTION
1	484 0101	Pillar 22.2mm (7/8")
2	484 0200	Fixing Bolt (M8 × 34)
3	482 0300	Fixing Washter
4	482 0100	Lower Plate
5	482 0200	Upper Plate
6	484 0300	Adjusting Spring

Model TL-WR36
Hexagon Wrench
Key
6 mm.



Model FD-MX20 Shimano-DX Front Derailleur
Model RD-MX60 Shimano-DX Chain Tensioner
Model SL-MX20 Shimano-DX Shifting Lever

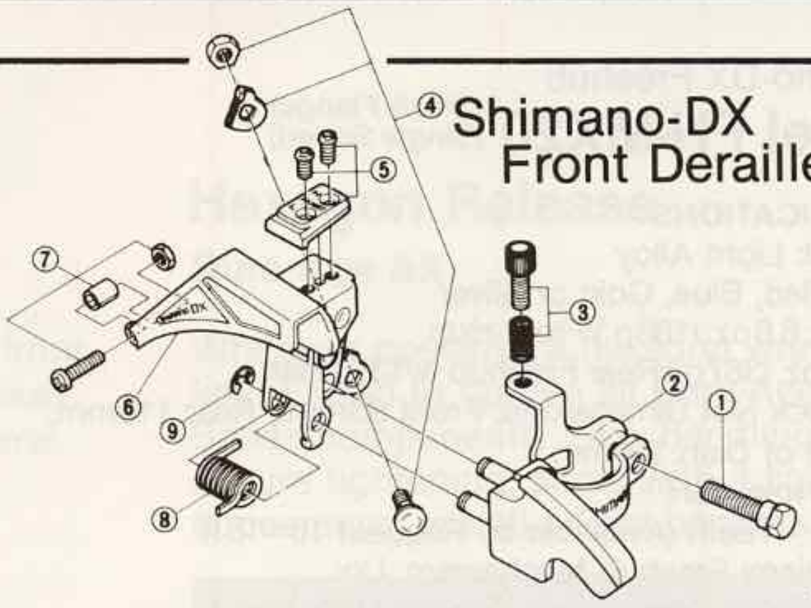
Shimano-DX Front Derailleur

Model FD-MX20

SPECIFICATIONS

Capacity: Gear Difference 10 Teeth or Less Largest Gear 40T
Weight: 7.0oz. (198g.)
Material: Steel • Satin Finish (Chain Guide & Band)
CP Finish (Other Parts)
Type: Upper Inlet Type 1" with Outer Cable Adjust Bolt
Mechanism: Pantagraph Mechanism With Inner Chain Protector





Shimano-DX Front Derailleur

ITEM NO.	PART NO.	DESGRIPTION
1	583 0302	Clamp Bolt
2	596 9001	Clamp Band 1" (SX-Type)
	597 9001	Clamp Band 1" (DX-Type)
3	547 9005	Cable Adjusting Screw & Spring
4	596 9003	Cable Fixing Bolt Unit
5	596 9004	Adjusting Screw & Plate (SX-Type)

ITEM NO.	PART NO.	DESCRIPTION
5	597 9002	Adjusting Screw & Plate (DX-Type)
6	596 9006	Chain Guide Assembly (SX-Type)
	597 9004	Chain Guide Assembly (DX-Type)
7	596 9005	Roller Fixing Bolt Unit
8	596 1400	Return Spring
9	582 3600	Stop Ring

Shimano-DX Chain Tensioner

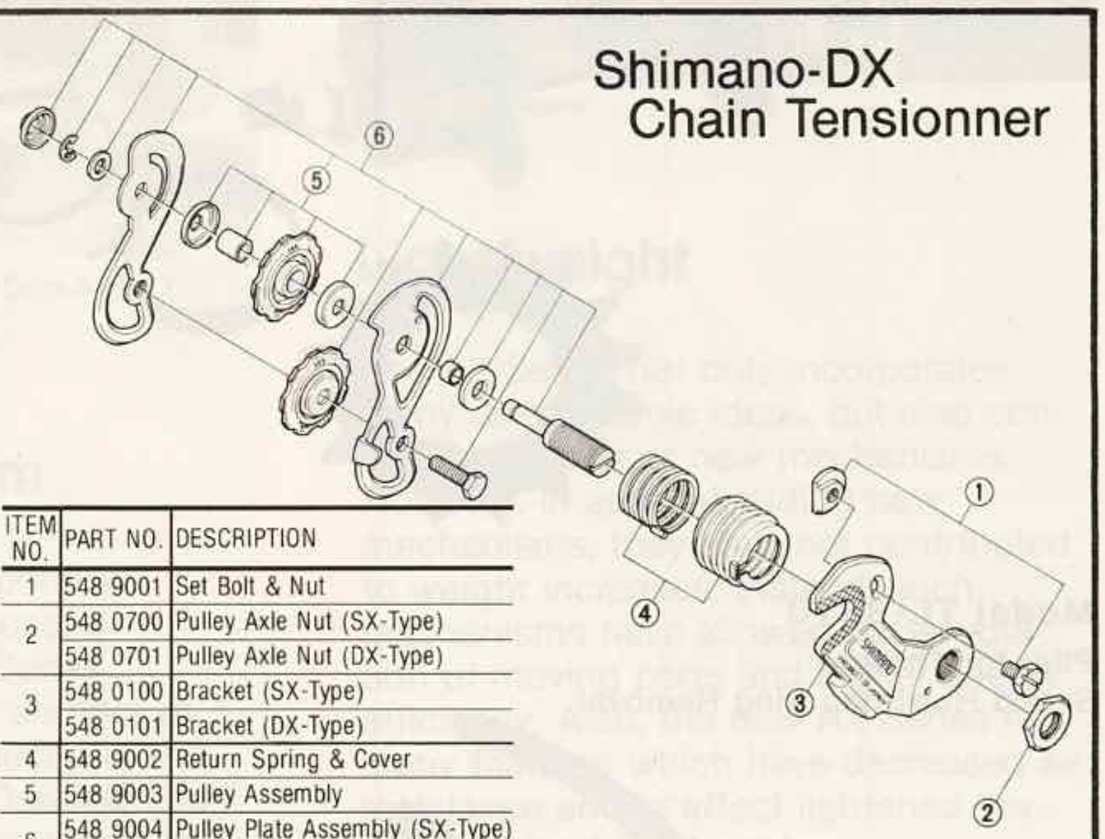
Model RD-MX60

SPECIFICATIONS

Material: Steel • Satin Finish (Bracket & Plate)
CP Finish (Other Parts)
Weight: 5.9oz. (167g.)
With Chain Line Adjust Screw



Shimano-DX Chain Tensionner



ITEM NO.	PART NO.	DESCRIPTION
1	548 9001	Set Bolt & Nut
2	548 0700	Pulley Axle Nut (SX-Type)
	548 0701	Pulley Axle Nut (DX-Type)
3	548 0100	Bracket (SX-Type)
	548 0101	Bracket (DX-Type)
4	548 9002	Return Spring & Cover
5	548 9003	Pulley Assembly
6	548 9004	Pulley Plate Assembly (SX-Type)
	549 9001	Pulley Plate Assembly (DX-Type)

Shimano-DX Shifting Lever

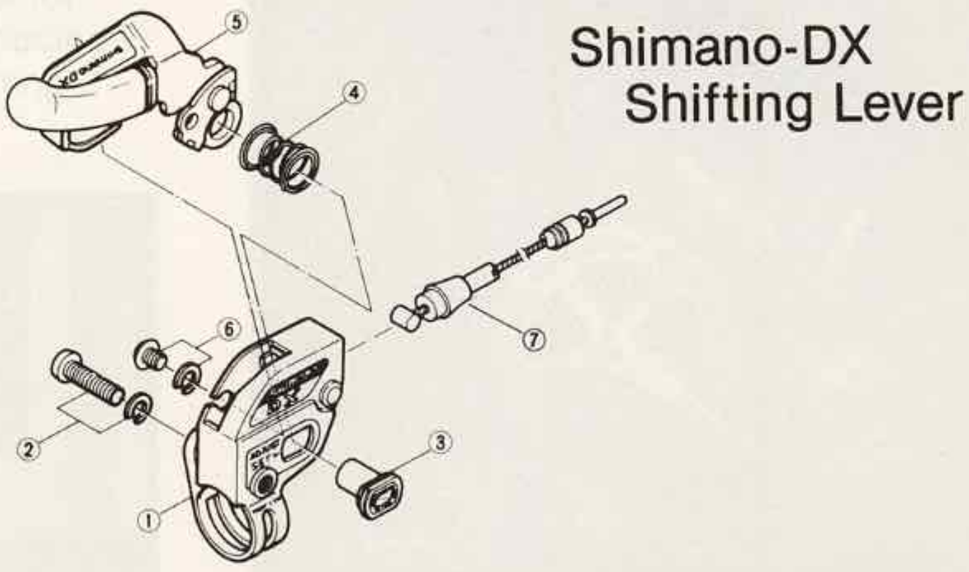
Model SL-MX20

SPECIFICATIONS

Weight: 4.5oz. (127g.)
Material: Steel • Satin Finish (Bracket)
CP Finish (Other Parts).
Type: Quick Shift Type
Color: Red, Blue, Gold or Silver
Lever Clamp Diameter: 22.2mm.
Attachment Position: Left Side Handle Bar
With Grip Dimension Adjust Bolt
(82~75mm.)



Shimano-DX Shifting Lever



ITEM NO.	PART NO.	DESCRIPTION
1	3-666 9105	Lever Clamp Body (SX-Type) Red
	3-666 9106	Lever Clamp Body (SX-Type) Blue
	3-666 9107	Lever Clamp Body (SX-Type) Gold
	3-667 9001	Lever Clamp Body (DX-Type) Red
	3-667 9009	Lever Clamp Body (DX-Type) Blue
	3-667 9010	Lever Clamp Body (DX-Type) Gold

ITEM NO.	PART NO.	DESCRIPTION
2	3-667 9002	Camp Washer & Screw (M5 × 20)
3	3-667 9003	Axle Nut
4	667 0500	Spring
5	3-666 9104	Quick Lever (SX-Type)
	3-667 9004	Quick Lever (DX-Type)
6	3-667 9005	Axle Washer & Screw (M4.5 × 10)
7		Cable Assembly

Model FH-MX20

Shimano-DX Free Hub
(Small Flange/Single Speed)

Shimano-DX Freehub
Model FH-MX20
(Small Flange)
(Single Speed)

SPECIFICATIONS
Material: Light Alloy
Color: Red, Blue, Gold or Silver
Weight: 6.6oz. (188g.)/Front Hub,
12.9oz. (367g.)/Rear Freehub w/13T Gear
Over Lock Nut Dimensions: Front 93mm., Rear 110mm.
Amount of Dish: 0.9mm.
Spoke Hole: 36H
Teeth: Teeth (Available by Request 15~18T)
Mechanism: Freehub Mechanism, Uni
Balance Mechanism, Sealed Mechanism
Note: Pleace use UG gear for DX Front 2-speed.

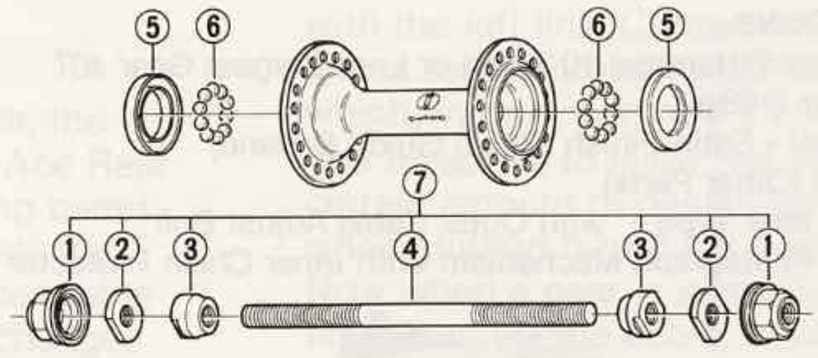




Model TL-3S10
Plier for Three
Speed Hub Snap Ring Removal

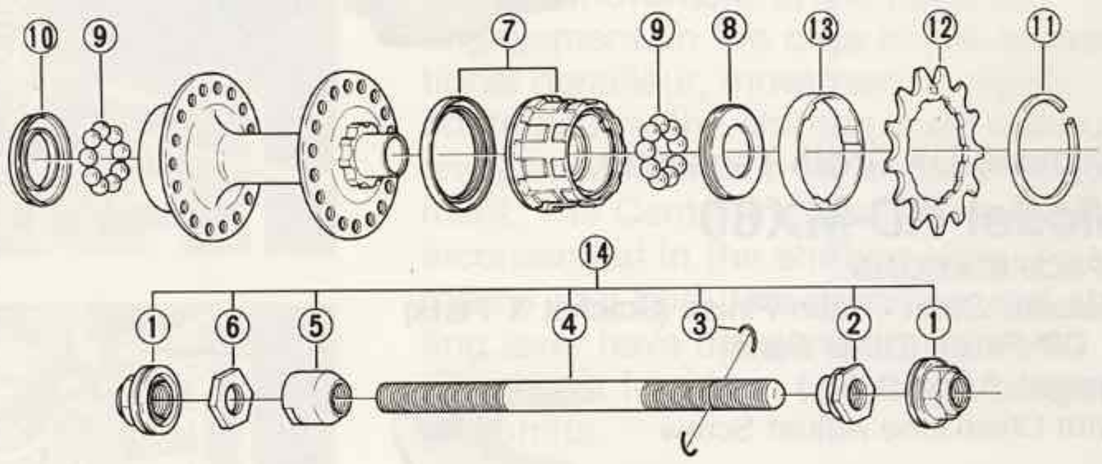


Shimano-DX Freehub



■ Front Hub

ITEM NO.	PART NO.	DESCRIPTION
1	3-373 9005	Hub Nut
2	210 0810	Lock Nut
3	210 0400-1	Cone 10.5mm
4	210 0313	Hub Axle 133mm (5-1/4")
5	231 1300	Dust Cap
6	000 0121	Steel Ball (3/16") 20pcs.
7	3-373 9006	Complete Hub Axle 133mm (5-1/4")



■ Rear Freehub

ITEM NO.	PART NO.	DESCRIPTION
1	3-373 9002	Hub Nut
2	373 0700	Right Hand Cone 3/8" × 11.3mm
3	296 0500	Lock Ring
4	373 1000	Hub Axle 154mm (6-3/32")
5	220 0810-3	Left Hand Cone 3/8" × 16.5mm
6	220 0520	Lock Nut 3mm
7	3-373 9003	Complete Freewheel Body
8	373 0600	Right Hand Dust Cap
9	000 0131	Steel Ball (1/4") 18pcs.
10	373 0500	Left Hand Dust Cap
11	373 1100	Snap Ring
12	119 1405	Sprocket Wheel 14T
	119 1505	Sprocket Wheel 15T
	119 1605	Sprocket Wheel 16T
	119 1705	Sprocket Wheel 17T
	119 1805	Sprocket Wheel 18T
13	373 1300	Sprocket Spacer B (Width: 7.2mm.)
14	3-373 9001	Complete Hub Axle 154mm (6-3/32")

Model BR-MX10
TOURNEY Sidepull Caliper Brake

Model BL-MX20
Shimano-DX Brake Lever

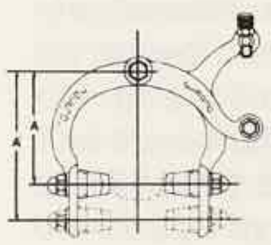
TOURNEY Rear Sidepull Caliper Brake

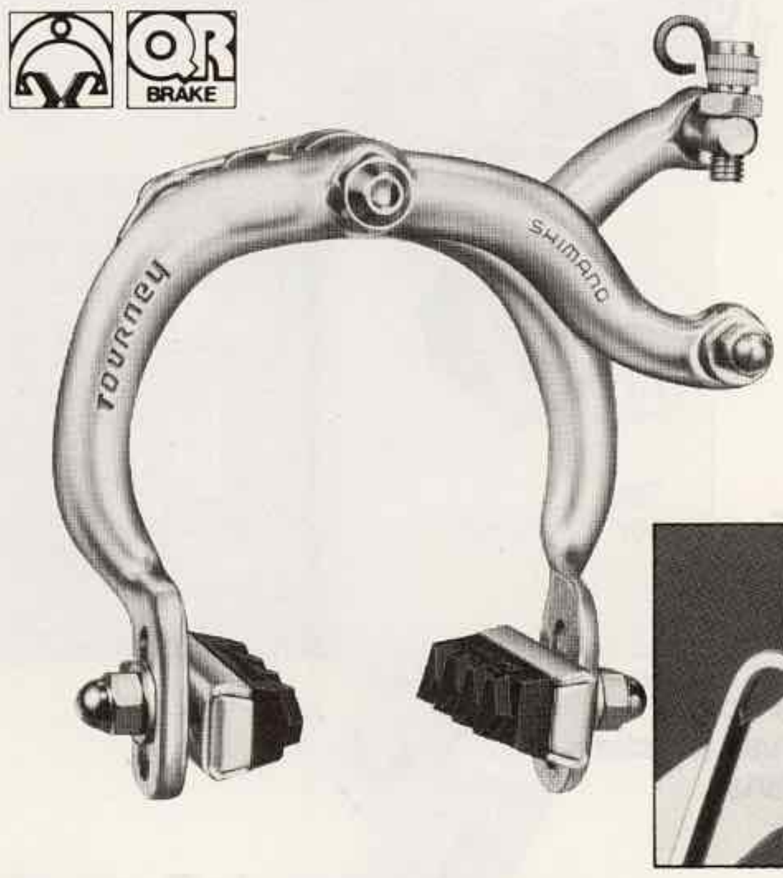
Model BR-MX10

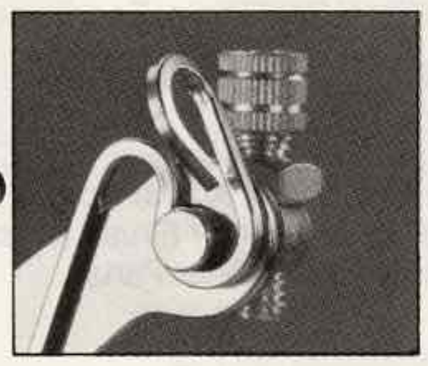
SPECIFICATIONS

Use: With Motocross Bicycle
Material: Light Alloy
Color: Red, Blue, Gold or Silver
Type: Sidepull with Quick Release, Synpul Mechanism

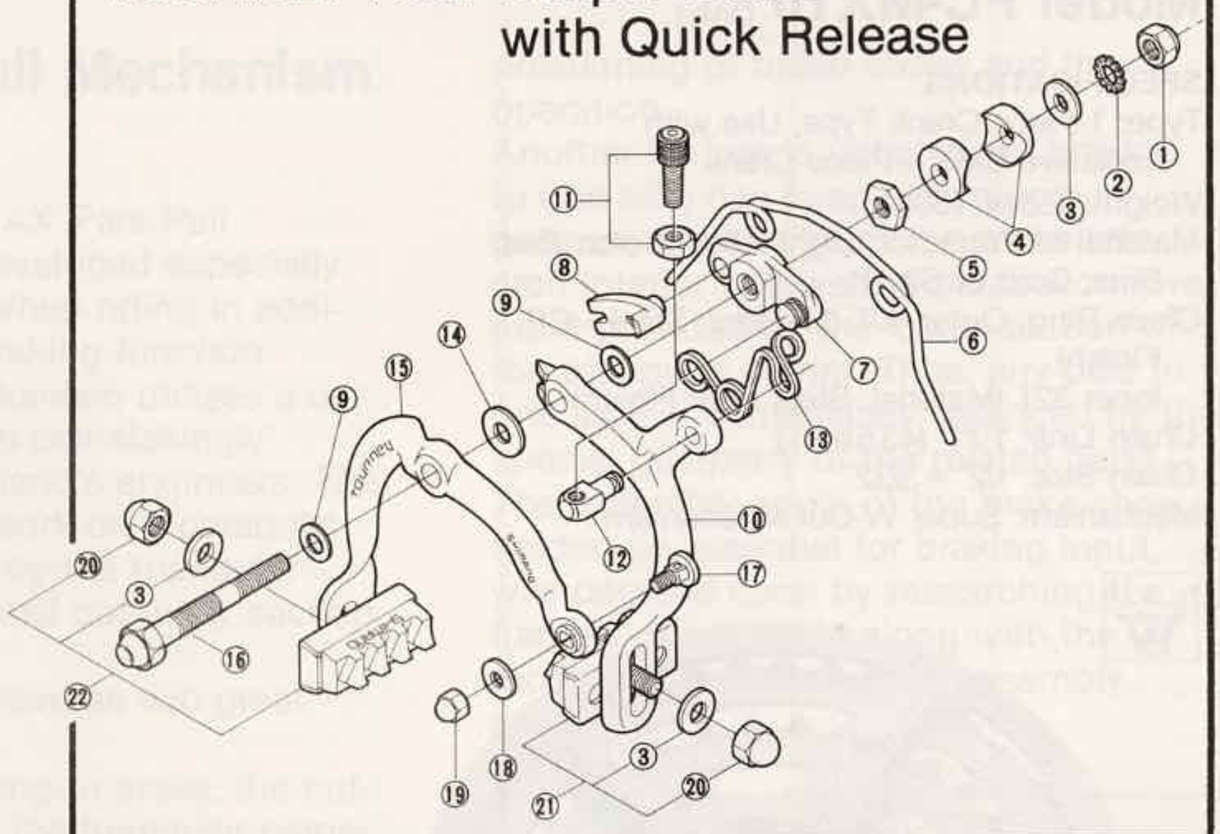
A-A′	Weight (Rear)
70mm-88mm	6.2 oz. (175 g.)







TOURNEY Rear Caliper Brake with Quick Release



ITEM NO.	PART NO.	DESCRIPTION
1	851 3700	Lock Nut for Pivot Bolt
2	811 6100	Teethed Lock Washer
3	831 0600	Washer
4	811 6040	R-Washer
5	851 2500	Lock Nut (M7)
6	851 1103	Arm Return Spring
7	851 9064	Pivot
8	851 3900	Cam
9	851 2101	Arm Washer
10	851 0902	Brake Arm "Y" Shape (Silver)
	851 0903	Brake Arm "Y" Shape (Red)
	851 0904	Brake Arm "Y" Shape (blue)
	851 0905	Brake Arm "Y" Shape (Gold)
11	851 9005	Cable Adjusting Barrel & Lock Nut

ITEM NO.	PART NO.	DESCRIPTION
12	851 6104	Cable Stopper Pin
13	851 8900	Quick Release Spring
14	851 2201	Arm Spacer
15	851 1002	Brake Arm "C" Shape (Silver)
	851 1006	Brake Arm "C" Shape (Red)
	851 1007	Brake Arm "C" Shape (Blue)
	851 1008	Brake Arm "C" Shape (Gold)
16	851 3400-1	Pivot Bolt
17	851 5100	Cable Fixing Bolt
18	831 6800	Washer (M5)
19	851 5200	Cable Fixing Nut
20	831 4301	Cap Nut for Brake Shoe
21	851 9084	Brake Shoe Assembly (Right)
22	851 9083	Brake Shoe Assembly (Left)

Shimano-DX Brake Lever

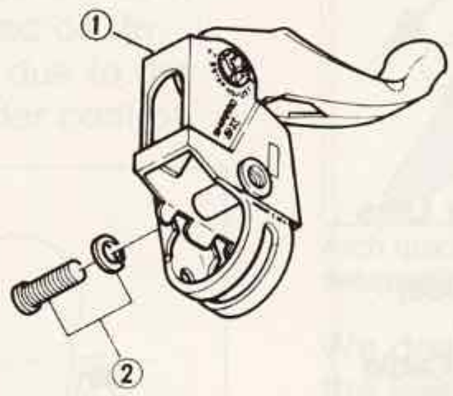
Model BL-MX20

SPECIFICATIONS

Weight: 2.2oz. (63g.)
Material: Light Alloy (Lever), Steel (Bracket)
Bracket Color: Red, Blue, Gold or Silver
Lever Clamp Diameter: 22.2mm.
Left Side Brake Lever Available



Shimano-DX Brake Lever



ITEM NO.	PART NO.	DESCRIPTION
1	892 9001	Brake Lever Body
2	892 9002	Clamp Screw Assembly

SHIMANO SX

Model FC-MX10
Shimano-SX Front Chainwheel

Model FD-MX10
Shimano-SX Front Derailleur

Model RD-MX10
Shimano-SX Rear Derailleur

Model RD-MX50
Shimano-SX Chain Tensioner

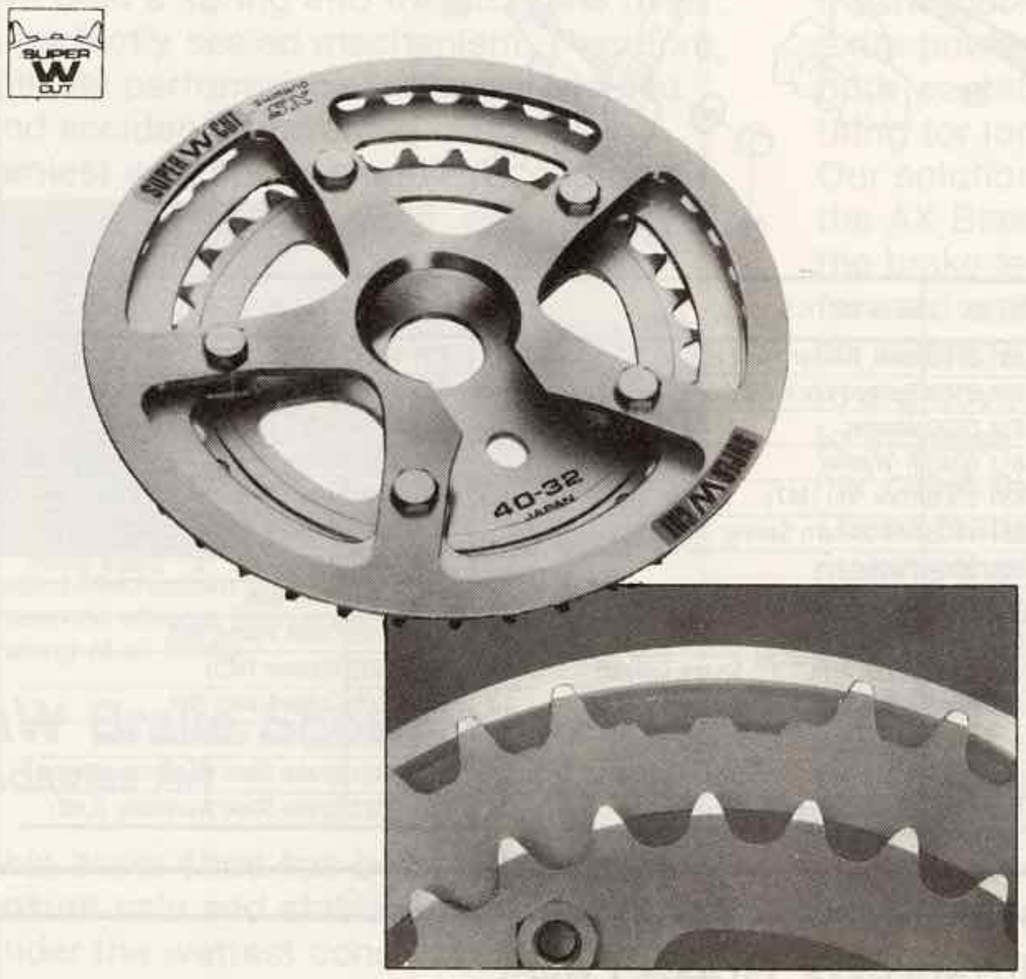
Model SL-MX10
Shimano-SX Shifting Lever

Shimano-SX Front Chainwheel

Model FC-MX10 (Double Gear Only)

SPECIFICATIONS

Type: 1-Piece Crank Type, Use with exclusive BMX 1-Piece Crank
Weight:12.8oz. (363g.)
Material of Protector: Light Alloy (Color: Red, Blue, Gold or Silver)
Chain Ring: Outer 40T (Material: Steel • CP Finish)
Inner 32T (Material: Steel • CP Finish)
Chain Line: 1.71″ (43.5mm.)
Chain Size: 1/2″ × 3/32″
Mechanism: Super W-Cut Mechanism



Shimano-SX Front Derailleur

Model FD-MX10

SPECIFICATIONS

Capacity: Gear Difference 10 Teeth or Less
Weight: 7.0oz.(198g.)
Material: Steel • CP Finish (Chain Guide)
Zinc Finish (Other Parts)
Type: Upper Inlet Type 1″ with Outer Cable Adjust Bolt
Mechanism: Pantagraph Mechanism With Inner Chain Protector

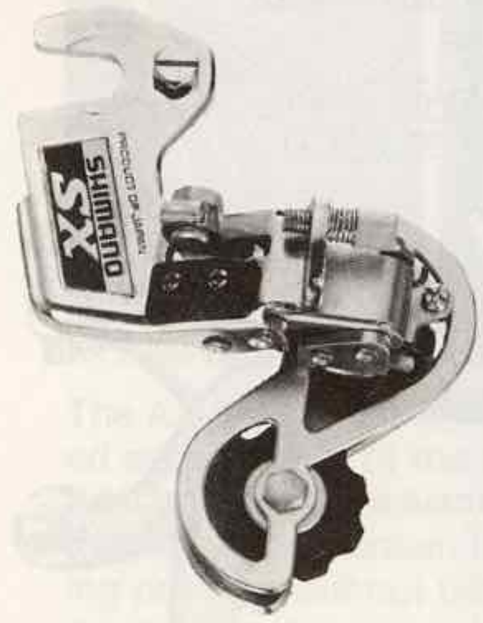


Shimano-SX Rear Derailleur

Model RD-MX10

SPECIFICATIONS

Weight: 7.6oz. (215g.)
Material: Steel • CP Finish (Bracket)
Capacity: Rear Sprocket/13~18 Teeth



Shimano-SX Chain Tensioner

Model RD-MX50

SPECIFICATIONS

Weight: 5.8oz. (165g.)
With Chain Line Adjust Screw
Material: Steel • CP Finish (Bracket)
Zinc Finish (Other Parts)



Shimano-SX Shifting Lever

Model SL-MX10

SPECIFICATIONS

Weight: 4.5oz.(127g.)
Material: Steel • CP Finish
Type: Quick Shift Type
Color: Red, Blue, Gold or Silver
Lever Clamp Diameter: 22.2mm.
Attachment Position: Left Side Handle Bar
With Grip Dimension Adjust Bolt (82~75mm.)



SHIMANO SX

Model FH-MX10
Shimano-SX Freehub (Small Flange Single Speed)

Model FH-MX12
Shimano-SX Freehub (Small Frange 2-Speed)

Model FH-MX15
Shimano SX Freehub (A Type) (Semi-Large Flange)

Model BL-MX11
Shimano-SX Brake Lever

Model FH-MX60
Shimano BMX Freehub

Model FH-MX40
Shimano BMX Freehub

Model BR-MX20
TOURNEY Rear Sidepull Caliper Brake

Model BL-MX10
SHIMANO-BMX LEVER

Shimano-SX Freehub

Model FH-MX10 (Small Flange Single Speed)

SPECIFICATIONS
Weight: 17.4oz. (492g.) w/14T Gear
Teeth: 14 Teeth (Available by Request 12~18T)
Other Specifications are same as below.
Note: Use Super-Sifft Sprocket for Front 2-speed

Model FH-MX12 (Small Frange 2-Speed)

SPECIFICATIONS
Material: Steel
Color: Blue or Silver
Over Lock Nut Dimensions: 4.33" (110mm.)
Amount of Dish: 0.1" (2.5mm.)
Spoke Hole: 36H
Weight: 8.7oz. (248g.)/Front Hub
20.1oz. (570g.)/Rear Freehub
w/13T, 16T Gears & Protector
Teeth: 13 • 16 Teeth with Top and Low Protector (Available with 13~18 Teeth Combination)
Mechanism: Freehub Mechanism, Uni Balance Mechanism, Sealed Mechanism and Super-Shift Sprocket (2-Speed only)

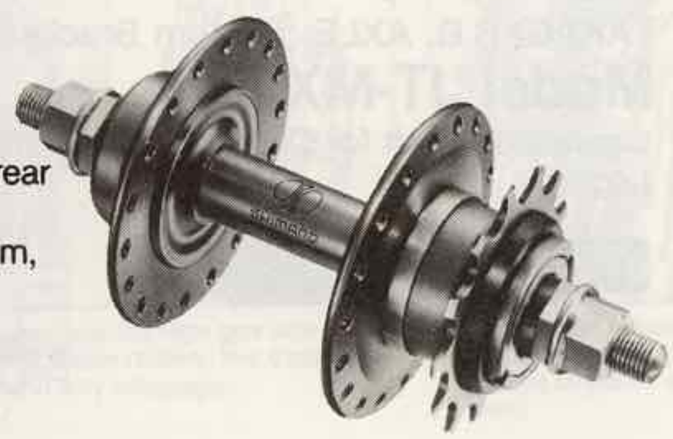


Super-Shift Sprockets (2-Speed only) Sprockets specially designed to give a secure chain grip and easy release.

Shimano SX Freehub (A Type)

Model FH-MX15 (Semi-Large Flange)

SPECIFICATIONS
Material: Steel
Color: Gold
Amount of Dish: 0.16" (4.0mm.)
Spoke Hole: 28H, 36H
Weight: 18.6oz. (528g.) w/13T Grear
Teeth: 13T
Mechanism: Freehub Mechanism, Sealed Mechanism



Shimano-SX Brake Lever

Model BL-MX1

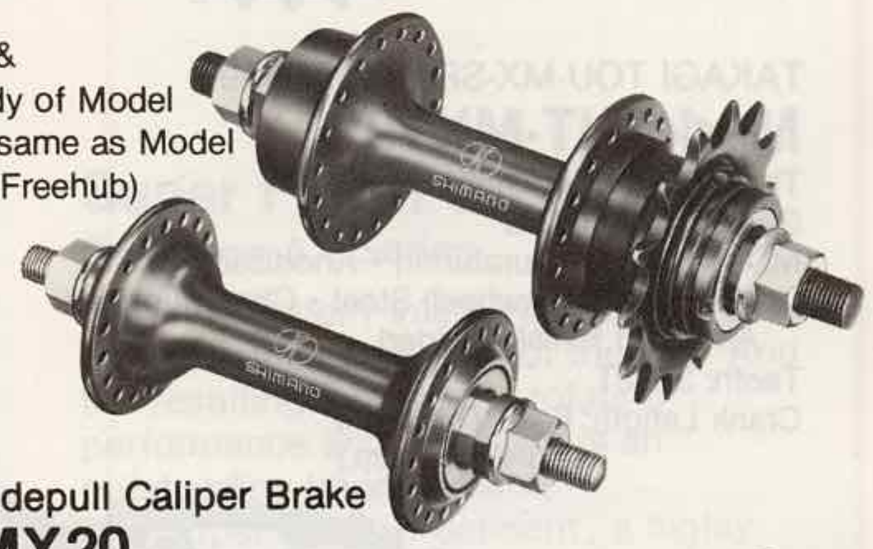
SPECIFICATIONS
Weight: 83g (2.9 oz.) Piece
Material: Steel
Bracket Color: Red, Blue, Gold or Silver
Lever Clamp Diameter: 22.2mm



Shimano BMX Freehub

Model FH-MX60 (Small Flange/Anodized Finish)
FH-MX40 (Small Flange/Painted Finish)

SPECIFICATIONS
Use: With Motocross Bicycle
Weight: Front 6.3oz. (180g.)
: Rear 13.9oz. (395g.)
Material: Light Alloy
Color • Surface Treatment:
Anodized Finish (FH-MX60)/Silver, Gold, Red or Blue
Buff Finish (FH-MX40)/Silver
Painted Finish (FH-MX40)/Gold, Red or Blue
Type: Small Flange Hub
Over Lock Nut Dimensions: Front 3.66" (93mm.)
Rear 4.33" (110mm.)
Spoke Holes: 36
Sprocket Combinations: 14T
13T, 15T, 17T, 18T Available
Standard Sprocket:
1/2" × 1/8" Chain
Note: The Sprocket & Freewheel body of Model FH-MX40 are same as Model FH-MX20 (DX Freehub)

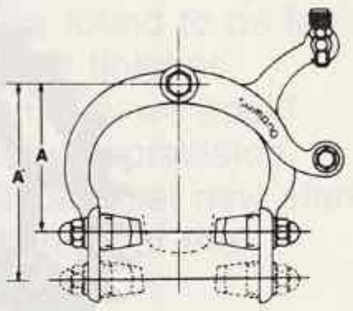


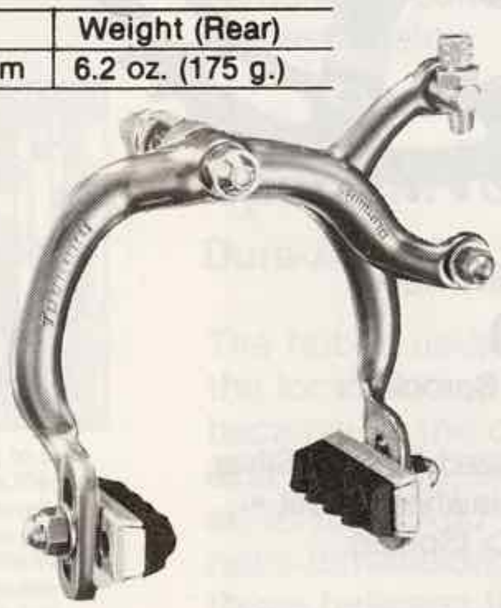
TOURNEY Rear Sidepull Caliper Brake

Model BR-MX20

SPECIFICATIONS
Use: With Motocross Bicycle
Material: Light Alloy
Type: Sidepull with Synpul Mechanism
Color: Red, Blue, Gold or Silver

A-A'	Weight (Rear)
70mm-88mm	6.2 oz. (175 g.)





SHIMANO-BMX LEVER

Model BL-MX10

SPECIFICATIONS
Weight: 1.6oz. (46g.)Piece
Material: Light Alloy
Lever Clamp Diameter: 22.2mm.
Color: Red, Blue, Gold or Silver



SHIMANO

bmx components

Model JT-MX50 — TAKAGI TOU-AD-MX Chainwheel
Model JT-MX10 — TAKAGI TOU-MX-SPA Chainwheel
Model JT-MX20 — TAKAGI SPF-TYPE Chainwhee
Model JT-MX30 — TAKAGI S-TYPE Chainwheel
Model JT-MX40 — TAKAGI M-TYPE (Cr-Mo) One-piece Crank
Model JT-MX2B — TAKAGI B.B. AXLE Bottom Bracket Parts
Model JT-MX1B — TAKAGI Model 120-P Bottom Bracket Parts

TAKAGI TOU-AD-MX Chainwheel

Model JT-MX50

Tree Piece Aluminum Crank

SPECIFICATIONS

Material: Forged Light Alloy
Color: CP, Silver, Blue, Gold or Red
Teeth: 39-48T.
Crank Length: 6-3/4" (170mm.)



TAKAGI TOU-MX-SPA Chainwheel

Model JT-MX10

Three Piece Aluminum crank

SPECIFICATIONS

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



TAKAGI SPF-TYPE Chainwheel

Model JT-MX20

5-Pin Type Interchangeable Sprockets

SPECIFICATIONS

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



TAKAGI S-TYPE Chainwheel

Model JT-MX30

Standard Type

SPECIFICATIONS

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



TAKAGI M-TYPE (Cr-Mo) One-piece Crank

Model JT-MX40

SPECIFICATIONS

Material: Chromium Molybdenum Steel • Chromium Finish <Silver, Gold, or Black>
Crank Length: 6-1/2" (165mm.), 6-3/4" (170mm.), 6.9" (175mm.)
Bracket's Shell Width: 68mm.
Crank Thread: 1/2" x 20T

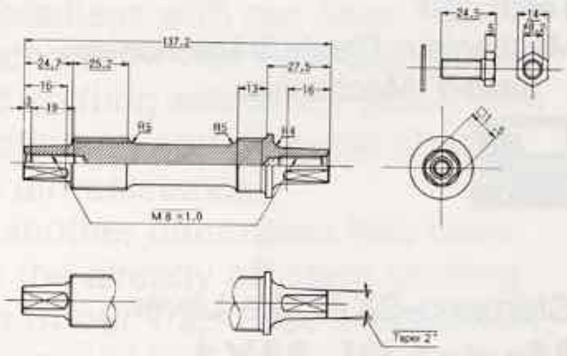


TAKAGI B.B. AXLE Bottom Bracket Parts

Model JT-MX2B (Taper 2°)

Conversion Shaft for One Piece Crank Hanger Lug





TAKAGI Model 120-P Bottom Bracket Parts

Model JT-MX1B

For One Piece Crank

SPECIFICATIONS

Cup thread: 24 or 28 Thread

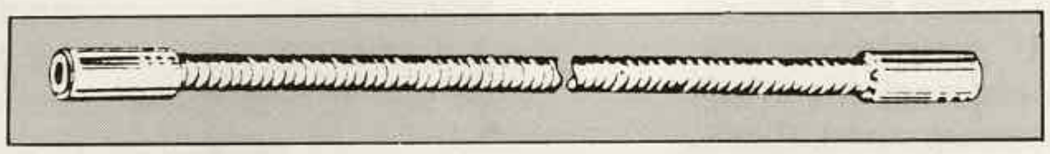


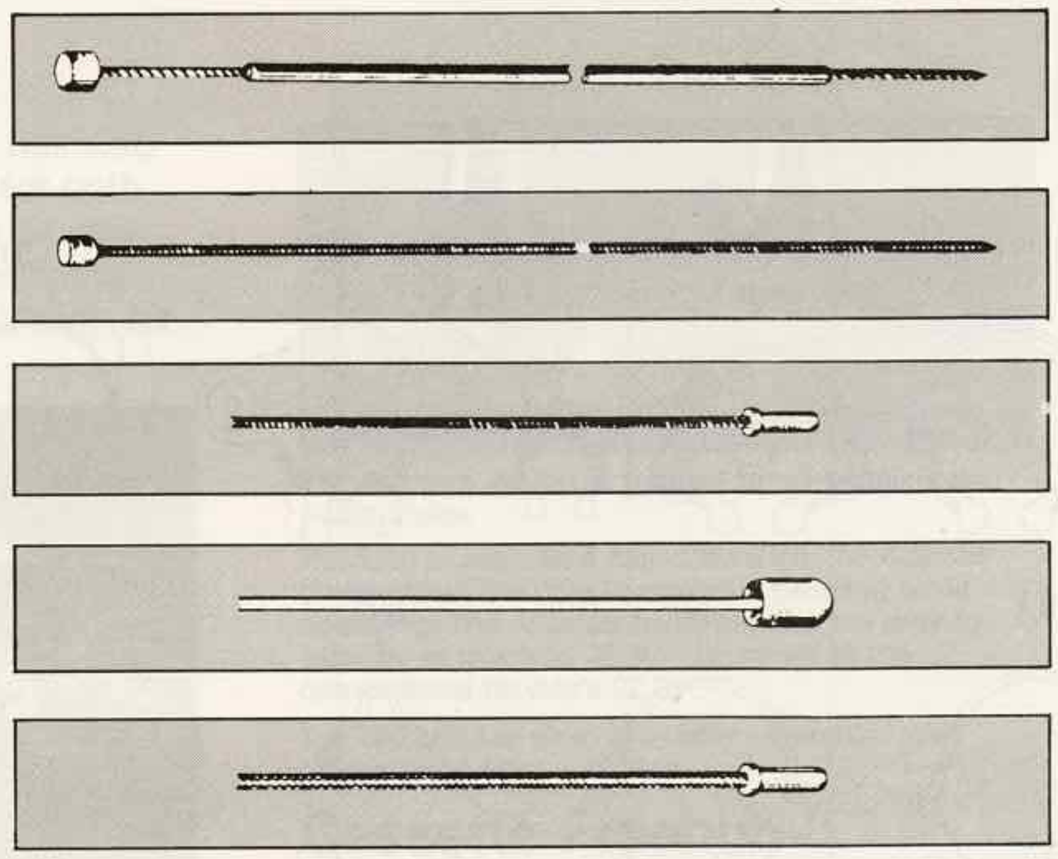
SHIMANO

cable

Outer Casing Inner Cable

OUTER CASING & INNER CABLE





Item	Part No.	Description	
1	601 5364	Stainless Outer Casing w/Both Cap	6-11/16" (170mm)
	601 0964		11-1/42" (280mm)
2	601 6665	Stainless Outer Casing w/One Cap	23-5/8" (600mm)
	601 9165		24-13/16" (630mm)
	601 2865		26-3/8" (670mm)
3	601 5311	Outer Casing (White) w/Both Cap	6-11/16" (170mm)
	601 5611		7-1/12" (180mm)
	601 0811		9-27/32" (250mm)
	601 0911		11-1/42" (280mm)
	601 1011		11-3/16" (300mm)
	601 5911		13-3/16" (335mm)
	601 1211		14-3/16" (360mm)
4	601 6516		21-1/8" (530mm)
	601 4216		37-13/32" (950mm)

Item	Part No.	Description	
4	601 4416	Outer Casing (White) w/One Cap	39-3/8" (1,000mm)
	601 6816		40-9/16" (1,030mm)
	601 4616		41-23/32" (1,060mm)
	601 7116		44-3/32" (1,120mm)
	601 9016		53-17/32" (1,360mm)
	601 6416		55-1/8" (1,400mm)
	601 8516		57-2/25" (1,450mm)
	601 4916		59-1/16" (1,500mm)
5	600 5042	Coated Inner Cable (ø1.2mm)	51-31/32" (1,320mm)
	600 2242		53-17/32" (1,360mm)
	600 4442		55-1/8" (1,400mm)
	600 7042		70-7/8" (1,800mm)
	600 7442		72-27/32" (1,850mm)
	600 7942		74-13/16" (1,900mm)

Item	Part No.	Description	
6	600 0312	Inner Cable (ø1.2mm)	26-3/8" (670mm)
	600 6112		29-17/32" (750mm)
	600 6412		40-9/16" (1,030mm)
	600 1012		41-23/32" (1,060mm)
	600 1212		44-3/32" (1,120mm)
	600 1812		46-15/32" (1,180mm)
	600 5712		49-19/32" (1,260mm)
	600 2512		59-1/16" (1,500mm)
	600 2712		61" (1,550mm)
	600 6212		63" (1,600mm)
	600 2912		65" (1,650mm)
7	620 2010	Inner End Cap for Shifting Lever w/o PPS System	
8	620 2030-1	Inner End Cap for PPS System	
9	620 2011	Inner End Cap for Brake	

SPARE OUTER CASING & INNER CABLE

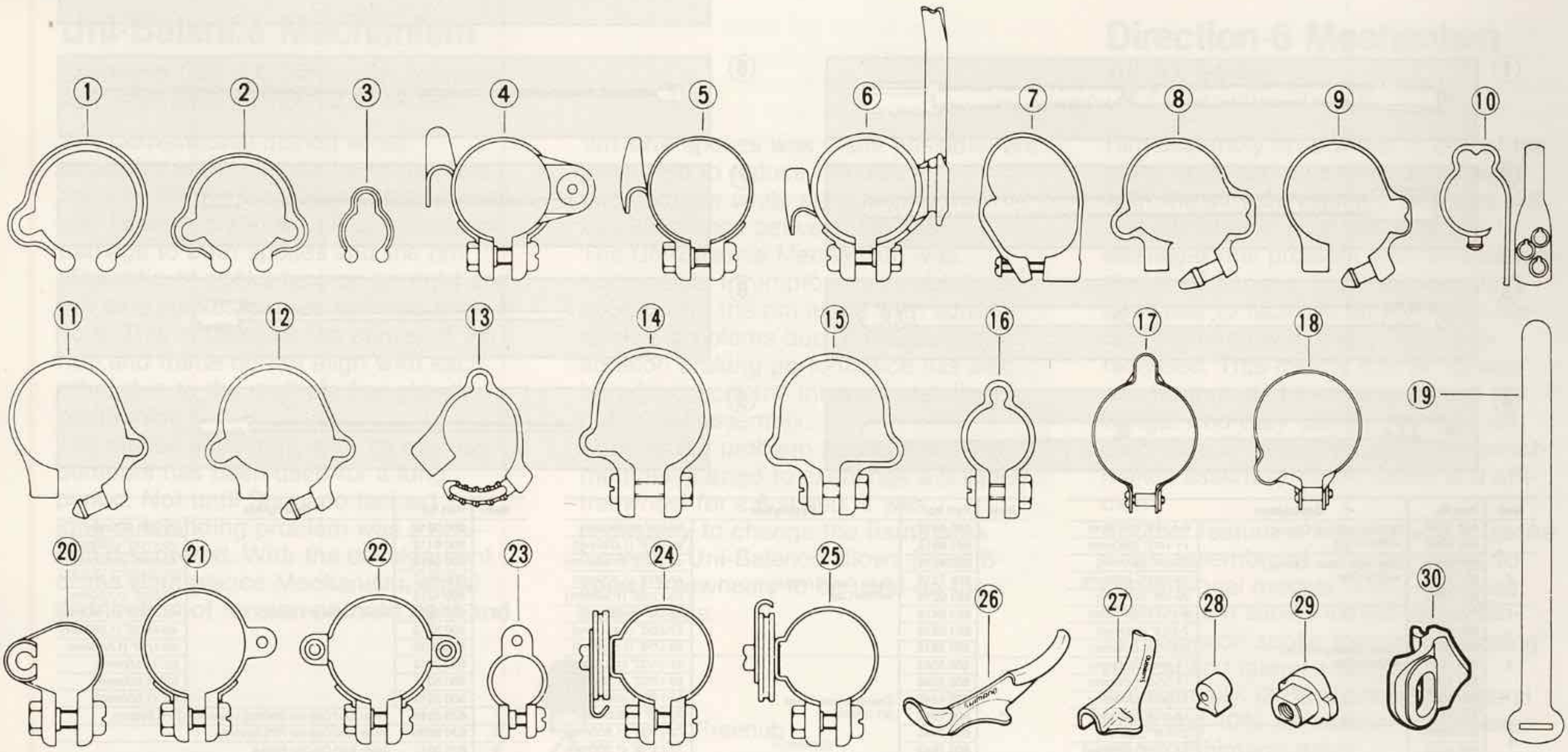


Item	Part No.	Description		Usage
1	643 9022	Universal Joint		
2	602 0200	3SU . . . . Three Speed Universal Spare Cable w/Universal Joint ø1.2mm	1600mm × 1400mm (White)	Control Levers for SHIMANO Three Speed Hub
	602 0100		1600mm × 880mm (White)	
	602 0101		1600mm × 880mm (Black)	
3	603 0810	5DU-A . . . 5 and 10-Speed Universal Spare Cable Cable End ø1.5mm 1700mm × 1550mm		5-Speed Click Stick and Console Lever
4	603 0820	5DU-B 5 and 10-Speed Universal Spare Cable Cable End ø1.2mm 1700mm × 1550mm		5 and 10-Speed Ordinary Levers
5	600 18515	DU-C . . . 5 and 10-Speed Universal Spare Cable Double Cable End ø1.5mm · 1850mm (6ft.)		5 and 10-Speed Shifting Levers
6	840 9080	BU-A . . . Universal Spare Cable Double Cable End ø1.8mm · 1650mm (5ft.)		All SHIMANO Brakes Except DURA-ACE and SHIMANO-600
7	601 76213	OCU-A . . . Universal Outer Casing 7620mm (25ft.) White		All Cables Except DURA-ACE and SHIMANO-600
	601 76253	OCU-B . . . Universal Outer Casing 7620mm (25ft.) Black		
8	692 91370	Rear Cable Assembly for PPS System	870mm (Inner) × 800mm (Outer)/Black	PPS System Shifting Levers
	692 91330		970mm (Inner) × 900mm (Outer)/Black	
	692 91011		1020mm (Inner) × 950mm (Outer)/Black	
	692 91021		1120mm (Inner) × 1050mm (Outer)/Black	
	692 91070		1420mm (Inner) × 1350mm (Outer)/Black	
	692 91030		1520mm (Inner) × 1450mm (Outer)/Black	
	692 91390		1520mm (Inner) × 1450mm (Outer)/White	
	692 91040		1620mm (Inner) × 1550mm (Outer)/Black	
	692 91340		1620mm (Inner) × 1550mm (Outer)/White	
	692 91350		1770mm (Inner) × 1700mm (Outer)/Black	
	692 91050		1770mm (Inner) × 1700mm (Outer)/White	
	692 91360		1870mm (Inner) × 1800mm (Outer)/Black	
	692 91060		1870mm (Inner) × 1800mm (Outer)/White	
	692 91140		1970mm (Inner) × 1900mm (Outer)/White	
9	601 76223	Color Outer Casing 7620mm (25ft.)	Red	All Cables Available
	601 76283		Yellow	
	601 76293		Green	
	601 76233		Blue	
	601 76203		Dark Blue	
	601 76243		Silver	
	601 76273		Brown	

SHIMANO

outer band

Outer Band Brazed-on Parts



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")
	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")
	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")
	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	5855600	Brazed Axle for DURA-ACE	
30	6814600	Brazed Bracket for DURA-ACE EX Front Derailleur	

SHIMANO

tool

Exclusive Tool

Freewheel Tool

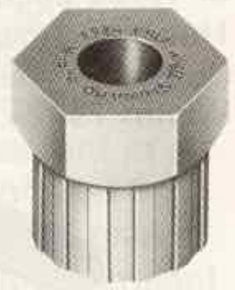
Model TL-FW10
DURA-ACE & SHIMANO-600 Multiple Freewheel Removal Tool



Model TL-FW20
Multiple Freewheel Removal Tool



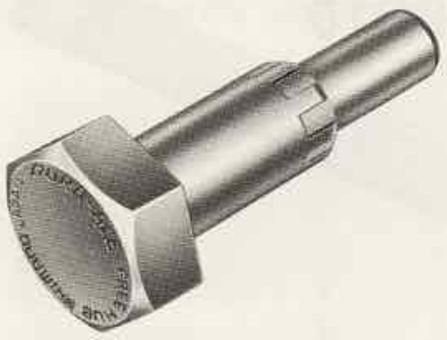
Model TL-FW30
Multiple Freewheel Removal Tool



Model TL-FW40
Single Freewheel & Freehub A Removal Tool



Model TL-FH10
Freehub Removal Tool for DURA-ACE EX FH-7260, 7250) Series Only



Model TL-FH30
Freehub Removal Tool



Model TL-FH40
Freehub Removal Tool



Model TL-SR10 (for 10mm. Chain)
TL-SR20 (for 1/2" Chain)
Rear Sprocket Removal Tool



Front Chainwheel Tool

Model TL-FC10
Cotterless Crank Extractor



Model TL-FC15
Clank Arm Bolt Fixing Wrench 14mm. for Front Chainwheel.



Model TL-FC20
Screw Peg Spanner



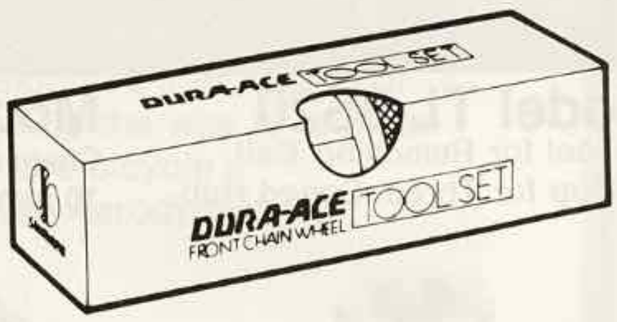
Model TL-FF10
Front Chainwheel Removal Tool for FF System (One Piece Cran



Model TL-FC30
Three Spanners Set for Spindle and Head Parts

Hanger Cup Hook Bolt

Model TL-FC40





Model TL-FT20
Cup Removal Tool for SELECTA & FF System Front Chainwheel



SHIMANO

tool

Exclusive Tool

Spanners & Wrenches

Model TL-HS10
Spanner for DURA-ACE Hubs
Width: 13 mm. × 14 mm.



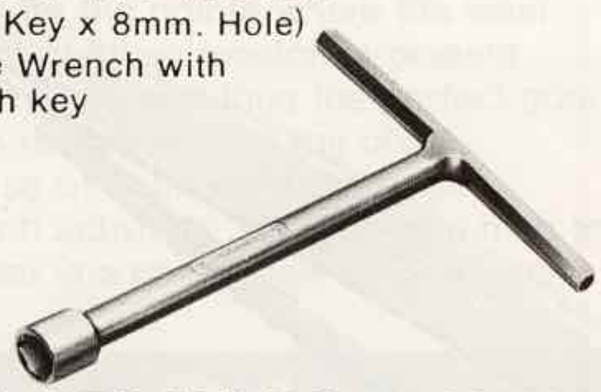
Model TL-HS20
Spanner for Cone, Lock Nut Adjustment of Three Speed Hub; Three Speed Hub with Coaster Brake; and Coaster Brake
Width: 15mm., 17mm.



Model TL-HP10
Exclusive Tool for EX Series Head Parts



Model TL-WR10
(5mm. Key x 8mm. Hole)
T-Type Wrench with Wrench key



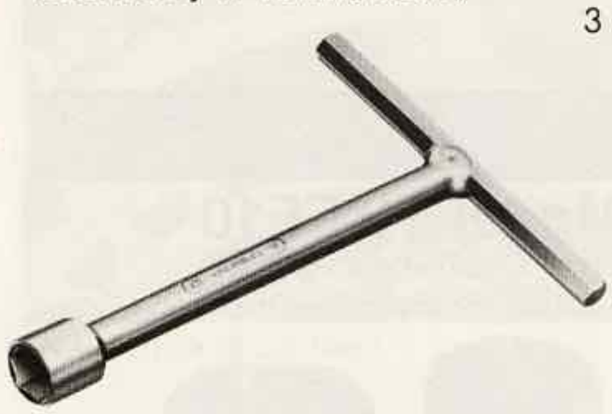
Model TL-PD20
DD Pedal Spanner



Model TL-PD10
DD Pedal Spanner



Model TL-WR20
(6mm. Key x 10mm. Hole)



Model TL-WR33
Hexagon Wrench Key
3 mm.



Model TL-WR35
Hexagon Wrench Key
5 mm.



Model TL-WR36
Hexagon Wrench Key
6 mm.



Model TL-WR40
Hexagon Wrench Key for One Key Release Mechanism
(6mm. x 130mm.)



Adaptor Pipe

Others

Model TL-3S10
Plier for Three Snap Ring Removal



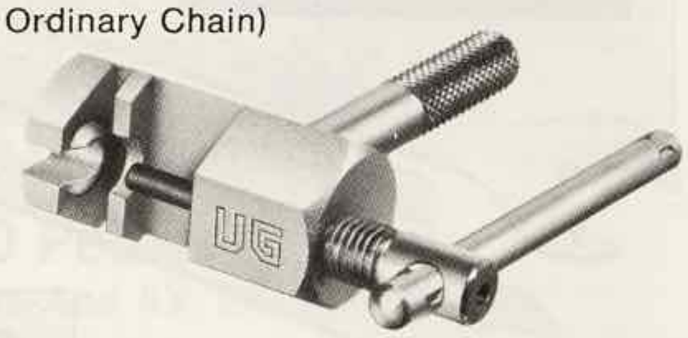
Model TL-3S20
Tool for Removing Ball Cup for Three Speed Hub



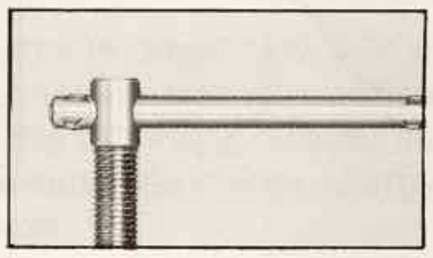
Model TL-CN10
Chain Cutter for DURA-ACE 10 mm. Pitch



Model TL-CN20
Chain Cutter (For Both UG Chain and Ordinary Chain)

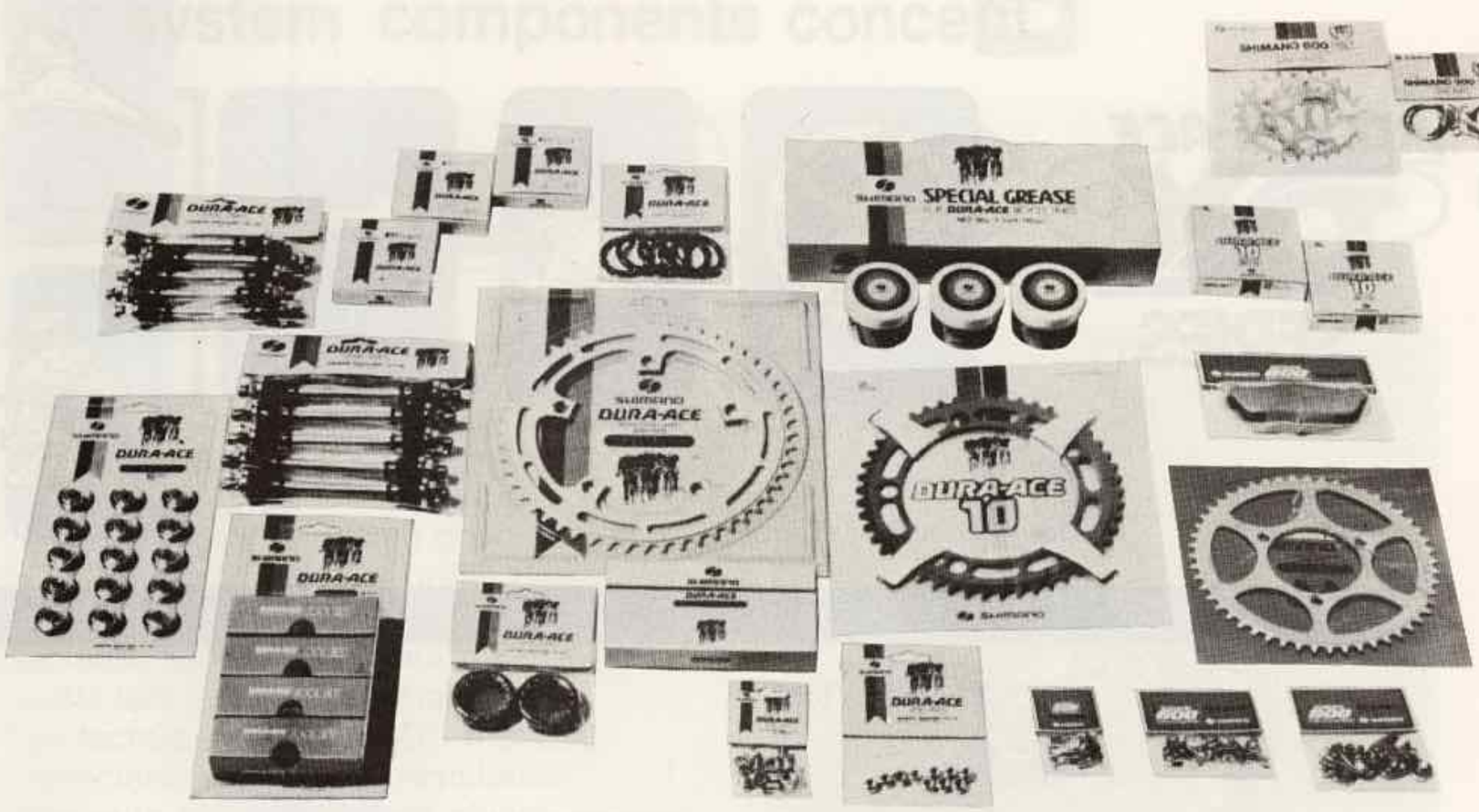


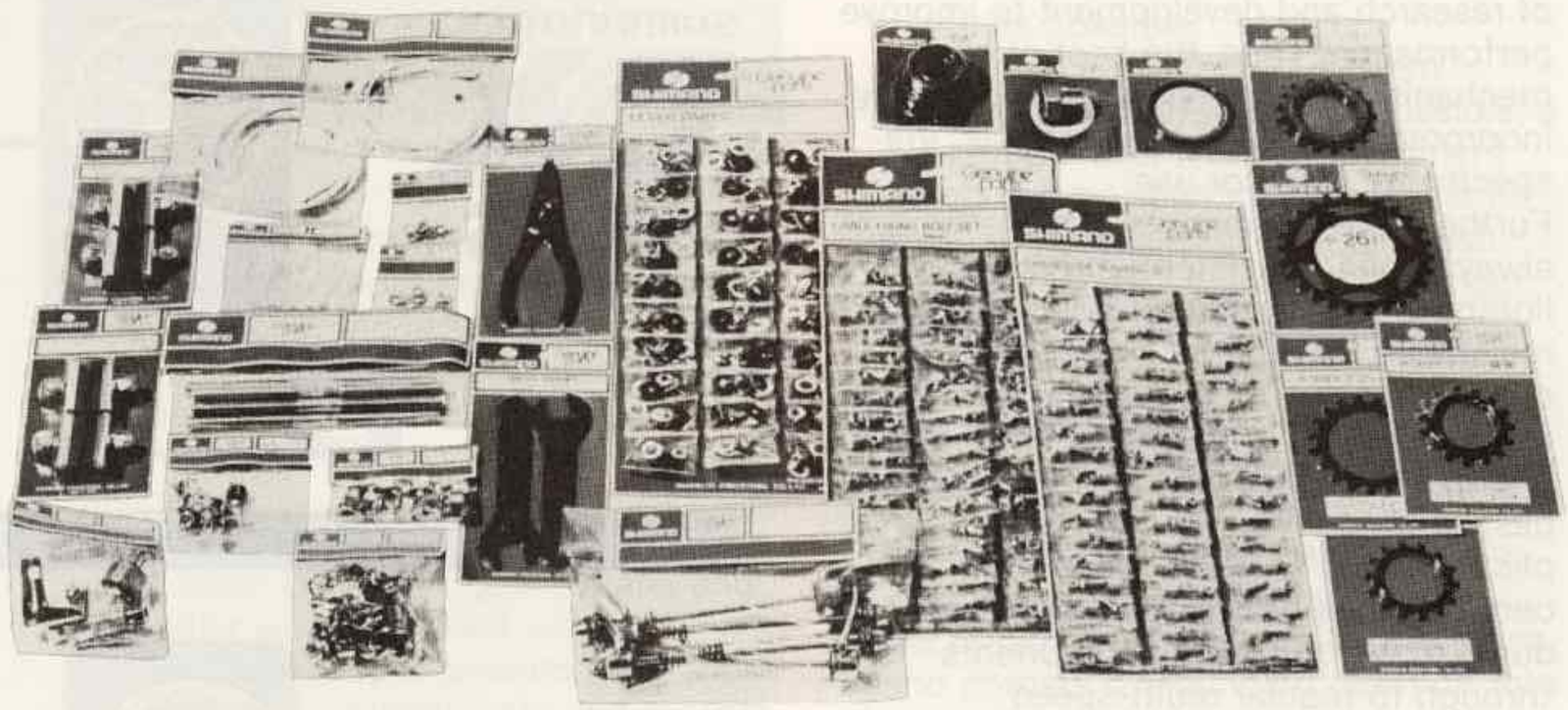
Option: Spare Chain Cutting Arrow (Spindle)



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

SERIES

SYSTEM COMPONENTS CHART

Shimano pioneered the "System Components" concept which has been responsible for producing so many exciting and innovative systems for the bicycle's advancement.
And the latest development from Shimano is truly revolutionary in concept. A new aerodynamically designed component system which brings the bicycle into line with today's space-age developments and technology—Shimano's AX Series. In addition, these series are the beneficiaries of many of Shimano's world-famous mechanism innovations. Designed to enhance the bicycle's performance as a whole rather than concentrating on individual parts, great improvements have been possible due to this enlightened policy.
Each component series has been given special consideration with regard to its intended function. Whether designing top-of-the-line racing components or regular multi-speed components, we have applied the same high standards of research and development to improve performance. Thus, the best of our mechanisms and design techniques are incorporated into all our products, irrespecitve of class or use.
Furthermore, Shimano's aims have always been consistent: strength, lightness and research to decrease air resistance for a better bicycle. The cyclist enjoys a more comfortable and faster ride with efficient use of human energy. And these principles have been passed onto all our series where applicable. The "System" chart demonstrates the versatility of our products from top racing components through to regular multi-speed components.
Here you can see how each component works perfectly with the other and you can select the most suitable components to work in unison for a better ride.
Because of the nature of our System Components policy, which in the long run is for the improvement of the bicycle, it is not always possible to interchange our components with those of other manufacturers. However, in most cases our components are interchangeable.
The use of our components will, we are confident, demonstrate the dramatic differences between Shimano components and components which have stood still in their development.

ROAD RACING ENSEMBLE

DURA-ACE SERIES



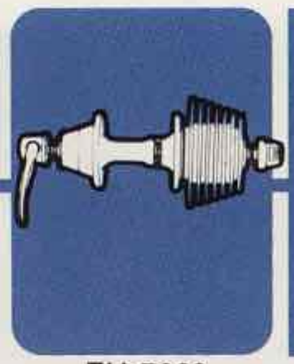
For Oval Tube



FC-7300

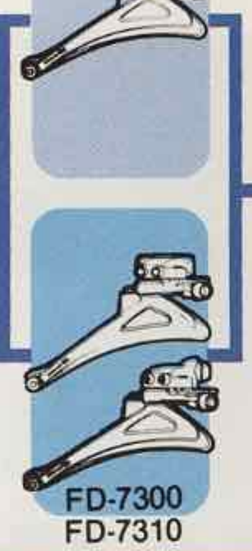


PD-7300



FH-7320

FD-7320
FD-7322



FD-7300
FD-7310



For Round Tube

ROAD RACING ENSEMBLE

SHIMANO 600 EX SERIES



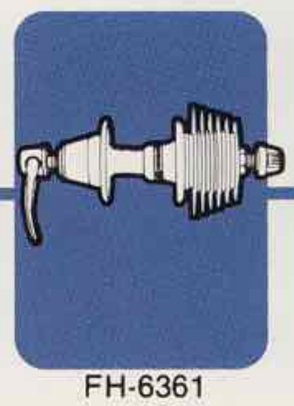
For Oval Tube



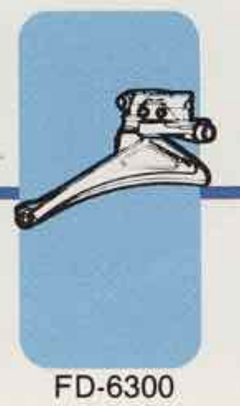
FC-6300



PD-6300



FH-6361



FD-6300



For Round Tube

ROAD & TOURING ENSEMBLE

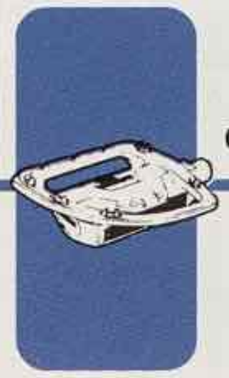
adamas EX SERIES



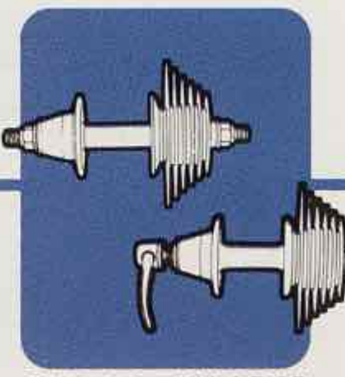
FC-AD21
FC-AD22



FC-AD11



PD-AD10
PD-AD20



FH-AD61 FH-AD65



For Round Tube

ROAD & TOURING ENSEMBLE

SHIMANO EX SERIES



FC-AX21



FD-AX10



RD-AX10



SL-AX10



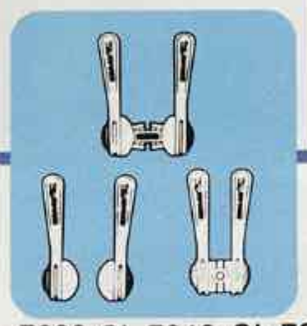
For Round Tube



RD-7300



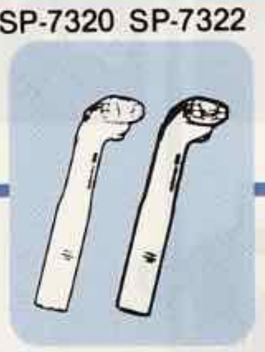
SL-7321
SL-7322



SL-7300 SL-7310 SL-7311



HS-7300



SP-7320 SP-7322



SP-7300 SP-7310



BR-7300



BL-7300



SM-HP10



HD-7300





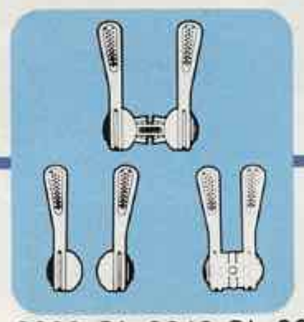
SM-BT10



RD-6300



SL-6321
SL-6322



SL-6300 SL-6310 SL-6311



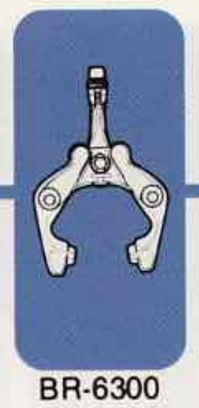
HS-6300



SP-6322



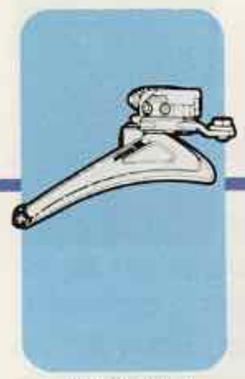
SP-6300 SP-6310



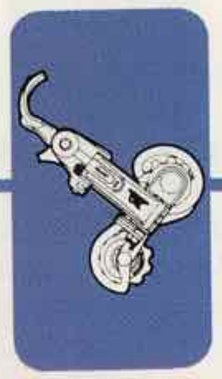
BR-6300



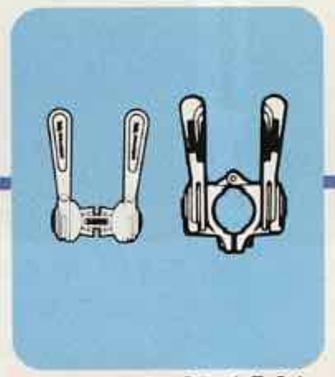
BL-6300



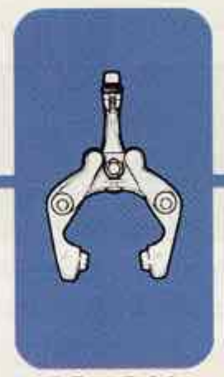
FD-AD10



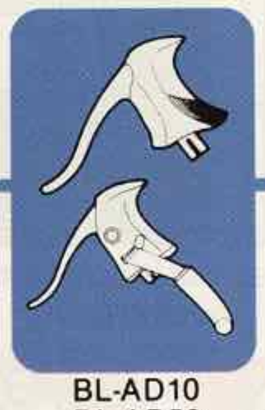
RD-AD10



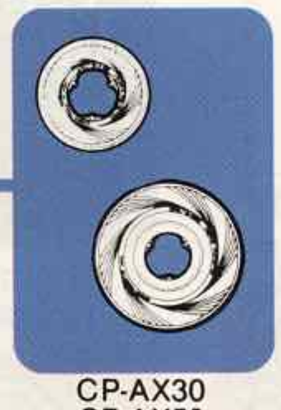
SL-AD10 SL-AD24
SL-AD11
SL-AD12
SL-AD15



BR-AD20



BL-AD10
BL-AD50

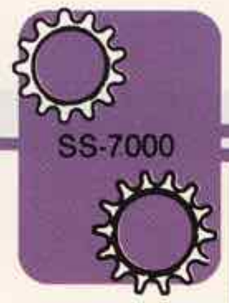


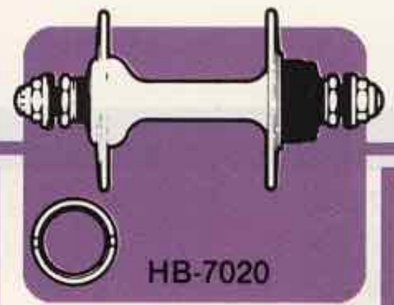
CP-AX30
CP-AX50

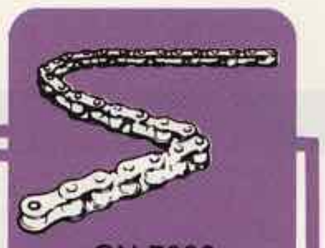
SYSTEM COMPONENTS CHART

TRACK ENSEMBLE
DURA-ACE 10


FC-7000


SS-7000


HB-7020


CN-7000

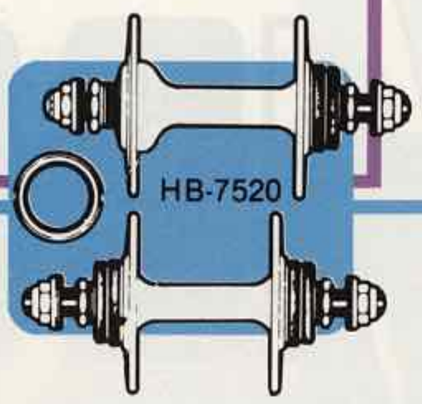

FE-UF10


HP-7500

TRACK ENSEMBLE
DURA-ACE


FC-7500


SS-7500

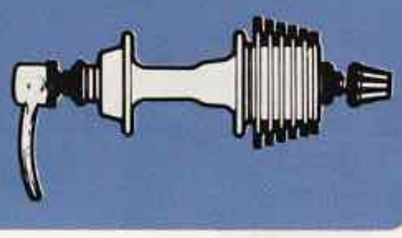

HB-7520

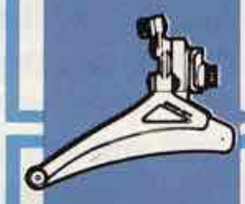
ROAD ENSEMBLE
DURA-ACE EX


FC-7200


PD-7200

FH-7261
FH-7271
FH-7250
FH-7260




FD-7210
FD-7200


RD-7200


SL-7200
SL-7210

ROAD ENSEMBLE
DURA-ACE


FC-7110

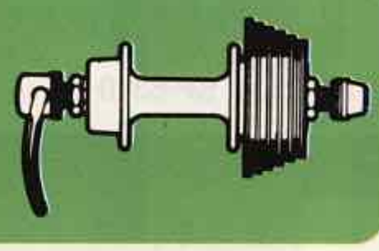

MF-7150
MF-7160


HB-7110
HB-7120

ROAD & TOURING ENSEMBLE
SHIMANO 600 EX


FC-6200

FH-6261
FH-6251
FH-6260
FH-6250
FH-6263
FH-6262
FH-6253
FH-6252




FD-6200
FD-6100


RD-6200
RD-6100
RD-6101


SL-6200
SL-6210
SL-6220
SL-6100
SL-BC10

ROAD & TOURING ENSEMBLE
SHIMANO 600


MF-6150
MF-6151
MF-6160
MF-6161


HB-6120
SL-6100

TOURING COMPONENTS
SHIMANO DEORE

FC-DE21
FD-DE20
FC-DE31
FC-DE30


PD-DE10


RD-DE10

RD-DE20

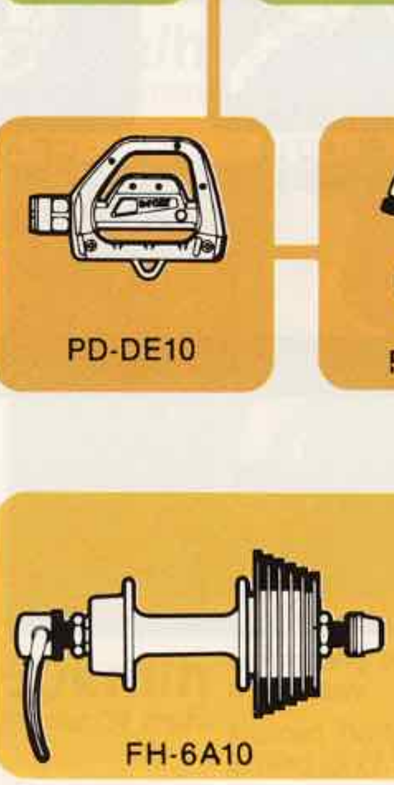
FD-DE10


SL-DE20
SL-DE21

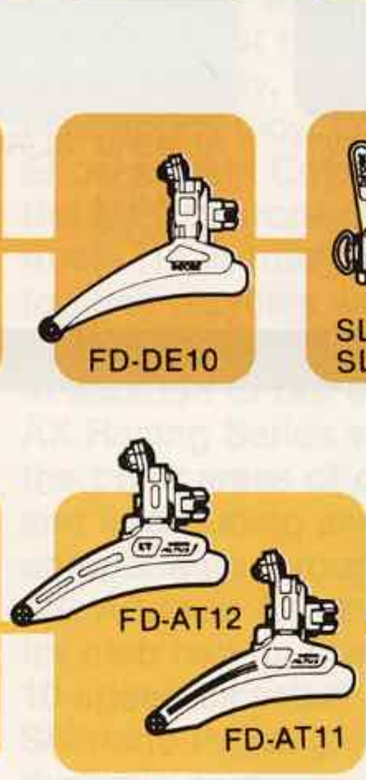
ALTUS SELECTA

ADAMAS AX
Front Chainwheel

FC-AD21
FC-AD11


FH-6A10


FH-5A10


FD-AT12
FD-AT11


RD-AT12
RD-AT22
RD-AT11
RD-AT21

HS-7200

SP-7200

BR-7200

BR-7210

BL-7200

CN-7100

FE-EF20
FE-UF20
FE-SF20
FE-SF21

HP-7200

HP-7100

BR-6200 BR-6210

BR-6102

BL-6200

CN-6200

CN-6110
CN-6120
CN-6130
CN-UG20

HP-6200

SL-AT22
SL-AT23

SL-AT12

SL-AT21 SL-AT11

STANDARD
CONPONENTS

STANDARD
CONPONENTS

CN-6110
CN-6120
CN-UG20

SYSTEM COMPONENTS CHART

POSITRON-FH

10 Speed
12 Speed

RD-PF10
RD-PF20
RD-PF40
RD-PF1E

FD-FE11
FD-FE12

SL-PF13

5 Speed
6 Speed

SL-PF31
SL-PF32
SL-PF37
SL-PF45

POSITRON II

10 Speed
5 Speed

RD-P210
RD-P240

FD-FE11
FD-FE12

SL-PF13

FF SYSTEM

FC-FF35
FC-FF33
FC-FF14

RD-401F
RD-EG10

STANDARD
CONPONENTS

STANDARD
CONPONENTS

POSITRON-FH & FF SYSTEM

10 Speed
5 Speed

FC-FF33
FC-FF14
FC-FF35
FC-FF15

RD-PF10
RD-PF20
RD-PF40
RD-PF1E

FD-FE11
FD-FE12

SL-PF13

SL-PF31
SL-PF32
SL-PF37
SL-PF45

POSITRON II & FF SYSTEM

	Front Chainwheel	Rear Derailleur	Front Derailleur	Shifting Lever
10 Speed	FC-FF33 FC-FF14	RD-P210 RD-P240	FD-FE11 FD-FE12	SL-PF13
5 Speed	FC-FF35 FC-FF15			

SHIMANO DX

FC-MX62
FC-MX61

PD-MX10
PD-MX11

FH-MX20

SP-MX20

SHIMANO SX

FD-MX20

SL-MX20

SL-MX20

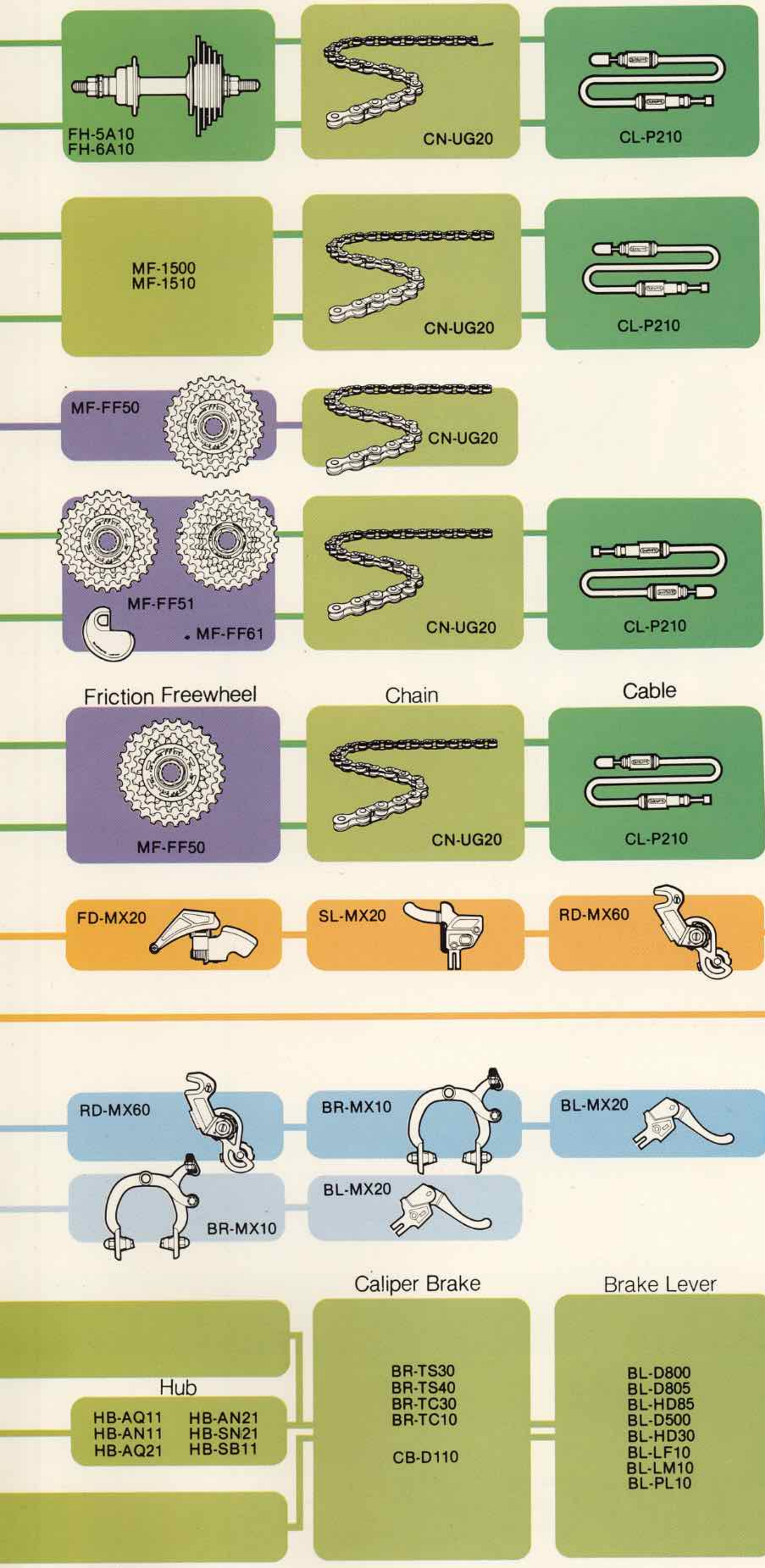
STANDARD COMPONENTS

Rear Derailleur	Front Derailleur	Shifting Lever	Freehub
RD-RS12 RD-RS11	FD-FE11 FD-FE12	SL-LE10 SL-LS10	FH-6A10 FH-5A10

Freewheel

MF-1500
MF-1510
SF-1100

Freehub


FH-5A10
FH-6A10
CN-UG20
CL-P210
MF-1500
MF-1510
CN-UG20
CL-P210
MF-FF50
CN-UG20
MF-FF51
MF-FF61
CN-UG20
CL-P210
Friction Freewheel
Chain
Cable
MF-FF50
CN-UG20
CL-P210
FD-MX20
SL-MX20
RD-MX60
BR-MX10
BL-MX20
RD-MX60
BR-MX10
BL-MX20
BR-MX10
BL-MX20
Caliper Brake
Brake Lever
Chain
Hub
HB-AQ11
HB-AN11
HB-AQ21
HB-AN21
HB-SN21
HB-SB11
BR-TS30
BR-TS40
BR-TC30
BR-TC10
CB-D110
BL-D800
BL-D805
BL-HD85
BL-D500
BL-HD30
BL-LF10
BL-LM10
BL-PL10
CN-UG20

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TEL. (201) 884-2300

SHIMANO (EUROPA) GmbH.
Prof.-Oehler-Str. 9, 4000 Düsseldorf 13, W. Germany
TEL. (0211) 793097/98

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

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Specifications are subject to change without notice.

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