STI

Shimano Technical Information

2001

MTB
XTR
Airlines
Deore XT
Deore LX
Deore
Alivio
Acera
Altus
Tourney

ROAD
Dura-Ace
Ultegra
105
Tiagra
Sora

LIFESTYLE
Nexave
Nexus
Auto D
C201
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WHEEL SYSTEMS
MTB
WH-M959
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SHIMANO®

STI

Shimano Technical Information

2001

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Introduction

"Everything You Always Wanted to Know About Shimano, . . . but were afraid — or too busy — to ask."

Just as STI (Shimano Total Integration) brings all the parts in a system of components to work together more efficiently, the ***STI (Shimano Technical Information) Manual*** brings together all the important information you will need, to make your work in the shop a lot easier.

The 2001 Trade Sales and Support Manual, of course, contains all the features and benefits of the entire line of Shimano bicycle components, shoes, pedals, and tools, but leaves a lot of technical questions unanswered. And that is where the ***STI Manual*** comes in.

The STI Manual is a tool that can assist you in many ways throughout your work day. Whether it is trying to find out how to bleed a Shimano Disc Brake, what bottom bracket goes with what crank, what is the spoke tension for a WH-7700 wheel set, or how you would go about getting those cool new Shimano MTB shoes for employee purchase; it's all here. You can even find out the answers to the most frequently asked questions. It does not matter what it is, it is all in the ***Shimano STI Manual***.

Shimano's Multi-Service™ Team spends a lot of time talking to people in the shops trying to find out what kinds of information they need to improve their relationship with Shimano. The ***STI Manual*** is the result of those conversations. If you take a look at the table of contents you will see that all the subjects of the manual are laid out for easy and quick reference.

Like any good reference, the ***STI Manual*** can save you a lot of time and money.

Robert Schafnitz
Shimano Technical Services

SHIMANO®

SHIMANO'S NOTE ON SAFETY

Shimano believes that safety plays an important role in the end user's cycling experience, and we are dedicated to ensuring that we provide you and your customers with products that are safe and reliable.

We provide service instructions with all our components to ensure that you have the information needed to install and service properly. If you receive complete bicycles or components without service instructions, we ask that you contact the manufacturer, distributor, or Shimano directly so we can provide you with them to help you build and/or service the components. If you have customers that come in with older bicycles and need service instructions for non-current Shimano products, we are able to supply those for you also.

When attending a cycling event, look for our Multi-Service team, who assist amateur and pro cyclists throughout North America. We do our best to ensure an enjoyable ride for everyone who comes to the event and the Shimano Multi-Service area.

We also have an 800 number where our technical representatives can answer your questions on the proper way to install or adjust all Shimano products. We believe in supporting you, the retailer, in your efforts to service your customers.

Finally, once everything is installed and serviced on the bike, we want all cyclists to use caution to prevent injuries. We recommend proper safety protection, regular bicycle inspection, and cyclists' education on the use of his or her components and how they work so that nothing comes between the cyclist and a phenomenal ride.

New Features for 2001

SHIMANO®

ADVANTAGES OF SHIMANO SYSTEMS ENGINEERING

IT'S ONE THING THAT'S NOT NEW

There's a lot of cool stuff that's new for Year 2001, including the new MTB Wheel Sets, new Comfort Technologies like Nexave C900 and the C050 Series. The new 4-arm MTB style cranks, which are not associated with a specific component group, will make a very appealing aftermarket item. Of course we have a bunch of new shoes and pedals this year, and upgrades galore to our component groups. One thing that's not new, however, is Shimano Systems Engineering. It's a design philosophy that guides the development of all of Shimano's bicycle components. With improved performance as the ultimate goal, each individual part is made the best that it can be and then refined and field tested to make sure it fits into the component system as a whole. Systems engineering has always set Shimano apart from rest of the field because it's not a single component—a derailleur, a set of brakes, or a particular hub that achieves peak performance, it's when you get all the components working together. Anyone can develop a cool shifter or set of brakes, but if the shifter hasn't been designed and tested to work precisely with the cables, derailleur and even the hub; or the brakes with the internal mechanism of the levers; if the parts don't work together to achieve a specific standard of performance, then the ultimate result remains a total unknown. The bike is just a bunch of parts: ***Put Together, but not Working Together.***

YOU CAN FEEL THE DIFFERENCE

That's why Shimano has always approached component design from a systems point of view. You feel the difference of course with STI, (Shimano Total Integration®), in our SPD® and SPD-R® systems, Dual-Control Levers®, V-Brake®, HG™ and IG® drivetrains, and our new Hollowtech™ Crank and Bottom Bracket Technology. The lean, ergonomic SL shift lever, for example, is just the beginning of Shimano's "Rapidfire®" shifting performance. Indexing is calibrated and field tested not just to account for the movement of the derailleur, but for the resistance of the cable, and the tolerances of the hub, crank, cogset and chainwheel. You feel it in the new hydraulic disc brake systems which offer a better balance of power and modulation than any other disc brake on the market. No matter what kind of ride your customers are looking for—high end precision or a fun, comfortable recreational ride—the engineering principles are the same: Design each part to contribute to your overall performance goal. When you do that, the bike is more efficient. Shifting works better. Brakes work better. Things wear and stay in adjustment longer. The TOTAL standard of performance ratchets up and your customers enjoy the sport a whole lot more.

IT WOULDN'T BE XTR®

Ironically, Shimano gets slammed sometimes for building a system that is so beautifully integrated that no one else can touch the performance profile. "They're trying to monopolize the industry," say some. "It's not interchangeable," cry others. "And it limits our creativity." Hey, if the design priority for XTR was compatibility with everything else on the market, it wouldn't be XTR. It would just be a bike with a bunch of parts.

COMPATIBILITY INCREASES YOUR OPTIONS

In 2001, Shimano continues to apply its Systems Engineering concept along with a concerted effort to increase the interchangeability that makes life better for customers and easier in the shop. For example, 9-Speed Deore Group is totally compatible with 9-Speed XTR, XT and LX. The 4- and 5-arm crank options for XTR and XT are interchangeable between the two groups, which enables super-low gear combinations. There is also total interchangeability between all 9-speed road systems: Dura-Ace, Ultegra, 105, and 9-Speed Tiagra. Two assembly positions also make the 9-speed Dura-Ace rear derailleur compatible with Ultegra (8-speed) and the 8-speed Dura-Ace. Integrated AND separate 9-speed shifters are available for XTR, XT, LX and Deore. XTR, XT and LX 9-speed shifters are all interchangeable. So we're workin' on it. Striving to bring you the peak performance and value of Shimano's system engineering with a lot more room for individual creativity and innovation.

SHIMANO®

NEW YEAR 2001 COMPONENTS AND UPGRADES

SHIMANO COMFORT TECHNOLOGY

Designed for the new generation of bikes that are more comfortable to ride and easier to control, these components are leading the sport of cycling into the 21st century. Check out the two new groups Nexave C900 and C050, plus the performance upgrades to existing systems.

NEW SHIMANO NEXAVE C900

With components that almost "think" for the rider, comfort takes another step forward. The new "Power Changer" uses pedaling torque to execute shifts. Low-effort Linear Action rear derailleur is much easier than conventional RD. And you can choose between modulated V-Brake or Hydraulic Disc Brake.

UPGRADE SHIMANO NEXAVE T400/T300

Refinements to the "look" and performance of Nexave T400 include 4-arm Hollowtech FC-T411 and FC-T410 cranksets; ST-T400-S Touch-Fire shift levers; RD-T400-S rear derailleur; and FD-T401-S front derailleurs. T300 gets new 4-arm spider cranks and new 7-speed Touch-Fire shift levers.

UPGRADE SHIMANO C201 + SHIMANO C101

4-arm cranks have been added to both the 8-speed C201 and 7-speed C101

NEW SHIMANO C050 COMFORT TECHNOLOGY

All NEW entry-level comfort group, C050 is cool to behold and cool to ride. Intuitive Rapid Rise shifting. CI-Deck gear displays. Wide gear ratio. You'll see this NEW group on a lot of different bikes.

UPGRADE Nexus

Gets a new Inter-L dynamo hub that accepts the Hub Roller Brake and creates the Inter-L Auto lighting system.

MTB COMPONENTS

UPGRADE SHIMANO Deore

Mega-9 Deore gets a new FC-M480 4-arm Hollowtech crank with steel chainrings, hydraulic and mechanical disc brake systems, and the new Directional Design Hub™.

UPGRADE Alivio™ SHIMANO + ACERA SHIMANO

Newly designed FC-MC20-L/S cranks and RD-MC20 rear derailleur grace the Alivio group this year. Acera boasts the new FD-MC18-SE/S front derailleurs and ST-MC18-S Rapid fire shift/brake lever units as well.

UPGRADE SHIMANO TOURNEY

Gets a new 4-arm FC-TY33 crank and improved RD-TY23 rear derailleur. A new MF-ZH36 6-speed MegaRange freewheel is also available.

ROAD COMPONENTS

Lance won the "tour" again this year with blood, sweat and heart; and of course Dura-Ace. It just keeps getting better. Check out the upgrades.

UPGRADE DURA-ACE

Check out the triathlon crank, FC-7701 with 54-42, 55-42, or 56-44 chainring options. Also, the FD-7700 is now available in a 31.8mm band mount model for oversize seat tubes.

UPGRADE SHIMANO ULTEGRA

The NEW ST-6510 Dual Control Lever separates, but integrates the Flight Deck control button to both the left and right lever bodies for easier, eyes-on-the-road operation.

UPGRADE SHIMANO 105

105 gets a NEW ST-5500-CA Dual Control Lever system that integrates Flight Deck control buttons to left and right lever bodies for easier eyes-on-the-road operation.

UPGRADE SHIMANO TIAGRA

Versatility is what's happening to Tiagra. New shifting and braking components are available for road-sport bikes with straight handlebars. SL-R440 9-speed Rapid fire shifter levers, BL-R440 brake levers, and FD-R440 and FD-R443 front derailleurs are making it easier than ever to serve your customer.

NEW

WHEEL SETS

Check 'em out! Six new wheel sets for the Year 2001: three for MTB and three for the road. The WH-M959 and WH-M575 MTB sets are designed for use with our new hydraulic or cable actuated disc brakes. The WH-M535 works with rim brakes. The WH-7700 Carbon and WH-7700-650C add to the high-end range, and the NEW WH-R535 extends the benefits of our lighter, better-riding wheels to recreational roadies. Benefits include decreased rotational inertial, better braking control, comfort and confidence. And remember, WHEELS ARE SHIMANO DIRECT ITEMS.

NEW

CRANKSETS

This new crank — 4-arm, FC-M440 — is going to be an aftermarket bonanza. The new Mega-9 compatible crank is not associated with any specific group. And it's identified only with the Shimano logo. It uses the same steel chainrings as the Deore FC-M480.

NEW SHIMANO SC-6501 FLIGHT DECK

Check out the new harnesses for wireless operation: SM-6501 (Wireless Road), SM-6500RS (Wired Road), SM-6501MD (Wireless for Deore), SM-6501-M (Wireless for XTR, XT, LX9000). COMPUTERS ARE SHIMANO DIRECT ITEMS.

NEW SPD SHIMANO PEDALING DYNAMICS + SPD-R

Four new Pedals this year. And twelve new SPD and SPD-R shoes. SHOES AND PEDALS ARE SHIMANO DIRECT ITEMS.

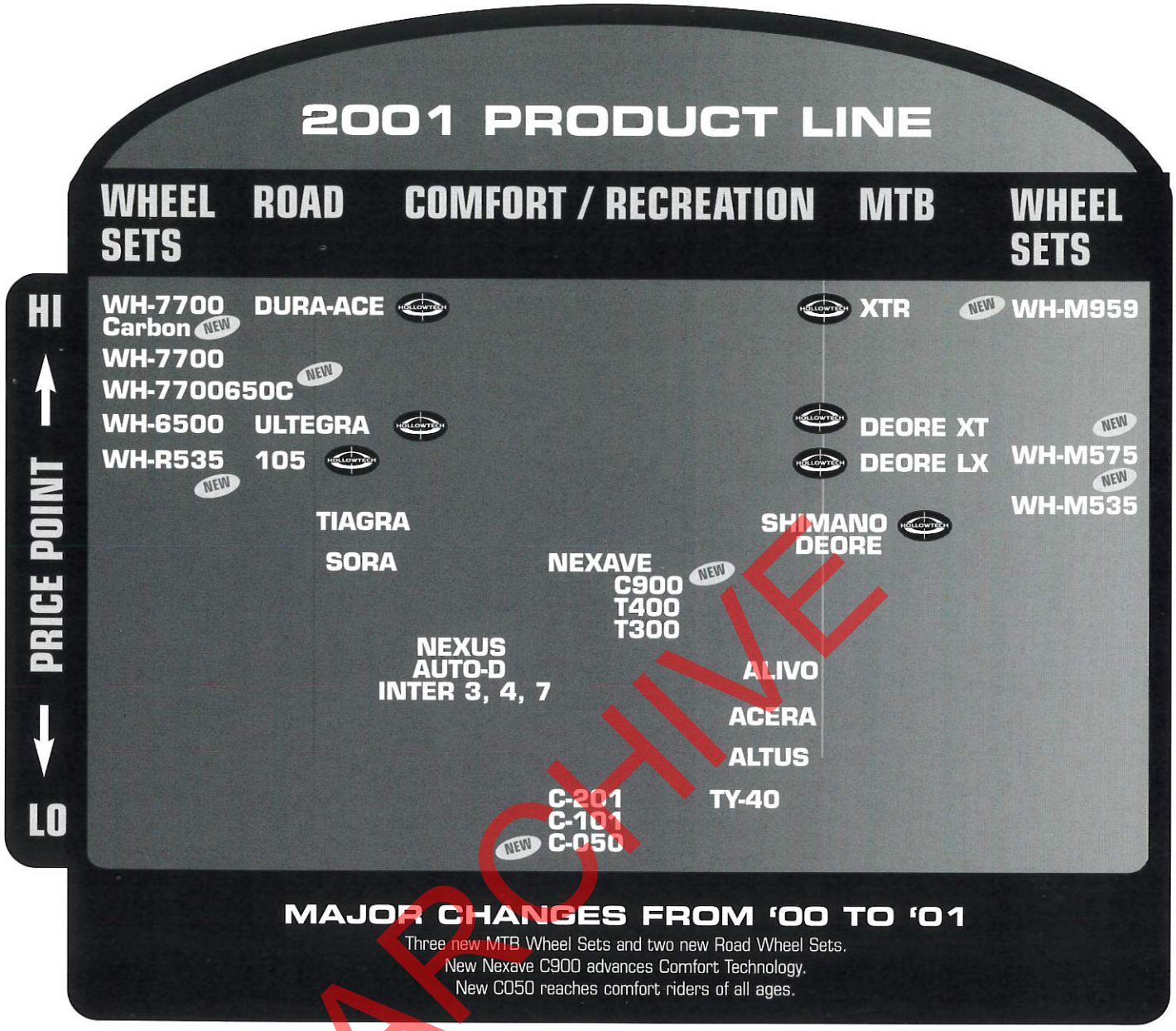
✷ Shimano Clothing and Accessories

Clothing and Accessories are an important profit center for your shop. CLOTHING AND ACCESSORIES ARE SHIMANO DIRECT ITEMS only.

✷ Shimano Maintenance Products

Nobody knows more about protecting and maxing out performance of Shimano components than SHIMANO. MAINTENANCE PRODUCTS ARE SHIMANO DIRECT ITEMS only.

2001 PRODUCT LINE



MAJOR CHANGES FROM '00 TO '01

Three new MTB Wheel Sets and two new Road Wheel Sets.
New Nexave C900 advances Comfort Technology.
New C050 reaches comfort riders of all ages.

SHIMANO® DIRECT™

WHEELS
FOOTWEAR
SPD & SPD-R PEDALS
MAINTENANCE PRODUCTS
FLIGHT DECK
SHIMANO AIRLINES
CLOTHING
ACCESSORIES
SERVICE PARTS

SERVICE WHAT YOU SELL • KEEP THOSE HARD-TO-FIND SMALL PARTS IN STOCK • ORDER 'EM DIRECT FROM SHIMANO MULTI-SERVICE

Multi-Service Means What it Says: Lots of Service

SHIMANO®

WHAT IS MULTI-SERVICE

On the phones, in your shop and at the races; Shimano Multi-Service™ means exactly what it says: we'll provide you with every service we can think of to make your life easier and your business better.

Multi-Service means toll-free phone access to dealers ONLY: 1-800-423-2420. It means a dedicated staff of experts ready to answer your technical questions and fill your small part, footwear and pedal orders. It means responsive warranty service, and a 24-hour, toll-free FAX ordering system that will save you a lot of time and money: 1-800-206-0010

Multi-Service also means at-your-door support with training, seminars and new product orientation across the nation.

At the races, Multi-Service teams support the sport with technical back-up and just plain good advice about how to get your bicycle to perform at its highest possible level.
Time is money: on the race course, and in your shop. So you don't have to waste it waiting.

SHIMANO®
MULTI-SERVICE

IN THE UNITED STATES:

Phone: **800-423-2420** (Dealers only)
949-951-5003 (Consumers)
7:00 a.m. to 5:00 p.m. (pst) Mon.–Fri.
Fax: **800-206-0010**
Spare Parts, Footwear, Pedal Orders, 24 hrs.

IN CANADA:

Phone: **800-361-6215**
Fax: **800-619-9067**

ABOUT SHIMANO MULTI-SERVICE

Shimano Multi-Service travels North America working at cycling events across the nation. We're at NORBA NCS events, USA Cycling National Championships, BMX races, century rides, bike rallies and fat tire festivals. Over the years, we've learned volumes about bikes, bike riders, and turning wrenches. From this we have developed a process and checklist for continued improvement and professional work.

1. Read the service instructions included with all new parts. Not only will these instructions provide proper set-up techniques, but they can also point to any changes that may have been made.

2. Use a torque wrench and refer to manufacturers' recommended settings. Proper installation eliminates doubt, builds trust, and reflects professionalism. Employers and customers will value your work without question. Use recommended setting guidelines to check all assemblies, including pre-assembled parts and bikes. Proper assembly builds better bicycles faster. (See Shimano recommended tightening torque values in the Technical Information section.)

3. As the bikes, equipment, and events evolve, stay ahead by educating yourself in all areas. Use service instructions, manuals, tech guides, magazines, and even the Internet to learn more. Attend seminars, trade schools, and ask questions at trade shows. Better yet: volunteer to work with the Multi-Service program at one of our events. Make a commitment to learn about bikes, not just mountain bikes or road bikes or BMX bikes, but all types of bikes and bike riders. We're all in the same gang.

How to Use Multi-Service

Multi-Service is dedicated to providing efficient, hassle-free service to our customers at all levels.

Did you know that with Multi-Service you can order small parts, SPD (shoes and pedals), clothing, lube products, Flight Deck, Airlines, wheel sets, promotional items, product manuals, current Technical Books, service instructions, and consumer catalogues?

Technical Stuff by Phone or Fax:

- Tech information for all your service and repair needs
- Product Availability and Pricing
- What's in stock as well as other product sources
- Warranty/RA (Return Authorization)
- Priority warranty shipping, 72-hour turnaround, and UPS 3-day return
- All shoes must be warrantied through Shimano only
- All warranties must be shipped to Shimano by a trackable method.

How to Use Shimano's Multi-Service

For faster order processing please have the following information ready when you call:

- Customer number
- Shimano part numbers with quantities
- Length of usage and a basic description of problem on all warranty issues

PLEASE TRY TO CONSOLIDATE ALL PARTS ORDERS TO MEET THE $10.00 MINIMUM, AND FOR FASTER SERVICE USE THE 24-HOUR FAX ORDERING SYSTEM.

How to Contact Shimano Multi-Service

BY PHONE: 800-423-2420
BY FAX: 800-206-0010 (24 Hours!)

By Mail: Shimano American Corporation • One Holland Drive • Irvine, CA 92618

SHIMANO®

FAQs

1) Is there a trim adjustment on the ST-6500, 6501, 6510 & ST-5500, 5500-C and 5500-CA levers for double usage?

Yes, there is a trim adjustment for both the inner and outer rings with a double. If the chain is on the large front chainring and the large rear sprocket, the chain will rub on the front derailleur plate, producing a characteristic noise. When this happens, press the downshift lever (small lever) lightly, to the point where it clicks. This causes the front derailleur to move slightly towards the smaller chainring, this will eliminate the noise. If you're in the small ring and small rear sprocket the chain will rub on the derailleur plate, you can move the large lever, as to make a shift to the larger ring, in small "trim" increments just enough to move the derailleur over to eliminate the noise.

2) How do I maintain my Dura Ace BB-7700 and XTR BB-M950 splined bottom bracket? How often should maintenance be done on my splined non-cartridge bottom bracket?

A) First, remove the crank arms, keeping the crank bolt and crank arm caps installed in the crank, by loosening the 8mm crank bolt; this will remove the crank arm from the splined B/B. Loosen the lock ring on the left cup, and then remove the left cup from the B/B shell. Now, remove the right side cup with the spindle, and inner plastic seal. Make sure all debris is cleaned from the spindle and the left and right cups. Before reinstalling the cups, grease all bearing surfaces and cup threads with Dura Ace Spin-Doctor grease. Install the spindle and the inner plastic seal into the right side cup. Now install the right cup into the B/B shell completely. Install the left cup until there is no side-to-side movement of the spindle and you are able to turn the spindle freely. Then, lock down the lock-ring flush to the B/B shell. Put grease on the splines of the spindle. Take the crank caps and bolts out of the crank arms, and push the arm onto the splines, making sure they are properly aligned. Lastly, grease the threads of the crank bolt and grease under the crank cap, then install the bolt and cap.

B) Maintenance on these bottom brackets really depends on riding conditions. On road, in normal dry conditions it should be maintained at least once a year. If riding in wet conditions on the road, you may want to do it every 3 months or more often. For off road use, in dry conditions should be done once every 6 months. In wet, muddy conditions, this should be done once a month or immediately after a muddy ride. Keeping your non-cartridge B/B clean and well lubricated will extend the life of your B/B.

C) It is also good to grease the splines, to ease removal and keep moisture away from the crank and B/B interface.

3) How can I stop the noise/squeal from my V-Brakes?

There are several possible solutions you may try to alleviate the noise. First check for proper rim/shoe interface; pad must contact the rim squarely with at least 1-2mm toe-in (for v-brakes: make sure all the play of the parallel push mechanism is eliminated by applying forward pressure on the brake shoe). Second, check all fixing bolts for looseness. Third clean the rim surface with a plastic scouring pad. Also check for the following; make sure you're using a spe-

cial brake pad for a ceramic rim and excessive play in the parallel push mechanism may create reverse toe-in. (good time for a tune-kit). You may also consider a brake booster (Shimano part #VBOOSTER) to damp out vibration on lightweight steel or titanium frames. However due to current frame, fork and brake designs it may be almost impossible to completely eliminate noise, especially after crossing streams or in damp, foggy conditions due to the aggressive multi-condition pad compound. We offer a brake shoe (part # Y8AA98130) labeled "On Road Use" originally designed for European Trekking bikes utilizing a compound that will have a lesser tendency to squeal, particularly in wet/damp conditions. This brake shoe is currently the recommended replacement shoe for both on and off road use.

4) Does Shimano manufacture tandem hubs?

Yes, there are two models. The FH-HF08 is a XT quality 8/9-speed compatible hub, with 48/40 hole high flange hub shell, available in 145/140mm axle spacing. The FH-HF05, which is an ALIVIO quality 7-speed hub, comes in a 48/40 hole, high flange hub shell in 145/140mm axle spacing. Front hubs are also available at these component levels. Additionally, we offer a tandem specific version of the FC-6503-T crankset.

5) What shoes do you offer in a size bigger than a 48?

For mountain biking, we offer the M081 in a size 49.

6) What cleats work with which pedals?

The SM-SH70 and SM-SH71 work best with both the PD-7410, and PD-6500. The SM-SH52, SM-SH51 and SM-SH55 work with the PD-M747, M646, M636, M545, M434, M535, M515, M323, A525, M737 and M525. There are a couple usable combinations, which can be substituted for the recommended cleat. PD-M747, M646, M636 M545, M434, M535, and M515, can use all cleats (SM-SH70, 71, 51, 55). The PD-M858 uses the SM-SH52 cleat only. The PD-A525 and PD-M323 work with all cleats except SM-SH70. The new SM-SH90, SM-SH81/91 and the SM-SH82/92 are compatible with the PD-7700, PD-6600, PD-5500, and the new PD-R535 SPD-R type pedals.

7) How can I prevent the top plate screws on my pedals from falling out?

To keep the top plate from coming loose, do not lubricate the top plate area with any aerosol or drip type lube. The lubricant makes its way into the threads and deteriorates the threading compound used to keep the screws from vibrating loose. The alternative is to use a light grease to lube the cleat and the retention springs for easier step-in. Additionally, periodically check the screws to assure they are tightened to proper torque.

8) Can I use an IG chain with a HG cassette?

All current HG cassette cogs are specifically profiled to be HG or IG chain compatible. Any Shimano IG chain will work with any HG cassette. If you use a HG chain with a 7-speed IG cassette (CS-IG50 and CS-IG60) the rear derailleur adjustment becomes more critical. One significant compatibility issue is always avoid using a HG chain with an IG-only crank set. Why?

The chain will release from the large (outer) chain rings too easily while in the large rear cog. It may be potentially dangerous if the chain drops off the outer ring without shifting the lever, under full power.

9) What are the advantages of the Rapid Rise rear derailleur? Is it compatible with any shift lever?

A) The RD-M951 and RD-M953 rear derailleur makes every shift lever work in the opposite direction. This design allows the release lever to be used to downshift, and uses derailleur spring pressure to aid in completing the downshift. The result is faster, smoother, and more precise downshifts, especially when pedaling uphill. It's a new standard of shifting performance for off-road and comfort riding.

B) The Rapid Rise rear derailleur is completely compatible with any current Shimano 8 speed shift lever. Keep in mind the indicator will display the wrong gear due to its reverse action if not used with rapid rise compatible shifting levers.

10) I have a customer with a potentially non-conforming product, how can I warranty it?

The quickest way is to contact one of Shimano's Full Service Centers for help in obtaining a replacement.

11) What model cranks are involved in the Crank Recall, and how do I get them replaced?

Shimano is voluntarily recalling the following crank sets due to a potential safety problem, where the crank could break causing loss of control of the bicycle. These cranks will have the model number, FC-CT90, FC-M290, or FC-MC12 on the backside of the right hand crank arm. These cranks are in the ALTUS, ACERA-X and ALIVIO component groups. The quickest way to obtain a replacement is to contact your local bicycle dealer to make arrangements for a replacement. The crank set will be replaced with a current model at no cost to the consumer.

12) Are there road cassettes for Junior racing regulations?

Yes, we offer the CS-UG70 in 7 and 8 speeds, with the first position cog available in 14,15,16 and 18 teeth. Furthermore for 9-speed we offer the CS-6500 in the following combinations: 13-25, 13-25 and 14-25.

13) What components are compatible between 8 speed and Mega-9?

First, Shimano only guarantees index performance with an entire 9-speed drivetrain that includes shift levers, front derailleur, crankset, 9-speed chain, cassette, and rear derailleur. The hubs are the same dimensions. Although several 8 and 9 speed combinations are rideable the performance and durability will not be up to Shimano standards. The following rideable combinations have potential drivetrain problems.

1) When using an 8-speed rear derailleur it may not clear the 34-tooth cog on some frames.
2) The 9-speed chain is ~0.5 mm narrower and so is the front derailleur cage.
- **a)** Using a 9-speed chain with 8 speed front derailleur and crankset will result in sluggish shifting and the adjustment is more critical. You may have to continue to hold the Shift Lever in an "overshift" until the shift is complete. In the worst case, some 8 speed Chain Rings have shown a tendency for "chain jamming" during downshifts with a 9 speed Chain.
- **b)** The 8-speed chain is too wide for 9 speed front derailleur; the chain will rub during cross shifting (large/mid ring/large cog).
- **c)** 9-speed chain should be no problem for an 8-speed rear drivetrain.

3) The 9 speed chainring release teeth & pick-up teeth are reprofiled for narrower chains, therefore you can not use an 8-speed chain, and the pick-up teeth will make noise against the chain during minor cross chaining.

Furthermore, success with one bike may not guarantee the same result with another bike due to the different dimensions between frames and production tolerances of components. It might be OK, but Shimano can't guarantee it. Finally, although you may be partially upgrading to 9-speed you may downgrade the shifting performance.

14) Which brake system should I use? V-Brakes or HRB?

HRB, (Hub roller brake) is designed for more "European" style of trekking bike, and city/touring use. This hub mounted brake is engineered for minimal maintenance, sealed mechanism: contaminants can't enter so braking action is unaffected by weather. V-brakes are better suited for a more aggressive/extreme riding style. Both systems offer a "Power Modulator" feature that prevents front wheel lockup for the safety and convenience of the rider.

15) The caps on my Ultegra ST-6500/01 and 105 ST-5500 Dual Control (STI) Levers rattle, what can I do?

The lever cap rattling is due to a bracket, which the nameplate snaps into, coming loose. To remedy the problem use a wide flat blade screwdriver to pry the nameplate off (pry from the top of nameplate) once the nameplate is removed there is a small screw, apply some glue or thread compound and re-torque. Snap the nameplate back. If the nameplate is broken, contact Shimano for a possible replacement.

16) Does Shimano sell products consumer direct?

Due to the technical aspect of some our products, and to ensure proper set-up, Shimano bicycle components are sold through Independent Bicycle Dealers.

17) What crank sets are compatible with the new BB-ES70 bottom bracket?

The new BB-ES70 is only compatible with the new XT FC-M751 and the new LX FC-M571 crank sets. The spline pattern has been revised to provide nearly twice the interface between the crank arm and spindle.

18) Is new SPD SM-SH52 cleat compatible with any other pedal, other than the PD-M858?

The new cleat is fully interchangeable with all of the current MTB SPD pedals: PD-M747, PD-M545, etc. Additionally, it is also compatible with our road pedal PD-A525 and the new PD-A515. Finally, if you're using the PD-M858 always use the SM-SH52 cleat.

19) What is the recommended period of maintenance for chains?

Differences in riding conditions make it impossible to put a time or mile value on a recommended maintenance cycle so, here's some advice: the most frequent type of maintenance is cleaning, lubrication and routine checking for chain wear. Cleaning should be done when the chain is dirty, with mountain bikes this can be after every ride. Lubrication should be done after cleaning or whenever the chain develops abnormal noise. The other type of maintenance is routine checking for excessive chain wear. Poor shifting can result from a worn or dirty chain. If after performing all possible derailleur adjustments and the shifting is still not as good as when the system was new, chain wear is most likely the reason. Waiting for severe symptoms to develop will lead to increased wear of the rear cassettes and/or chain rings. It's also recommended that you replace the chain when installing a new cassette, a worn chain will accelerate the wear on the cassette teeth. Replacing chains before they wear may prevent problems with shifting performance. Check chain wear every 800 kilometers on road bikes and 150 kilometers on mountain bikes. If you perform daily maintenance you should expect about 600-800 kilometers on a MTB and 3200 kilometers on a Road bike in dry weather. There are several chain wear-measurement tools available from bicycle tool manufacturers.

20) For the new Shimano Disc Brakes, is there an adapter for Manitou forks with post style mounts?

Yes, there is an adapter for post style mount forks. This can be ordered through a Shimano Full Service Center or through Shimano directly. The part# for this item is Y8B298040.

21) Can I mount the new Shimano Disc Brakes to the chain stay of my bike if it has post style mounts?

The BR-M755 can only be mounted to post style mounts located on the seat stay of the bicycle. The adapter part# for this type of mount is Y8B298070. It is not possible to mount the caliper to chain stay mounts due to clearance problems between the frame and the caliper.

22) When will XTR level disc brakes be available?

XTR is the premier X-country racing group. The current XTR V-brakes offer the best combination of performance and weight, without compromising strength and durability.

23) What are some tech tips to improve the overall performance of my PD-M858's?

1. Double binding systems need to be cleaned and lubricated regularly on the tension springs.
2. Tension should be checked and adjusted as needed.
3. Use SM-SH52 cleats only.

24) What type of maintenance needs to be done to the PD-M646/PD-M545/PD-M434 & PD-M424 pedals?

Performing regular maintenance on SPD" pedals is very important to make your pedals last as long as possible. Keeping the tension springs clean and lubed is one of the important tips to make pedal entry and exit consistent. Another helpful tip is periodically removing the spindle from the pedal body with the TL-PD40 tool. Then insert a Phillips head screwdriver into the pedal body and tighten down the silver Phillips head screw that holds on the outer cap of the pedal cage. You may want to perform these tips as often as possible, of course this would depend on the amount of riding that is being done. If these pedals are being used in racing applications, you may want to perform these procedures more frequently. (i.e. – before every race).

25) What Flight Deck wiring harnesses are compatible with which STI levers?

	Road Groups		MTB Groups	
Wiring Harness	**SM-6501 (Wireless)**	**SM-6500-RS (Wired)**	**SM-6501-M (Wireless)**	**SM-6501-MD (Wireless)**
STI Levers	Dura-Ace ST-7700-C Ultegra ST-6510 105 ST-5500-CA Tiagra ST-4400 Sora ST-3300 Sora ST-3303 † Ultegra ST-6501 † 105 ST-5500-C ‡Ultegra ST-6500 ‡105 ST-5500		XTR ST-M952 XTR SL-M952 XT ST-M750 XT SL-M750 LX ST-M570 LX SL-M570	Deore ST-M510 Deore SL-M510

† To use the SM-6501 / SM-6500-RS, you'll need the single button bracket covers (hoods). Part # Y6C898070.

‡ These levers can be used with limited functions.

26) Do I need to send proof of purchase back with my returned product?

Any non-conforming product being returned to Shimano for warranty evaluation, does require a proof of purchase. Our warranty period on Dura-Ace and XTR components is for 3 years from date of purchase. All other components and wheels are covered for 2 years from date of purchase. Shimano shoes, pedals, and soft goods are warranted for a period of 1 year. Please ship back any Shimano warranties by a trackable method.

27) How do you calculate the correct hose length for disc brakes?

See Tech Tip page 98.

28) Does Shimano make mountain bike wheels?

Yes, in addition to the road wheels, the WH-7700 Carbon, WH-7700, WH-7700-650C, WH-6500, and the WH-R535, we offer three mountain bike specific wheels. The MTB wheels are the WH-M959 (Disc Brake Only), WH-M575 (Disc & Rim Brake), and the WH-M535 (Rim Brake Only). The Shimano Mountain Bike Wheel Systems are the ultimate wheel sets for all riding conditions.

Warranty Issues

SHIMANO®

FULL SERVICE CENTER

SHIMANO®

We've always felt that we made the best cycling components available, and now we're backing them with what we think is the best warranty. All Dura-Ace and XTR components are covered by a 3-year warranty when accompanied by their receipt. All other cycling components are covered by a 2-year warranty. And shoes and other soft goods are covered for one year. We call it ***3-2-1***. You'll call it added value to help make sales, and your customers will call it peace of mind. The next few pages provide details about how to submit a warranty claim and how the warranty may affect the way that you handle claims. Remember, the warranty should be a big sales tool on the floor, but you will need to provide careful documentation when making a claim.

Koichi Tanaka
Warranty & Quality Assurance Manager
Bicycle Components Division

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SHIMANO WARRANTY GUIDELINES

1) When a customer walks into your shop with a part that is no longer functioning properly or even broken, don't assume that the failure was due to non-conformance. In many cases, the product may simply be worn out, providing an opportunity to gain a new customer through explanation of the component system, the cause of the failure or lack of performance, and the benefits of replacing the product with new components. The worst thing to do to your customer is tell them that "it's worth a try" and send the product in as potentially non-conforming when you're uncertain of the outcome yourself. If the product is not found to be warrantable and is sent back to your shop, you'll be back at square one with a customer who's been waiting, anticipating a free replacement. Remember, we've all seen JRA; at the same time, if you submit something that you feel truly falls under warranty, chances are we will too.

PLEASE: DON'T FORGET TO INCLUDE THE RECEIPT

2) When submitting product, always send a receipt with it showing the purchase date. Such documentation always makes it easier for us to determine if a product should be covered by warranty. Because the warranty has been extended, information regarding purchase date is becoming more relevant and, in most cases, receipts will be required before a warranty decision is made.

3) Don't assume we can see what you can. Always provide as much information regarding the non-conformance as possible. For example, if a front derailleur is sent in with a note that says, "doesn't work" with no visible flaws, how do you suppose we'll determine the problem?

4) If there are signs that indicate a part may have been damaged during shipping, then contact the distributor or OEM that you purchased the part from because that is a shipping problem that they should be made aware of. The claim can be handled through any warranty channel, but be aware that if the OEM does not know about the problem, other bikes may arrive damaged. The signs include: a damaged shipping carton; a broken, protruding assembly such as a cracked shift lever housing or non-functioning shift indicator. Since it is not likely that the OEM shipped a broken part, any damage that you note should be suspected as shipping damage.

SHIMANO®

3-2-1 Warranty

3 — **2** — **1**

Full Years on all Dura-Ace and XTR Components

Full Years on all other Shimano Components

Full Year on all footwear and clothing

ADDED VALUE TO HELP MAKE SALES

PEACE OF MIND FOR YOUR CUSTOMERS

SHIMANO®

WARRANTY ALERT

••••• MAKING A CLAIM •••••

CONSUMER HAS A PROBLEM

Your customer can contact Shimano American Corporation

...OR...

You may choose to handle the claim for your customer.

SHIMANO AMERICAN CORPORATION
Send product using an insured traceable carrier, and include a receipt and a description of the problem

DEALER
According to claim, send part thru any of these channels

SHIMANO FULL SERVICE CENTER
Your nearest Shimano Full Service Center is likely to be the fastest source for replacement parts and might be the distributor you currently deal with. The Full Service Centers will have the fastest turn-around.

OEM
Bike OEM's are ready to support the complete bicycle. The OEM should always be contacted when shipping damage is suspected.

DISTRIBUTOR
You can always contact the company that sold you the product.

SHIMANO AMERICAN CORPORATION
If returning a part to Shimano, make sure that you have complete information about the product including problem and date of purchase; include a receipt and a description of the problem. Contact Shimano for a Return Authorization Number. Remember that in cases of suspected shipping damage, the OEM needs to know about the problem.

Note: Footwear warranty claims must go to Shimano American Corporation or your footwear rep.

COMMERCIAL USE OF PRODUCTS MAY VOID WARRANTY

Shimano products are designed for recreational consumer use, not for commercial purposes. Commercial use of our products, therefore, may void the warranty. The use of the PD-M323 is a good example. A lot of health clubs are using the dual-sided pedal on their indoor stationary bikes. These bikes are sometimes ridden eight hours a day, seven days a week. The point is, the pedal can certainly be sold for commercial purposes, but if something goes wrong, it may not be covered under the two-year warranty.

RETURNING NON-CONFORMING COMPONENTS

If you have a component that needs to be returned for possible warranty replacement, be sure to send the broken portion of the component only. For example, with shift levers, remove the shifter pod from the brake lever and send only the shifting mechanism. Crank arms are another example. If the right side crank arm has a problem, be sure to remove the chainrings before shipping. The only exception to this general rule is with shoes and pedals . . . always return the complete pair. Following these guidelines will expedite your warranty replacement.

SHIMANO®

Shimano Bicycle Division Limited 3-2-1 Warranty

Shimano warrants to the original retail purchaser that the Shimano bicycle division product for which they received this warranty, is free from non-conformities in material and workmanship for a period of two years and their Dura-Ace and/or XTR components, for a period of three years from the date of original retail purchase. Shimano shoe products, soft goods, and wheels are warranted for a period of one year.

LIMITS OF THE WARRANTY

Shimano's sole obligation under this warranty is to repair or replace the product, at Shimano's option.

LIMITATIONS OF IMPLIED WARRANTIES

The duration of any implied warranty or condition, of merchantability, fitness for a particular purpose, or otherwise, on this product shall be limited to the duration of the express warranty set forth above. In no event shall Shimano be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise resulting from breach of any express or implied warranty or condition, of merchantability, fitness for a particular purpose, or otherwise with respect to this product except as set forth herein. Some locations may not allow limitations on how long an implied warranty lasts and some locations may not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

To obtain service under this warranty, you must send your Shimano product together with the retail seller's original bill, your charge or credit receipt or other satisfactory proof of the date of purchase of the product to Shimano American Corporation, Attn: Bicycle Warranty Dept., One Holland, Irvine, CA 92618. Any postage, insurance or shipping costs incurred in sending your Shimano product for service are your responsibility.

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

WARRANTY EXPLANATION

This warranty in no way replaces or is an extension of a complete bicycle manufacturer's warranty. Retailers and wholesale outlets for Shimano products are not authorized to modify this warranty in any way.

It is the consumer's responsibility to regularly examine the product to determine the need for normal service or replacement.

This warranty does not cover the following:

1. Shimano products that have been modified, neglected or poorly maintained, used in competition or for commercial purposes, misused or abused or involved in accidents.
2. Damage occurring during shipment of the products (such claims must be presented directly to the carrier).
3. Damage to products resulting from improper assembly or repair.
4. Damage resulting from causes other than non-conformities in materials and workmanship, including but not limited to lack of technical skill, competence, or experience of the user.
5. Damage or deterioration to the surface finish, aesthetics or appearance of the product.
6. The labor required to remove and/or re-fit and re-adjust the product within the bicycle assembly.
7. Normal wear to the product.

SHIMANO AMERICAN CORPORATION
ONE HOLLAND
IRVINE, CA 92618

THIS WARRANTY APPLIES SPECIFICALLY TO THE UNITED STATES AND CANADA. FOR COUNTRIES OTHER THAN THE UNITED STATES OR CANADA PLEASE CONTACT YOUR DISTRIBUTOR OR AGENT, OR SHIMANO AMERICAN CORPORATION FOR FURTHER INFORMATION.

SHIMANO FULL SERVICE CENTERS

The Shimano Full Service Centers are your first stop for all your Shimano Component, Service, and Warranty needs. If you are looking to order XTR, Dura Ace, Flight Deck Computers, or other Shimano products, these Full Service Centers will be able to assist you with all your cycling needs.

Derby
Raleigh/Diamond Back/Univega
22710 72nd Avenue South
Kent, WA 98032
800-222-5527

Downeast Bicycle Specialists
226 Porter Road
Fryeburg, ME 04037
800-242-1043

Euro-Asia Imports
3935 Foothill Blvd.
La Crescenta, CA 91214
818-248-1814

J&B Importer, Inc.
11925 S.W. 128th Street
Miami, FL 33186
800-666-5000

KHS, Inc.
1264 East Walnut Street
Carson, CA 90746
800-347-7854

Merry Sales Company
1415 San Mateo Avenue
S. San Francisco, CA 94080
800-245-9959

Quality Bicycle Products
6400 W. 105th Street
Bloomington, MN 55438-2554
800-346-0004

Riteway Products
2001 East Dyer Rd.
Santa Ana, CA 92705
800-869-9866

Seattle Bike Supply, Inc.
7620 South 192nd Street
Kent, WA 98032
800-283-2453

Security Bicycle Accessories
32 Intersection Street
Hempstead, NY 11511
800-645-2990

Sinclair Imports, Inc.
2465 Highway 40
Verde, NV 89439
800-654-8052

The Hawley Company
1 Hawley Drive
Lexington, SC 29073
800-822-1980

Trek Components Group
801 W. Madison Street
Waterloo, WI 53594
800-879-8735

United Bicycle Parts
691 Washington Street
Ashland, OR 97520
800-482-1984

SHIMANO®

FULL SERVICE CENTER

SHIMANO®
MULTI-SERVICE

POLICIES & PROCEDURES

When utilizing Shimano Multi-Service, the following policies and procedures apply:

- **WHO MAY ORDER & CALL**
  The toll free number is reserved for bicycle retailers in the United States of America. Only dealers with a current Shimano account may place orders for product. Any dealer can request technical assistance or other product information.

- **ORDERING**
  When ordering small parts, please use the Shimano 9 digit part numbers that are listed in the exploded view catalog (Shimano Dealer Parts Catalog). If you need additional small parts catalog, one may be purchased at the time of ordering. Footwear dealers may direct policy & procedure inquiries pertaining to dealer direct items to a Shimano Independent Footwear Rep. If you do not know who your local Footwear rep. is, refer to the list of reps. in this manual.

- **ORDERING BY FAX**
  If you would like to order more efficiently, please use our 24-hour fax toll free line for ordering (800) 206-0010.

- **MINIMUM ORDER**
  There is no minimum order. However, there is a $5.00 service charge on any order under $10.00. This is in addition to your regular shipping charges.

- **SHIPPING/FREIGHT**
  All orders are shipped within 24 hours from the time the order is placed with a Multi Service rep. All orders will be shipped UPS Ground or motor freight (our choice), unless you specifically request and thereby agree to pay for air shipment by Orange, Blue or Red Label service.
  - UPS Ground: 2-3 days—West Coast, 5-7 days—East Coast
  - UPS Orange: 3 days
  - UPS Blue: 2nd day air (Shipments to AK, HI and PR are shipped 2nd day air—no parcel post.)
  - UPS Red: Overnight delivery

- **PRICING**
  Prices are only given for small parts, SPD® pedals and footwear. We can quote dealer cost excluding freight.

- **BACKORDERS**
  We do not accept backorders for small parts. Please re-order any zeroed items. Footwear & SPD can be backordered.

- **WARRANTY RETURNS/FULL SERVICE CENTERS**
  All warranty returns must be authorized by Shimano warranty or Full Service Center personnel. All returns must have a Return Authorization (RA) number on the outside of the box. All parts not listed on the RA will be returned. Shimano American Corporation and Full Service Centers can not assume responsibility for any parts not listed on the RA. Please read the official Shimano warranty policy for details. All approved product will be shipped UPS 3-day no charge when returned to retailer.

- **RETURNS/MIS-SHIPMENTS**
  A) You must notify us by phone of ordering or shipping discrepancies within 5 working days of receipt of your order.
  B) All returns must have a Shimano Return Authorization (RA) number with only pre-authorized parts.
  C) All returns must be accompanied by a copy of the packing slip. Please retain all packaging materials until we have been notified.
  D) A 15% restocking fee will be charged for all un-approved returns.
  E) No product will be accepted for return after 90 days.

- **BILLING**
  All orders for small parts, SPD & Footwear are shipped direct and billed direct. Payment methods available to approved retailers are Credit Card (Mastercard® or VISA®), COD, or open account.

- **BUSINESS HOURS**
  7 a.m. - 5 p.m. (Pacific Time)

Thank you - - - from Shimano Multi-Service

SHIMANO AMERICAN CORPORATION
Product Shipping Address: One Holland Drive • Irvine, CA 92618
Multi-Service: (800) 423-2420
Fax: (800) 206-0010 24-Hour Ordering

Sales & Marketing

SALES

Shimano has a unique place in the bicycle industry in that we have customers in every tier of the market. We deal with OEM's, distributors, retailers, sales reps, and we have direct contact with consumers at races and through other venues. We believe that being in contact with each of these customer types helps us to bring to market the best possible components.

From our offices in Irvine, California we try to stay in touch with all of our different customers to insure that we are providing the best service and products possible.

We have included a list of all our distributors in the US who offer you Shimano after-market, system-engineered components, service parts, and warranty services. By request we've also included a list of the most frequently ordered small parts so that you can have them on hand when needed.

MARKETING

Our marketing department supports all of our customers in various ways. We have award-winning ad campaigns that attract consumers and we provide in store point of purchase materials to get their attention once they get into your store. We provide race support at events throughout the country all year long and we invite our retailers to attend our dealer seminars every year. In January and February 2000 we had over 50 seminars throughout the country and over 3200 of you attended. This a great opportunity for us to share new product information with you and a great opportunity to share with us what you think and discuss anything else that is important to you. Watch for our dealer seminar schedule for 2001 that should come out towards the end of this year.

One of the most exciting promotions that we have is the Shimano Youth Series Races. We've been doing this since 1993 and it's one of our favorite events because we get to pass on our love of cycling to the next generation of racers and fans of the sport. We encourage you to come out to an event where we're putting this on and see the look of excitement on these kids' faces for yourself!

AUTHORIZED SHIMANO DISTRIBUTORS

These "Authorized" Shimano Distributors are your exclusive business partners for consistent product availability and reliable, up-to-date sales and technical information. In addition, only these companies have a direct connection with Shimano and can provide the professional warranty services to back up your business. Support your "Authorized" Shimano Distributors!

Action Bicycle
217 Washington Avenue
Carlstadt, NJ 07072
800-284-2453

Bicycle Technologies International
3201 Richard Lane
Santa Fe, NM 87505
800-558-8324

★ Derby
Raleigh/Diamond Back/Univega
22710 72nd Avenue South
Kent, WA 98032
800-222-5527

★ Downeast Bicycle Specialists
226 Porter Road
Fryeburg, ME 04037
800-242-1043

★ Euro-Asia Imports
3935 Foothill Blvd.
La Crescenta, CA 91214
818-248-1814

G. Joannou Cycle Company, Inc.
151 Ludlow Avenue
Northvale, NJ 07647
800-222-0570

Giant Bicycle, Inc.
737 West Artesia Boulevard
Rancho Dominguez, CA 90220
800-779-BIKE

Hans Johnsen Company
8901 Chancellor Row
Dallas, TX 75247
800-879-1515

HLF Distributing, Inc.
1812 Brittmore
Houston, TX 77043
800-392-3337

★ J & B Importers, Inc.
11925 S.W. 128th Street
Miami, FL 33186
800-666-5000

★ KHS, Inc.
1264 East Walnut Street
Carson, CA 90746
800-347-7854

★ Merry Sales Company
1415 San Mateo Avenue
S. San Francisco, CA 94080
800-245-9959

Olympic Supply Company
5711 West Douglas Avenue
Milwaukee, WI 53218
800-236-8380

★ Quality Bicycle Products
6400 W. 105th Street
Bloomington, MN 55438-2554
800-346-0004

★ Riteway Products
2001 East Dyer
Santa Ana, CA 92705
800-869-9866

★ Seattle Bike Supply, Inc.
7620 South 192nd Street
Kent, WA 98032
800-283-2453

★ Security Bicycle Accessories
32 Intersection Street
Hempstead, NY 11551
800-645-2990

★ Sinclair Imports, Inc.
2465 Highway 40
Verde, NV 89439
800-654-8052

★ The Hawley Company
1 Hawley Drive
Lexington, SC 29073
800-822-1980

★ Trek Components Group
801 W. Madison Street
Waterloo, WI 53594
800-879-8735

★ United Bicycle Parts
691 Washington Street
Ashland, OR 97520
800-482-1984

Wilson Bicycle Sales, Inc.
31157 Wiegman Rd.
Hayward, CA 94544
800-877-0077

Worldwide Cycle Supply
100-D Executive Drive
Edgewood, NY 11717
800-330-2550

★ Shimano Full Service Centers

SHIMANO'S MOST FREQUENTLY ORDERED SERVICE PARTS

We get a lot of requests from our dealers for information about service parts. A frequent request is for a list of the most commonly ordered replacement service parts. The information below can help you serve your customers by keeping small service parts on hand. If the small parts are inventoried, it can greatly speed up customer purchases and possible warranty replacements. Keeping the items on-hand also saves time because you don't have to order as frequently. It saves money because time IS money.

SHIMANO'S MOST FREQUENTLY ORDERED PARTS

Part No.	*Description*
BRAKE	
Y8AA98200	Severe conditions, racing cartridge V-brake shoe 1mm thicker than Y8AA98020
Y8FA98020	Dura-Ace, Ultegra, 105 Road cartridge shoe best for dry conditions
Y8AA98020	Multi-Condition cartridge V-brake shoe & pins
Y8AA98130	Dry off-road conditions cartridge V-brake shoe & pins
Y8AA98040	Ceramic rim specific cartridge V-brake shoe & pins
Y8AB98090	BR-M950 XTR V-brake rebuild kit
Y8AA98300	BR-M739 XT V-brake rebuild kit
Y8AA43000	V-brake fixing bolt (M6x15)
Y8AA27000	V-brake shoe cotter pin
Y8B298060	BR-M755 Disc brake pad and spring (PR)
Y81898010	BR-M755 Disc rotor unit (160mm)
Y81898020	BR-M755 Disc rotor unit (170mm)
Y83998010	Disc brake mineral oil bleed kit (50ml)
Y8B298040	Caliper adapter unit for post style fork mounts
Y83098010	Disc brake hose supporter unit
Y8AA49000	V-brake fixing bolt washer
Y8FA98021	Dura-Ace, Ultegra, 105 High Performance cartridge brake shoe
SHIFTER	
Y6AR98010	XT 8-speed ST-M739 RH shifter pod
Y6BD98060	Dura-Ace ST-7700 name plate
Y6AU43000	XTR ST-M950 indicator screw
Y6BZ98030	ST-6501 Ultegra RH name plate
Y6BZ98040	ST-6501 Ultegra LH name plate
Y6E398010	SB-C101/102/201/202 R.H. Pulley cover & fixing screw
Y6E398020	SB-C101/102/201/202 L.H. Pulley cover & fixing screw

Part No.	*Description*
Y6XB98010	CI-DECK Clamp band unit (25mm)
Y6XB98020	CI-DECK Clamp band unit (22.2mm)
Y6B998030	ST-5500-c R.H. Name plate & front cover
Y6B998040	ST-5500-c L.H. Name plate & front cover
Y6AU98090	ST/BL-M950 Clamp bolt (M8X16) & washer
FREEHUB	
Y3BD98010	LX FH-M570 freehub body
Y3OR98030	LX FH-M565 freehub body
Y3AX98010	FH-R080 8-speed freewheel body w/R.H. dust cap
Y3A498010	FH-R050 7-speed freewheel body w/R.H. dust cap
SPD	
Y42498200	SM-SH51 SPD cleat single release *(not used for PD-M858)*
Y42498300	SM-SH55 SPD cleat multiple release *(not used for PD-M858)*
Y42698050	SM-SH71 Road SPD cleat 6 degree
Y43Y98020	SM-SH91 SPD-R cleat 6 degree
Y41M98020	SM-SH52 SPD cleat single release *(use with all Shimano MTB pedals)*
Y43Y98030	SM-SH92 SPD-R cleat set (10 degree)
Y43Y98010	SM-SH90 SPD-R cleat set (fixed mode)
Y42698040	SM-SH70 SPD cleat set (fixed mode)
Y42Z11000	MTB pedal top plate screw
Y41704030	SPD cleat fixing bolt
Y42Z00070	MTB pedal tension adjusting screw
CRANK/CHAIN	
Y17L98010	HOLLOWTECH® one key release crank arm dust cap (black) MTB
Y17L98020	HOLLOWTECH® one key release crank arm fixing bolt (black) MTB

(continued on next page)

SHIMANO'S MOST FREQUENTLY ORDERED PARTS

(continued)

Part No.	*Description*
Y06998020	9-speed connecting pins (50 pcs.)
Y16P98010	HOLLOWTECH® one key release crank arm fixing bolt (silver) Road
Y16P98020	HOLLOWTECH® one key release crank arm dust cap (silver) Road
Y1C693200	XT FC-M750-4 32T middle chain ring
Y1C893200	LX FC-M570-4 32T middle chain ring
Y06998010	9-speed chain connecting pins (5 pcs.)
Y04598020	8-speed chain connecting pins (50 pcs.)

CABLE & HOUSING

Y60B97660	SIS-SP outer cable housing grey 25 ft. w/ 6mm caps
Y60098600	XTR die-extruded teflon coated shift cable
Y6AM98080	Sealed cap with rubber boot for SP40 housing (3 pcs.)
Y87298100	Brake cable housing sealed end cap (silver)
Y87298110	Brake cable housing sealed end cap (black)
Y6Z298110	SIS-SP40 outer cable housing grey 4mm
Y6Z290030	SIS-SP40 Sealed outer cap (4mm)

Part No.	*Description*

WHEELS SETS

Y4A003000	Spoke nipples
Y4A098030	Aero magnet sensor
Y4A098070	Spoke spacers (10 pcs.)
IWHRIMAGDC	WH-7700 Replacement rim
IWHRIMBGAC	WH-6500 Replacement rim
Y4A098050	Spoke w/washer (front)
Y4A098060	Spoke w/washer (rear)

MISC.

Y57Y91100	SM-AD15 clamp band for FD 34.9mm
Y57Y92100	SM-AD11 clamp band for FD 31.8mm
Y74Y98030	CJ-7S40 Nexus cable fixing nut for cassette joint unit
Y13090600	TL-CN22 chain tool for 7/8/9 chains
PM210SPIKE	Spikes for MTB shoes
Y13009180	TL-FC15 HOLLOWTECH® splined crank extractor
Y13009073	TL-UN74-S Bottom bracket adapter removal tool
Y4A014000	TL-WH77 Shop quality nipple wrench

SERVICE WHAT YOU SELL • STOCK SMALL PARTS • BOOST PROFITS

SHIMANO®

2001 SPONSORSHIP REQUEST

HOW TO SUBMIT A PROPOSAL FOR SHIMANO TEAM SPONSORSHIP

Shimano receives a lot of requests for full sponsorships, partial sponsorships, and pro purchases. We sponsor many teams, individuals and events, but of course we cannot sponsor everyone. If you would like to submit a proposal requesting Shimano sponsorship for your team, individual, or event, please send a thorough typewritten proposal that contains the following information and send it to us. We'll get back to you. Remember, we only accept proposals between September 1, and November 31.

Proposals must include the following information:

- Name
- Phone
- Address
- City
- State
- Zip
- What type of sponsorship are you requesting? (i.e., team, individual, event, MTB, Road Triathlete, BMX, etc.)
- Why you are requesting sponsorship from Shimano? (Be clear and include details.)
- Background (history) of the race, event, team, etc. (Be sure to include details.)
- Plan for the 2001 season
- What benefits will Shimano receive in return for the sponsorship.
- Description of additional marketing activities that are associated with the race, team, or event
- What media exposure you anticipate for the race, team or event

Also, attach your resume and any other supporting documentation that will help us evaluate your proposal.

Send the completed proposal to:
Shimano American Corporation
One Holland Drive
Irvine, CA 92618
Attn: Bruce Galloway

Proposals will ONLY be accepted between September 1 and November 31.

A Direct Business Relationship for Increased Sales and Profits

Shimano Direct creates a closer, more efficient relationship between your company and ours, resulting in faster, better and, in many cases, less expensive transactions all across the board. It will also improve technical support to your staff, which will pass right along to your customers. It's a great way to increase your overall sales and insure that the customers you have, are customers you keep.

SHIMANO® DIRECT™

- **MORE SHIMANO QUALITY PRODUCTS**
- **LATEST TECHNICAL SUPPORT**
- **COMPETITIVE PRICING**
- **CREDIT TERMS AVAILABLE**
- **SALES & MARKETING PROMOTIONS**

SHIMANO® DIRECT™

DIRECT TO YOU

You can order the following items direct from your Shimano Representative or from the Multi-Service phone line.

SPD + SPD-R Shoes and Pedals

12 New Shoes and 4 New Pedals for 2001

Shimano Maintenance Products

Lubricants, Degreasers, Hand Cleaners, Anti-Seize and Polish

Shimano Accessories

Loose Fit Jersey, Baggy Shorts, T-Shirts, Socks, Water Bottle, Key Chains, and Hats

Shimano Wheel Sets

New Road Wheels and New MTB Wheels for 2001

NEW Shimano Airlines™ Pneumatic Shifting

Fast, Precise, Effortless Shifting

Shimano Flight Deck™

Component Integrated Cycling Computer

SHOE LINE FOR 2001

SHOE	MSRP	USE	DESCRIPTION	FEATURES	SUGGESTED PEDAL
SH-M320	$180.00	MTB	Racer High End Consumer	XO Skeleton Buckle & 2 Strap Fit	PD-M858 PD-M646
SH-M220 Blue	$160.00	MTB	Racer High End Consumer	Carbon Fiber Reinforced Plate, Optional Spikes	PD-M858 PD-M646
SH-M220 Silver	$160.00	MTB	Racer High End Consumer	Carbon Fiber Reinforced Plate, Optional Spikes	PD-M858 PD-M646
SH-M152	$130.00	MTB	Racer Mid-Level Consumer	3-Strap Retention Fiberglass Reinforced Sole	PD-M858 PD-M646
SH-M081	$100.00	MTB	Amateur Racer Mid-Level Consumer	Rubber Toe & Side Guards Fiberglass Reinforced Sole	PD-M536 PD-M545
SH-M070	$70.00	MTB	Hardcore Cyclist Value Conscious	Rubber Toe & Heel Guards Fiberglass Reinforced Sole	PD-M536 PD-M545
SH-M058	$100.00	MTB	Free-Ride Mid-Level Consumer	Laces with 1 Strap Good for Walking	PD-M545 PD-M424
SH-M033	$65.00	MTB	Entry Level Rider Touring	Laces & Mini Block Sole Good for Walking	PD-M515 PD-M424
SH-M020	$55.00	MTB	Entry Level Rider Value Conscious	Laces & Molded Heel Cup	PD-M515 PD-M424
SH-M036 (men's)	$80.00	Multi	Touring Commuter	Laces with 1 Strap Good for Walking	PD-M515 PD-M424
SH-M036 (women's)	$80.00	Multi	Touring Indoor Group Cycling	Woman-Specific Good for Walking	PD-M515 PD-M424
SH-MP65	$70.00	Multi	Free-Riding & BMX Style Influenced Cyclist	Laces SPD Compatible	PD-M646 PD-M545
SH-MP55	$60.00	Multi	BMXer Casual Non-Cyclist	Non-SPD Stylish	N/A
SH-FR65	$90.00	Multi	Sports Enthusiast Casual Rider	Laces SPD Compatible	PD-M545 PD-M515
SH-SD60	$75.00	Multi	Recreational Rider Enthusiast	Open Air Sandal Durable, Rugged Outsole	PD-M515 PD-M424
SH-R212	$240.00	Road	Professional Racer High End Consumer	"3D" Carbon Sole Works w/SPD, SPD-R, LOOK	PD-7700 PD-6600
SH-R150	$170.00	Road	Racer High End Consumer	Awesome Appearance Works w/SPD, SPD-R, LOOK	PD-7700 PD-6600
SH-R122	$130.00	Road	Racer High End Consumer	Carbon Reinforced Sole Works w/SPD, SPD-R, LOOK	PD-7700 PD-6600
SH-R096	$90.00	Road	Performance Rider Indoor Group Cycling	Fiberglass Reinforced Sole Works w/SPD, SPD-R, LOOK	PD-6600 PD-5500
SH-R072 (Yellow/Black)	$70.00	Road	Entry Level Rider Fitness Rider	Works w/SPD, SPD-R, LOOK Neutral Colors	PD-5500 PD-6600
SH-T091	$100.00	Tour	Commuter Indoor Group Cycling	Improved Walkability 2 Strap Fit	PD-M536 PD-A515

SHIMANO®

Maintenance Products

Everyone knows that regular maintenance and quality lubricants can extend the life and performance of your customer's bike. Shimano Maintenance Products are designed to assure components achieve optimal performance and to last longer. These quality products have undergone the same rigorous product testing that is routinely applied to our component systems. Shimano knows more about getting a component system to work right than anyone, and more about keeping them right, too. That's what our Maintenance Products are all about: getting it right, ride after ride.

Spray Lube *No Sweat Slide*

For chains, cables and pedals. No Sweat. No CFS. 10.5 oz. can.

Wet Lube *Slippery Spitt*

Sticks to metal, even under water. But dirt won't stick to it. This wet petroleum-based lubricant with polymers and co-polymers is great for chains, cables, derailleur pivot points and pedals. 4 oz. squeeze bottle with applicator.

Wet Lube *Hypo Spitt*

Same as Slippery Spitt, but it comes in a handy "mechanic friendly" hypodermic applicator. It goes right where you want it. No waste. .25 oz. syringe/24 pack.

Grease *Spin Doctor*

Used on our original XTR, XT, Dura-Ace and Ultegra parts, this petroleum based lubricant is for general use including hubs, headsets, bottom brackets and cables. 2 oz. Tub / 4oz. Tube / 22 oz. shop-size tub.

Penetrating Oil *Get A Grip*

Use it on frozen seat posts, BB cups, stems and any frozen nut/bolt. 16 oz. can.

Anti-Seize *Lok Not*

Aluminum seat posts in a steel frame; steel anchor bolts in an aluminum derailleur. When dissimilar metals connect, galvanic corrosion will occur. Lok Not prevents this from happening. The bike is saved. So is your day. Use on all threaded surfaces. 16 oz. can with brush adaptor.

Degreaser *Sludge Off*

Citrus based. Non-flammable. Does not effect rubber or plastic Shimano small parts. Use on chains, chainrings, cogsets and any dirty metal parts. 11 oz. can.

Waterless Hand Cleaner *Gritt Spitt*

Citrus-based, lanolin fortified, this waterless hand cleaner cuts through grease and softens hands simultaneously. Uses micro-plastic balls instead of pumice or sand. For hands only. 8 oz. squeeze tube or one gallon container w/pump.

Clothing and Accessories

NEW Shimano XTR Casual Jersey

Simple, understated, quality T-design. Stealth gray, moisture wicking material with 1/4 zippered front. Rubberized XTR patch. Zippered rear pocket.

NEW DESIGN Shimano XTR Grey T

Be the best, with XTR. 50/50 cotton. Stealth grey with XTR patch.

NEW Shimano Black T

Don the future. 50/50 cotton. Black with Shimano felt logo on front. Shimano cosmo atomic symbol on back

Shimano 8-Panel Lycra Shorts

Rugged, road-ready 8 oz., 8-Panel Lycra construction. "Catara" synthetic chamois.

NEW DESIGN Shimano XTR Baggy Shorts

8-Panel Lycra isn't for everyone. So we made some baggies. Improved chamois. Hardcore black. XTR patch.

Shimano Mechanic Shirt

A Shimano shirt for the "Wrench." Rekap. 100% Cotton. Embroidered logos: XTR, Dura-Ace, SPD, Shimano. And there's room for your store's logo.

NEW Caps, Hats, and Beanies

Stylish Solar Defenses. Shimano, Dura-Ace, XTR (two-tone), XTR (midnight black), XTR Bucket Hat, XTR Grey Beanie

Socks

Assorted socks with popular Shimano themes add comfort, confidence and pride of ownership. Defeet Aireators. 7 different logo styles: XTR black, XTR disco, SPD black, SPD white, SPD-R white, Shimano white, Shimano tricolor, Dura-Ace silver

Shimano Shop Apron

Wrench in style. Shimano logo on super durable flat black apron, with huge front pockets.

Shimano Water Bottle

Quench that thirst with an easy squeeze, large mouth Shimano Bottle. 24 oz.

XTR Key Chain

A miniature reproduction of the world class XTR derailleur; good place to put the key to the Ferrari.

SHIMANO®

Wheel Sets

Last year Shimano's new lighter, faster, better-riding wheels "set the road on fire," and a lot of cash registers, too. This year the trails ignite with our off-road wheel set series: WH-M959-disc, WH-M575-disc, WH-M535; and three new ones for the road: WH-7700 CARBON, WH-7700-650C and entry-level WH-R535

All wheel sets benefit from Shimano's new Systems Engineered Aero Design. The unique lateral crossover lacing and patented sidewall spoke mount creates a wheel that is significantly lighter, and yet more rigid and durable. It's a far better ride under all types of conditions, which sets our wheels apart from any other sets on the market. Steering becomes more precise. Lateral strength is greater. The reduction in rotational inertia boosts acceleration. And of course you can count on the quality and reliability of 100% Shimano internals.

ROAD WHEEL SETS

NEW WH-7700 Carbon: Pro-Level Racing

- 30mm deep aerodynamic carbon fiber rim for sew ups
- Super light design: Front: 650 grams Rear: 890 grams
- Dura-Ace Hub Internals featuring 11mm alloy front axle, ultra smooth Borozon treated bearing races
- Titanium freehub body

WH-7700: Pro-Level Racing

- 30mm deep aerodynamic alloy rim for clincher and sew ups
- Bead blasted sidewalls
- NEW: 650C clincher model also available
- Dura-Ace Internals / Titanium Freehub body

WH-6500: Sport Racing

- 30mm deep aerodynamic alloy rim for clincher and sew ups
- Bead blasted sidewalls
- Ultegra Hub Internals featuring ultra smooth Borozon treated bearing races

WH-R535: Everyday Wheels

- Radial "Lateral Crossover" spoke lacing on front wheel and non-drive side rear wheel. 1X on drive side.
- 28mm deep aerodynamic alloy rim for clincher and sew ups
- Machined braking surface / Quality Shimano Internals

Wheel Sets

MTB WHEEL SETS

WH-M959-disc: All Around Free Ride

- The most durable and strongest of any disc-specific low spoke-count wheel.
- International disc brake mount.
- Extra wide rear flange with zero dish for increased lateral rigidity. Compatible with CS-M953 and CS-750 cassettes ONLY
- Oval 13 gauge stainless steel spokes
- XTR Internals feature 17mm alloy front axle, ultra smooth Borozon treatment bearing races
- Titanium Freehub Body
- Weight: F:840g, R:1040g

WH-M575-disc: All Around Free Ride

- Only wheel designed specifically to be used with disc or rim brakes.
- Oval 13 gauge stainless steel spokes
- Machined braking surface
- Quality Shimano Hub Internals
- Shimano Freehub Body
- Weight: F:899g, R:1059g

WH-M535: All Around Free Ride

- Stronger, more durable and serviceable than any wheel at this price point
- Radial "Lateral Crossover" spoke lacing on front wheel and non-drive side rear wheel. 1X on drive side.
- Oval 13 gauge stainless steel spokes
- Machined braking surface
- Quality Shimano Internals
- Shimano Freehub Body
- Useable with rim brakes only
- Weight: F819g, R:1064g

Airlines & New Flight Deck Computer

SHIMANO AIRLINES

Shimano Airlines is a radically new air-powered gear shifting system developed for competition mountain bikes. Race-tested in the World Cup series and other major MTB events, Airlines uses the power of compressed air to bang home shifts instantly at the press of a lever. It's by the far the fastest more responsive shifting system ever created. Many racers and even some non-racers (who simply must have the best), are purchasing the extraordinary new shifting technology. It's available to you, Shimano Direct.

Shift Lever:

SL-AR01 Toggle-action shifting

Rear Derailleur:

RD-AR01 7-Speed design

Cassette Sprocketts

CS-AR01 Compatible with super-narrow chain and 8- or 9-spd. freehubs

Air Tank / Valve

SM-AR01 Schraeder valve / 500cc Tank cage

FLIGHT DECK

Flight Deck is the only cycling computer that is integrated into the bike's componentry. So it does things no other computer can do; like showing gear position and ratio, virtual cadence without the need for a crank sensor. New features this year include Gear Position Display, Gear Size Display, Odometer preset function, plus you can program the computer for use on four separate bikes. Another big change involves the wireless mounts and separation of the mode buttons to the right and left levers (Dura-Ace, Ultegra, 105, Tiagra & Sora) for hands-always-on-the-bar control (Harnesses: SM-6501 and SM-6501MD). See new harness set ups in tech-tip section. Flight Deck is available, Shimano Direct.

New Harnesses for Flight Deck

SM-6501	Wireless for Road
SM-6501RS	Wired for Road
SM-6501M	Wireless for MT (9-speed XTR, XT, LX)
SM-6501MD	Wireless for MTB (Deore)

SPD® cleat application table

The table below shows the recommended cleats for each SPD® and SPD-R™ pedal. Cleats listed under "usable cleat" can be substituted for the recommended cleat, but with certain restrictions as listed.

Pedal / Shoe	PD-7700	PD-6600/PD-5500 PD-R535	PD-6500	PD-M858	PD-M646/PD-M545/PD-M536 PD-M424/PD-M515/PD-M324/PD-A515		PD-M323	
	recommended cleats	recommended cleats	recommended cleats	recommended cleats	recommended cleats	usable cleats	recommended cleats	usable cleats
SH-R212*/SH-R150* SH-R121*/SH-R096* SH-R072*	**SM-SH90, SM-SH91 SM-SH82, SM-SH92**	**SM-SH90 SM-SH91 SM-SH92**	**SM-SH70 SM-SH71**					
SH-M320/SH-M220 SH-M152/SH-M081 SH-M070/SH-M058 SH-M036/SH-M036W SH-M033/SH-M020 SH-T091/SH-FR65 SH-MP65/SH-SD60				**SM-SH52**	**SM-SH51 SM-SH52 SM-SH55**	SM-SH70** SM-SH71**	**SM-SH51 SM-SH52 SM-SH55**	SM-SH71**

* SH-R212/SH-R150/SH-R122/SH-R096/SH-R072 can also take LOOK® cleats. LOOK® is a registered trade mark of LOOK S.A.
** SM-SH70/71 road cleats can be used with non-road SPD® shoes but without pontoons.

SPD® pedal & cleat sets:

1. PD-7700, PD-6600, PD-5500 and PD-R535 pedal packages include SM-SH91 cleat sets.
2. PD-6500 pedal packages include SM-SH70 and SM-SH71 cleat sets.
3. SM-SH51 cleat set is included with PD-M646,PD-M545, PD-M536,PD-M424, PD-M515, and PD-A515 pedal packages.
4. SM-SH52 cleat set is included with PD-M858 pedal packages.
5. SM-SH55 cleat set is included with PD-M323 and PD-M324 pedal packages.

(Some specifications do not include any cleats in the pedal packages.)

Footwear Accessories and Replacement Parts

SM-SH51

SPD® Cleat Sets

SM-SH51 for single direction release, and for "Easy step-in" feature.

code No. Y-424 98200 (cleat nut included)
Y-424 98201 (cleat nut not included)

SM-SH52

SPD® Cleat Sets

SM-SH52 for PD-M858 and other SPD pedals except PD-7410 or PD-6500.

code No. Y-41M 98020 (Cleat Nut Included)
Y-41M 98021 (cleat nut not included)

SM-SH55

SPD® Cleat Sets

SM-SH55 for multi-directional release.

code No. Y-424 98300 (cleat nut included)
Y-424 98301 (cleat nut not included)

Cleat Nut for SM-SH51/52/55

code No. Y-40N 01000 (one piece)

SM-SH90/91/82/92

SPD-R™ Cleat Sets

SPD-R™ road racing cleat sets.

- SM-SH90 for fixed binding.
- SM-SH91self aligning (6° of swing)
- SM-SH82/92 self aligning (10° of swing)

code No.
SM-SH90 Y-43Y 98010 (pontoons included)
Y-43Y 98011 (pontoons not included)
SM-SH91 Y-43Y 98020 (pontoons included)
Y-43Y 98021 (pontoons not included)
SM-SH82 Y-42X 98030 (pontoons included)
SM-SH92 Y-43Y 98030 (pontoons included)
Y-43Y 98031 (pontoons not included)

Side pontoons for SM-SH90/91/82/92

code No. Y-43Y 98060 (one pair)

SM-SH70/SM-SH71

SPD® Cleat Sets

SPD® road shoe cleat sets.
SM-SH70 is fixed retention type.
SM-SH71is rotational retention type.
code No.
SM-SH70 Y-426 98040 (pontoons included)
Y-426 98041 (pontoons not included)
SM-SH71 Y-426 98050 (pontoons included)
Y-426 98051 (pontoons not included)

Side pontoons for SM-SH70/71

code No. Y-426 98060 (one pair)

Spikes

Removable sole spikes for SH-M320, SH-M151 and SH-M150 shoes.

Buckle Closure

For SH-M320
(Strap for buckle closure is also available)

Reflector Set

SM-PD57 code No.Y-40R 98050
For use with PD-M536 pedal.

SM-PD56 code No. Y-40R 98060
For use with PD-R535 pedal.

SM-PD53 code No. Y-40R 98020
For use with PD-7410, PD-6500, PD-6600, PD-5500 and PD-A515 pedals.

SM-PD54 code No. Y-40R 98030
For use with PD-7700 pedal.

SM-PD55 code No. Y-40R 98040
For use with PD-M858 pedal.

SM-PD40 code No. Y-41J 98010
For use with PD-M545, PD-M434 and PD-M424 pedals.

SM-PD21 code No. Y-40S 98010
For use with PD-M747, PD-M535 and PD-M515 pedals

For PD-M646 / code No. Y-41L 98050.

For PD-MX30, PD-M324 /
code No. Y-41B 98010.

Shoe Insoles

Sizes: 36-38, 39-40, 41-42, 43-44, 45-46, 47-48.

SPD® Seal

code No. Y-40E 98010

SHIMANO DIRECT™ 2001 Dealer Pedal Order Form

Ship to Information
Cust Number:
Cust Name:
Cust Address:

Phone:
Purchaser:

Bill to Information
Cust Number:
Cust Name:

P.O. #
Purchaser:

Shipping Information
Order Date:
Ship Date:
UPS: 1 Day 3 Day
2 Day Ground

Pedals

Description	Item #	Price	SRP	Order Qty	Ext
IMPROVED FOR 2001 "MUD FREE" DESIGN	IPDM858	$90.00	$160.00		
LIGHTWEIGHT W/POP UP DESIGN	IPDM646	$63.00	$115.00		
POP UP DESIGN W/ALLOY CAGE	IPDM545	$55.00	$100.00		
DUAL SIDED CLIPLESS	IPDM536	$40.00	$80.00		
DUAL SIDED CLIPLESS	TPDM515	$25.00	$55.00		
POP UP DESIGN W/RESIN CAGE	TPDM424	$30.00	$60.00		
CLIPLESS W/STANDARD CAGE	IPDM324	$35.00	$70.00		

PLATFORM STYLE	Item #	Price	SRP	Order Qty	Ext
"DX" STANDARD STYLE	IPDMX30	$60.00	$110.00		

SPD-R	Item #	Price	SRP	Order Qty	Ext
DURA ACE CLIPLESS	IPD7700	$128.00	$215.00		
ULTEGRA CLIPLESS	IPD6600	$84.00	$150.00		
105 CLIPLESS DESIGN	IPD5500	$59.00	$110.00		
NEW CLIPLESS DESIGN	IPDR535	$42.00	$85.00		
DUAL SIDED ROAD PEDAL	IPDA515	$30.00	$60.00		

Cleats SPD/SPD-R	Item #	Price	SRP	Order Qty	Ext
SPD CLEAT SM-SH51 (Not PD-M858 compatable)	Y42498200	$9.00	$15.00		
SPD CLEAT SM-SH55 (Not PD-M858 compatable)	Y42498300	$9.00	$15.00		
SPD CLEAT SM-SH52	Y41M98020	$9.00	$18.00		
SPD-R CLEAT SM-SH90 (FIXED)	Y43Y98010	$15.00	$25.00		
SPD-R CLEAT SM-SH91 (3 DEGREE)	Y43Y98020	$15.00	$25.00		
SPD-R CLEAT SM-SH92 (5 DEGREE)	Y43Y98030	$15.00	$25.00		
SMN DESIGNED "LOOK" CLEAT	Y40B98110	$7.75	$14.00		
MTB SPIKES (SH-M320/SH-M220)	PM210SPIKE	$5.00	$10.00		
SPD ROAD SM-SH70	Y42698040	$12.50	$25.00		
SPD ROAD SM-SH71	Y42698050	$12.50	$25.00		
SPD Look Adapter	Y42698070	$11.75	$20.00		

SHIMANO AMERICAN CORPORATION
FAX: 1-800-206-0010
PLEASE NOTE: PRICING SUBJECT TO CHANGE

Freight is not included

Aug-00

TOTAL _____

SHIMANO® DIRECT™ 2001 Dealer Maintenance Order Form

Ship to Information

Cust Number:

Cust Name:

Cust Address:

City, State, Zip:

P.O. #:

Purchaser:

Shipping Information

Order Date:

Ship Date:

UPS: 1 Day 3 Day
2 Day Ground

Maintenance Products

Description - Individual		Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"		22 oz.	DASPINBB	$10.50	$21.00		
GREASE "*SPIN DOCTOR*"		4 oz.	DASPINB	$3.75	$7.50		
GREASE "*SPIN DOCTOR*"		2 oz.	DASPINS	$2.50	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"		10.5 oz.	SWEAT	$4.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"		4 oz.	SLIPPSPIT	$2.75	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 12	SPITTREF	$18.00	$3.00		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 24	SPITTPOP	$38.00	$3.00		
HANDCLEANER "*GRITT SPITT*"		1 gal.	GRITTB	$19.50	$39.00		
HANDCLEANER "*GRITT SPITT*"		8 oz.	GRITTS	$3.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"		7 oz.	CREAM	$2.50	$5.00		
DEGREASER "*SLUDGE OFF*"		11 oz.	SLUDGE	$3.50	$7.00		
PENETRATING OIL "*GET-A-GRIP*"		16 oz.	GETAGRIP	$4.00	$8.00		
BIKE POLISH "*SHINE*"		15 oz.	SHINE	$3.00	$6.00		
ANTI SEIZE "LOK-NOT"		16 oz.	LOKNOT	$6.00	$12.00		
WORKSHOP MAINTENANCE KIT w/ DISPLAY			WORKSHOPKIT2	$180.00			

INCLUDES: -12 No Sweat Slide Dry Lube -12 Hypospitt Lube -12 Sludge Off Degreaser
-8 Spin Doctor Grease -6 Shine Bike Polish -15 Slippery Spitt Wet Lube

CASE QUANTITIES	Case Qty	Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"	12	22 oz.	DASPINBBCS	$126.00	$21.00		
GREASE "*SPIN DOCTOR*"	24	4 oz.	DASPINBCS	$90.00	$7.50		
GREASE "*SPIN DOCTOR*"	30	2 oz.	DASPINSCS	$75.00	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"	12	10.5 oz.	SWEATCS	$48.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"	16	4 oz.	SLIPPSPITCS	$44.00	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"	12	.25 oz. X 12	SPITTREF	$18.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	4	1 gal.	GRITTBCS	$78.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	15	8 oz.	GRITTSCS	$40.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"	12	7 oz.	CREAMCS	$36.00	$5.00		
DEGREASER "*SLUDGE OFF*"	12	11 oz.	SLUDGECS	$42.00	$7.00		
PENETRATING OIL "*GET-A-GRIP*"	12	16 oz.	GETAGRIPCS	$48.00	$8.00		
BIKE POLISH "*SHINE*"	12	15 oz.	SHINECS	$36.00	$6.00		
ANTI SEIZE "*LOK-NOT*"	12	16 oz.	LOKNOTCS	$72.00	$6.00		

Shimano American Corporation, One Holland Drive, Irvine, CA 92718

Please note: Pricing Subject to change

Fax # 1-800-206-0010

Aug-00

Freight Not Included

Order Total

SHIMANO DIRECT™ 2001 Clothing Dealer Order Form

Ship to Information

Cust Number: _____

Cust Name: _____

Address: _____

City, State, Zip: _____

Phone/Fax: _____

Bill to Information

Cust Number: _____

Cust Name: _____

_____

P.O.#: _____

Purchaser: _____

Shipping Information

Order Date: _____

Ship Date: _____

UPS: 1 Day 2 Day 3 DAY GROUND

CLOTHING	MD	LG	XL	XXL	EA	EXT
XTR JERSEY					25.00	
XTR T SHIRT					$12.00	
SHIMANO T - BLACK					$10.00	
XTR BAGGY SHORTS					$30.00	
ROAD SHORT 8 PANNEL					$30.00	
MECHANIC SHIRT					$25.00	
SHOP APRON	"ONE SIZE FITS ALL"				$19.00	

SOCKS	MD	LG	XL	EA	EXT
XTR BLACK				$5.00	
XTR SILVER				$5.00	
SHIMANO WHITE				$5.00	
SHIMANO BLACK				$5.00	
SPD BLACK				$5.00	
SPD-R WHITE				$5.00	
DURA ACE SILVER				$5.00	

HATS/ACCESSORIES	SM/MD	LG/XL	ONE SIZE	EA	EXT
XTR "FIT" CAP "BLACK"				$10.00	
XTR "MOTO" HAT	"ONE SIZE FITS ALL"			$10.00	
XTR BEANIE "GREY"	"ONE SIZE FITS ALL"			$7.00	
XTR "BUCKET" HAT "GREY"	"ONE SIZE FITS ALL"			$10.00	
DURA ACE CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
SHIMANO CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
12 PK SHIMANO WATERBOTTLES	28 OZ. W/SCREW TOP			$33.00	
XTR R. DER KEY CHAIN	"ONE SIZE FITS ALL"			$5.50	

Shimano American Corporation, One Holland, Irvine, CA 92718
Please note: pricing subject to change

Phone: 800-423-2420 Fax: 800-206-0010

Aug-00

ORDER TOTAL _____

FREIGHT NOT INCLUDED

SHIMANO DIRECT™ 2001 DEALER WHEEL ORDER FORM

Ship to Information

CUSTOMER NAME
CUSTOMER NUMBER
CUST ADDRESS
CITY, STATE, ZIP:
P.O. #:
Purchaser:

Shipping Information

Order Date
Ship Date
UPS: 1 DAY 2 DAY 3 DAY GROUND
CREDIT CARD (VISA OR MASTER CARD)
CC# EXP DT
CARD HOLDER'S NAME

ROAD WHEELS PAIRS (700C) & (650C)	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 DURA ACE EQUIPPED/CARBON TUBULAR W/CRBN BRK PADS	IWH7700CFRT	$800.00	$1,299.00		
WH-7700 DURA ACE EQUIPPED/CLINCHER	IWH7700FRC	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/TUBULAR	IWH7700FRT	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/650C CLINCHER	IWH7700650CFRC	$450.00	$750.00		
WH-6500 ULTEGRA EQUIPPED/CLINCHER	IWH6500FRC	$350.00	$575.00		
WH-R535 /CLINCHER	IWHR535FRC	$179.00	$299.00		

INDIVIDUAL ROAD WHEELS	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 (700C) CLINCHER FRONT	IWH7700FA	$200.00	$350.00		
WH-7700 (700C) CLINCHER REAR	IWH7700RA	$250.00	$400.00		
WH-7700 (770C) TUBULAR FRONT	IWH7700FTA	$200.00	$350.00		
WH-7700 (770C) TUBULAR REAR	IWH7700RTA	$250.00	$400.00		
WH-6500 (700C) CLINCHER FRONT	IWH6500FA	$150.00	$225.00		
WH-6500 (700C) CLINCHER REAR	IWH6500RA	$200.00	$275.00		
WH-R535 (700C) CLINCHER FRONT	IWHR535FA	$75.00	$125.00		
WH-R535 (700C) CLINCHER REAR	IWHR535RA	$105.00	$175.00		

MOUNTAIN BIKE WHEELS *PAIRS*

DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - DISC ONLY	IWHM959FRC	$450.00	$750.00		
WH-M575 - DISC/RIM BRAKE	IWHM575FRC	$270.00	$450.00		
WH-M535 - RIM BRAKE ONLY	IWHM535FRC	$179.00	$299.00		

INDIVIDUAL MOUNTAIN BIKE WHEELS

DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - *FRONT* WHEEL DISC ONLY	IWHM959FDBB	$205.00	$345.00		
WH-M959 - *REAR* WHEEL DISC ONLY	IWHM959RDBB	$245.00	$405.00		
WH-M575 - *FRONT* DISC/RIM BRAKE	IWHM575FDBX	$120.00	$200.00		
WH-M575 - *REAR* DISC/RIM BRAKE	IWHM575RDBX	$150.00	$250.00		
WH-M535 - *FRONT* RIM BRAKE ONLY	IWHM535FBX	$75.00	$125.00		
WH-M535 - *REAR* RIM BRAKE ONLY	IWHM535RBX	$105.00	$175.00		

TOOLS/ACCESSORIES	ITEM #	PRICE	SRP	QTY	EXT
TL-WH77 MECHANIC'S NIPPLE WRENCH	Y4A014000	$9.69	$20.00		
ALLOY CONSUMER NIPPLE WRENCH	Y4A008000	$2.91	$6.00		
VALVE EXTENSION AND O-RING	Y4A098040	$4.45	$9.00		
MAGNET SENSOR	Y4A098030	$5.82	$11.00		
SPOKE SPACERS (10 PIECES)	Y4A098070	$0.78	$1.50		

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92718
PLEASE NOTE: PRICING SUBJECT TO CHANGE
FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL _____

SHIMANO® DIRECT™

2001 DEALER FLIGHTDECK ORDER FORM

Ship to Information

CUSTOMER NAME:

CUSTOMER NUMBER:

CUST ADDRESS:

CITY, STATE, ZIP:

P.O. #:

PURCHASER:

Shipping Information

ORDER DATE

REQUESTED SHIP DATE:

SHIP VIA UPS GROUND 1 DAY 2 DAY 3 DAY

FLIGHT DECK HARNESS KIT

DESCRIPTION	TYPE	ITEM #	PRICE	QTY	EXT
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRELESS	ISM6501	$45.00		
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRED	ISM6500RS	$20.00		
FITS ST-6501 (ULTEGRA 9SP) ST-5500-C (105 9SP)	WIRED	ISM6500	$18.00		
FITS ST-M952 (XTR 9SP) ST-M750 (XT 9SP) ST-M570 (LX 9SP)	WIRELESS	ISM6501M	$53.00		
FITS ST-M510/SL-M510 (DEORE 9SP)	WIRELESS	ISM6501MD	$53.00		
FITS ST-M950/ST-M951 (XTR 8SP)	WIRED	ISM6500MX	$34.00		

FLIGHT DECK DISPLAY HEAD

DESCRIPTION	ITEM #	PRICE	QTY	EXT
"NEW SC-6501 FOR 2001" *CAN PROGRAM FOUR DIFFERENT WHEEL SIZES*	ISC6501	$25.00		
SC-6500 DISPLAY HEAD	ISC6500DSPLY	$21.00		

ADDITIONAL ITEMS

DESCRIPTION	ITEM #	PRICE	QTY	EXT
BRAKE LEVER HOODS FOR ST-7700	Y6BD98170	$4.66		
BRAKE LEVER HOODS FOR ST-6500/ST-5500	Y6BZ98090	$2.56		
BRAKE LEVER HOODS FOR ST-7400	Y88B98012	$4.66		
BRAKE LEVER HOODS FOR ST-1055/ST-A550/ST-A410/ST-A416	Y85Z98070	$4.66		
BRAKE LEVER HOODS FOR ST-6400	Y87G98011	$4.66		

NOTE: ADDITIONAL TECHNICAL INFORMATION ON "FLIGHTDECK" IS ON PAGE 18/19 OF THE 2001 DEALER PRODUCT CATALOGUE

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92618

PLEASE NOTE: PRICING SUBJECT TO CHANGE

FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL _____

SHIMANO®

MORE PROFIT HERE; MORE PROFIT THERE. IT ALL ADDS UP

PRODUCTS DIRECT TO YOU!

There's a bunch of Shimano stuff you can order DIRECT from your Shimano Rep. For example: **SPD and SPD-R Shoes and Pedals, Shimano Accessories, Maintenance Products, New Wheel Sets and even Shimano's New Airlines Shifting Technology.**

Call your area rep. and set up a personal showing of the entire line.

YEAR 2001 SALES REPS

TERRITORY	REP	PHONE	FAX
AL, GA, NC, SC, TN, VA	Henry Creagh	(770) 466-7003	(770) 466-0038
DE, MD, NJ, NY, PA,WVA PUERTO RICO	ATLANTIC SPORTS GROUP	(215) 836-5852/Main Office	(215) 233-3482/Main Fax
	Bill Zager	(215) 836-5852	(215) 233-3482
	Marty Kusmider	(215) 836-5852	(215) 233-3482
	Derek Rausch	(732) 842-8353	(732) 842-8303
	Randy Walther	(540) 371-5331	(540) 372-1425
	Amy Farnsworth	(804) 386-2247	(804) 386-0742
MT, WY, UT	Mike Myer	(406) 587-1121	(406) 587-0109
ARIZONA	Jack Giudilli	(602) 978-2597	(602) 978-6353
COLORADO	Kim Fischer	(303) 499-2625	(303) 975-5401
IL, KS, MO	Michael Foley	(708) 442-1100	(708) 442-1120
WISCONSIN	Dominic Petit	(920) 490-9287	(920) 434-5147
ND, SD, MN, IA, NE	Rick Carpenter	(651) 388-4579	(651) 388-5399
NH, VT, ME, NORTH MA	Steve Marcus	(617) 965-3735	(617) 965-3263
CT, RI, SOUTH EAST MA	Todd Mullholland	(401) 943-4944	(401) 943-5545
NORTH TX, NORTH LA, OKLAHOMA	Chris Watson	(817) 921-6868	(817) 922-8409
SOUTH TX, SOUTH LA, MS	Will Black	(713) 802-2554	(713) 802-2699
IN, OH, KY	Michael Sweeney	(513) 553-0596	(513) 553-0696
MI	Bob McKee / Kathy McKee	(616) 874-7386	(616) 874-9430
WESTERN OR, WESTERN WA	Kent Reynolds	(541) 387-2024	(541) 387-3267
EASTERN OR, EASTERN WA, ID	Mike McKernan	(541) 387-3267	(541) 387-3267
SOUTH ORANGE CO., SAN DIEGO, LAS VEGAS	Jim Rasmussen	(760) 749-1298	(760) 749-1298
LOS ANGELES CO, NORTH ORANGE CO.	Darin Motoda	(310) 540-4547	(310) 540-4547
NORTH CA, NORTH NV	Ed Tyler/Jan McGee	(415) 389-8833	(415) 389-8844
HAWAII, ALASKA	Call Shimano		
EASTERN FLORIDA	Dennis Lee	(407) 255-7679	(407) 255-7679
MICHIGAN	Bob McKee/Kathy McKee	(616) 874-7386	(616) 874-9430

2001 Technical Information

SHIMANO®

8 TO 9-SPEED COMPATIBILITY & INTERCHANGEABILITY

The Basics

First, Shimano only guarantees index performance with an entire 9-speed drive train that includes shift levers, front derailleur, crank set, 9-speed chain, cassette and rear derailleur. The 8 and 9-speed hubs share the same cassette dimensions and are interchangeable. Although several 8 and 9-speed combinations are rideable the performance and durability may not be 100% up to Shimano standards. Furthermore, success with one bike may not ensure the same result with another bike due to the different dimensions between frames and production tolerances of components. It might be OK, but Shimano can't guarantee it. Finally, when partially upgrading to 9-speed you may be downgrading the overall shifting performance of the system. Check the following for the basics and the individual component listing for more details.

1. On some frames an 8-speed rear derailleur may not clear the 34-tooth sprocket.

2. The 9-speed chain is ~0.5 mm narrower and so is the front derailleur cage; therefore,

   A) Using a 9-speed chain with 8-speed front derailleur and crank set may result in sluggish shifting and attention to the adjustment is more critical. You may have to continue to hold the thumb lever until the shift is complete. There will also be less "cross chain" rubbing.

   B) The 8-speed chain is too wide for 9-speed front derailleurs; the chain will rub the front derailleur during extreme cross chain combinations (large/mid ring/large cog), but the shifting is excellent.

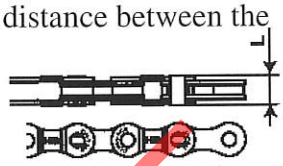
   C) 9-speed chains should be no problem for an 8-speed rear cassette.

3. The 9-speed chainring release teeth & pick-up teeth are re-profiled for narrower chains, therefore you should not use an 8-speed chain with 9-speed chain rings because the pick-up teeth will make noise against the chain during minor cross chaining. In the worst case, some 8-speed chain rings (particularly steel rings) have shown a tendency for "chain jamming" during downshifts with a 9-speed chain.

Individual components

CHAINS

The 9-speed drive trains require special Super Narrow HG® chains. These 9-speed chains are 0.5 mm narrower, in the outer dimension, than the 7 & 8 speed chains. A 9-speed chain is no problem with an 8-speed cassette. However, combining an 8-speed chain with a 9-speed cassette will not work because the distance between the sprockets is too narrow.



7 & 8-speed HG and IG:	L=7.3 or 7.1 mm
9-speed chain HG:	L=6.6 mm

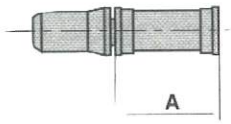
All 9-speed chains are fully interchangeable, but because of quality and durability we recommend the following:

Chain model	Recommended series
CN-7700	XTR and DURA-ACE
CN-HG92	DEORE XT and ULTEGRA
CN-HG72	DEORE LX, DEORE and 105, TIAGRA

CONNECTING PINS

Make sure that Shimano chains are always connected with a Shimano connecting pin. There are 2 sizes. For dimensions see chart below. When disconnecting a chain, push out one of the normal pins completely and reconnect the chain with a connecting pin. Never disconnect at a previously installed connecting pin as this will weaken the chain plates and may cause the chain to break.

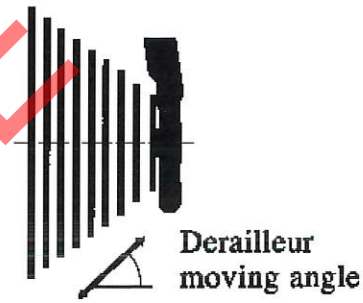
Chain	Pin Length	Pin Color	Part #
7- & 8-speed HG and IG	A=7.1 mm	Black	Y04598010 (3 pcs) Y04598020 (50 pcs)
9-speed HG	A=6.5 mm	Silver	Y06998010 (5 pcs) Y06998020 (50 pcs)



CHAIN TOOLS

Shimano offers two chain connecting/cutting tools that are designed for the dimensions of the 9-speed chains. In order to guarantee proper installation we strongly recommend you use the TL-CN22 (consumer/home) mechanic tool or TL-CN31 (shop/professional) tool. These tools can also be used for the 7 and 8-speed IG and HG chains. Do not use previous chain tool models TL-CN21 and TL-CN30 to install the 9-speed chains as the connecting pin may be installed incorrectly due to insufficient force and pin movement causing the chain to break.

REAR DERAILLEUR



All 9-speed rear derailleurs are fully compatible with all 9-speed road and mountain bike shift levers. All the new Mega-9 derailleurs are engineered with a larger capacity, enough to clear a 34-tooth sprocket and with a different tracking angle designed to place the chain at a constant distance as it tracks the Mega-9 cassettes. A 9-speed drive train with an 8-speed rear derailleur may be difficult to adjust due to this design and lack of clearance between the upper pulley and the 34-tooth sprocket. Therefore, the tracking angle of an MTB derailleur has been designed for a minimum 28-tooth large sprocket. If a "road" cassette is used, the shifting performance will be poor. Road derailleurs are designed to track more compact cassettes with a maximum 27-tooth large sprocket. Using an MTB cassette will exceed their capacity.

FRONT DERAILLEUR

The 9-speed front derailleurs are designed for the super narrow HG chain; therefore the width of the chain cage is approximately 0.6 mm narrower than the 8-speed derailleur. When using a 9-speed chain with an 8-speed front derailleur and/or crank set you may have to continue to hold the thumb lever until the shift is complete. 7 & 8-speed chains are too wide for the 9-speed front derailleur; the chain will rub during cross shifting (large/middle chainring-large sprocket).

CRANK SET

The new crank sets for the 9-speed systems have also been redesigned for the super narrow HG chain. The biggest difference is spacing between the rings and the pick-up and release pins and teeth. The chainring release and pick-up teeth are re-spaced by offsetting of the rings for the narrower chain. An 8-speed chain should not be used with a 9-speed crank set; it will rub on the pick-up teeth in small-small combinations. Using a 9-speed chain with an 8-speed front derailleur and crank set will result in sluggish shifting and adjustment is more critical. In some cases when up-shifting, you may have to hold the thumb lever down until the shift is complete. In the worst case, a 9-speed chain on an 8-speed crank set may hesitate or "jam" the chain rings during downshifts.

FREEHUB & CASSETTE

The 9-speed cassettes are fully compatible with all current 8-speed MTB 'parallax' design hubs. On non-parallax MTB and older road hubs the 11-tooth sprocket will not fit as the 11-tooth sprocket has been "beefed up" with a shoulder and the freehub body has been machined to accept the shoulder. The width of the Shimano 8 and 9-speed cassettes and freehub bodies are the same.

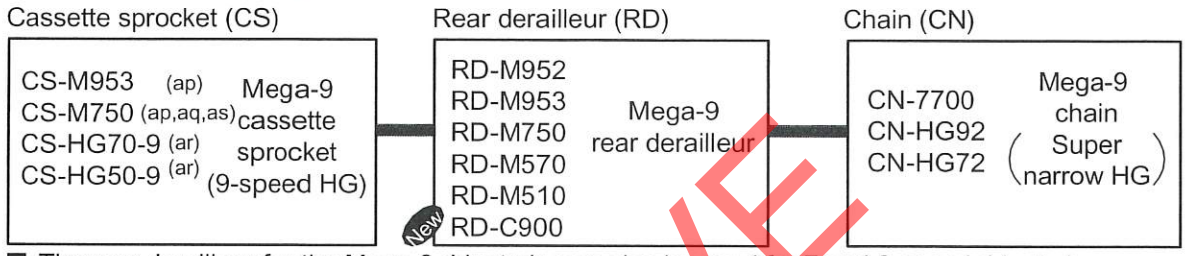
SHIMANO®

Drivetrain Interchangeability

MTB Rear Drivetrain Interchangeability

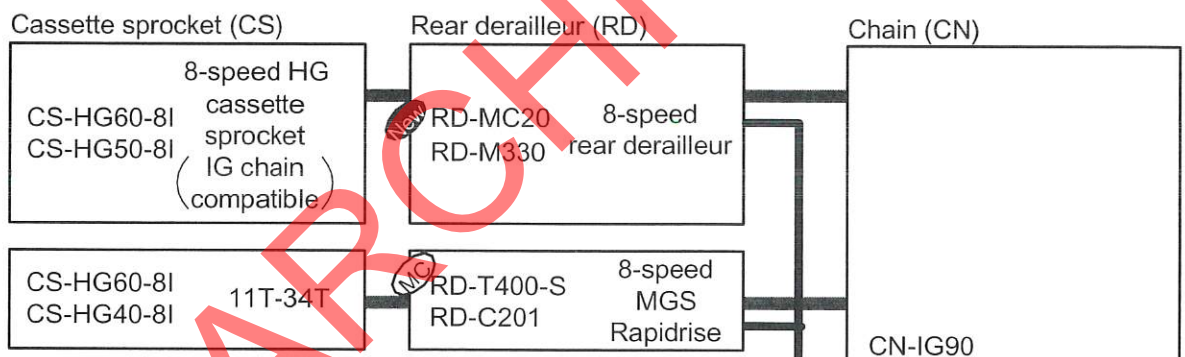
■ When using components of different series together, be aware of the points given below.
"New" is shown if it is a new product and "MC" is given if only minor changes have been made.

Mega-9 Drivetrain (9-speed HG)



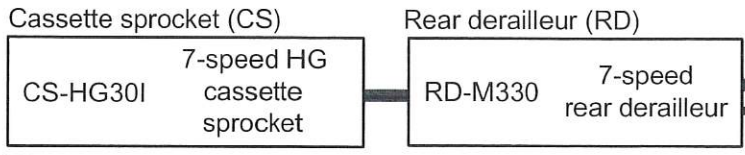
■ The rear derailleur for the Mega-9 drivetrain can also be used for 7 and 8 speed drivetrains.

8-Speed HG

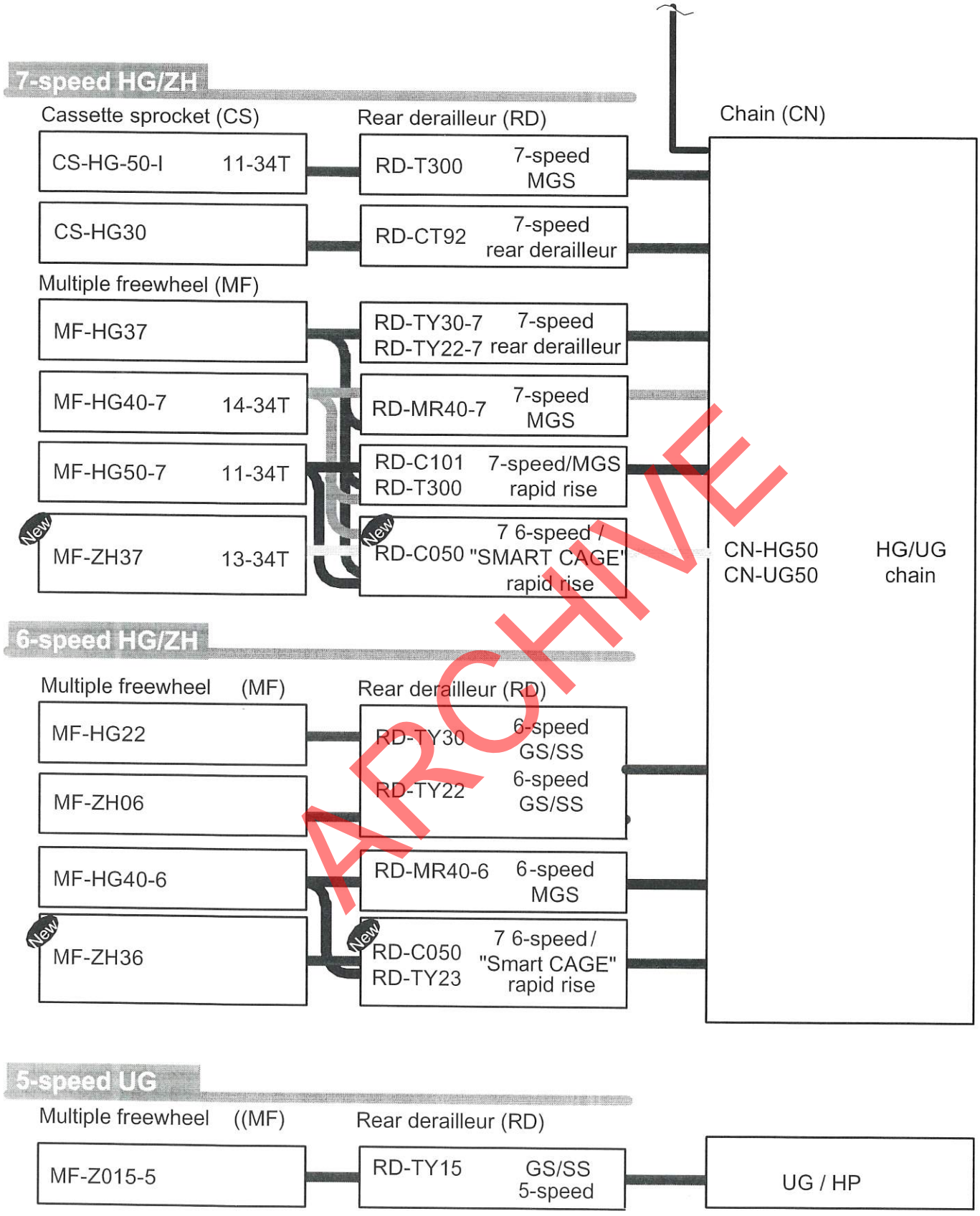


■ The rear derailleur for 8-speed can also be used for 7-speed drivetrain.

7-speed HG

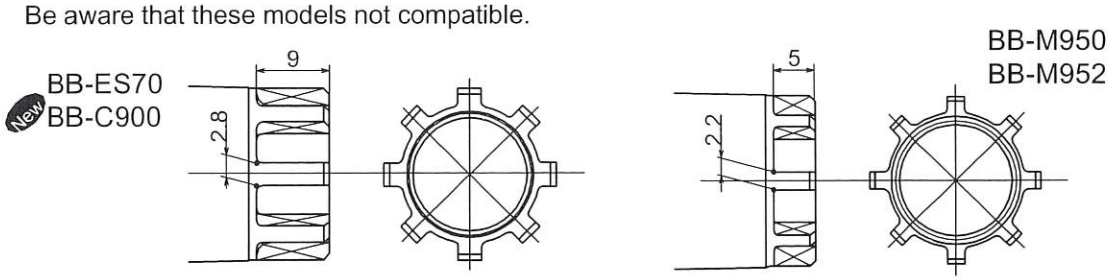


■ HG chain can only be used when using an HG compatible front chainwheel.


7-speed HG/ZH
Cassette sprocket (CS)
Rear derailleur (RD)
Chain (CN)
CS-HG-50-I 11-34T
RD-T300 7-speed MGS
CS-HG30
RD-CT92 7-speed rear derailleur
Multiple freewheel (MF)
MF-HG37
RD-TY30-7 RD-TY22-7 7-speed rear derailleur
MF-HG40-7 14-34T
RD-MR40-7 7-speed MGS
MF-HG50-7 11-34T
RD-C101 RD-T300 7-speed/MGS rapid rise
New
MF-ZH37 13-34T
New
RD-C050 7 6-speed / "SMART CAGE" rapid rise
CN-HG50 CN-UG50
HG/UG chain
6-speed HG/ZH
Multiple freewheel (MF)
Rear derailleur (RD)
MF-HG22
RD-TY30 6-speed GS/SS
MF-ZH06
RD-TY22 6-speed GS/SS
MF-HG40-6
RD-MR40-6 6-speed MGS
New
MF-ZH36
New
RD-C050 RD-TY23 7 6-speed / "Smart CAGE" rapid rise
5-speed UG
Multiple freewheel ((MF)
Rear derailleur (RD)
MF-Z015-5
RD-TY15 GS/SS 5-speed
UG / HP

BB-ES70 Dimensions

■ The dimensions of the eight serrations on the BB-ES70 for the Deore-XT/ LX are shown below.
The dimensions for BB-ES70/C900 are different to those for BB-M950 / 952.
Be aware that these models not compatible.



Chain,chainring and cassette sprocket interchangeability

The allowable combinations for the Shimano MTB chain (CN), chainrings (FC), and cassette sprockets (CS) are given in the chart below. Three chains are available in order to match the type of drivetrain. Select the combination you desire after checking the chart below.

FC /CS / Chain	Mega-9		IG		HG	
	Cassette sprocket	Front chainwheel	Cassette sprocket	Front chainwheel	Cassette sprocket	Front chainwheel
	CS-M953 CS-M750 CS-HG70-9 CS-HG50-9	FC-M952 FC-M751 FC-M571 FC-M510 New FC-M480 New FC-M440 New FC-C900	CS-IG50 CS-IG60	New FC-T410 New FC-MC20 New FC-MC19 FC-M 330	CS-M950 CS-M737-I CS-HG70-8I CS-HG40-8I CS-HG60-I CS-HG50-8I CS-HG50-I CS-HG30-I	New MC FC-T411 MC FC-T300-S MC FC-T303 FC-CT93 New FC-C101 New FC-C103 New FC-C201 New FC-C203 New FC-TY33-A New FC-TY33 FC-TY40 New FC-C050
Mega-9 Super Narrow chain **CN-7700** **CN-HG92** **CN-HG72**	**Good**	**Good**	**No good**	**No good**	**No good**	**No good**
IG Chain (Note 3) **CN-IG90** **CN-IG70** **CN-IG51** **CN-IG31**	**No good**	**No good**	**Good**	**Good**	**Good** (Note 2)	**No good** poor performance
HG Chain **CN-7401** **CN-HG91** **CN-HG90** **CN-HG70** **CN-HG50** **CN-UG50**	**No good**	**No good**	**No good** Poor performance	**No good** Will not work (Note 1)	**Good**	**Good**

Note 1: The chain tends to come off of the gear unexpectedly during riding and may cause a dangerous situation.
Note 2: When used together with the HG cassette sprocket CS-M737/HG70-8, the adjustable range is very narrow and requires great care.

Drivetrain (MTB)

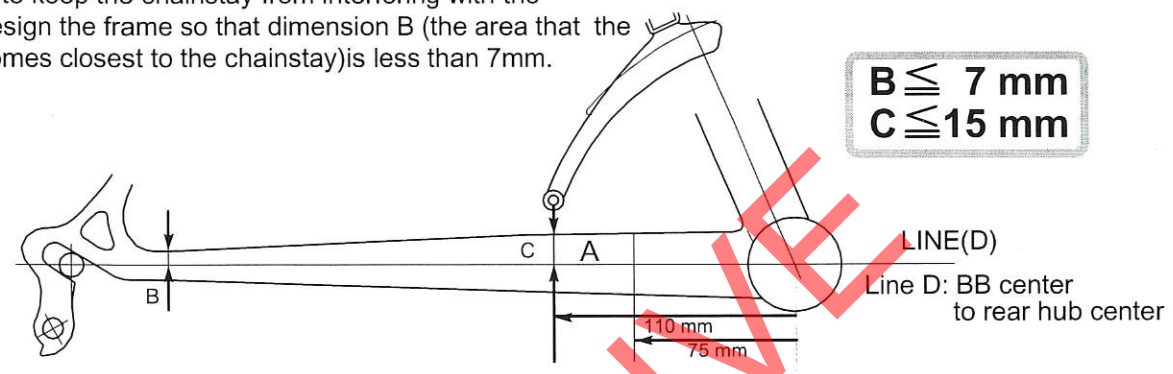
Chainstay Dimensions

■ Dimension "C"

● In order to keep the front derailleur plate from touching the chainstay, design the frame at area A (cross hatching section in diagram below) so that the dimension C (distance from centerline D to top edge of the chainstay) is 15 mm or less.

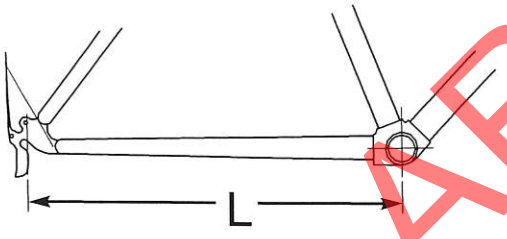
Dimension "B"

● In order to keep the chainstay from interfering with the chain,design the frame so that dimension B (the area that the chain comes closest to the chainstay)is less than 7mm.



■ Chainstay length "L"

● The Shimano MTB shifting system is designed on the chainstay dimensions given below. (When using frames that do not meet these dimensions, be sure to confirm that the system operates without problems.)

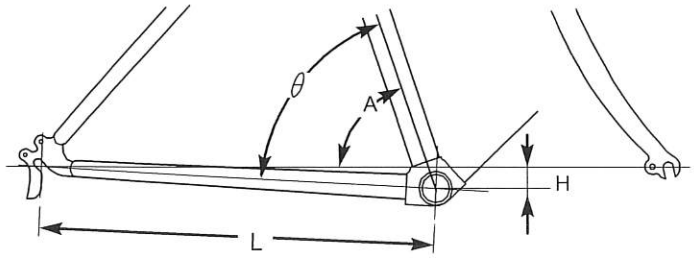


L: the length from BB center to rear hub center.

Bicycle type	Speed	Dimension "L"
MTB, Hybrid	6,7,8 and 9-speed (rear)	420mm min.
Tourney 22	Triple (FCW)	430mm min.
	Double (FCW)	400mm min.

■ Chainstay angle " θ"

● In order for the front SIS shifting system to function properly, set the chainstay angle θ within the range supported by the front derailleur. (The chainstay angle θ supported by each front derailleur is listed in the '99 mode specifications handbook.)



θ : Chainstay angle
A : Seat tube angle
H : Hanger drop

$$\theta = A - \sin^{-1}\frac{H}{L}$$

$$H = L \times \sin(A - \theta)$$

MTB front chainwheel, bottom bracket, and chain line

■ In order to use SIS to its full extent, the required correct chain line, along with the front chainwheel and bottom bracket required to obtain that, are given in the chart below.

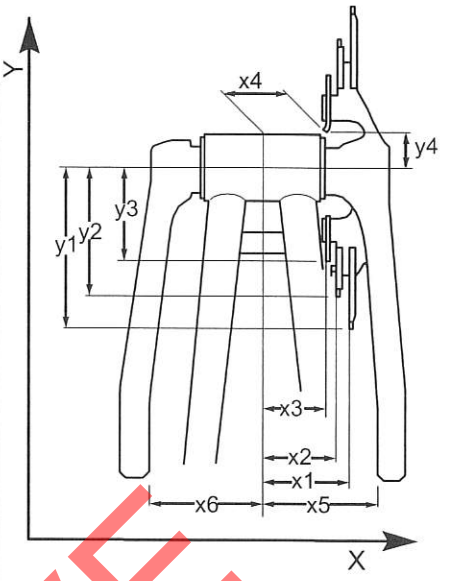
Series	Front chainwheel model number	Chain line			
		47.5mm		50mm	
		Model no.	Axle mark	Model No.	Axle mark
XTR	FC-M952-4arm FC-M952-5arm	BB-M952 BB- M950	112.5MM Axle mark	BB-M952 BB-M950	116MM Axle mark
Deore-XT **Deore-LX**	FC-M751 FC-M571	BB-ES70	113MM Axle mark	BB-ES70	118MM Axle mark
Deore	New FC-M510 New FC-M480 New FC-M440	BB-UN72(-E) BB-UN52(-E) BB-UN40(-E) BB-LP27(-E)	MM110	BB-UN72(-E) BB-UN52(-E) BB-UN40(-E) BB-LP27(-E)	LL113
	FC-M510-K	BB-UN40-K	117.5MM Axle mark	——	——
NEXAVE	New FC-T410 New FC-T411				
	New FC-C900	New BB-C900 (axle length 121mm/Chain line 52.5mm)			
	New FC-T300-S	BB-CT92(-E)	YL116	BB-CT92(-E)	ZL121
	New FC-T303	BB-CS15	D-NL (122.5mm)	BB-CS15	D-EL (127.5mm)
Alivio	New FC-MC20 New FC-MC19	BB-UN72(-E) BB-UN52(-E) BB-UN40(-E) BB-LP27(-E)	MM110	BB-UN72(-E) BB-UN52(-E) BB-UN40(-E) BB-LP27(-E)	LL113
Acera	FC-M330				
C-series	New FC-C101/201 New FC-C103/203	BB-CT92	YL116	BB-CT92	ZL121
Tourney	FC-TY40				
C-series	New FC-C050	BB-TY30	D-NL (122.5mm)	——	——
Tourney	New FC-TY33A New FC-TY33				

MTB Front Chainwheel Dimensions

- Below are the dimensions for the Shimano 1999 new model chainwheels. Design the frame while referring to these dimensions to ensure no interference.

■ Y-dimension

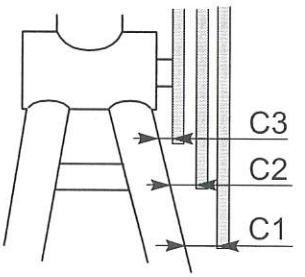
Series	Model number	y1	y2	y3	y4
Deore	NEW FC-M480	91.4	66.5	47.1	25.5
	NEW FC-M480-K				
	NEW FC-M440	91.4	66.5	47.1	25.5
	NEW FC-MC20	87.2	66.5	46.7	25.5
	NEW FC-MC-19	87.2	66.5	46.7	26
Nexave	NEW FC-C900	95.0	70.8	—	—
	NEW FC-T410	87.6	66.5	47.1	25.5
	MC FC-T300-S	87.3	71.2	46.6	24.5
	NEW FC-T411	99.5	78.4	58.4	26
	NEW FC-T303	99.5	78.4	58.4	26
C-series	MC FC-C203	99.5	78.4	58.4	26
	MC FC-C103				
	NEW FC-C050	87.3	71.2	46.6	22
Tourney	NEW FC-TY33	99.5	78.4	58.4	26
	NEW FC-TY33-A				



■ X-dimension

Series	Model number	Chain line	x1	x2	x3	x4	x5	x6
Deore	NEW FC-M480	47.5	52.7	45.4	37.4	37.4	72	73
		50	55.2	47.9	39.9	39.9	74.5	73
	NEW FC-M480-K For Chaincase	47.5+t	52.7+t	45.4+t	37.4+t	37.4+t	79.5 +t	75 -t
		*"t"is the thickness of chaincase stay. "t"<2.5mm						
	NEW FC-M440	47.5	52.7	45.4	37.4	37.4	68	70.5
		50	55.2	47.9	39.9	39.9	70.5	70.5
	NEW FC-MC20	47.5	52.7	45.4	37.4	37.4	68	70.5
		50	55.2	47.9	39.9	39.9	70.5	70.5
	NEW FC-MC19	47.5	52.7	45.4	37.4	21.5	68	70.5
		50	55.2	47.9	39.9	24.0	70.5	70.5
Nexave	NEW FC-C900	52.5	54	46.3	—	—	75.0	68.5
	NEW FC-T410	47.5	53.8	46.4	38.2	38.2	78.5	74.5
		47.5+t	53.8+t	46.4+t	38.2+t	38.2+t	78.5+t	74.5-t
	MC FC-T300-S	47.5	53.7	46.8	38.7	43.1	72.9	66.7
		50	56.2	49.3	41.2	45.6	75.4	66.7
	NEW FC-T411	47.5	54.1	45.7	37.1	35.6	78.7	74.5
		47.5+t	54.1+t	45.7+t	37.1+t	35.6+t	78.7+t	74.5-t
	NEW FC-T303	47.5	52.95	45.6	36.85	35.7	72.6	66.7
		50	55.45	48.1	39.35	38.2	75.0	66.7
C-series	FC-C203 FC-C103	47.5	52.95	45.6	36.85	35.7	72.5	66.7
		50	55.45	48.1	39.35	38.2	75.0	66.7
	NEW FC-C050	47.5	52.7	45.5	37.3	35.9	73.75	72.75
		50	55.2	48.0	39.8	38.4	76.25	72.25
Tourney	NEW FC-TY33	47.5	51.95	44.6	35.85	34.7	71.5	67.7
	NEW FC-TY33-A	50	54.45	47.1	38.35	37.2	74.0	67.7

NOTE:
When you want a frame design which minimizes the risk of the frame being scratched by the chain, (e.g. when removing the chain from between the gear and the frame, after the chain has come off, or when freeing a jammed chain) make dimensions C1, C2 and C3 larger than the chain width (more than 10mm).



MTB Front Derailleur and Front Chainwheel Specs.

■ The allowable combinations of front derailleurs and rear derailleurs depends on the difference in the number of teeth of the gears and the shape of the front derailleur plate.

● If the conditions given below are not satisfied, then the desired shiftability may not be obtained.

FCW (top gear) - (low gear) ≦ FD (top and low capacity)

FCW (top gear) - (middle gear) ≧ FD (minimum difference in teeth number between top and middle)

Front derailleurs and the number of teeth for corresponding front chainwheels are given in the chart below.

■ Front derailleur specifications

	Mega-9 drivetrain						
	FD-M952 FD-M952-E	FD-M750-E FD-M570-E	FD-M953 FD-M750 FD-M751 FD-M570 FD-M571 FD-M510	MC FD-T400-S FD-T400-SE FD-MC18 FD-MC18-E FD-M330 FD-M330-E	MC FD-T401-S FD-T401-SE FD-T301 FD-C202 FD-C102	FD-T300 FD-T300-E FD-C201-E FD-C101-E New FD-C050	FD-TY32 FD-TY30
Top gear teeth number	48T/46T	44T	48T/46T/44T	42T	48T	42T	48T
Top-Middle min. teeth difference	12T	12T	12T	10T	10T	8T	10T
Capacity	22T	22T	22T	20T	20T	18T	22T

■ Front chainwheel specifications

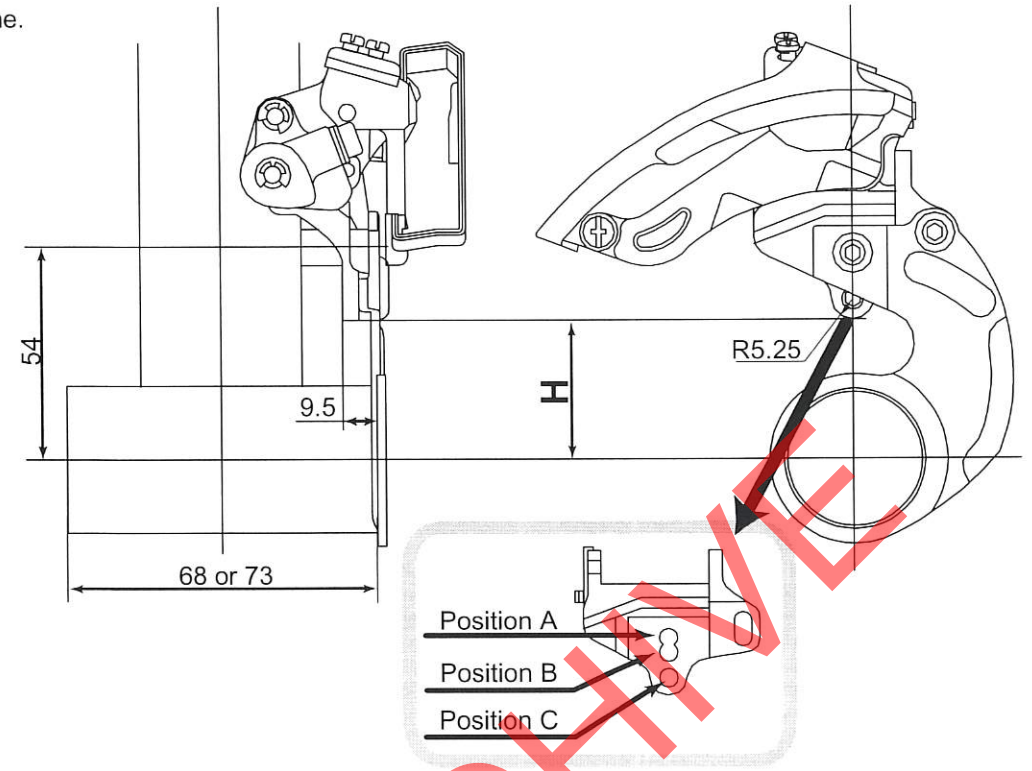
	Mega-9 drivetrain			For IG chain	For HG chain	For HG chain	For HG chain
	FC-M952-4	FC-M952-5	FC-M751 FC-M571 FC-M510 New FC-M480 New FC-M440	New FC-T410 New FC-MC20 New FC-MC19 FC-M330	New FC-T300S FC-CT93 FC-TY40 FC-C201 FC-C101 New FD-C050	New FC-T411	New FC-T303 New FC-TY33 New FC-TY33A New FC-C203 New FC-C103
Top gear	46T	48T	44T	42T	42T	48T	48T
Middle gear	34T	36T	32T	32T	34T	38T	38T
Low gear	24T	26T	22T	22T	24T	28T	28T

NOTE: When using the front derailleur designed for a 7-speed system on an 8-speed system, the front derailleur plate may interfere with the chain even if its installed correctly.

BB Mount front derailleur dimension

■ Shimano has changed a dimension of following E-type BB mount front derailleurs.
(FD-M750-E/M739-E/M570-E/M567-E/MC36-E/MC34-E/T400-E/T401-E)

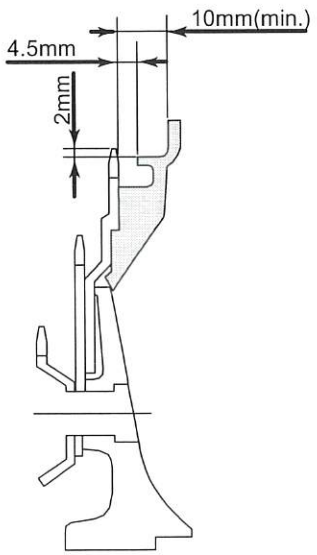
The new dimensions are as shown below. Please make sure that there is no interference with the frame.



	Outer chain ring teeth	Position	Dimension H
FD-M750-E, M570-E	44T	A	35mm
FD-M739-E, M567-E FD-MC36-E, MC34-E FD-T400-SE	42T		
	44T	B	39mm
FD-T401-SE	48T	C	48mm

Chain guard dimension for top-swing front derailleur

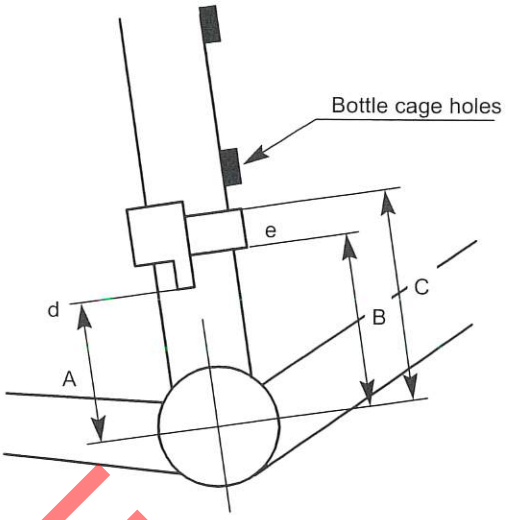
■ When using a non-Shimano chain guard in combination with a Shimano top-swing front derailleur, make sure that the chain guard meets the specifications shown below in order to avoid interference with the derailleur operation.



Frame dimensions for Shimano front derailleurs

■ Front derailleur clamp band position

- The clamp band for the front derailleur is secured on the seat tube at the location marked "e."
- Make sure that the seat tube at "e" where the band is secured is circular. Do not place the bottle cage holes, etc. in this vicinity "e" where they may interfere with the clamp band.

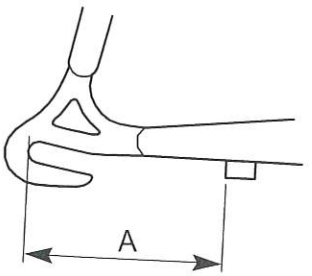


Series	Model no.	FD type	Front gear	A	B	C
XTR	FD-M952	Top swing link (for Mega-9 drivetrain)	FC-M952-4 46-34-24T	—	59mm	95mm
	FD-M953	Conventional (for Mega-9 drivetrain)	FC-M952-5 48-36-26T		125mm	162mm
Deore-XT Deore-LX Deore	FD-M751 FD-M571		FC-M751 FC-M571	105mm	111mm	150mm
	FD-M750 FD-M570 FD-M510	Top swing link (for Mega-9 drivetrain)	FC-M510 NEW FC-M480 NEW FC-M440 44-32-22T	—	51mm	90mm
ALIVIO	MC FD-MC18-S	Top swing link	FC-MC18		58mm	92mm
Acera	FD-M330		FC-M330		45mm	70mm
Nexave	FD-T300		MC FC-T300-S		47mm	77mm
	MC FD-T301		MC FC-T303		50mm	80mm
	MC FD-T400-S		NEW FC-T410		58mm	92mm
	MC FD-T401-S		NEW FC-T411		63mm	102mm
C-series	FD-C202 FD-C102		MC FC-C203 MC FC-C103	53mm	54mm	90mm
	NEW FD-C050		NEW FC-C050	45mm	45mm	67mm
Tourney	FD-TY32		FC-TY30 FC-TY30-A	53mm	54mm	90mm
	FD-TY22GS		—	53mm	54mm	90mm
	FD-TY22SS		—	65mm	66mm	100mm

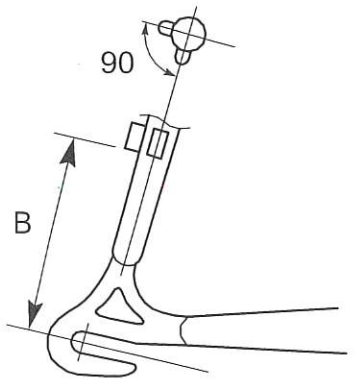
NOTE: For the FD-TY22, dimensions may change depending on the front chain wheel and chain line. This dimension shown is with a front chainwheel of 48 teeth.

Rear derailleur outer cable length and cable stop position

■ Pressed rear dropouts (no derailleur hangers)

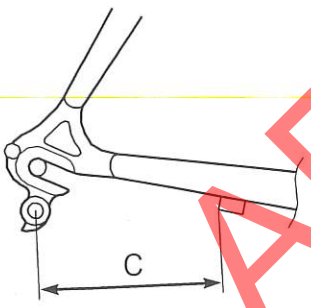


Dimension A	80 mm	90 mm	100 mm
Outer cable length	280 mm	300 mm	320 mm
RD-C101 /C050 (New)	140 mm	150 mm	160 mm

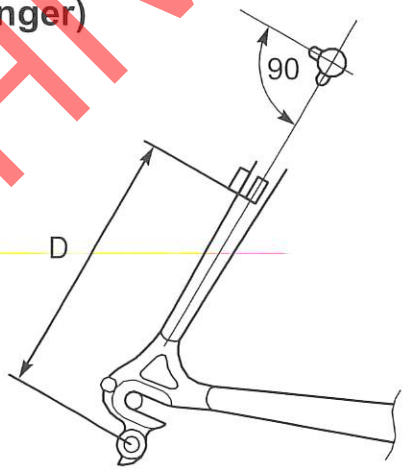


Dimension B	105 mm	120 mm	135 mm
Outer cable length	280 mm	300 mm	320 mm
RD-C101 /C050 (New)	140 mm	160 mm	170 mm

■ Forged rear dropouts (with derailleur hanger)



Dimension C	90 mm	100 mm	110 mm
Outer cable length	280 mm	300 mm	320 mm
RD-C201/101 /C050 (New)	160 mm	170 mm	180 mm



Dimension D	140 mm	155 mm	170 mm
Outer cable length	280 mm	300 mm	320 mm
RD-C201/101 /C050 (New)	160 mm	180 mm	190 mm

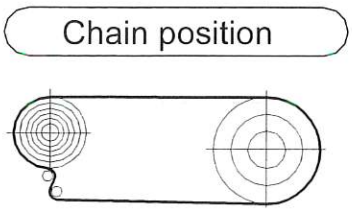
■ Forged rear end with roller guide rear derailleur (with derailleur hanger)

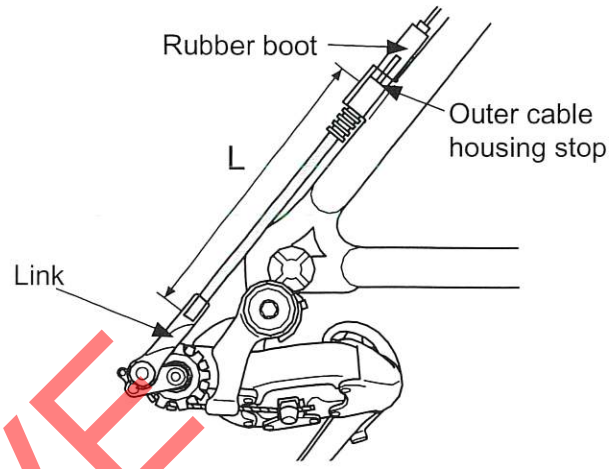
- When using a RD-M951 or RD-T400 roller guide rear derailleur, take the following precautions.
- Make sure that the outer cable does not hit the carrier rack or mud guard stays. Doing so may effect the shifting performance.
- Have the outer cable length as given in the diagrams below.

■ Set the length of the outer cable as shown below.

● Top route

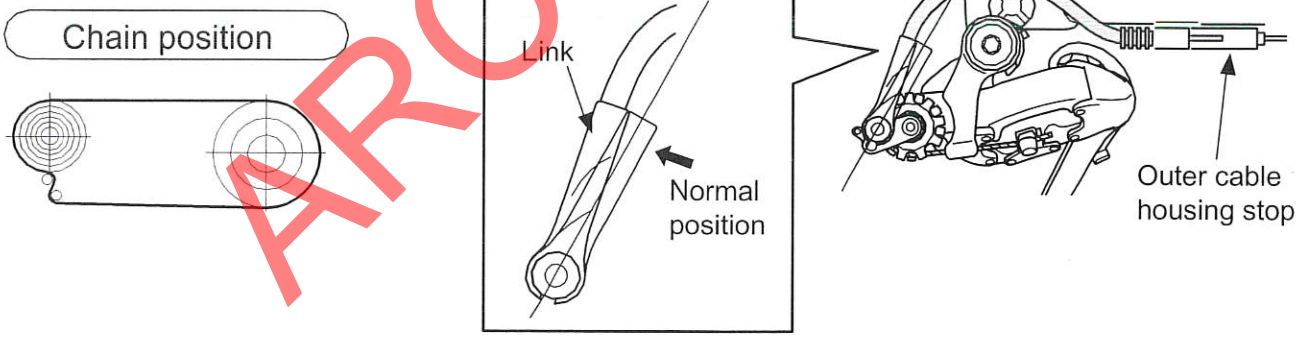
(The chain is on the largest gear for both the front and rear sprockets)
As shown in the diagram, add 5mm to the distance from outer cable housing stop to the link for the length of the outer cable.





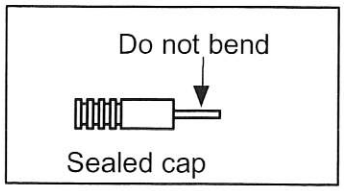
● Bottom route

(The chain is on the largest gear for both the front and rear sprockets)
Set the link position slightly before its normal orientation.



● Regarding the sealed cap and rubber boot

Install the shield cap and rubber boot to the outer cable housing stop on the frame.

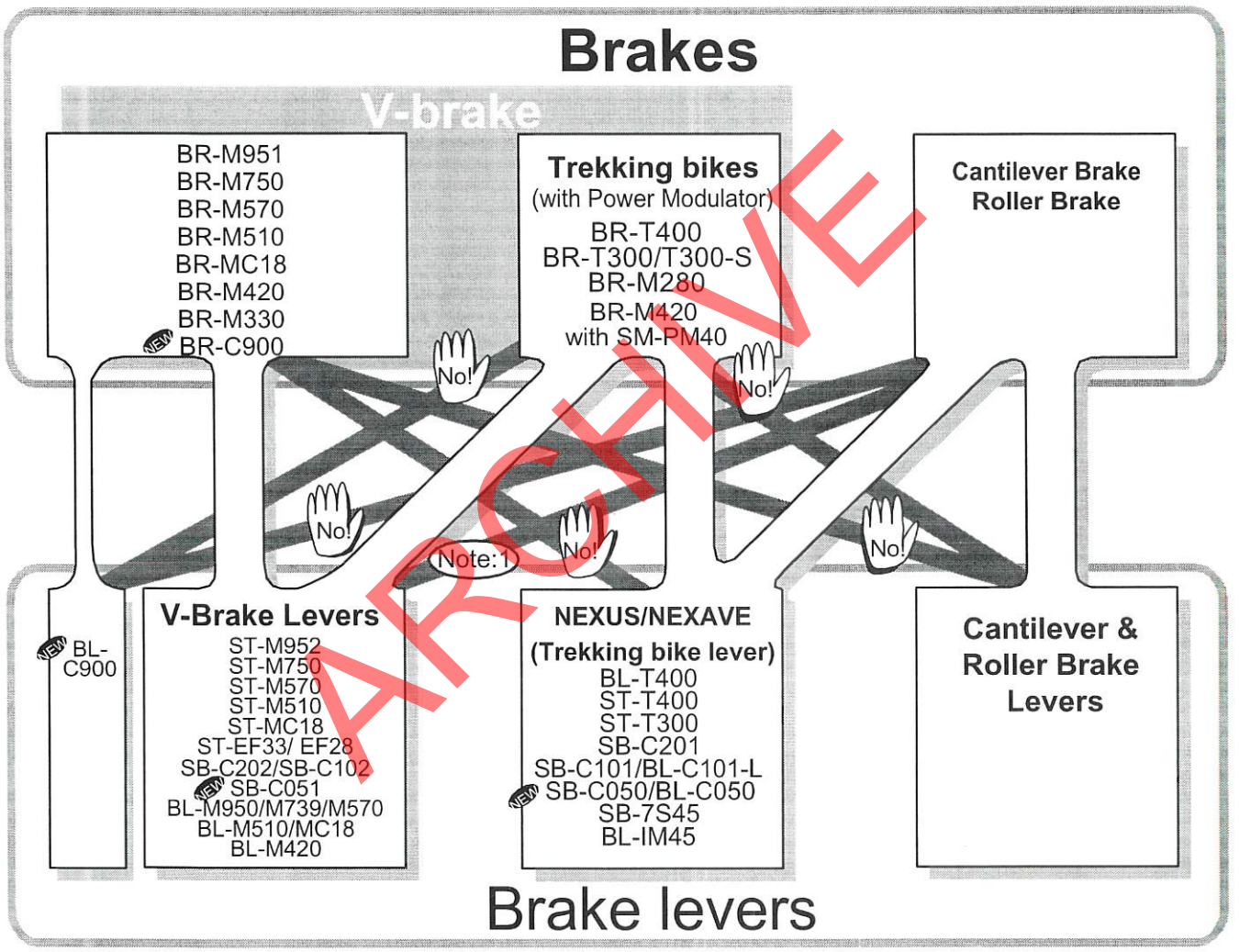


Brakes

Interchangeability between brake systems

■ Depending on the brake and brake lever combination to be used, the relationship between the input at the brake lever and the actual braking force output at the wheels is very easily affected.

● Be very careful when combining a brake and brake lever. Incorrect combinations can cause accidents or insufficient braking forces due to improper cable strokes. Be sure to carefully consult the chart below and select the brake and the matching brake lever.



The "NO!" symbols indicate combinations that should not be used under any circumstances.

Note 1: This combination will not provide the sufficient amount of braking force.

Brake Shoes

Brake/Shoe line-up

	M70R2	Ceramic	M70T3 (NEW)	M70T4 (NEW)	M70W (NEW)	M65T3 (NEW)	M65T4	S70C	S70T	S65T
BR-M951	Standard	Option	—	—	—	—	—	—	—	—
BR-M950	Standard	Option	—	—	—	—	—	—	—	—
BR-M750	Option	Option	Low noise	Option	—	—	—	Standard	—	—
BR-M739	Option	Option	Low noise	Option	—	—	—	Standard	—	—
BR-M570	—	—	Option	Option	—	—	—	—	Standard	—
BR-C900 (NEW)	—	—	—	Option	Standard	—	—	—	Standard	—
BR-M510	Option	—	Option	Option	—	—	—	Option	Standard	—
BR-MC18	—	—	Option	Option	—	—	—	—	Standard	—
BR-M330	—	—	Option	Option	—	—	—	—	—	Standard
BR-M420	—	—	—	—	—	Option	Option	—	—	Standard
BR-T300	—	—	Option	Option	—	—	—	—	Standard	—
BR-CT91	Standard shoe is"CONVENTIONAL TYPE". M55T M-system shoe is optional choice.									

Shoe characteristics

	Cartridge shoe	M-system	Length	Threaded shoe post	Brake shoe characteristics
M70R2	○	○	70mm	○	A race shoe that performs well in dry and wet conditions, and is also highly resistant to wear.may give off noise.
Ceramic	○	—	70mm	○	Specific shoe for ceramic rims.
M70T3	—	○	70mm	○	Performs especially well in wet conditions and may pass DIN standards. Gives off less noise, but the pad is heavier, faster rim wear, and tends to fade.
M65T3	—	○	65mm	○	
M70T4 (NEW)	—	○	70mm	○	Only for side walls machined rims. Performs especially well in wet conditions and may pass DIN standard. Tend to be low noise, low rim wear and fade.
M70W (NEW)	—	○	70mm	○	
M65T4 (NEW)	—	○	65mm	○	
S70C	○	—	70mm	○	Performs well in dry conditions and tends to be low noise. Wears in muddy conditions.
S70T	—	—	70mm	○	
S65T	—	—	65mm	○	

Disc brake lever compatibility

■ Chart showing combinations of Shimano disc brakes

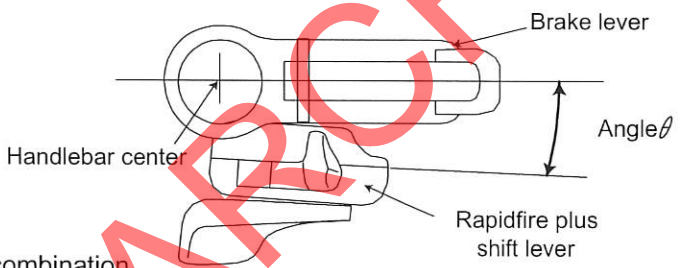
● Shimano disc brakes, lever and caliper are linked by the oil line, and it is filled with brake oil at the time of shipment. When ordering, select the best combination to suit the size of your frame, the shape of the handle bars, the size, and the side, left or right, of the brake lever.

● These are the combinations of Shimano disc brakes.

Brake caliper	Brake lever	Length of oil line (cm)	Use
New BR-M755 New BR-M555 New BR-C901 (Front)	BL-M755/BL-M555 New BL-C901 (Right)	New 50, 60, 70, 80, 90, 100	Lever on the right to control front brakes
	BL-M755/BL-M555 New BL-C901 (Left)	New 50, 60, 70, 80, 90, 100	Lever on the left to control front brakes
New BR-M755 New BR-M555 New BR-C901 (Rear)	BL-M755/BL-M555 New BL-C901 (Right)	New 120, 130, 140, 150, 160, 170	Lever on the right to control rear brakes
	BL-M755/BL-M555 New BL-C901 (Left)	120, 130, 140, 150, 160, 170	Lever on the left to control rear brakes

NOTE: Select a length of oil line so there will still be some leeway when the handle bars are fully turned.
The oil lines for Shimano disc brakes are made from stainless steel. Take care not to scratch the frame when fitting them.
Shimano disc brakes are fully adjusted at the time of shipment. Do not loosen the connector or master cylinder. Also, to maintain the adjusted state, do not squeeze the brake lever.
Do not remove the material from the brake pads until you have fitted them.

■ Combinations of disc BL-M755 and shift levers.



Angle θ of each combination

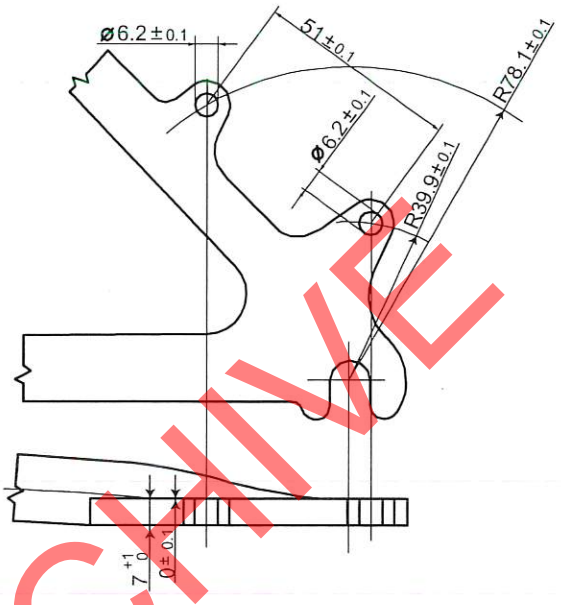
Series	Model No.	Speed	With Optical Gear Display	Without Optical Gear Display	With Flight Deck	Note
XTR	SL-M952	9	0 degree	0 degree	4 degree	
	SL-M951	8	15 degree	8 degree	22 degree	
	SL-M950	8	—	8 degree	—	
Deore-XT	SL-M750	9	0 degree	0 degree	4 degree	
	SL-M740	8	15 degree	8 degree	22 degree	
	SL-M739	8	—	8 degree	—	
Deore-LX	SL-M570	9	0 degree	0 degree	4 degree	
	SL-M569	8	2 degree	—	—	Same measurements as SL-MC41/MC40/MC18
Deore	SL-M510	9	0 degree	—	4 degree	
STX-RC/STX Alivio	SL-MC38 SL-MC37	7/8	—	2 degree	—	

Disc Brake Mount

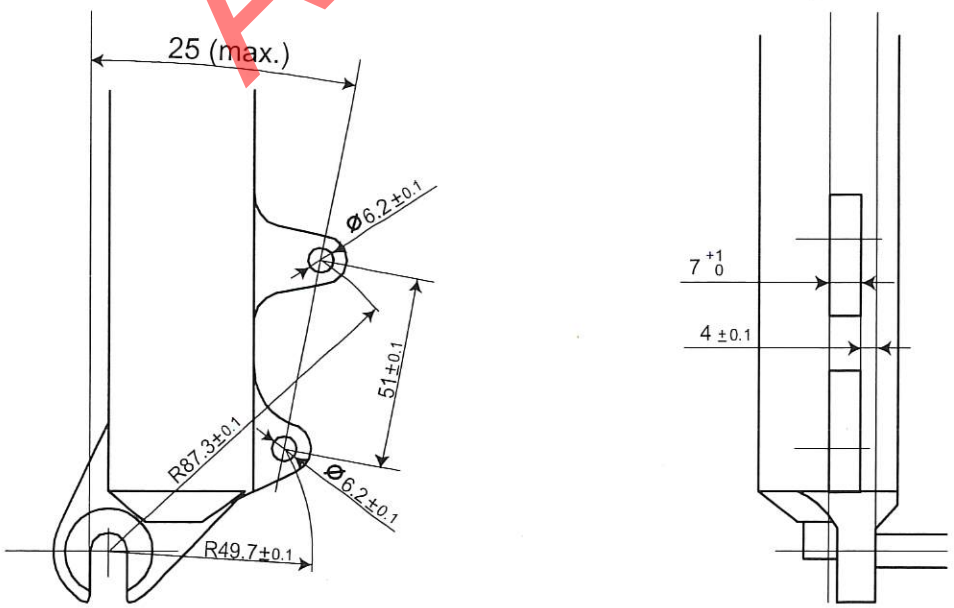
■ Disc brake mount dimensions

Shimano disc brake is designed to fit the frame and front fork as shown below.
(The dimensionsshown below are as same as the International Standard disc brake mount.)

Rear frame dimensions

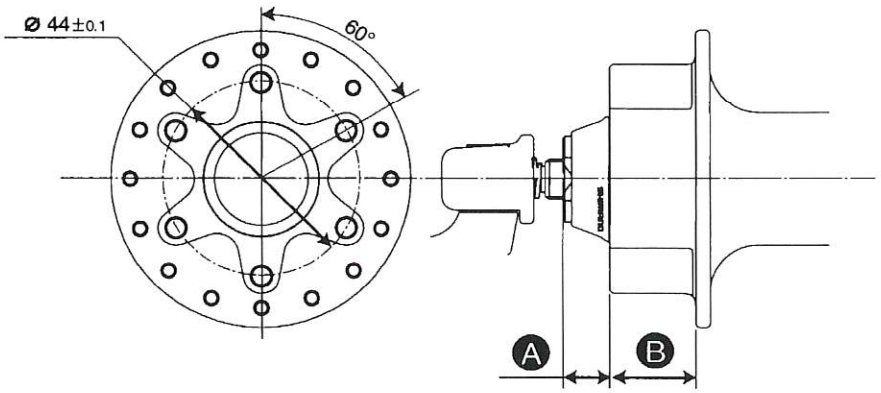


Front fork dimensions



■ D-6-2 Hub dimensions for Shimano disc brake

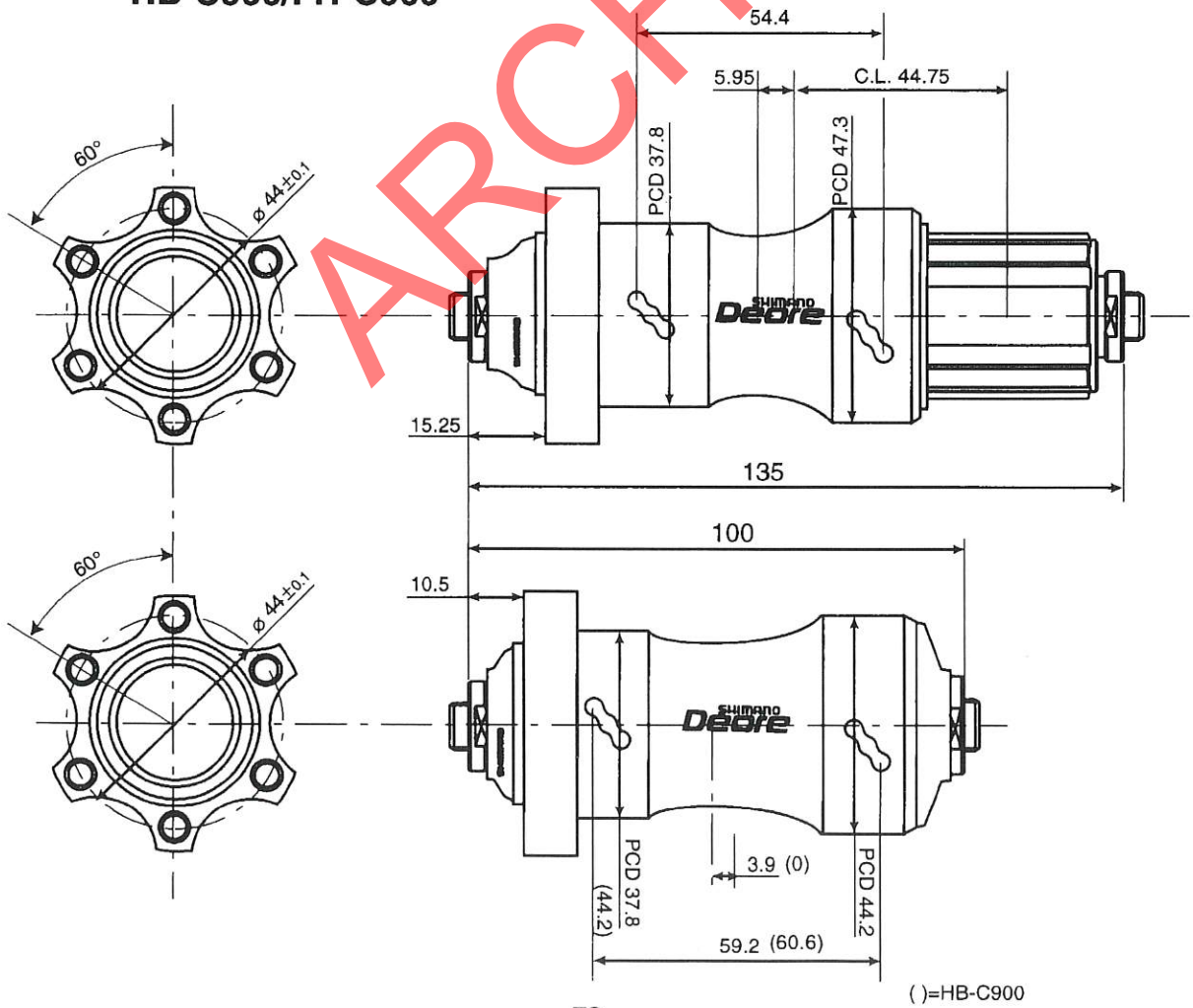
● Shimano disc is able to mount to the hubs with following dimensions.Following required dimensions are as same as Hayes disc brake.



	Dimension A	Dimension B
Front	10.5±0.1	14.4
Rear	15.25±0.1	16.2

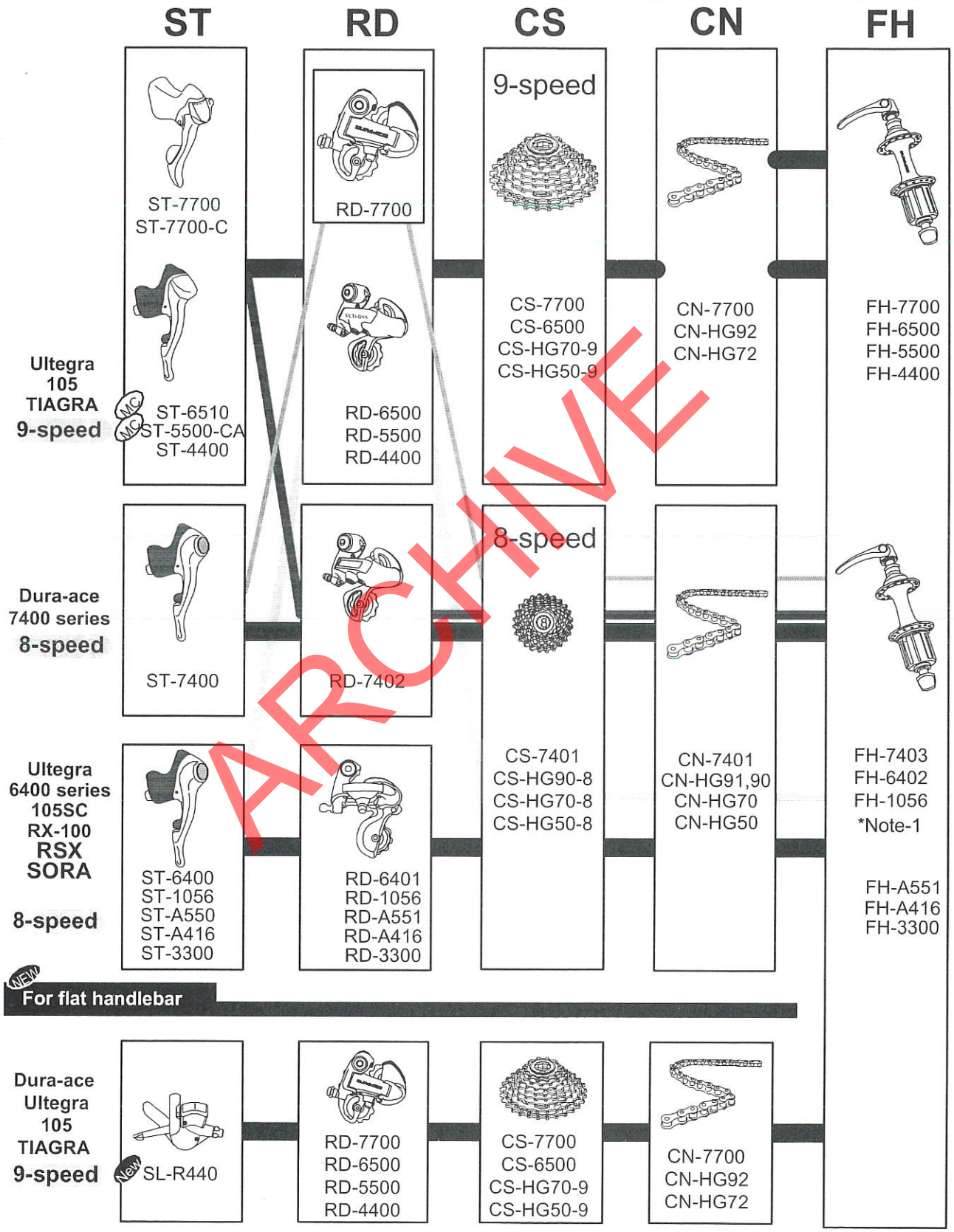
NEW

■ D-6-3 HB-M555/FH-M555 Hub dimensions HB-C901/FH-C901 HB-C900/FH-C900



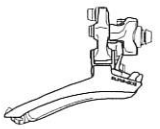
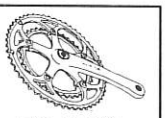
Road Bike Components

Rear Drivetrain Interchangeability



Note-1:
The FH components listed here cannot be used with 11T sprockets

Front Drivetrain Interchangeability

	ST	FD	FC	BB	CN
Dura-ace 7700 series TIAGRA Double	 ST-7700 ST-7700-C	 FD-7700 FD-6500 FD-5500 FD-4400	 FC-7700 FC-6500 FC-5500 FC-5501	 *1 BB-7700 BB-6500 BB-5500	 CN-7700 CN-HG92 CN-HG72
Ultegra 6500 series 105 5500 series TIAGRA Double Triple	 MC MC ST-6510 ST-5500-CA ST-4400	 FD-6503 FD-5503 FD-4403	FC-4400	BB-UN72 BB-UN52 BB-UN40	
			 FC-6503 FC-5503 FC-5504	 *1 BB-6500 BB-5500	
			FC-4403	BB-UN72 BB-UN52 BB-UN40	
Dura-ace 7400 series Ultegra 6400 series 105SC RX-100 RSX SORA Double	 ST-7400 ST-6400 ST-1055 ST-A550 ST-A416 ST-3300	 FD-7410 FD-6401 FD-1056 FD-A551 FD-A416 FD-3300	FC-7410	BB-7410	
			 FC-6400 FC-1056 FC-A551 FC-A416 FC-3300	 *2 BB-UN72 BB-UN52 BB-UN40	 CN-7401 CN-HG90 CN-HG91 CN-HG70 CN-HG50
105SC RSX SORA Triple	ST-1055-T ST-A417 ST-3303	FD-1057 FD-A417 FD-3303	FC-1057 FC-A417 FC-3303	*2 BB-UN72 BB-UN52 BB-UN40	

*Notes 1 and 2: Axle length is different

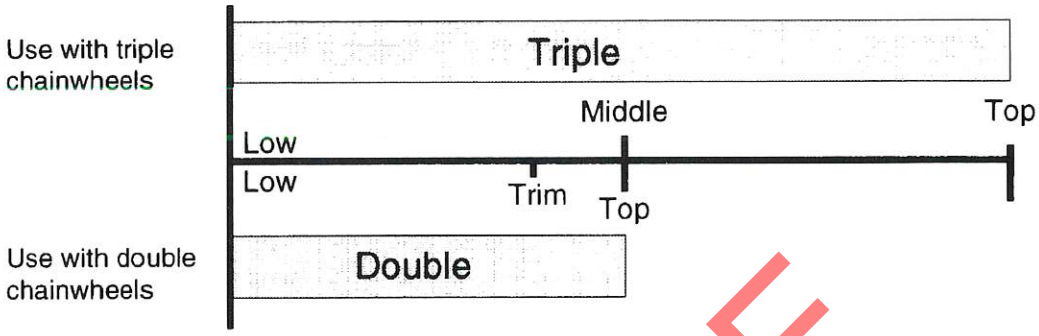
New For flat handlebar

Dura-ace Ultegra 105 TIAGRA 9-speed	 New SL-R440	 New FD-R440	FC-7700 FC-6500 FC-5501	BB-7700 BB-6500 BB-5500	 CN-7700 CN-HG92 CN-HG72
			FC-4400	BB-UN72 BB-UN52 BB-UN40	
		 New FD-R443	FC-4403		
			FC-6503 FC-5504	BB-6500 BB-5500	

F-3 Shift lever cable stroke

■ The dual control lever(Shift lever) for the Ultegra, 105,Tiagra and SL-R440 can be used with double (FC-6500, FC-5501 and FC-4400) and triple (FC-6503, FC-5504 amd FC-4403) front chainwheels.

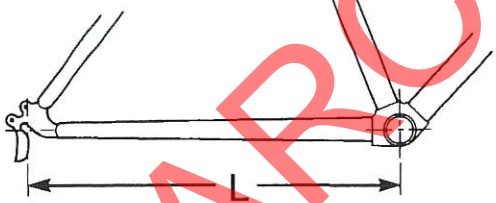
- When used with double chainwheels, use the low and middle ranges of the ST-6510, ST-5500-CA,ST-4400, SL-R440 and adjust the front derailleur setting with the trim position as shown below.
- When used with triple chainwheels, adjust the front derailleur setting with the middle position as shown below.



F -4 About Chainstay

■ F-4-1 Chainstay length

■ All Shimano road components are designed for use with and tested on chainstays that are 405 mm or longer. If the components are used on chainstays that are shorter than 405 mm, the components may not operate properly.



L ≥ 405 mm

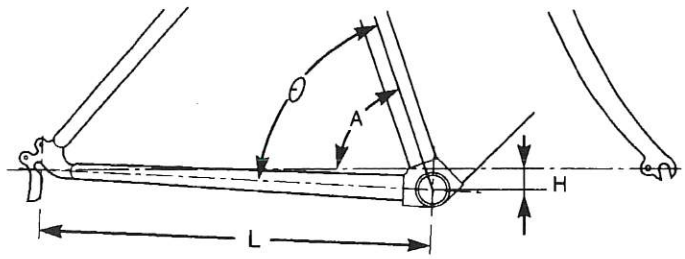
L = The distance from the center of the bottom bracket to the center of the rear hub.

■ F-4-2 Chainstay angle "θ"

■ In order for the front SIS shifting to function properly, the chainstay angle is of most importance. Design the chainstay angle so that it falls within the allowable range depending on the front derailleur you are using.

(The allowable chainstay angle "θ" for each front derailleur is listed in the 1999 model specifications handbook.)

Model No.	Type	Chainstay angle "θ"
FD-7700 FD-6500 FD-5500 FD-4400 FD-3300	Double	61° to 66°
FD-6503 FD-5503 FD-4403 FD-3303	Triple	63° to 66°



θ : Chainstay angle
A : Seat tube angle
H : Hanger drop

$\theta = A - \sin^{-1}\frac{H}{L}$

$H = L \times \sin(A-\theta)$

BRAKE SHOE SPECIFICATIONS & RECOMMENDED RIDING CONDITIONS

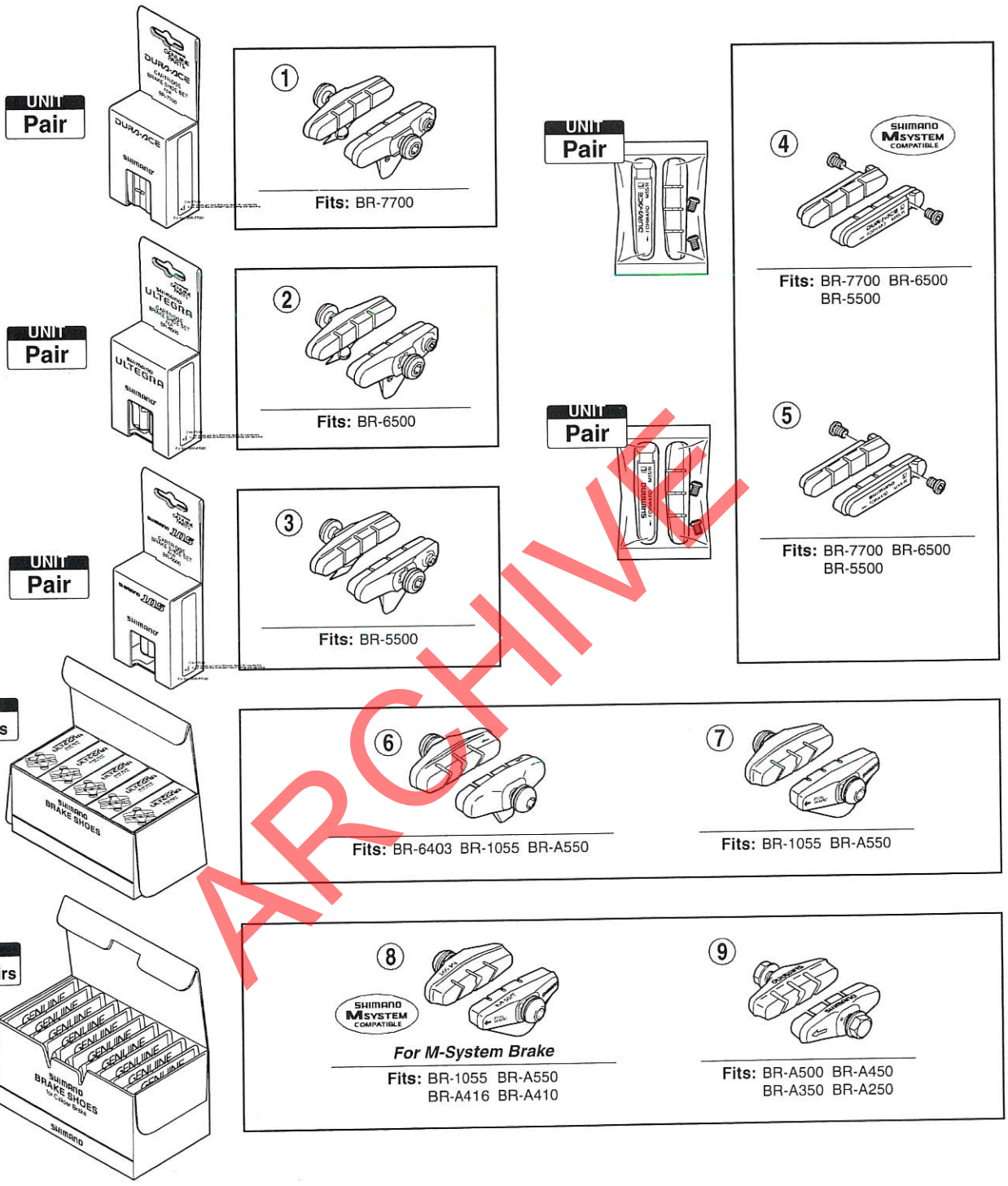
MTB

Model No.	Recommended riding conditions	Shoe compound	Part No. Shoe & Pins	Part No. Shoe/holder	Performance features
START HERE					
BR-M950/1 BR-M750 BR-M739 BR-M510	All weather. Classic Multi-condition compound	M70R2	Y8AA98020	BR-M950/1-Y8AB98010 BR-M750-Y8BW98010 BR-M739-Y8AA98010	Good stopping performance in any condition. Good durability.
	Severe conditions, racing. Classic Multi condition compound.	M70R2	Y8AA98200	N/A	Same as above. Shoe is 1mm thicker for longer durability.
	Dry off-road conditions. Moist on-road.	S70C	Y8AA98130	BR-M750-Y8GV98020 BR-M739-Y8GV98020	Minimal fade and excellent modulation in dry conditions. Tends to be low noise in moist weather. No rim grinding. Labeled "ON ROAD USE"
	Ceramic rim specific	CERAMIC	Y8AA98040	BR-M950/1- BR-M739-Y8AA98100	Ceramic rims only. Not recommended for standard rims.
BR-M600/570 BR-M510 BR-MC18/M330 BR-T300	Wet weather conditions	M70T3	N/A	Y8BM98100	Possible reduced squealing noise compared to M70R2. Above DIN standard for wet condition stopping.
	Dry conditions	S70T	N/A	Y8GV98010	Performs well in dry conditions and tends to be low noise.
BR-T400, BR-MC40 BR-M280 , BR-MC16 Canti style mount	Wet weather conditions	M70/T2	N/A	Y8CF98100	Possible reduced squealing noise. Above DIN standard for wet condition stopping.
BR-M420 BR-M330	Dry conditions	S65T	N/A	Y8GP98100 Sold in 10 pair packs.	Performs well in dry conditions and tends to be low noise. Shoe is 5 mm shorter than S70T

ROAD

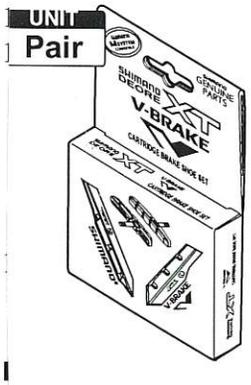
BR-7700 BR-6500 BR-5500	Dry conditions	R55C	Y8FA98020	BR-7700-Y8FA98010 BR-6500-Y83H98010 BR-5500-Y83J98010	Minimal fade and excellent modulation in dry conditions. Tends to be low noise in moist weather. No rim grinding.
	Wet conditions, high performance riding	R55HC	Y8FA98021	N/A	Exceptional wet stopping performance. Good in dry conditions. Good wet durability. May cause accelerated wear for some rims.
	Ceramic rim specific	CERAMIC	N/A	N/A	Brake shoe not in production.
BR-4400 BR-3300 BR-A410 BR-A416	Dry conditions	R50T	N/A	Y82A99010 Sold in 5 pair packs	Good performance in dry conditions. Tends to be low noise.
	All weather. Classic Multi condition compound	M50T	N/A	Y8BC98100 Sold in 10 pair packs	Good performance. Good durability.

BRAKE SHOES for Road



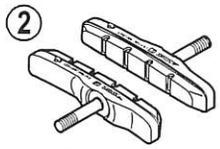
=	=	Q'TY	ITEM NO.	SHIMANO CODE NO.	DESCRIPTION
			1	**Y-8FA 98010**	BR-7700 Dura-Ace Cartridge Brake Shoe Set (Pair)
			2	**Y-83H 98010**	BR-6500 Ultegra Cartridge Brake Shoe Set (Pair)
			3	**Y-83J 98010**	BR-5500 105 Cartridge Brake Shoe Set (Pair)
			4	**Y-8FA 98021**	BR-7700 High Performance Type Brake Shoes & Fixing Bolts (Pair)
			5	**Y-8FA 98020**	BR-7700, BR-6500, BR--5500 Replacement Brake Shoes & Fixing Bolts (Pair)
			6	**Y-83G 98010**	BR-6403 Shimano 600 Brake Shoe Set (5 pairs)
			7	**Y-82A 99010**	R50/T 105SC, TIAGRA, SORA, RSX Brake Shoe Set (5 pairs)
			8	**Y-8BC98100**	M50/T 105SC, TIAGRA, SORA, RSX Multi-condition Brake Shoe Set (10 pairs)
			9	**Y-81G 98100**	BR-A250 300EX Brake Shoe Set (10 pairs)

Cartridge-Type
BRAKE SHOES for MTB



For V-Brake

Fits: BR-M951 BR-M950
BR-M739 BR-M510

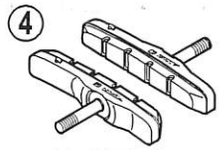


For V-Brake

Fits: BR-M951 BR-M950
BR-M750 BR-M739

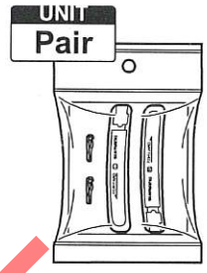
For V-Brake

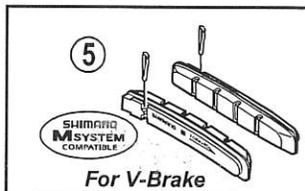
Fits: BR-M750 BR-M739



For V-Brake

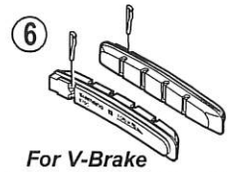
Fits: BR-M750 BR-M739
BR-M510





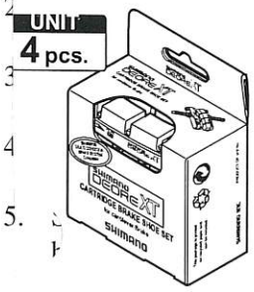
For V-Brake

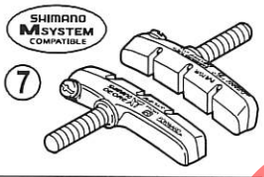
Fits: BR-M951 BR-M950
BR-M750 BR-M739
BR-M510



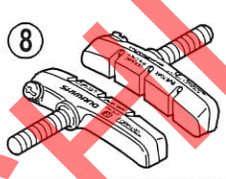
For V-Brake

Fits: BR-M750 BR-M739
BR-M510

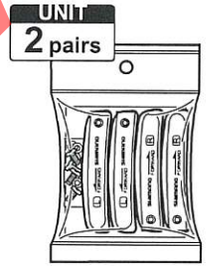


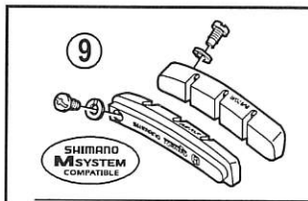


Fits: BR-M900-C BR-M900
BR-M737 BR-M565-E

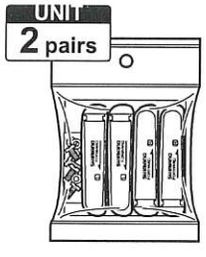


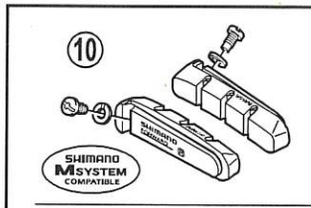
Fits: BR-M900-C BR-M900
BR-M737 BR-M565-E





Fits: BR-M900-C BR-M900
BR-M737 BR-M565-E





Fits: BR-M565 BR-M565-E
BR-MC33 BR-MC33-E

=	=		ITEM NO.	SHIMANO PART NO.	DESCRIPTION
			1	**Y-8AB 98010**	M70R2 XTR Brake Shoe Set (Pair) Multi-condition
				Y-8AA 98010	M70R2 XT Brake Shoe Set (Pair)
			2	**Y-8AA 98030**	XTR Brake Shoe Set (Pair) for Ceramic Rim
				Y-8AA 98100	XT Brake Shoe Set (Pair) for Ceramic Rim
			3	**Y-8BW 98010**	M70R2 (XT BR-M750) Brake Shoe Set (Pair)
			4	**Y-8GV 98020**	S70C (XT BR-M750) Brake Shoe Set (Pair) Dry off-road, moist on road
			5	**Y-8AA 98020***	M70R2 XTR, XT, LX, DEORE Brake Shoes & Fixing Pins (Pair)
				Y-8AA 98040	XTR, XT Brake Shoes & Fixing Pins (Pair) for Ceramic Rim
			6	**Y-8AA 98130**	S70C XTR, XT, DEORE Brake Shoes & Fixing Pins (Pair) Labeled "ON ROAD USE"
			7	**Y-83X 98010**	XTR, XT,LX Canti style mount Brake Shoe Set (4 pcs.)
			8	**Y-8BG 98100**	M70R XTR, XT, LX Canti style mount Brake Shoe Set (4 pcs.) for Ceramic Rim
			9	**Y-83X 98020**	M70R XTR, XT, LX Canti style mount Brake Shoes & Fixing Screws (2 pairs)
				Y-83X 98070	M70R XTR, XT, LX Canti style mount Brake Shoes & Fixing Screws (2 pairs) for Ceramic Rim
			10	**Y-8BA 98020**	M65T LX, STX-RC, STX Canti style mount Brake Shoes & Fixing Screws (2 pairs)

** Severe condition #Y8AA98200*

SHIMANO WHEEL SET REPAIR GUIDE

1. PREPARATION FOR REPAIRS

NOTE: Before attempting any wheel repair, please read the instructions thoroughly and completely.

Warranty and factory approved repairs should be performed by a Authorized Shimano Wheel Technician or Dealer to ensure that the repaired wheel will meet factory Shimano specifications.

In addition to the necessary wheel parts, (rim, spoke / washer assembly, and nipple) the following items and tools are required to properly perform any wheel repair:

1. Professional quality wheel truing stand
2. Shimano approved / compatible spoke tensiometer(such as the Wheelsmith)
3. Shimano spoke wrench
4. Professional quality dishing tool
5. Nipple thread prep (such a Wheelsmith Spoke Prep™)
6. #1 phillips screwdriver or (optional) low powered motorized driver

2. SPOKE REPLACEMENT

1. Remove tire, tube, and rimstrip. If the broken spoke is on the rear hub, removal of the cassette may be necessary.
2. De-tension the complimentary spokes to relieve uneven stress on the rim and ease spoke replacement.
3. Prep the replacement spoke(s) by dipping the threaded portion of the spoke in the nipple thread compound and allowing to dry.
4. Remove the broken portion of the spoke and washer from the rim.
5. Thread the new spoke with attached washer into the rim hole being sure to completely seat the washer into the rim hole. Spoke length for the front wheel is 294mm and the rear is 291mm. NOTE: If the washer was not factory installed on the spoke be sure to seat the washer on the spoke head as shown in figure 1(below).

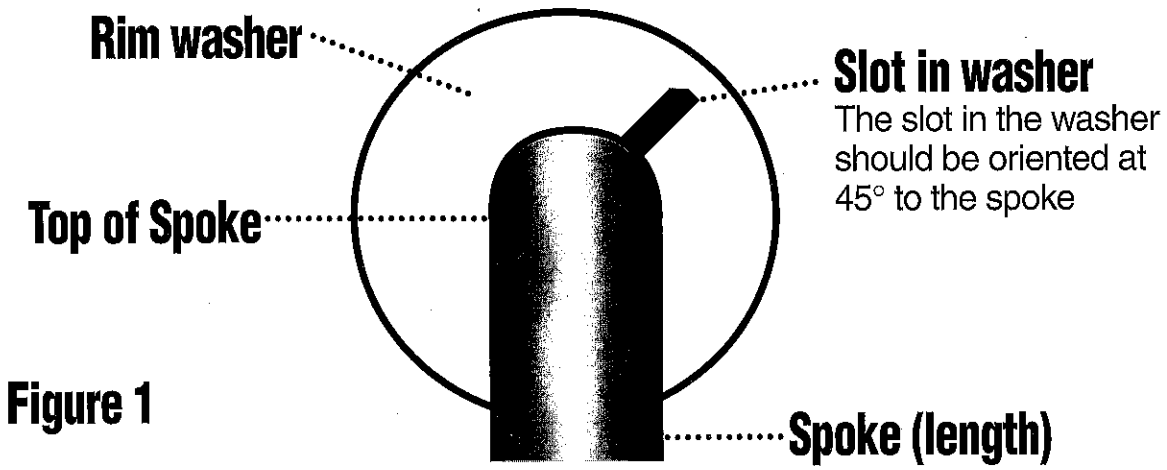


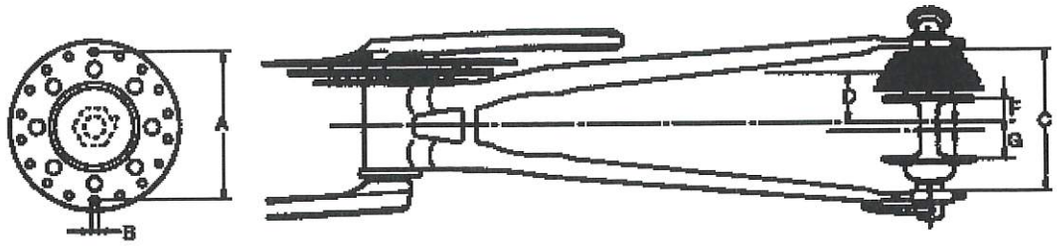
Figure 1

6. Inspect the nipple for damage and replace if necessary.
7. Place the nipple into the hub and thread it onto the end of the new spoke. Pre-tension the replaced spoke to match the tension of the remaining spokes.
8. Place the wheel in the truing stand and check and adjust the wheel roundness first.
9. Next, adjust the side to side variance in the rim.
10. Check the wheel dish and adjust as necessary.
11. Finally, check the spoke tension and adjust to a minimum of 100 Kgfcm and a maximum of 150 Kgfcm. Spoke tensions should be relatively comparable to one another (within a range of 20 Kgfcm). Be sure not to turn any nipple more than _ turn at a time. Also, you may need to turn the spoke back slightly to make sure that the spoke does not wind up. Use the slotted portion of the Shimano spoke wrench to stabilize the spoke when tensioning as necessary.
12. The wheel true and spoke tension should be rechecked after being stressed/loaded or test ridden.

3. RIM REPLACEMENT

1. Follow steps 1 and 2 from spoke replacement above. Once the spokes are de-tensioned, carefully remove them from the rim.
2. Install all 16 spokes into the new rim, taking care to completely seat the washer into the rim hole.
3. To properly orient the rim to the hub, first place the rim flat with the valve hole closest to you.
4. Next, place the hub in the center of the rim with one of the four arms of the hub flange pointing towards the valve hole. For the rear hub, place the freehub body pointing up.
5. Starting with the spoke exiting the top side of the rim to the right of the valve hole, assemble the spoke to the hub on the lower side of the flange. Refer to figure 2 for assembly order and spoke placement.
6. Assemble all 4 outside spokes first on the lower flange and then the 4 remaining outside spokes onto the upper flange. Finish by assembling all of the inner spokes on both the lower and upper flanges respectively.
7. When installing the inner spokes always be sure to cross the spokes to the outside
8. Using the phillips screwdriver, pre-tension all of the spokes evenly, but not too tightly.
9. Once all of the spokes are installed, follow steps 7 through 11 from the spoke replacement instructions above.

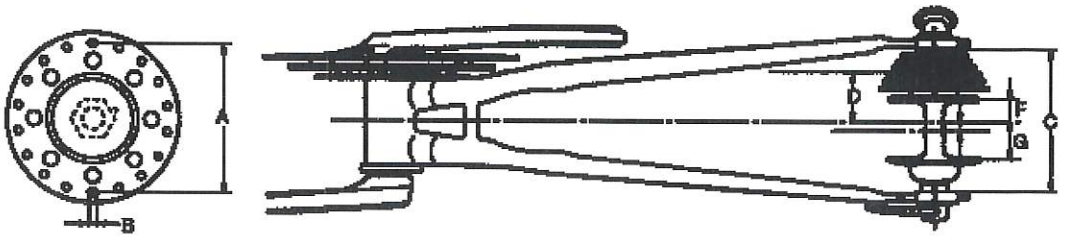
SHIMANO® FREEHUB SPECIFICATIONS



	Model No.	Weight	Flange Diameter	Spoke Hole Diameter	SIS Comp.	Over Lock Nut Dimension	Chain Line	Dish Distance	Center to Flange (R)	Center to Flange (L)
DURA-ACE	HB-7400/7700	228g	38mm	2.4mm		100mm			37mm	37mm
	FH-7400	439g	44mm	2.4mm	6S	126mm	43mm	6.8mm	23.2mm	36.8mm
					7S		42.6mm	8.15mm	21.85mm	38.15mm
	FH-7402	460g	44mm	2.4mm	8S	130mm	42.6mm	7.9mm	21.1mm	36.9mm
	FH-7403	439g	44mm	2.4mm	HG8S	130mm	42.6mm	7.9mm	21.1mm	36.9mm
	FH-7700	375g	44mm	2.4mm	HG9S	130mm	42.6mm	7.9mm	21.1mm	36.9mm
	HB-7710	203g	38mm	2.4mm		100mm			35.4mm	35.4mm
	HB-7710	298g	44mm	2.4mm	Double Cog	120mm			31.9mm	31.9mm
	HB-7710	298g	44mm	2.4mm	Single Cog	120mm			33mm	36.3mm
Shimano 600 ULTEGRA	HB-6400-F	212g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH--6401	423g	45mm	2.6mm	HG7S	126mm	41.2mm	8.3mm	20.7mm	37.3mm
	FH-6402	426g	45mm	2.6mm	HG8S	130mm	42.2mm	8.1mm	20.9mm	37.1mm
	HB-6500	198g	38mm	2.6mm		100mm			35.5mm	35.5mm
	FH-6500	266g	45mm	2.6mm	HG9S	130mm			20.5mm	32.5mm
Shimano 105	HB-5500	207g	38mm	2.6mm		100mm			35.5mm	35.5mm
	FH-5500	286g	45mm	2.6mm	HG9S	130mm			20.5mm	32.5mm
Shimano 105 SC	HB-1055-F	216g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-1056	427g	45mm	2.6mm	HG8S	130mm	42.2mm	8.1mm	20.9mm	37.1mm
	FH-1055	415g	45mm	2.6mm	HG7S	126mm	41.2mm	8.3mm	20.7mm	37.3mm
TIAGRA	HB-4400	212g	38mm	2.6mm		100mm			35.5mm	35.5mm
	FH-4400	426g	45mm	2.6mm	HG9S	130mm			21.3mm	38.7mm
SORA	HB-3300	212g	38mm	2.6mm		100mm			35.5mm	35.5mm
	FH-3300	426g	45mm	2.6mm	HG8/9S	130mm			21.3mm	38.7mm
Shimano RX100	HB-A550-F	202g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-A550	420g	45mm	2.6mm	HG7S	126mm	41.2mm	8.3mm	20.7mm	37.3mm
RSX	HB-A410		38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-A410		45mm	2.6mm	HG7S	126mm		8.4mm	20.7mm	37.5mm
	FH-A410		45mm	2.6mm	HG7S	130mm		6.9mm	22.2mm	36.0mm
EXAGE	HB-RM50-F	228g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-HG50	435g	45mm	2.6mm	HG7S	126mm	41.2mm	9mm	20.2mm	38.2mm

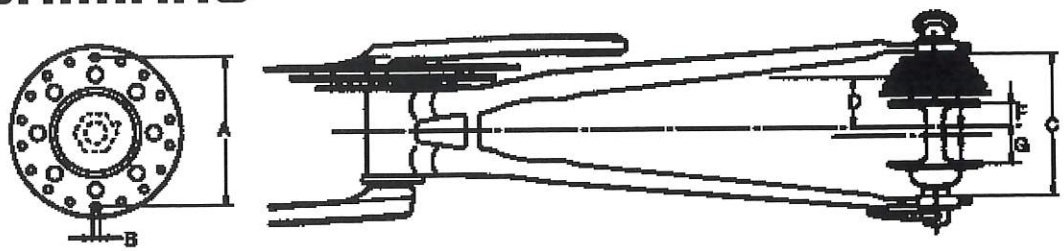
SHIMANO®

FREEHUB SPECIFICATIONS



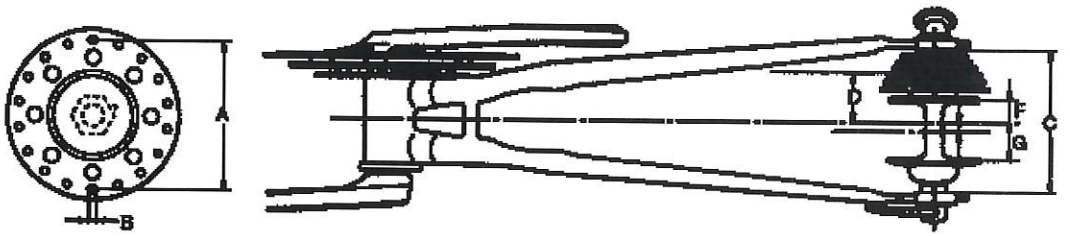
	Model No.	Weight	Flange Diameter	Spoke Hole Diameter	SIS Comp.	Over Lock Nut Dimension	Chain Line	Dish Distance	Center to Flange (R)	Center to Flange (L)
TANDEM	HB-HF06		62.5mm	2.6mm		100mm				
	FH-HF06		62.5mm	2.6mm	HG9S	145mm				
	HB-HF08		62.5mm	2.6mm		100mm				
	FH-HF08		62.5mm	2.6mm	HG9S	145mm				
NEXAVE	HB-C900		N/A	N/A		100mm			44.2mm	44.2mm
	FH-C900		N/A	N/A	HG9S	135mm			47.3mm	37.8mm
	HB-C901		N/A	N/A		100mm			44.2mm	37.8mm
	FH-C901		N/A	N/A	HG9S	135mm			47.3mm	37.8mm
NEXUS	SG-7R40	1520g (w/o brake)	87mm	2.6mm		130mm	45.8mm		23.45mm	31.15mm
NEXUS	SG-7C21	1780g	87mm			127mm	46.5mm		24.70mm	29.73mm
		(w/ brake)				127mm	41.5mm / 46.5mm			
NEXUS	SG-4R31	1330g	84mm			123.5mm	44mm		19.45mm	25.30mm
NEXUS	SG-4C30	1680g	84mm			123.5mm	44mm		33.55mm	27.70mm
NEXUS	SG-3C40		59mm	2.8mm		120mm			27.6mm	27.6mm
NEXUS	HB-IM40	870g	52mm			100mm			33mm	26mm
DX	HB-MX66		44.6mm	2.6mm		100mm			35.8mm	35.8mm
	FH-MX66		38mm	2.6mm	Single	112mm			29mm	29mm
Shimano XTR	HB-M950	190g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M950	371g	45mm	2.6mm	HG8S	135mm	44.75mm	6.8mm	23.2mm	26.8mm
DEORE XT	HB-M737	202g	38mm	2.6mm		100mm			35.8mm	35.8mm
	HB-M738	206g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M737	452g	45mm	2.6mm	HG8S	135mm	44.75mm	6.8mm	23.2mm	36.8mm
	HB-M755		61mm	2.6mm		100mm			21.1mm	31.7mm
	FH-M755		61mm	2.6mm	HG9S	135mm			18.55mm	32.15mm
	HB-M750	202g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M750	445g	45mm	2.6mm	HG9S	135mm			23.2mm	36.8mm

SHIMANO® FREEHUB SPECIFICATIONS



	Model No.	Weight	Flange Diameter	Spoke Hole Diameter	SIS Comp.	Over Lock Nut Dimension	Chain Line	Dish Distance	Center to Flange (R)	Center to Flange (L)
DEORE LX	HB-M563		38mm	2.6mm		100mm			35.8mm	35.8mm
	HB-M564	218g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M563	444g	45mm	2.6mm	HG7S	130mm	43.2mm	7.3mm	23.0mm	37.6mm
	FH-M563		45mm	2.6mm	HG7S	135mm	45.7mm	4.8mm	25.5mm	35.1mm
	FH-M565	442g	45mm	2.6mm	HG8S	135mm	44.95mm	7.6mm	22.7mm	37.9mm
	HB-M570	205g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M570	426g	45mm	2.6mm	HG9S	135mm			23.2mm	36.8mm
DEORE	HB-M510	218g	42mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M510	426g	45mm	2.6mm	HG9S	135mm			23.2mm	36.8mm
	HB-M555		Right 44.2	Left 37.8		100mm			25.7	33.5
	FH-M555		47.3	37.8	HG9S	135mm			21.25	33.15
DEORE LX & STX-RC	FH-R080	615g	45mm	2.6mm	HG8S	135mm	44.95mm	7.6mm	22.7mm	37.9mm
STX-RC	HB-MC33-S	225g	38mm	2.6mm		100mm			35.8mm	35.8mm
	HB-MC33	212g	38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-MC33	432g	45mm	2.6mm	HG7S/IG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
	FH-MC33		45mm	2.6mm	HG7S/IG7S	135mm	45.2mm	5.3mm	25.0mm	35.6mm
STX	HB-MC32		38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-MC32		45mm	2.6mm	HG7S/IG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
	FH-MC32		45mm	2.6mm	HG7S/IG7S	135mm	45.2mm	5.3mm	25.0mm	35.6mm
STX & ALIVIO	FH-R050		45mm	2.6mm	HG7S/IG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
			45mm	2.6mm		135mm	45.2mm	5.3mm	25.0mm	35.6mm
ALIVIO	HB-MC12		38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-MC12		45mm	2.6mm	HG7S/IG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
	FH-MC12		45mm	2.6mm	HG7S/IG7S	135mm	45.2mm	5.3mm	25.0mm	35.6mm
ACERA	HB-M290		38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-M290		45mm	2.6mm	HG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
	FH-M290		45mm	2.6mm	HG7S	135mm	45.2mm	5.3mm	25.0mm	35.6mm

SHIMANO® FREEHUB SPECIFICATIONS



	Model No.	Weight	Flange Diameter	Spoke Hole Diameter	SIS Comp.	Over Lock Nut Dimension	Chain Line	Dish Distance	Center to Flange (R)	Center to Flange (L)
ALTUS C90	HB-CT90		38mm	2.6mm		96mm			35.8mm	35.8mm
	HB-CT90		38mm	2.6mm		100mm			35.8mm	35.8mm
	FH-CT90		45mm	2.6mm	HG6S	126mm	42.0mm	7.3mm	23.0mm	37.6mm
	FH-CT90		45mm	2.6mm	HG6S	130mm	44.0mm	5.3mm	25.0mm	35.6mm
	FH-CT90		45mm	2.6mm	HG7S	130mm	42.7mm	7.8mm	22.5mm	38.1mm
	FH-CT90		45mm	2.6mm	HG7S	135mm	42.7mm	7.8mm	22.5mm	38.1mm
EXAGE	HB-RM50	228g	38mm			100mm				
	FH-HG50-QR	440g	45mm	2.6mm	HG7S	126mm	41.2mm	9mm	20.2mm	38.2mm
	FH-HG40-QR	445g	45mm	2.6mm	HG7S	130mm	43.2mm	7mm	22.2mm	36.2mm
	FH-HG50-QR	450g	45mm	2.6mm	HG7S	135mm	45.7mm	4.5mm	24.7mm	33.7mm
Shimano 200GS	FH-HG20-QR	440g	45mm	2.6mm	HG7S	126mm	41.2mm	9mm	20.2mm	38.2mm
	FH-HG20-QR	445g	45mm	2.6mm	HG7S	130mm	43.2mm	7mm	22.2mm	36.2mm
700 CX	HB-C700	228g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-C070	427g	45mm	2.6mm	HG7S	130mm	43.2mm	6.3mm	22.7mm	35.3mm
400 CX	HB-C400	228g	38mm	2.6mm		100mm			36.3mm	36.3mm
	FH-C040	432g	45mm	2.6mm	HG7S	130mm	42.5mm	7mm	22.2mm	36.2mm

SHIMANO WHEEL SYSTEMS

Road Bike Wheels

Model	Rim Height	Rim Size	Spoke Gauge	Braking Surface	Spoke Pattern	Free Hub Body	Weight		
							Tire	Front	Rear
WH-7700 Carbon	30mm	700c	Bladed 14G	Carbon**	1-cross	Dura-Ace Titanium	Tubular	650g	890g
WH-7700	30mm	700c	Bladed 14G	Bead Blast	1-cross	Dura-Ace Titanium	Tubular	705g	940g
							Clincher	735g	965g
		650c					Clincher	680g	900g
WH-6500	30mm	700c	Bladed 14G	Bead Blast	1-cross	Ultegra Steel	Clincher	775g	1020g
WH-R535	28mm	700c	Bladed 14G	Machined	Radial*	Ultegra Steel	Clincher	840g	1080g

Mountain Bike Wheels

WH-M959 Disc	27mm	26"	Oval 13g	Disc Brake Only	1-cross	XTR Titanium	Clincher	840g	1040g
WH-M575 Disc	28mm	26"	Oval 13g	Machined	1-cross	Deore LX Steel	Clincher	899g	1059g
WH-M535	28mm	26"	Oval 13g	Machined	Radial*	Deore LX Steel	Clincher	819g	1064g

* Radial "Lateral Crossover" spoke lacing pattern on the front wheel and non-drive side rear wheel. 1-Cross on drive side rear.

** Specially designed cork-composite brake pads must be used.

SHIMANO® TORQUE TIGHTENING SPECIFICATIONS

The following chart provides recommended tightening torques for most bicycle assemblies. Use these guidelines to check all assemblies, even O.E.M. pre-assembled parts. Proper assembly builds a better bicycle.

	PART	NM	IN. LBS.
REAR DERAILLEUR	BRACKET FIXING BOLT CABLE FIXING BOLT PULLEY FIXING BOLT	7.84 - 9.8 Nm 3.92 - 5.88 Nm 2.94 - 3.92 Nm	70 - 86 in. lbs. 35 - 52 in. lbs. 37 - 34 in. lbs.
FRONT DERAILLEUR	CLAMP BOLT CABLE FIXING BOLT	4.9 - 6.86 Nm 4.9 - 6.86 Nm	44 - 6 0in. lbs. 44 - 60 in. lbs.
SHIFTING LEVER	CLAMP FIXING BOLT (Screw Driver) CLAMP BOLT (Hexagon Wrench) LEVER FIXING SCREW	2.45 - 2.94 Nm 5.88 - 7.84 Nm 2.45 - 2.94 Nm	22 - 26 in. lbs. 53 - 69 in. lbs. 22 - 26 in. lbs.
RAPIDFIRE	SHIFTING LEVER PARTS FIXING BOLT CLAMP BOLT (hexagon Wrench)	2.45 Nm 5.88 - 7.84 Nm	22 in. lbs. 53 - 69 in. lbs.
DUAL CONTROL LEVER	CLAMP BOLT (Hexagon Wrench) STOPPER SCREW (Screw Driver) FIXING BOLT	5.88 - 7.84 Nm 1.47 - 1.96 Nm 3.92 - 4.9 Nm	53 - 69 in. lbs. 13 - 18 in. lbs. 35 - 43 in. lbs.
BRAKE LEVER	CLAMP BOLT (Screw Driver) CLAMP BOLT (Hexagon Wrench) EXTENSION LEVER CLAMP BOLT	2.45 - 2.94 Nm 5.88 - 7.84 Nm 1.47 - 2.45 Nm	22 - 26 in. lbs. 53 - 69 in. lbs. 14 - 21 in. lbs.
HUB	CLOSING OF QR LEVER LEFT-LOCK NUT FOR QR TYPE AXLE	8.82 - 11.76 Nm 9.8 - 24.5 Nm	79 - 104 in. lbs. 87 - 217 in. lbs.
FREEHUB	FREEWHEEL BODY FIXING BOLT FREEWHEEL BODY FIXING RACE HG LOCK RING	34.3 - 49 Nm 34.3 - 44.1 Nm 29.4 - 49 Nm	305 - 434 in. lbs. 305 - 391 in. lbs. 260 - 434 in. lbs.
FRONT CHAIN WHEEL	CRANK ARM FIXING BOLT CHAINRING FIXING BOLT CRANK ARM FIXING BOLT (For Hollowtech® Crank and Bottom Bracket)	34.3 - 44.1 Nm 7.84 - 10.78 Nm 35 - 50 Nm	305 - 391 in. lbs. 70 - 95 in. lbs. 305 - 435 in. lbs.
SEALED CARTRIDGE BOTTOM BRACKET	BODY	49 - 68.6 Nm	435 - 608 in. lbs.
BOTTOM BRACKET	RIGHT HAND CAP LOCK RING	68.6 - 78.4 Nm 68.6 - 78.4 Nm	609 - 695 in. lbs. 609 - 695 in. lbs.
SPD PEDAL	PEDAL AXLE	34.3 Nm	307 in. lbs. or more
SPED SHOE	CLEAT FIXING BOLT SH-M210 SPIKE	4.9 - 7.84 Nm 3.92 Nm	44 - 51 in. lbs. 34 in. lbs.
CANTILEVER BRAKE	FRAME HOLDING BOLT CABLE FIXING NUT SHOE FIXING BOLT CARTRIDGE BRAKE SHOE SET SCREW FIXING BOLT CARRIER FIXING NUT	4.9 - 6.86 Nm 4.88 - 7.84 Nm 7.84 - 8.82 Nm 0.98 - 1.96 Nm 3.92 - 4.9 Nm	44 - 60 in. lbs. 53 - 69 in. lbs. 70 - 78 in. lbs. 9 - 17 in. lbs. 35 - 43 in. lbs.
SIDE PULL BRAKE ARCH	SHOE FIXING BOLT CABLE FIXING BOLT ARCH FIXING BOLT	4.9 - 6.86 Nm 5.88 - 7.84 Nm 7.84 - 9.8 Nm	44 - 60 in. lbs. 53 - 69 in. lbs. 70 - 86 in. lbs.
SEAT POST	FIXING BOLT	19.6 - 39.2 Nm	174 - 347 in. lbs.
HANDLE SYSTEM	HANDLEBAR FIXING BOLT EXPANDER BOLT	19.6 - 29.4 19.6 - 29.4 Nm	174 - 260 in. lbs. 174 - 260 in. lbs.

2001 Tech Tips & Procedures

SHIMANO®

SHIMANO® TECHTIPS

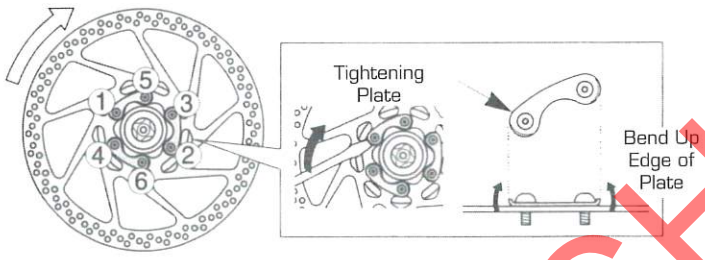
INSTALLATION OF SHIMANO DISC BRAKES

BR-M755
BR-M555 → **HYDRAULIC SYSTEMS**
BR-C901

BR-M515 — **CABLE ACTUATED SYSTEM**

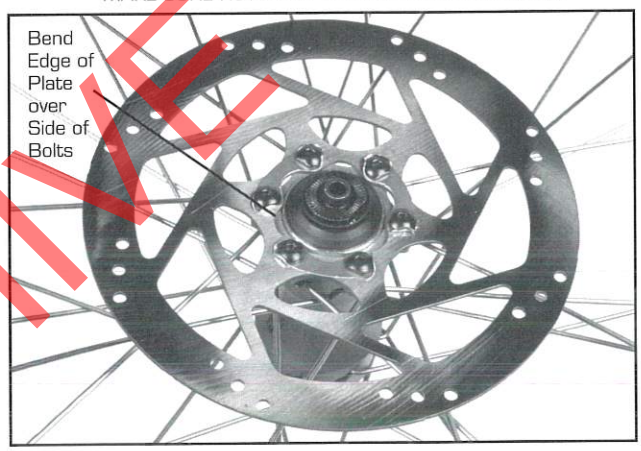
- Make sure to read Service Instructions before installing brake
- Do not touch rotor surface with your fingers
- Remove the pad spacers (usually orange) from calipers in box. When wheels are removed for transport, we recommend that you re-install pad spacers to help keep pads in proper position.

• Install Rotor



Install tightening plates (3) and bolts (6) in order shown in illustration.

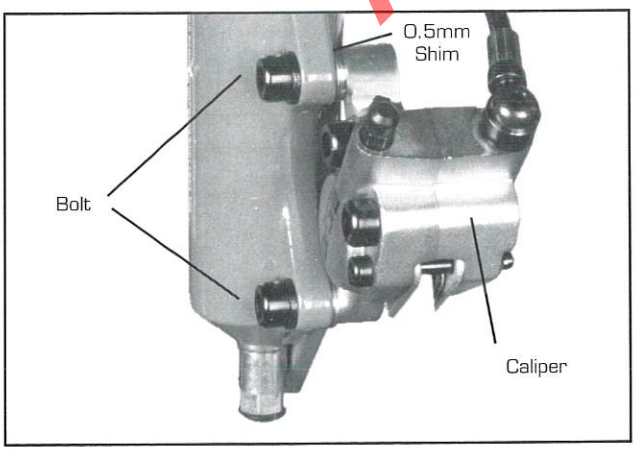
MAKE SURE ROTOR IS FACING PROPER DIRECTION



Tightening Torque 2-4Nm (18-35in lbs)

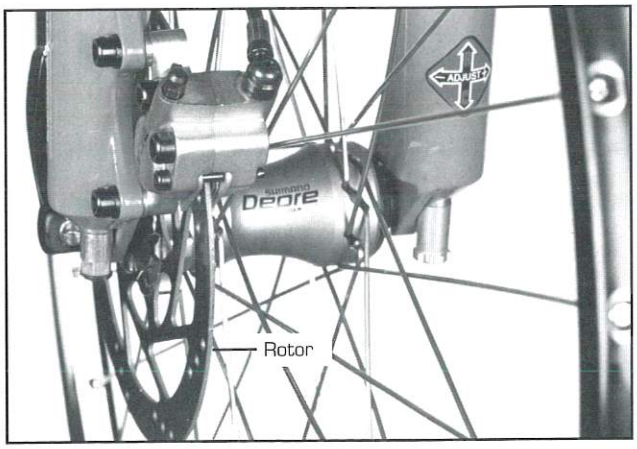
Use flat bladed screw driver to bend edges of tightening plate over the sides of the bolts.

• Install Caliper



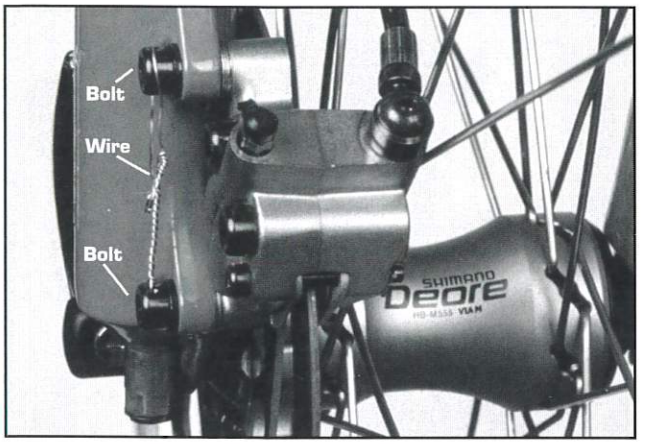
Install caliper. Insert two bolts and begin with one 0.5mm shim on each one. The shims will help center rotor inside caliper pads. Leave bolts a little loose in case finer adjustment is necessary after wheel is installed.

• Install Wheel

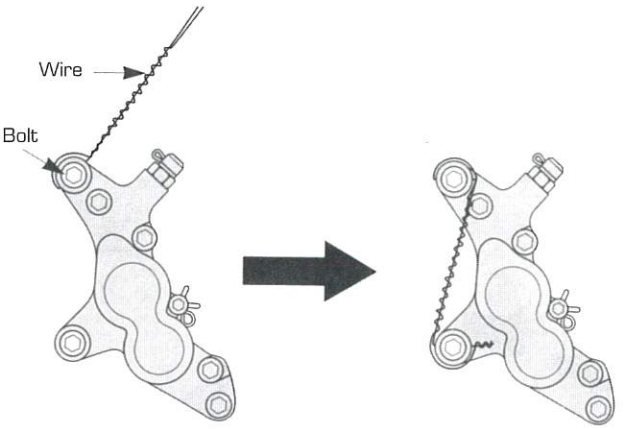


Install wheel into frame or fork. Make sure rotor is centered between the pads. If necessary, use 0.2mm shims (provided) between caliper and frame/fork to precisely center rotor between pads.

• Torque and Wire Bolts

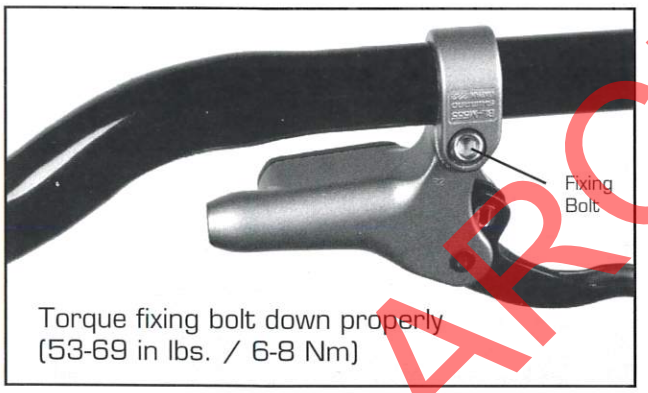


After centering rotor by using 0.5mm and 0.2mm shims, torque fixing bolts (53-69 in lbs / 6-8 Nm). Also, secure fixing bolts with safety wire.



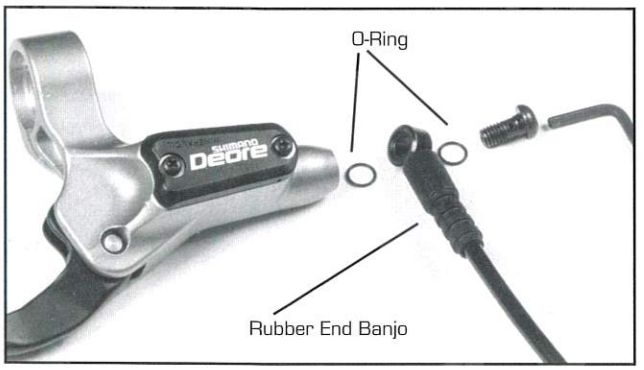
Secure the two bolts with a length of wire as shown.

• Install Lever to Handlebar

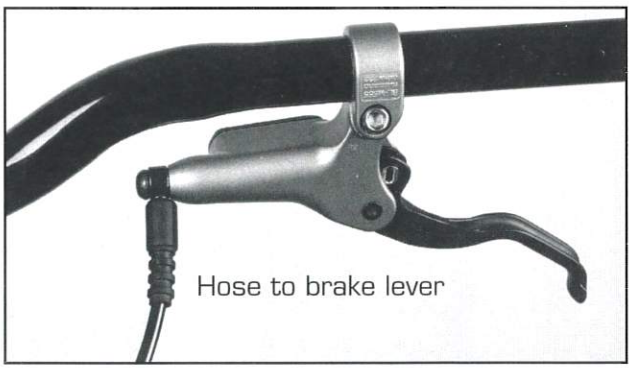


NOTE:
Some shift levers may need to be installed first, so check to make sure brake lever action and shift lever action do not interfere with each other's operation.

• Hose to Lever

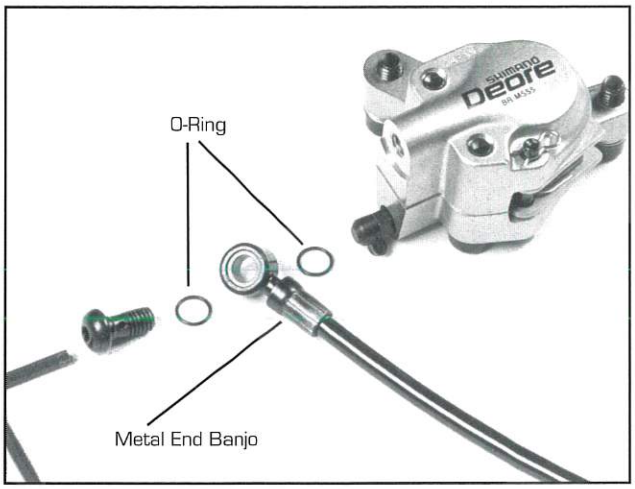


The end of the hose with rubber cover attaches to the brake lever. Make sure O-rings are in grooves on top and bottom of banjo end of hose.

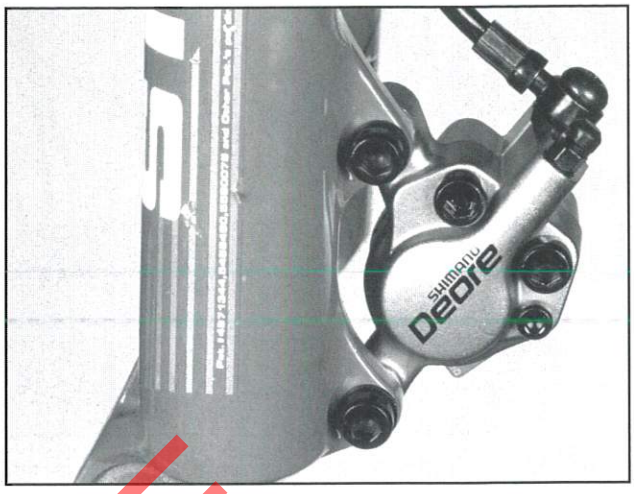


Secure the banjo to the brake lever. Make sure banjo end is positioned properly. Tighten Bolt (44-60 in lbs / 5-7 Nm)

• Install Hose to Caliper



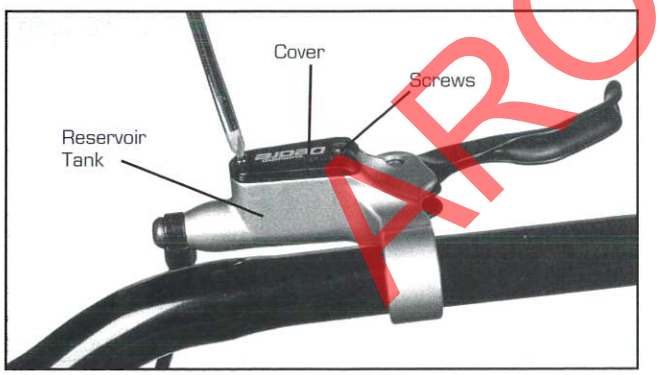
Hose with metal end attaches to caliper. Make sure O-rings are in grooves on top and bottom of metal end banjo.



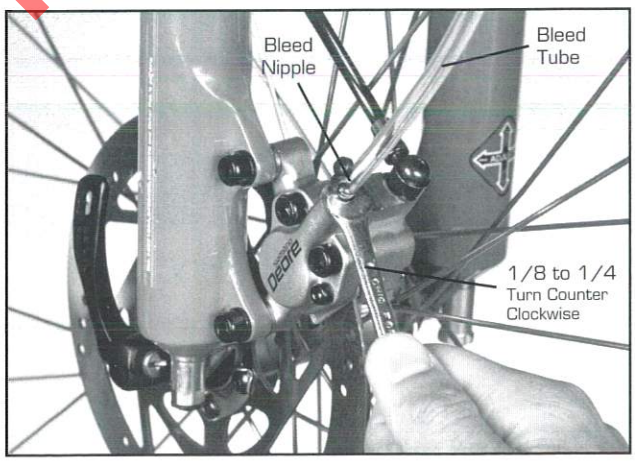
Secure banjo to caliper. Make sure banjo end is secured properly. Tighten bolt. (44-60 in lbs / 15-7Nm)

• Bleed the System (BR-M755, BR-M555, BR-C901 ONLY)

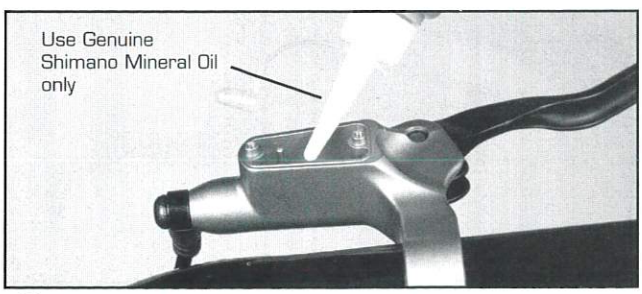
- Use genuine Shimano mineral oil
- Make sure caliper is lower then reservoir
- It is best to have caliper as low as possible



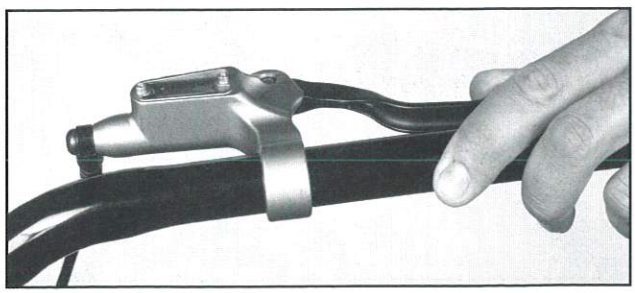
1 Remove screws and cover from reservoir tank.



2 Attach bleed tube to bleed nipple at caliper. Loosen bleed nipple 1/8 to 1/4 turn.

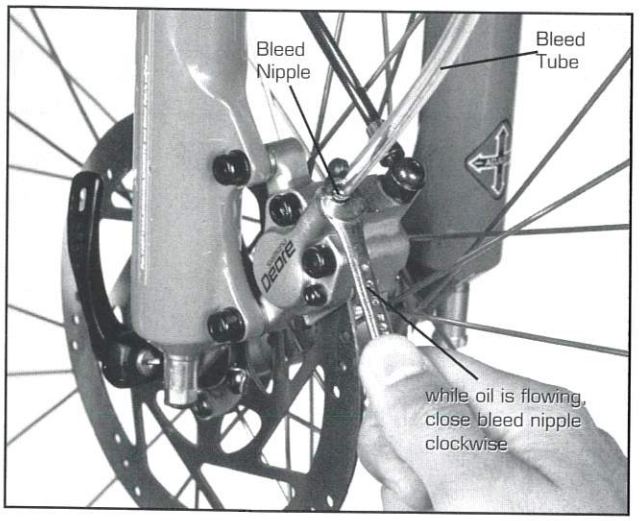


3 While gently pumping lever, pour oil into reservoir.



4 Keep pumping lever, but make sure to maintain oil level in reservoir so air is not drawn into piston port.

• Bleed the System (continued)



5 REMEMBER:

- If lever is not firm when squeezed, air is probably still in the line and you need to repeat the bleeding procedure.
- Make sure all bolts are tightened to proper specifications.
- Make sure caliper is aligned properly with rotor.
- Make sure caliper fixing bolts are secured with safety wire as shown in illustration.

As oil flows through bleed tube, close bleed nipple and pump lever. Let bubbles rise. Reservoir should be full. Brake lever feel should be firm

FOR BR-M515 CABLE ACTUATED DISC BRAKE

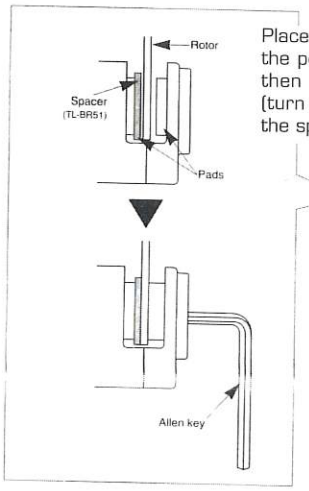
1 Rotor Installation (See Rotor for Hydraulic Brake)

2 Lever and Cable Installation

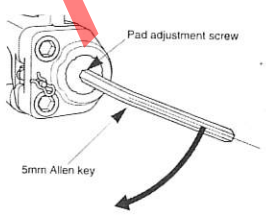
Use 2-finger V-brake Lever ONLY. We do not recommend cantilever levers because they increase the power well above the hydraulic disc. Install cable and housing into lever as you would on standard V-brake set-up.

3 Caliper Installation

The cable actuated disc brake system uses a spacer and a 5 mm allen pad adjustment screws to center the rotor between the brake pads.



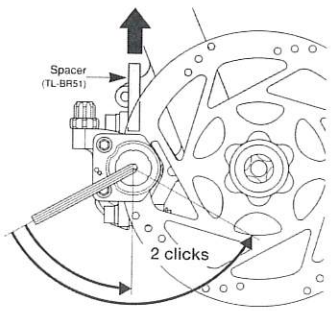
Place the spacer (TL-BR51 T=0.2mm) in the position shown in the illustration, and then tighten the pad adjustment screw (turn clockwise) until the rotor touches the spacer



TIGHTENING TORQUE:
6 - 8 Nm (53 - 69 in. lbs)

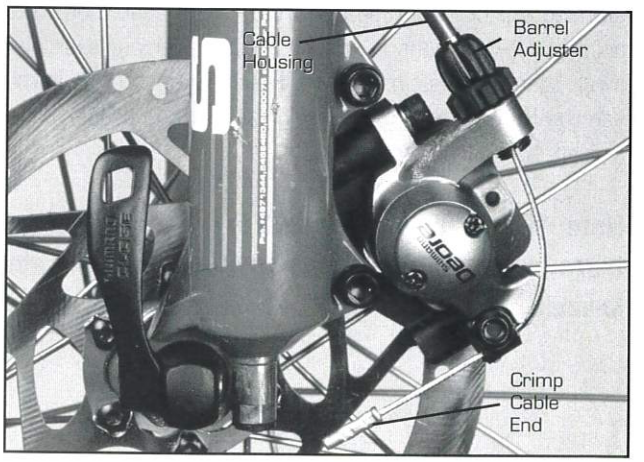
Secure the caliper with the fixing bolt

Loosen the pad adjustment screw by 2 clicks, and then remove the spacer



4 Cable to Caliper Installation

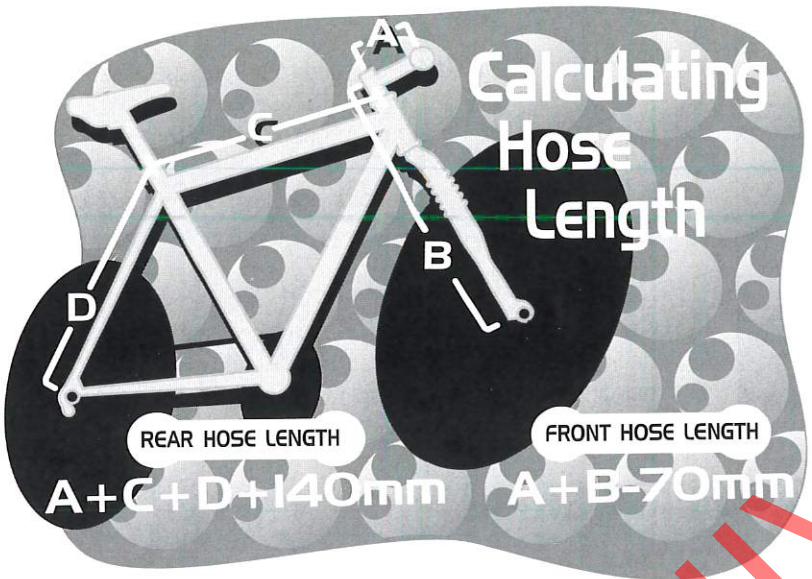
Install cable housing into barrel adjuster of caliper. Route cable through cable fixing bolt, and tighten bolt. Check lever modulation and adjust barrel adjuster on lever and/or caliper as needed. Attach cable end, and crimp. Ride!



SHIMANO® TECHTIPS

CALCULATING HOSE LENGTH

The following are instructions for how to calculate hose length for Shimano Disc Brakes



FRONT BRAKE HOSE

Hose Part Numbers	Length
ISMHOSE050	500mm
ISMHOSE055	550mm
ISMHOSE060	600mm
ISMHOSE065	650mm
ISMHOSE070	700mm
ISMHOSE075	750mm
ISMHOSE080	800mm
ISMHOSE085	850mm
ISMHOSE090	900mm
ISMHOSE095	950mm
ISMHOSE100	1000mm

REAR BRAKE HOSE

Hose Part Numbers	Length
ISMHOSE120	1200mm
ISMHOSE125	1250mm
ISMHOSE130	1300mm
ISMHOSE135	1350mm
ISMHOSE140	1400mm
ISMHOSE145	1450mm
ISMHOSE150	1500mm
ISMHOSE155	1550mm
ISMHOSE160	1600mm
ISMHOSE165	1650mm
ISMHOSE170	1700mm

• How to Select the Correct Hydraulic Hose

To insure optimal performance of Shimano's new hydraulic disc brake, the hydraulic hoses are offered in a range of fixed, pre-measured lengths and must be purchased separate from the brake kit itself (front or rear). The hoses cannot be cut to length like conventional V- or caliper-brake housing. Dealers therefore must select the hose length (or lengths) that most closely matches the measurements for optimal installation (see diagram: Calculating Hose Length) and order that specific hose or hoses.

The chart illustrates the best way to measure your frame and calculate the appropriate hose length. Note that the formulas (A+C+D+140mm for rear) and (A+B-70mm for front) will give you a close but still approximate measurement of the required hose length for any particular frame. For example, to determine rear hose length: measure from center of handle bar to center of stem, from stem to top of seat tube and from top of seat tube to drop out. Add the values together: A+C+D and then add 140mm to account for variations in routing. Assume for our example that the sum is 1320mm. We recommend you purchase the two or three hose lengths closest to your formula outcome; in this case 1250mm, 1300mm and 1350mm. Note: we recommend you use the formula as a guideline for selecting a proper hose length(s), but emphasize that the formula will yield a close approximation, but not an "actual" value.

Note: We tested the formula and it works on most styles of frame, including Y-type frame designs where there is no top tube. If you are installing the new disc brakes to a Y-type frame, be sure to use the same formula. Just measure "C" as if the tube were there.

SHIMANO® TECHTIPS

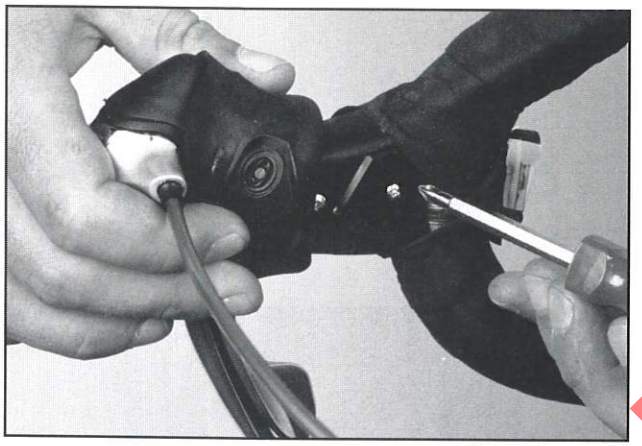
FLIGHT DECK SM-6501 & SM-6500RS

The following are instructions for Installation of Flight Deck Wiring Harness SM-6501 and SM-6500RS

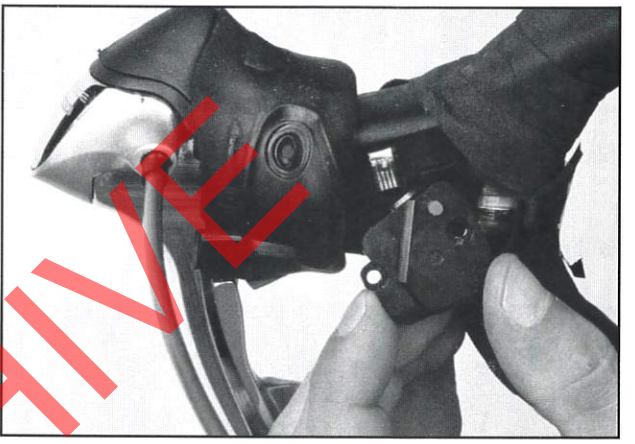
SM-6501 **WIRELESS HARNESS** for all current STI road levers, including: Dura-Ace, Ultegra, 105, Tiagra and Sora ST-7700C / ST-6510 / ST-5500CA

SM-6500RS **WIRED HARNESS** for all current STI road levers

• Replace Sensor / Sensor Cover

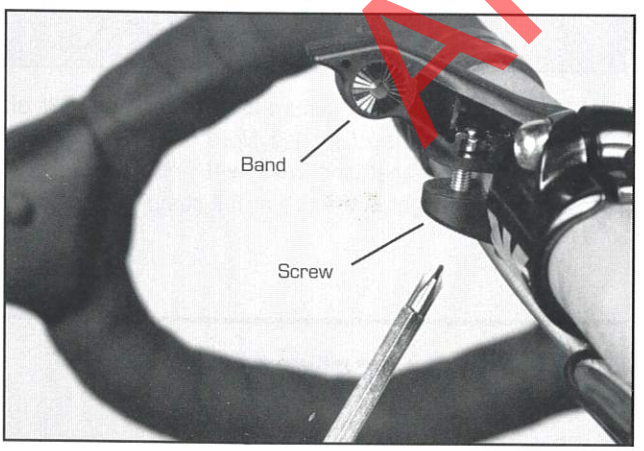


Peel back rubber lever covers (R & L)
Remove two screws that hold plastic cover in place (R & L)

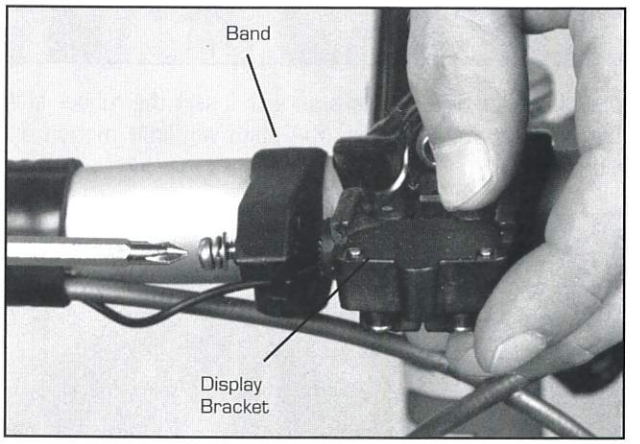


Replace covers (R & L) with wire sensor covers. Secure screws (R & L)

• Install Band / Bracket / Computer



Install band to handlebars and secure screws (1nm/8"lbs)



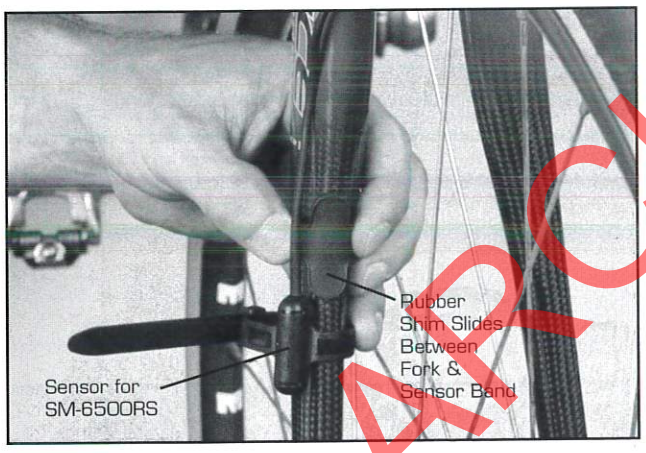
Install display bracket to band and secure screw.

• Install Band / Bracket / Computer (continued)

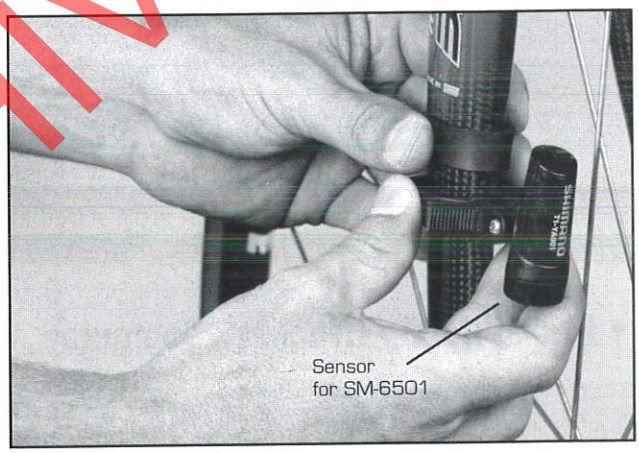
Slide computer display onto bracket until it clicks into place.

Note:
When installing SM-6501, after computer is in place, wrap handlebar with finishing tape to secure both the signal cable and the brake cable.

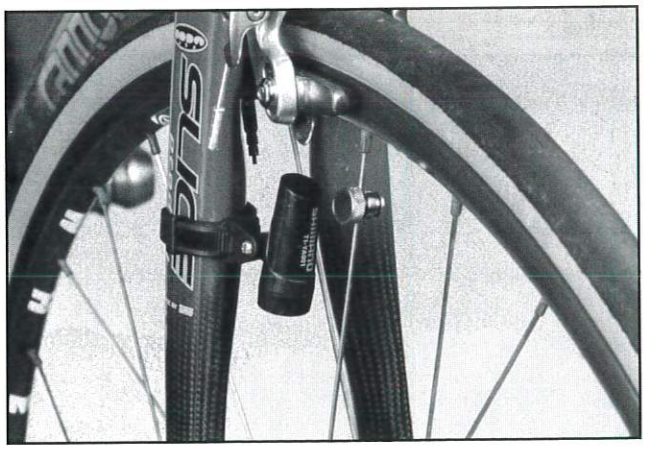
• Install Sensor and Magnet



Install sensor to fork. Make sure to insert the rubber shim between fork and sensor. The shim will limit motion and vibration.



Also, use supplied ties to secure wire to fork leg. Cut off excess strap on sensor/zip ties Note: With suspension forks, make sure that the wire will not break at full rebound or get caught in the tire at full compression.



Install the magnet to the spokes. Make sure to align the magnet with the sensor marking.

TEST

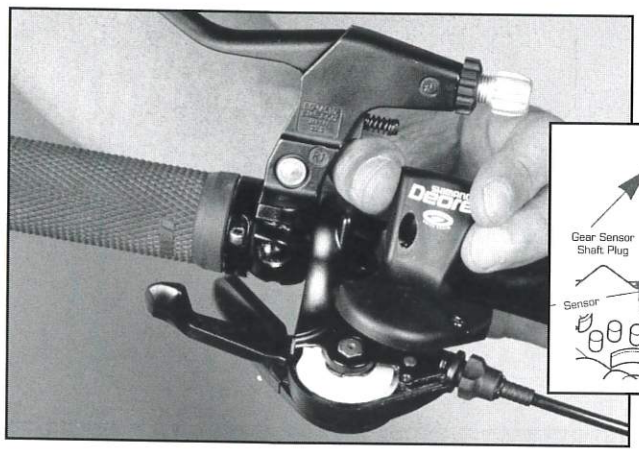
- Spin wheel and test to make sure speedometer is functioning. If no speed, check magnet placement.
- Also, test mode button to make sure computer toggles through all functions and that the optical gear display reads correctly. If no modes, check electrical connection between shift lever and bracket sensor

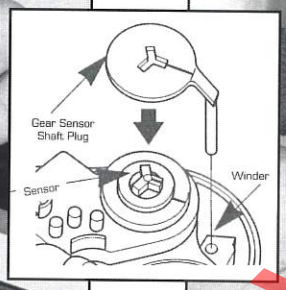
FLIGHT DECK SM-6501MD

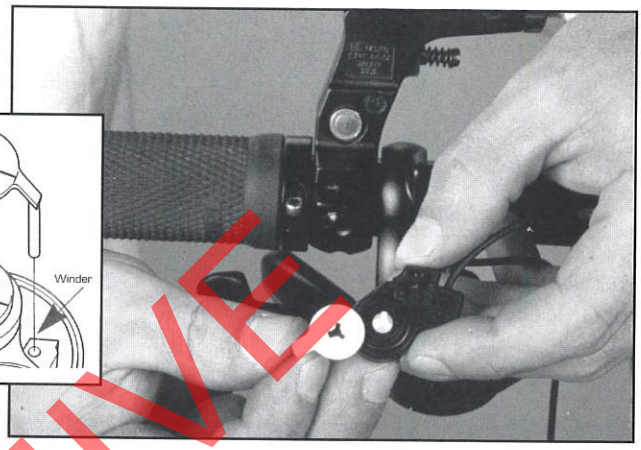
The following are instructions of Flight Deck Wiring Harness SM-6501MD (Wireless Harness for Shimano Deore)

• Install Gear Sensor Plug

First, press rear brake lever 8 or more times and front brake lever 2 or more times.





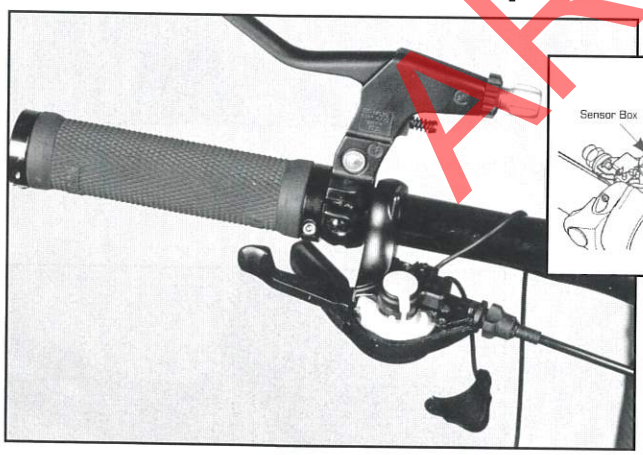


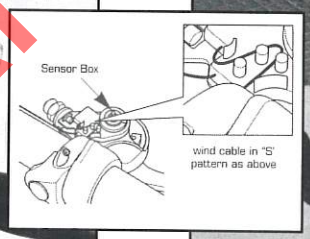
Remove the optical gear display cover from the shift lever by removing the two Phillips screws on top (R & L)

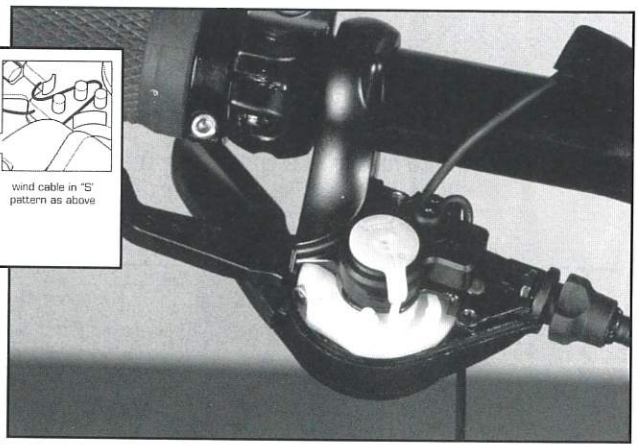
Note: For ST-M510 you need to remove the lever stroke adjustment bolt

Install the gear sensor shift plug to gear sensors (R & L).

• Install Band / Bracket / Computer

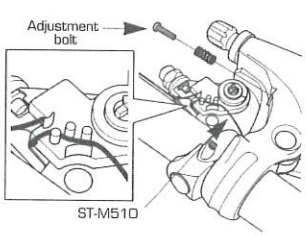






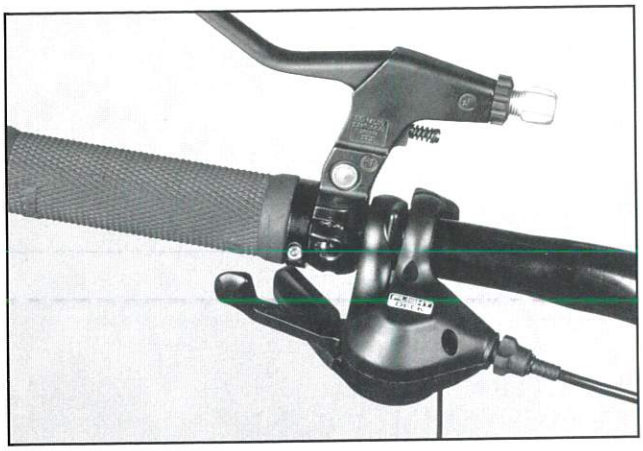
Position the sensor so that it is aligned with the two holes in the lever.

Note: For ST-M510, do not wind cable in "S" shape

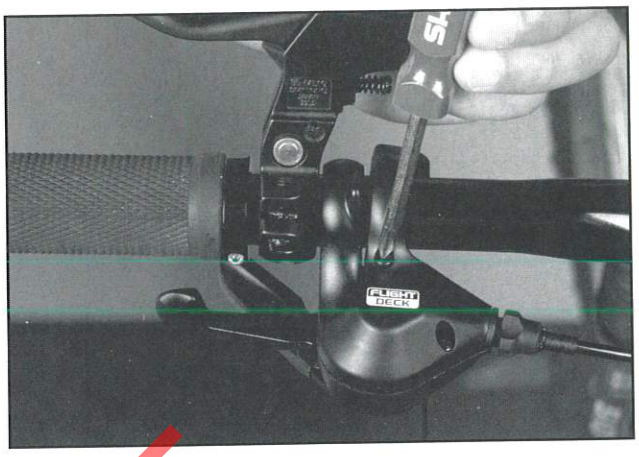


Also, note the routing of the wire. The cord on the switch side should be at the top (see photo).Wind the excess cord along the band and around the sensor box. It should be in the shape of a "S".

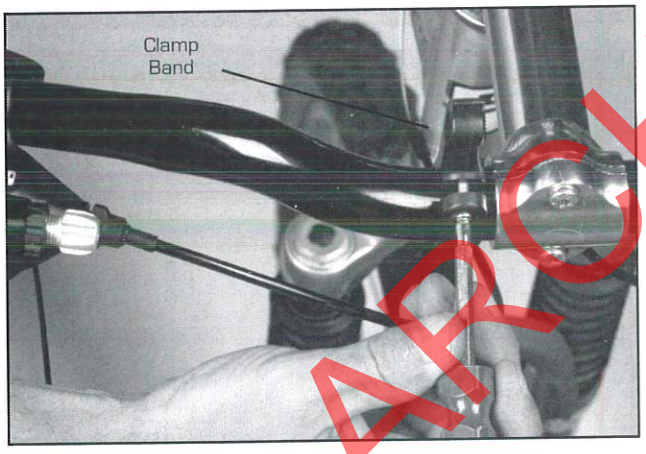
• Install Band / Bracket / Computer (continued)



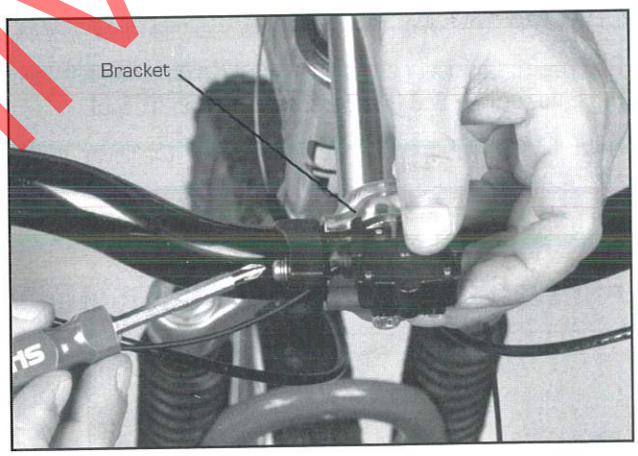
Install the optical gear display cover.
Note: The ST-M510 uses a different cover



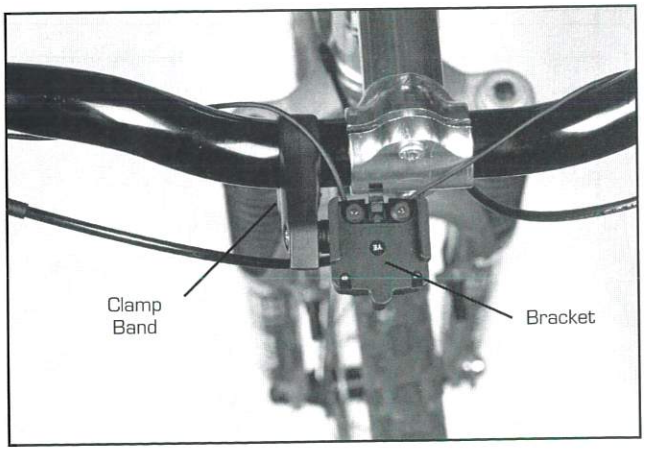
Secure with two screws.



Install clamp band to handlebars and secure the screws.

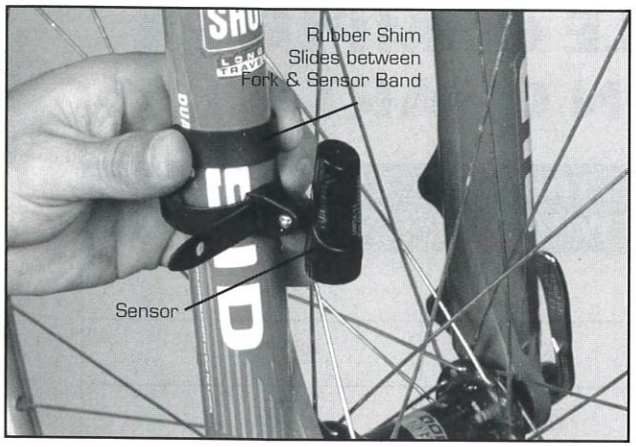


Install the bracket to clamp band.



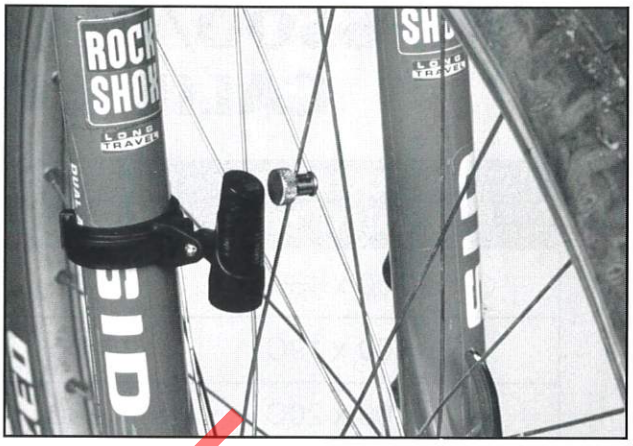
Slide computer display into bracket 'til it clicks

• Install Sensor Magnet



Install sensor to fork leg. Make sure to place the rubber shim between the fork leg and sensor. It will limit vibration and movement of the sensor. Also, use supplied zip ties to secure wired version to fork leg.

With suspension forks, make sure the wire will not break at full rebound or get caught in the tire at full compression. Cut off excess strap on sensor/zip ties.



Install the magnet to the spokes. Make sure to align the magnet with the sensor marking. Cut off excess strap on sensor/zip ties.

TEST

- Spin wheel and test to make sure speedometer is functioning. If no speed, check magnet placement.
- Also, test mode button to make sure computer toggles through all functions and that the optical gear display reads correctly. If no modes, check electrical connection between shift lever and bracket sensor

SHIMANO®

SC-6500/01 CYCLE COMPUTER CALIBRATION CHART

MARKING ON SIDE OF TIRE	RIM SIZE	TIRE WIDTH	CALIBRATION NUMBER*
700 x 18C	700	18	2070
700 x 19C	700	19	2075**
700 x 20C	700	20	2085**
700 x 23C	700	23	2105
700 x 25C	700	25	2115
700 x 28C	700	28	2135
26 x 1-3/8	26	1.375	2075
26 x 1-1/2	26	1.5	2100
26 x 1.0	26	1	1970
26 x 1.4	26	1.4	2005
26 x 1.5	26	1.5	2030**
26 x 1.75	26	1.75	2050
26 x 1.9	26	1.9	2070
26 x 1.95	26	1.95	2075
26 x 2.0	26	2	2080**
26 x 2.1	26	2.1	2090
26 x 2.2	26	2.2	2095
26 x 2.35	26	2.35	2100

* Note: Calibration numbers are for quick reference and easy set up. Calibration can be significantly affected by tire brand, rim width, rider weight and tire pressure. For most accurate results, read Section 8.1: Measuring the Tire Circumference.

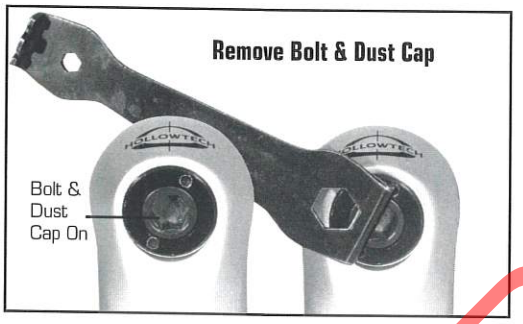
** Calibration numbers displayed with this note will NOT match the reference number on the computer display. This revised number will be more accurate for most cases.

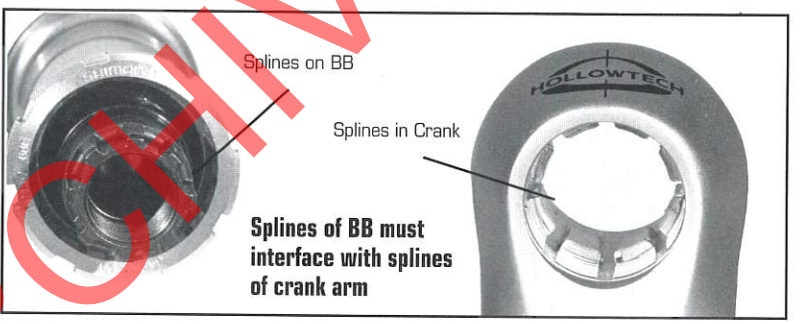
SHIMANO® TECHTIPS

ARE YOU STRIPPING SHIMANO SPLINED CRANKS?

FC-M952, FC-M951, FC-M950, FC-M751, FC-M571, FC-7710, FC-7701, FC-7700, FC-6500, FC-6503, FC-5504, FC-5501, FC-5500

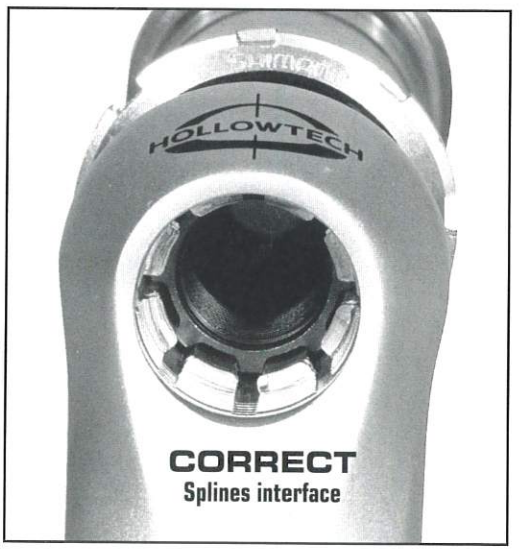
- **Maintenance Event:** Are you stripping the splines on Shimano Splined Cranks?
- **The Response:** Probably you're tightening down the crank without making sure the splines of the BB and splines of crank are properly aligned. This can happen to anyone.
- **The Story:** Even professional team mechanics can make this mistake. If the bolt and dust cap are on the crank when you install it onto the BB, you can't visually confirm that the splines are aligned properly. They feel like they're seated, but often they're actually riding on top of each other, and when you crank em down, you grind em off. Ouch!
- **The Quick Fix:** Before installing the crank, take a few extra minutes to remove the bolt and dust cap. Then visually confirm that the splines are seated properly. Grease the splines and don't forget to torque them down.





INSTALLATION STEPS

Grease Spindle
Position Crank
Align Splines
Grease and Insert Washer
Grease and Insert Bolt
Torque: 305 - 435 in. lbs.
Insert Teflon Washer
Grease inside Cap
Insert and Tighten Cap
Re-torque after 50-100km.



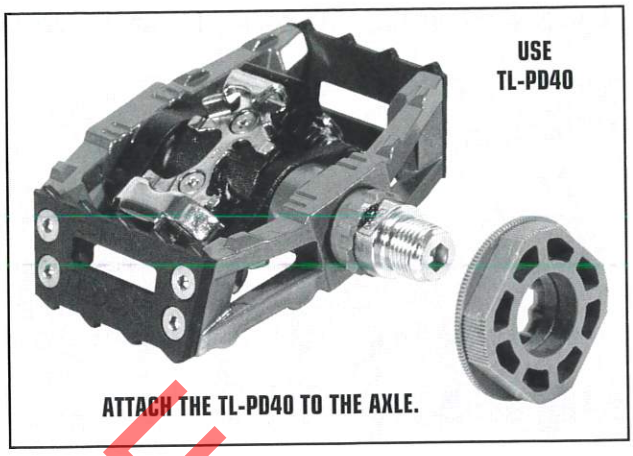
TIP #2: RE-CHECK THE TORQUE Re-check the torque of the fixing bolt after 50 to 100 km. or every couple of rides. It should be 35-50 Nms or 305 to 435 in. lbs.

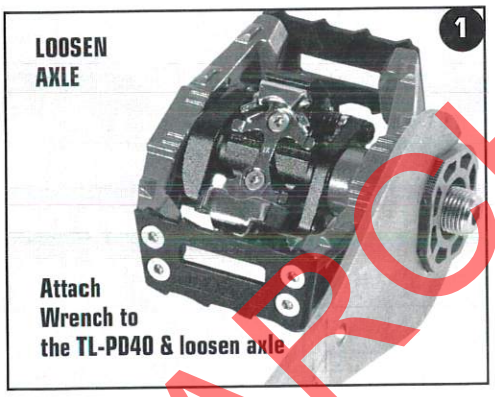
MAINTENANCE TIPS: Before installing the components, use Shimano degreaser to clean the spindle and crank. Check for grit and wear. Use Shimano grease to re-grease the spindle, washer and fixing bolt. Also grease inside of dust cap. And don't forget the hand cleaner when you're cleaning up.

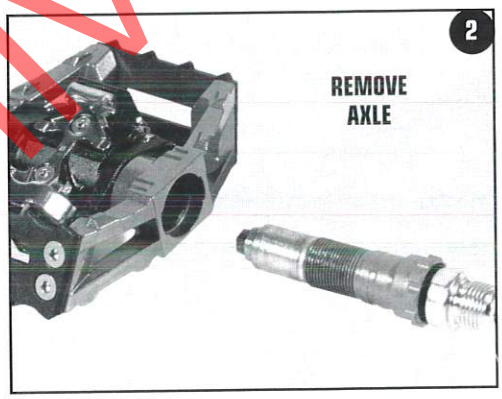
SHIMANO® TECHTIPS

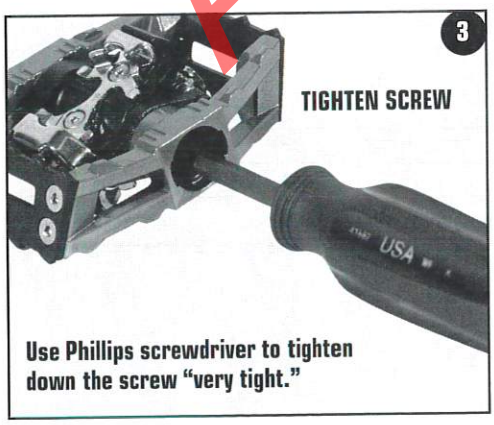
SAVE A PEDAL PD-M646, PD-M545, PD-M434 AND PD-M424

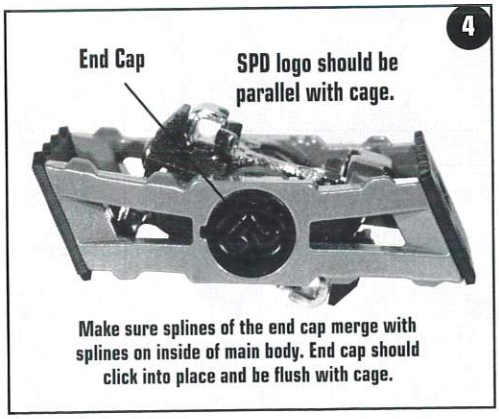
- **Maintenance Event:** Customer comes into the shop and complains that pedal cage on the PD-M646, PD-M545, PD-M434, or PD-M424 is loose.
- **The Response:** More than likely, the end cap has worked loose.
- **The Story:** The end cap is secured by a Phillips screw on the inside of the pedal. If the screw is loose, the end cap can be worked out of place, which causes cage to wobble.
- **The Quick Fix:** Take out the axle. Locate the Screw. Tighten the screw down, Tight; but be careful not to strip it.











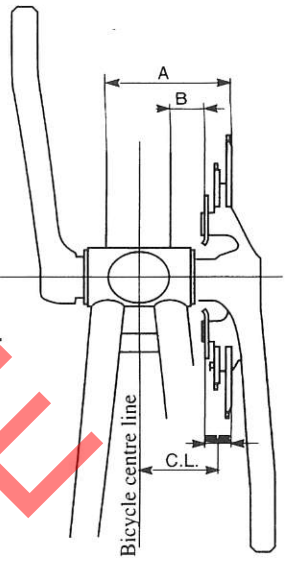
NOTE: Usually all you have to do is wiggle the end cap into place, and tighten down the screw. Sometimes, however, the spring from the Pop-Up mechanism may dislodge, and then you'll have to re-position the spring and the Pop-Up mechanism before the end cap will click into place. In this case, clean the screw and apply a little locktite before tightening down.

MAINTENANCE TIPS: While the axle's out, use Shimano Citrus Degreaser to clean, and then inspect bearings for wear, dirt and grime. Re-grease with Shimano Grease. Optimize pedal performance by inspecting pivot points on pedal jaw. If there is any resistance, lube with Shimano Lubricant.

CHAIN LINE: GET OUT YOUR CALCULATOR

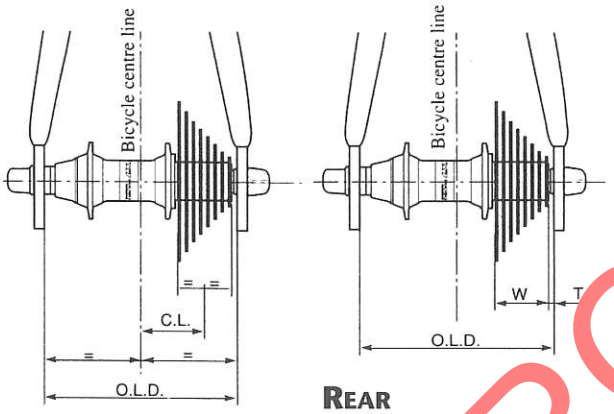
Front Chain Line

Front chain line is pretty easy. It refers to the distance from the centerline of the bike (center of the dropouts) to the midpoint of the chainwheel set. The easiest way to find the front chain line is to measure the distance from the left side of the seat tube/down tube to the outside of the outer chainring (A), and the distance from the right side of the seat tube/down tube to the inside of the inner chainring (B). Add the two measures and then divide by two and you'll have your chain line.



FRONT

Front Chain Line = $\frac{A + B}{2}$



REAR

Rear Chain Line

The Rear Chain Line is a little trickier. It consists of the line from the center of the dropouts to the midpoint of the cassette cluster or multiple freewheel. To determine the Rear Chain Line, measure the width of the cassette or multiple freewheel (W). Next measure the distance between the smallest sprocket and the inside of the RD dropout (T). Finally, determine the Over Locknut Dimension (O.L.D.), which is the distance between both dropouts. Plug your measurements into the following formula and you'll get your Rear Chain Line.

Rear Chain Line = $\frac{O.L.D - W}{2}$ - T

Notes on Chain Line:

For bicycles that do not use a derailleur (track racing, Nexus, single-speed bikes) it is important that the chainline at the front and rear be almost the same. Otherwise the chain will make a lot of noise, or, at worst, derail.

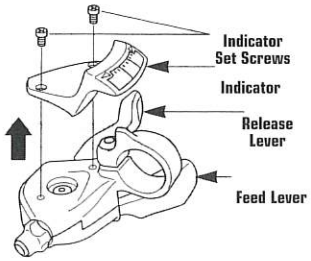
For bicycles that use a derailleur, the chain line in the front and rear should be as close to equal as possible, though it will be impossible of course for them to be absolutely equal. Bikes with different cranksets and cog clusters have different chain lines. Make sure to follow the recommendations Shimano makes for crankset, bottom bracket, rear hub and sprockets.

SHIMANO® TECHTIPS

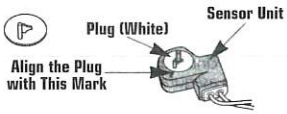
FLIGHT DECK SM-6500-M (MEGA-9 GROUPS)

Aligning Gear Read-out for Flight Deck SM-6500-M (Mega-9 Groups)

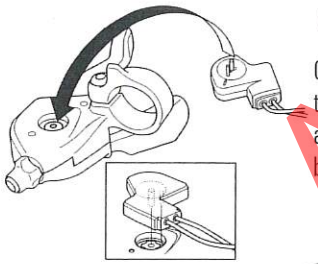
No one reads the manual. The Flight Deck Computer does things no other cycle computer can do, like gearing and virtual cadence. But you gotta read the manual. And of course no one reads the manual. So here are a few tips about how to make sure the gears that show up on the display are the same gears engaging the bike.



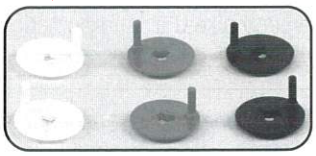
1 Remove OGD
Click the release lever until indicator is at the left edge of OGD (for the front, click til the indicator is at the right edge.) Now loosen the screws and remove the OGD.



2 Install White Sensor Plug
Install the standard white plug into the sensor unit, which is connected to harness.

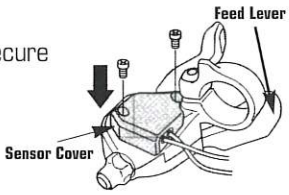


3 Install Sensor Unit into Lever Body
Once you get the plug into the sensor unit, turn it over and fit it into the lever body.

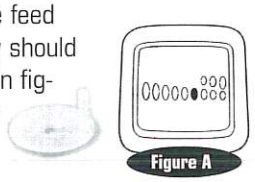


Note on 3 Sensor Plugs: The sensor plug aligns the mechanical components with the electronics of the gear display. Since tolerances can vary slightly and electronics are extremely precise, there are three plugs: white, black and red. 99% of the time, the white plug will align gears with the computer display. Occasionally however, the sensors will need adjusting. There are two ways to do it: 1. adjust the sensor cover (see #6) or 2. insert a different plug (black or red).

4 Attach Sensor Cover
Attach the sensor cover and secure it with the two screws.

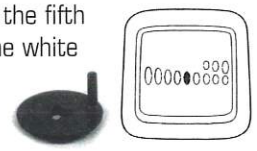


5 Press Feed Lever 3 Times Click the feed lever three times. The gear display should be in the sixth (6th) position as shown in figure A. If it is not in the 6th position, go to the next step.

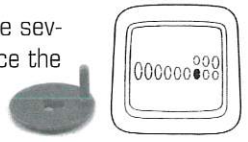


6 Adjust Sensor
Loosen the sensor cover fixing screws and slightly release the cover until the gear display is in the 6th position. When the display indicates the 6th position, tighten the cover and you're done. If the display indicates the 5th position, follow step B. If it indicates the 7th position, follow step C. (See Below)

STEP B If in 5th Position:
If the indicator is at the fifth position instead of the sixth, replace the white sensor plug with the black one.

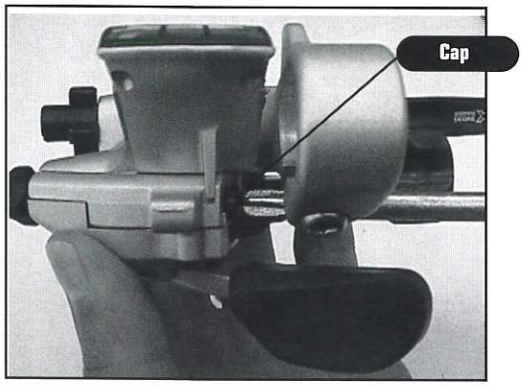


STEP C If in 7th Position:
If the indicator is in the seventh position instead of the sixth, replace the white sensor plug with the red one.



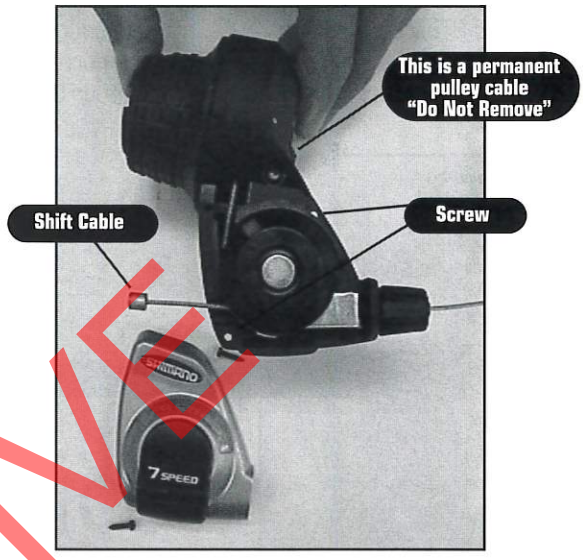
CABLE REPLACEMENT

Cable Replacement Mega-9 XTR, XT, LX



It's easier to install and replace cables with the new Mega-9 shifters for XTR, XT and LX. Instead of the small removable door that covered the cable housing on previous shifters, there is a cap with a Phillips head. Unscrew and remove the cap and it's easy to access the cable.

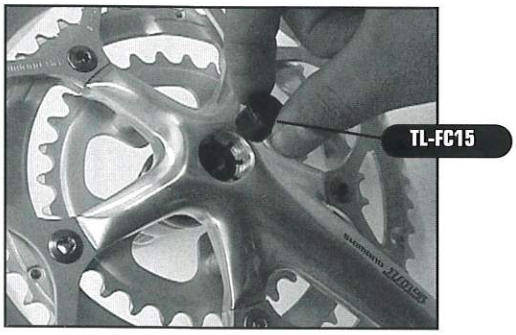
Cable Replacement for 7-spd Revo-Shift



1. Shift to 7th position.
2. Locate and remove two screws on back side of gear indicator cover.
3. Remove the cover.
4. Install or replace shifter cable.

Use of TL-FC15 (JD Tool) to Remove FC-5500 & FC-5503

Use the TL-FC15 (JD Tool) to provide resistance when removing FC-5500 & FC-5503



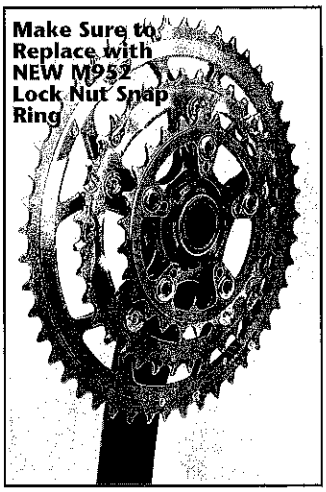
1. Turn the crank arm fixing bolt and remove.
2. Insert TL-FC15 into bottom bracket spindle

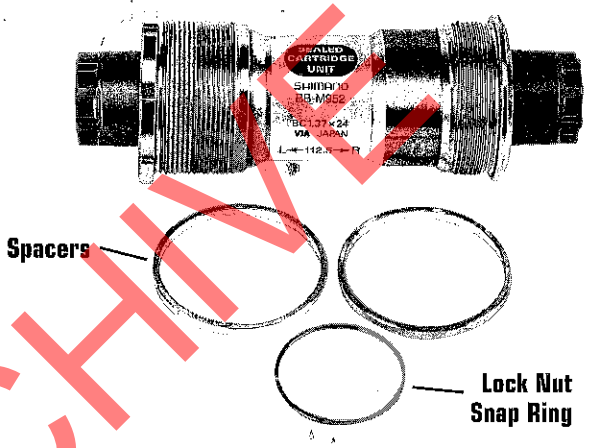
3. Use a crankarm extractor against the plug to remove chainwheel.

SEALED CARTRIDGE BOTTOM BRACKET FOR XTR

Sealed Cartridge Bottom Bracket for XTR (BB-M952)

The new sealed cartridge-style bottom bracket for XTR (BB-952) installs basically the same as any UN-type bottom bracket with a couple of exceptions. First, spacers come with the unit and are used to accommodate 68mm or 73mm shells. Refer to the 2000 STI Manual or the BB-M952 Service Instructions for proper installation. Second, the Lock Nut Snap Ring that comes with the BB-M952 replaces the ring on the current FC-M950 and M951 gear spiders. The new ring has 90° edges which create a better interface than the rounded contour that exists on the current rings.



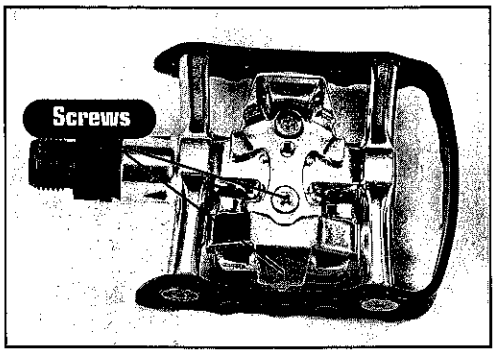


Screw Loose? (PD-M323) Try Preventive Maintenance

A lot of shops have sold a lot of PD-M323 Pedals to health clubs to use on their spinning bikes. The dual-sided pedal works well with cleated and non-cleated shoes and so it's ideal for spinners. Some retailers have told us that these bikes can be ridden eight hours a day, seven days a week and that the excessive use can cause the top screws which hold the cleat bindings to the body to come loose. That's bad. If the top plate gives way the pedal can be damaged. So here's the solution: set up a Preventive Maintenance schedule for all your health club customers. When the date for scheduled maintenance comes up, do the following to each pedal:

- **Remove each top screw**
- **Drop in a bit of lock tight compound (like Locktite™ 290 in the red container)**
- **Then re-torque the screw: (PFT)**

Note: the top screws are available. Use small part number Y42Z11000



2001 Service Instructions

SHIMANO

SERVICE INSTRUCTIONS SI-5TXOA

RD-AR01
SL-AR01
CS-AR01
SM-AR01

SHIMANO AIRLINES™

Before installing read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Front chainwheel	FC-M952-DH
Bottom bracket	BB-M952
Rear derailleur	RD-AR01
Shifting lever	SL-AR01
Regulator / Tank	SM-AR01
Cassette sprocket	CS-AR01
Freehub	FH-M950
Chain	CN-7700

Specifications

Cassette sprocket

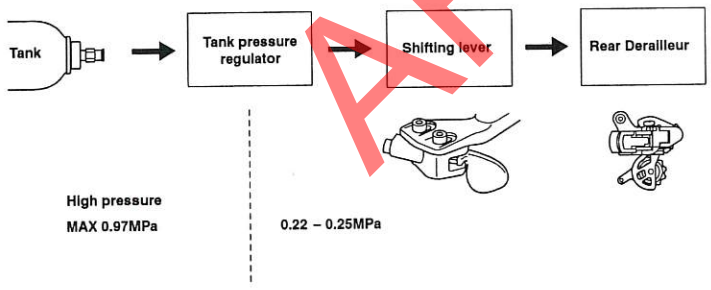
Model number	CS-AR01
Tooth combination	11, 13, 15, 17, 20, 23, 26T

Rear Derailleur

Model number	RD-AR01
Total capacity	15T
Largest sprocket	26T
Smallest sprocket	11T
Front chainwheel tooth difference	Use only with a single chainring crank set.

Air Tank pressure regulator
This adjustment device regulates the pressure coming out of the tank so that a constant a pressure is supplied to the shift lever at all times.

Air flow



The derailleur operating pressure is 0.22-0.25 MPa (2.2-2.5 kgf/cm2). To increase the derailleur operating speed, increase the air pressure. However if the pressure is increased, the rate of air consumption will increase and the number of possible shifts will decrease. Approximate shifts per tankful are 400.

SHIMANO®

These service instructions are printed on recycled paper and can be recycled again

SHIMANO AMERICAN CORPORATION
One Holland Irvine CA 92618 U.S.A. Phone 949-951-5003

SHIMANO EUROPA
Industrieweg 24 NL-8071 CT Nunspeet Holland Phone 31-341-272222

SHIMANO INC.
77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-3243

⚠ CAUTION

- **Do not charge the tank with any gas other than air, otherwise damage may result.**
- **If the safety valve activates, release all of the air inside the tank and re-charge the tank.**
- **When not in use, release all air from the tank (particularly if transporting the bicycle in an airplane).**
- **Do not leave the tank in places such as inside vehicles where it will be subjected to high temperatures (40°C [104°F]) or direct sunlight, if the tank is charged with air.**
- **Do not modify the Airlines system in any way.**
- **Always use genuine Shimano replacement parts.**
- **The Shimano Air Lines system is designed for bicycles. It is not intended for any other purpose.**
- **If disposing of the tank, release all air from the tank first and then punch a hole in the tank.**
- **Keep away from fire.**
- **Be sure to stop the wheel before adjusting the cable adjustment bolt of the rear derailleur, otherwise your fingers may get jammed in the wheel.**

CAUTION

The following parts must never be disassembled, as they are factory serviceable only. Shimano accepts no responsibility for problems caused if these parts are disassembled.

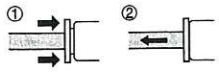
Rear derailleur
- Do not disassemble the E-ring of the link pin.
- Do not remove the cylinder or the tube connector fixing pin of the cylinder.
- Do not loosen the screw which secures the guide spring.

Shifting lever
- Do not disassemble the shifting lever unit . (The handlebar fixing bolt and the bolt used to adjust the shifting lever unit position can be turned if required).

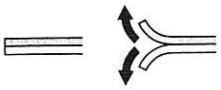
Air Tank pressure regulator
- Do not disassemble the internal parts (the parts that the air passes through).
- Do not remove or loosen any of the screws or pins.

Note

- Be sure to check the air pressure in the tank before riding the bicycle.
- Keep any dust or foreign particles away from all sections where air passes through.
- If any brake fluid gets onto the tank, wipe it off immediately, it can cause the printing on the tank to flake and can damage the plastic parts.
- Fit the tubes onto the connectors as far as they will go, otherwise air leaks may occur.
- If the tubes get caught or if they're forcibly pulled away from their connectors, the tubes may be damaged, air leaks may occur even if the tubes are reinstalled correctly. To properly reinstall the tubes, cut off approximately 1 cm from the end of the tube before refitting. If the tubes become stretched or deformed, they should be replaced.
- To release the tubes, push the plastic rings (black, white or blue) in the direction of the arrows as shown in the illustration.

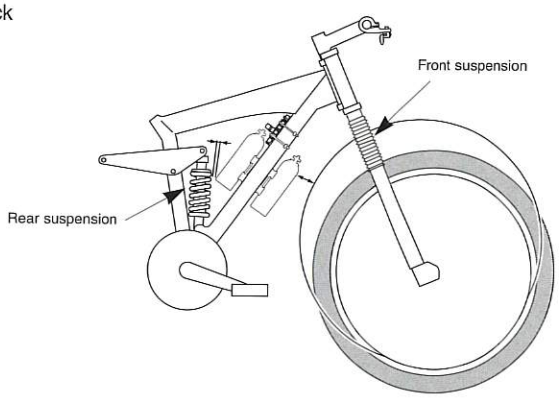


- To split the double tubes, do it by hand. Do not cut with any tools.

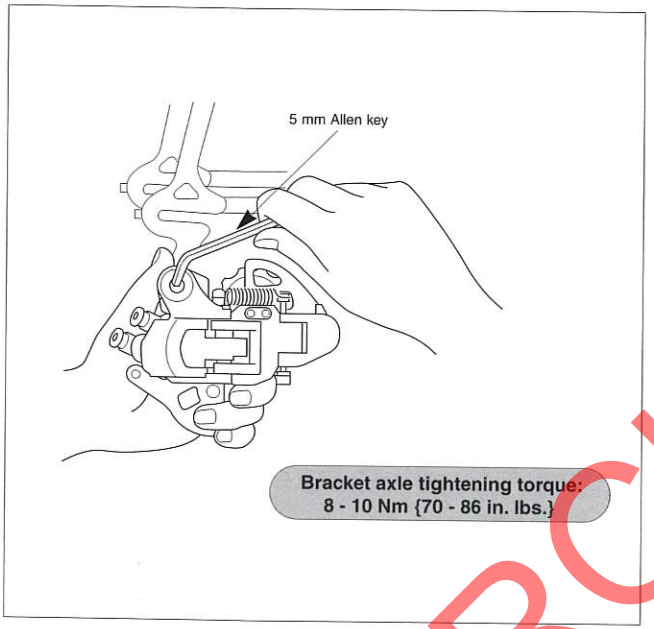


- The rear derailleur operating pressure is 0.22–0.25 MPa (2.2–2.5 kgf/cm2). To increase the rear derailleur operating speed, increase the pressure slightly. However, if the pressure is increased, the rate of air consumption will increase and the number of possible gear shifts will decrease. The 500cc air tank holds enough air for approximately 400 shifts.
- If oil gets onto the tank bracket, wipe all of it off before installing the tank.
- Some frames or drop outs may not provide the best possible performance.
- Use only with a single chainring crank set.
- The applicable cassette sprocket is the CS-AR01 (11T-26T, 7-speed).
- Be sure to rotate the crank set whenever shifting gears.
- For any questions regarding service or warranty, please contact Shimano American Corporation (949)951-5003.

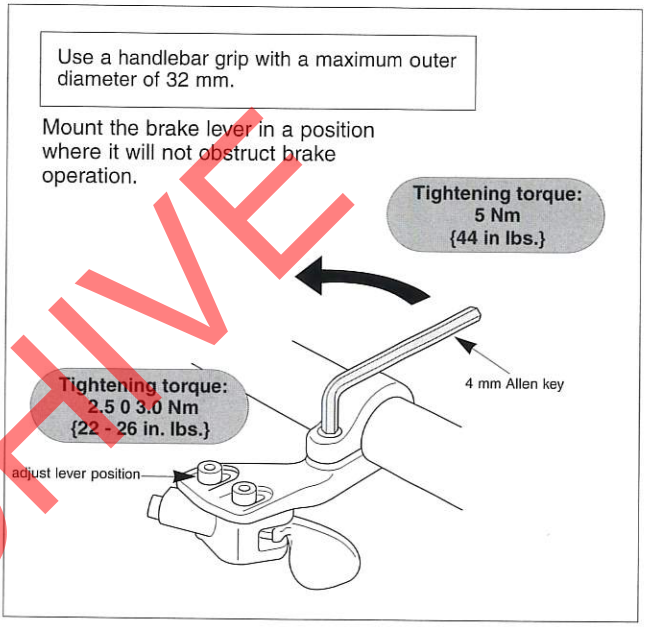
If mounting the air tank on the downtube, check that the wheel or shock do not touch the tank when the front and rear suspension operate.



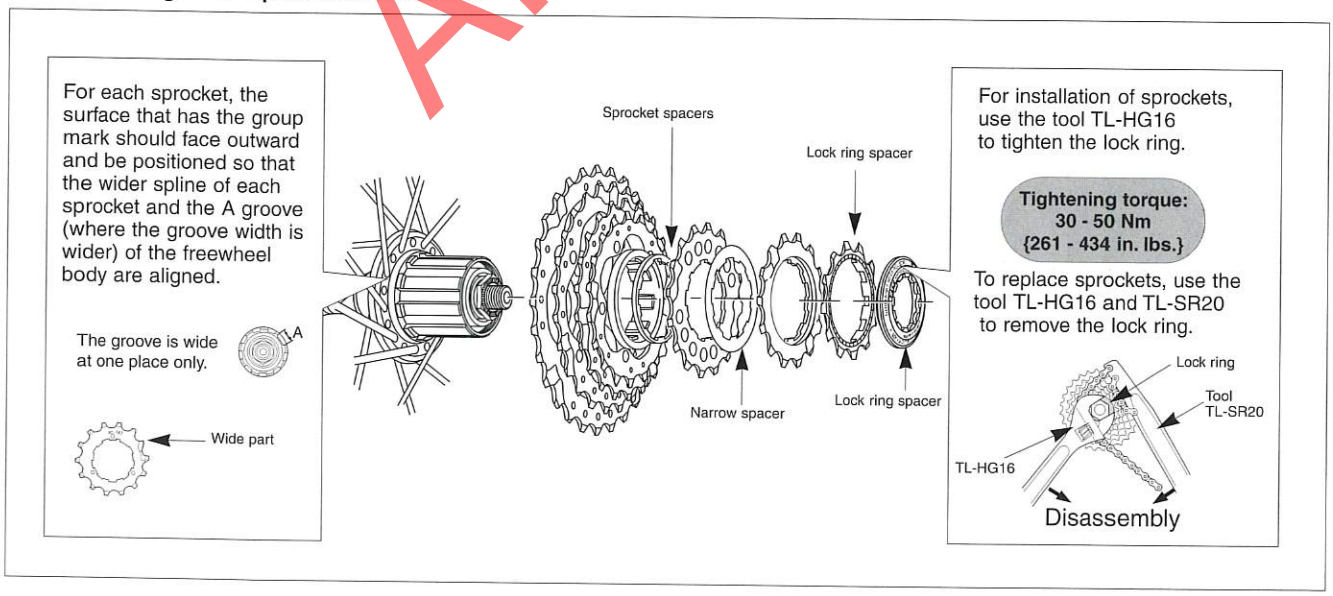
■ Installing the rear derailleur



■ Installing the shifting lever

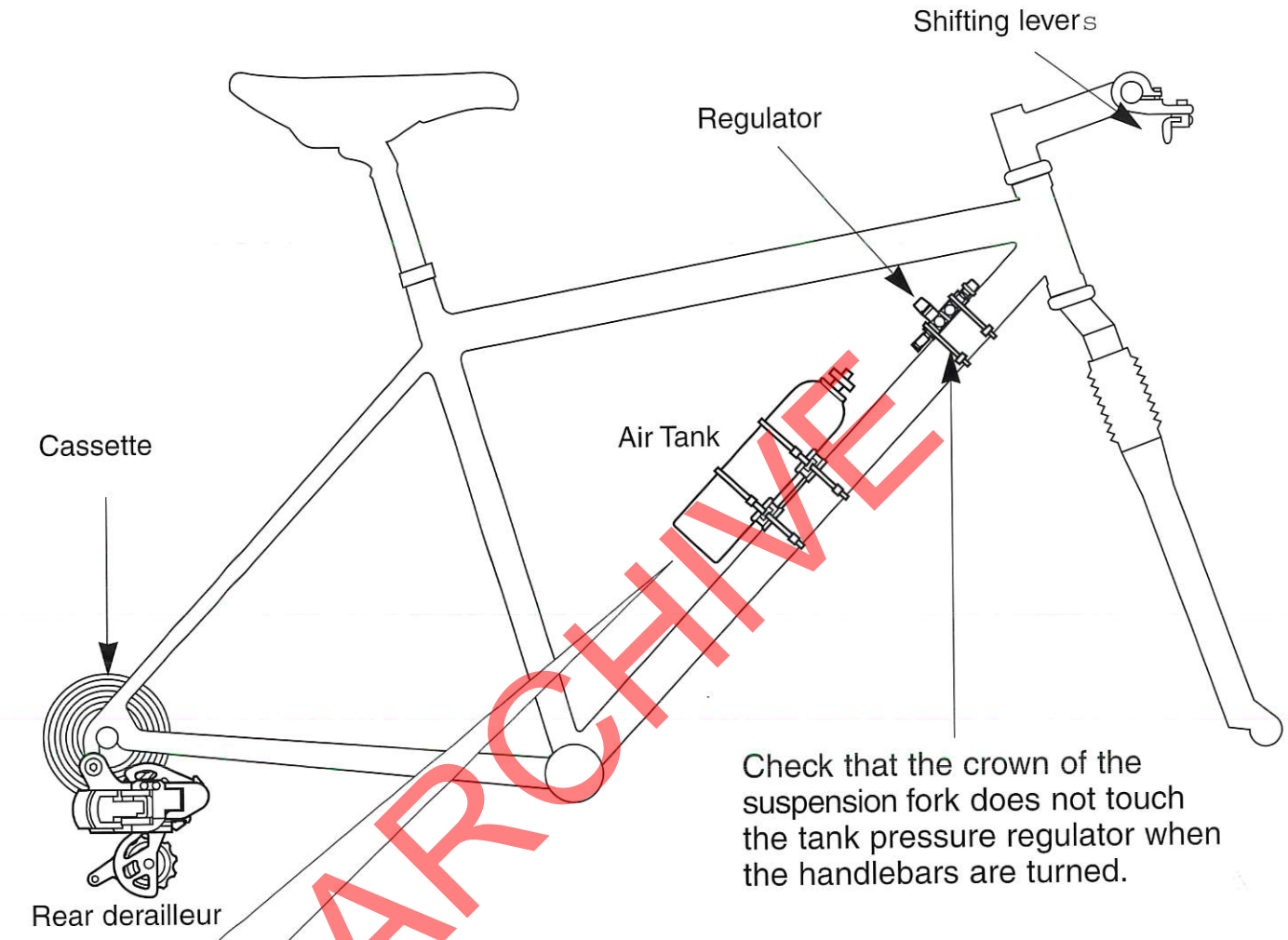


■ Installing the sprocket cassett

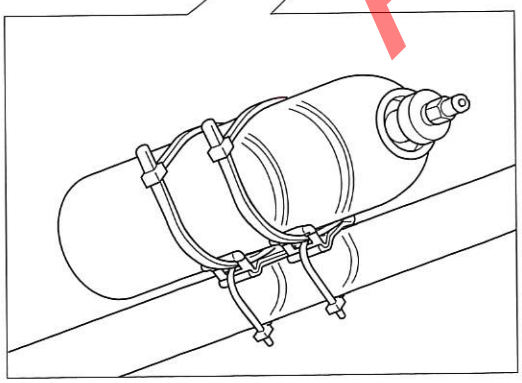


1.Installation

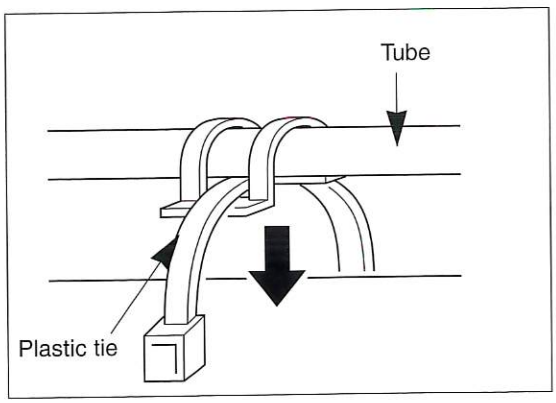
Install each of the components as shown in the illustration.



Check that the crown of the suspension fork does not touch the tank pressure regulator when the handlebars are turned.



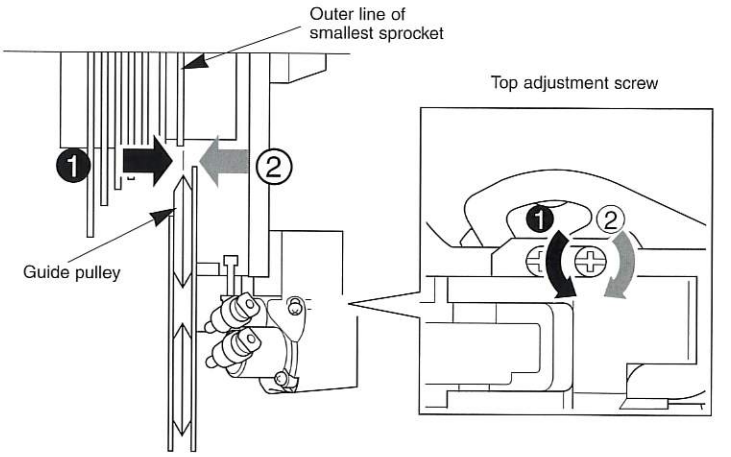
If mounting to the water bottle braze-on mounts remove the rubber pad.



Secure the tubes to the frame as shown in the illustration.

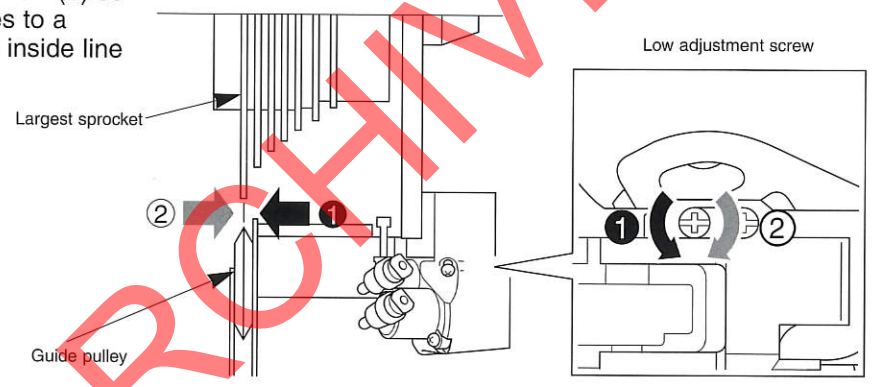
2.Top adjustment

Turn the top adjustment screw (2) so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.



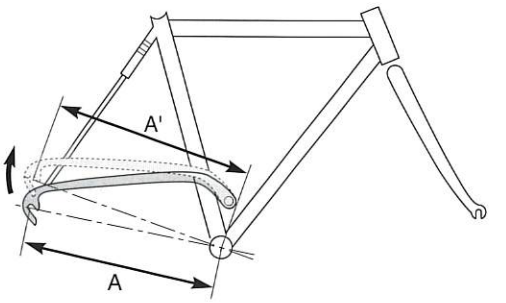
3.Low adjustment

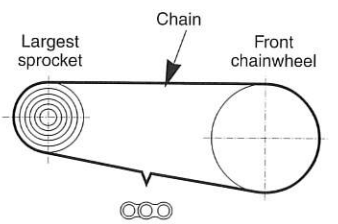
Turn the low adjustment screw (1) so that the guide pulley moves to a position directly above the inside line of the largest sprocket.



4.Chain length on bicycles with rear suspension

The length of A will vary depending on the movement of the rear suspension. Because of this, an excessive load may be placed on the drive system if the chain length is too short. Set the length of the chain by adding two links to the chain when the rear suspension is at a position where dimension "A" is longest and the chain is on the largest sprocket and the largest chainring.
If the amount of movement of the rear suspension is large, the slack in the chain may not be taken up properly when the chain is on the smallest sprocket.

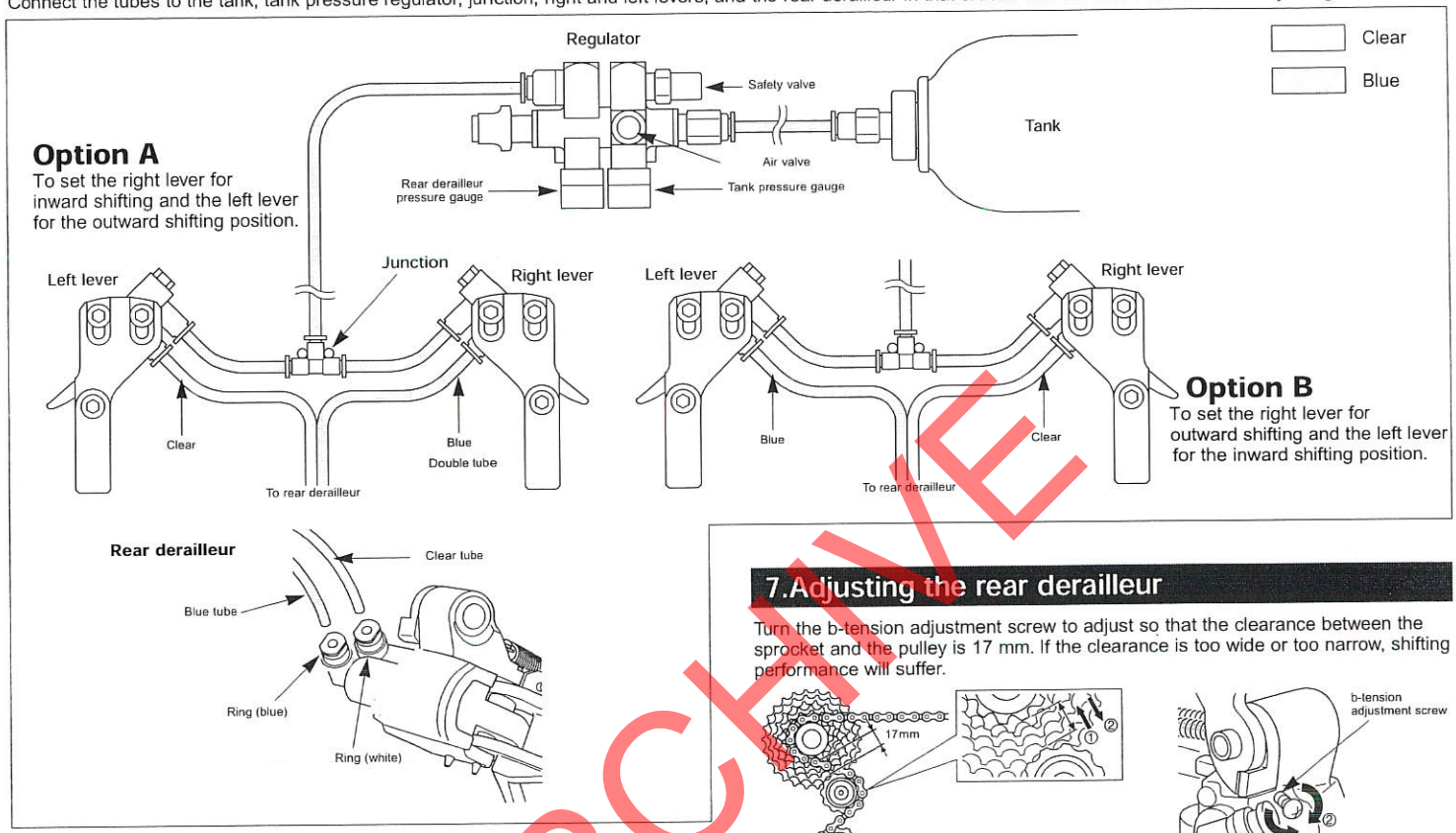




Add 2 links (with the chain is on the large sprocket)

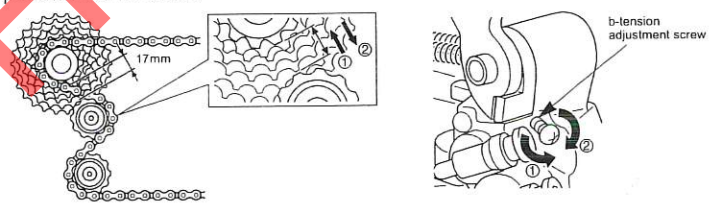
5.Connecting the tubes and charging the tank.

Connect the tubes to the tank, tank pressure regulator, junction, right and left levers, and the rear derailleur in that order. Push the tubes on as far as they will go.



7.Adjusting the rear derailleur

Turn the b-tension adjustment screw to adjust so that the clearance between the sprocket and the pulley is 17 mm. If the clearance is too wide or too narrow, shifting performance will suffer.



■Tube connection options

A. To set the right lever for inward shifting and the left lever for the outward shifting position.
Connect the double tube (blue) to the right lever, and connect the clear tube to the left lever as shown in the illustration.

B. To set the right lever for outward shifting and the left lever for the inward shifting position.
Connect the clear double tube to the right lever, and connect the blue tube to the left lever as shown in the illustration.

When adjusting the rear derailleur, be sure to attach the clear tube to the top and the blue tube to the bottom of the rear derailleur.

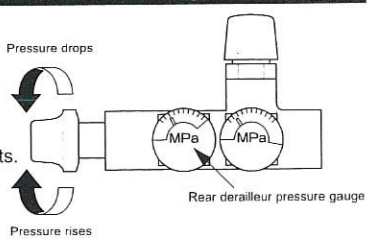
■Pressurizing the tank

Use an air cylinder with a sub-tank, an air compressor or hand pump to charge the tank through the air valve (Schrader valve) of the regulator.
At this time, watch the scale on the regulator while charging and make sure that the air pressure never exceeds a pressure of 9.9 kg/cm² (0.97 MPa).

6.Adjusting the air pressure

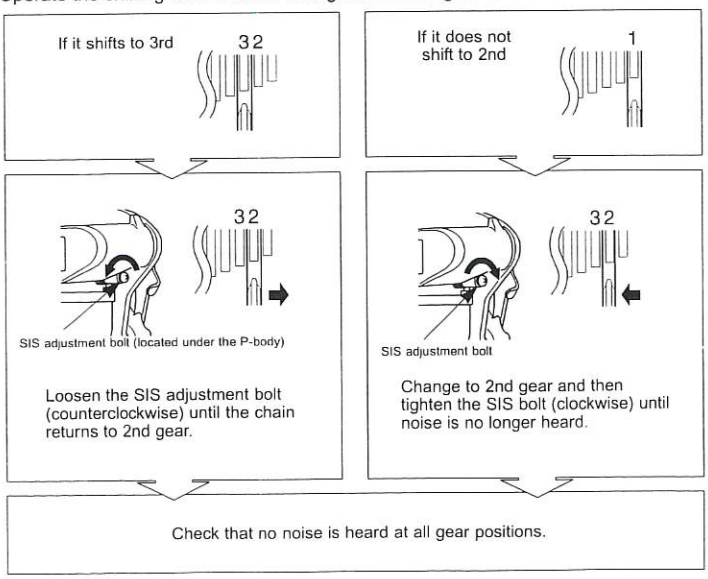
Turn the knob on the regulator to set the air pressure to 0.22–0.25 MPa.

After turning the knob, operate the lever two or three times and check that the pressure is at 0.22–0.25 MPa.
Higher/lower pressure=faster/slower shifts.



8.Shimano Index System Adjustment

Operate the shifting lever once to change to second gear at the rear.



Airlines System Troubleshooting

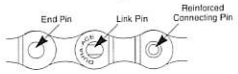
Symptom		Check the following	Remedy
Does not operate.		Is there air in the tank?	Charge with air.
		Has the regulator secondary pressure been set to the correct value?	Set to 0.22–0.25 MPa.
		Are the tubes connected in the correct positions and pushed on as far as they will go?	Securely fit all tubes onto the tube connectors as far as they will go.
		Does air come out when the rear derailleur tube is disconnected and the shifting lever is operated?	If air comes out : Problem with the rear derailleur. Contact Shimano . If air does not come out : Problem with the shifting lever or tank pressure regulator. Contact Shimano .
		Is the rear derailleur cable broken?	If it's broken, contact Shimano .
Poor gear shifting performance.		Is the adjustment out by one gear?	Re-adjust using the SIS adjustment bolt. Located under the P-body.
		Are the drop-outs parallel?	Repair using a drop-out alignment tool.
		Are the pulley and gear clearance and chain length correct?	Adjust using the b-tension adjustment screw. / Check and adjust the chain length.
		Is a 11T-26T single front chainwheel/rear cassette combination being used?	Use the recommended configuration.
Does not shift to LOW or TOP.		Is the stroke adjustment bolt not touching?	Try loosening it.
		Does not shift to LOW. Is the LOW stopper adjustment bolt too tight?	With the ratchet at the LOW position, reduce the cable tension so that the chain moves to the LOW gear position.
		Does not shift to TOP. Is the TOP stopper adjustment bolt too tight?	With the ratchet at the TOP position, reduce the cable tension so that the chain moves to the TOP gear position.
		Are the pulley and gear clearance and chain length correct?	Adjust using the b-tension adjustment screw. / Check and adjust the chain length.
Pulley touches the sprockets.		Is a 11T-26T rear cassette/single chainring combination being used?	Use the recommended configuration.
		Are the pulley and gear clearance and chain length correct?	Tighten the end adjustment bolt. / Check and adjust the chain length.
Air leaks. (Noise can be heard or shifting speed does not become faster.) Listen for noise or apply soapy water to check the location of the problem.	Air tank pressure regulator	From the tank connection	Securely tighten the screws.
		From the threaded part of the tube connector	Tighten the tube connector screw.
		From around the tank pressure regulator, air valve, safety valve or pressure knob	Contact Shimano .
	SL (shifting lever)	Air leaks when lever is not operated.	Securely fit all tubes onto the tube connectors as far as they will go. Tighten the bottom cover (7 mm hexagonal nut). Tighten the tube connector screw. If the problem persists, contact Shimano.
		Air leaks while lever is being operated (Does not leak when operation is completed)	Contact Shimano .
		Air continues to leak after lever is operated	
		The sound of air leaking can be heard while the lever is being pressed.	Normal
	RD (rear derailleur)	From tube connector	Securely fit all tubes onto the tube connectors as far as they will go.
		From hole underneath bracket	If it happens after the lever is released, this is normal. Otherwise contact Shimano .
	Tubes	Are the tubes connected in the correct positions and pushed on as far as they will go?	Securely fit all tubes onto the tube connectors as far as they will go.
		Are the tubes scratched or burred?	Cut a 5–10 mm length from the end and use the sound portion.
No air supplied.		Are the tubes connected in the correct positions and pushed on as far as they will go?	Securely fit all tubes onto the tube connectors as far as they will go.
		Is there a hole in a tube?	Replace with a new hose.
Shift speed is slow.		Is a tube bent too sharply?	Route the tube with a wider loop so that it does not split.
		Has the tube been crimped by the plastic tie?	Re-tighten so that it is not so tight.
		Check the tube connection at the rear derailleur cylinder.	Connect the blue tube to the blue connector and the clear tube to the white connector.
		Has the rear derailleur pressure been set to the correct value at the tank pressure regulator?	Increase the rear derailleur pressure slightly at the tank pressure regulator.
Other problem.		Has installation and adjustment been carried out according to the Service Instructions?	If the problem persists, contact Shimano.

⚠ WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pin available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7700 / CN-HG92	Silver	TL-CN31/TL-CN22
8-/7-/6-speed narrow chain such as CN-HG50 / CN-IG51	Black	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-F800A

Front Drive System

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

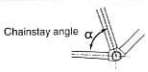
Series		C050	C050
CI-DECK		ID-C050	ID-C050
Gears	Right	—	—
	Left	SIS 3-gears	SIS 3-gears
REVOSHIFT		SB-C050-L, SB-C051-L	SB-C050-LN, SB-C051-LN
Outer casing		SIS40	SIS40
Front derailleur		FD-C050	FD-C050
Front chainwheel		FC-C050	FC-C050
Bottom bracket		BB-TY30	BB-TY30
Chain		CN-UG50	CN-UG50
Bottom bracket cable guide		SM-SP18 / SM-BT18 SM-SP17 / SM-BT17	SM-SP18 / SM-BT18 SM-SP17 / SM-BT17

Specifications

Front Derailleur

Model number	FD-C050
Applicable bottom bracket	BB-TY30
Applicable front chainwheel	FC-C050
Applicable to both normal type and top route type	○
Top gear tooth	42T
Front chainwheel tooth difference	18T
Min. difference between top and intermediate	8T
Front derailleur installation band diameter	S, M, L
Chainstay angle (α)	66°- 69°
Applicable chain line	47.5 mm,50 mm

Installation band diameters:
S [28,6 mm], M [31,8 mm], L [34,9 mm]
(Use the adapter for S and M sizes.)



Bottom Bracket

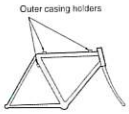
Model number	BB-TY30
Stamped marking	D-NL
Spindle length	122.5 mm
Chain line	47.5 mm
Applicable front chainwheel	FC-C050
Thread dimensions	BC 1.37 X 24 T.P.I. (68, 73 mm) M36 X 24 T.P.I. (70 mm)

Chainwheel

Model number	FC-C050
Chainwheel tooth combination	42-34-24T
Crank arm length	160, 170 mm
Pedal thread dimensions	BC 9/16" x 20 T.P.I.

Note

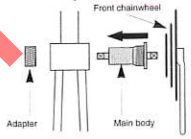
- Apply grease to the bottom bracket before installing it.
- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.



- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.
- Refer to the Rear Drive System Service Instructions for details on installing the CI-Deck.

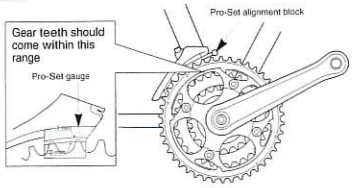
Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

Install using the TL-UN74-S special tool. First install the main body, then the adapter. After this, use an 8 mm Allen key to install the front chainwheel.

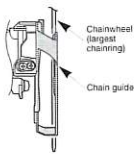


Adapter / bottom bracket tightening torque:
50 - 70 Nm {435 - 608 in. lbs.}
Front chainwheel tightening torque:
35 - 50 Nm {305 - 435 in. lbs.}

Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.



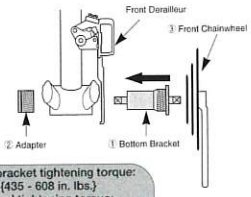
The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5 mm Allen key.



Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}

< FD-C201-E / FD-C101-E >

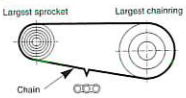
Use the special tools (TL-UN65 and TL-UN74-S) to install the bottom bracket ① and the front derailleur so that they face as shown in the illustration. Install the adapter ②, and then use the cotterless crank extractor (TL-FC10) to install the front chainwheel.



Adapter / bottom bracket tightening torque:
50 - 70 Nm {435 - 608 in. lbs.}
Front chainwheel tightening torque:
35 - 50 Nm {305 - 435 in. lbs.}

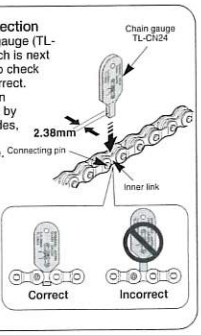
Chain length

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

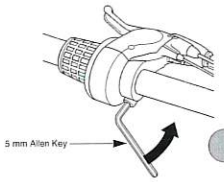


Checking the chain connection

For chains, insert the chain gauge (TL-CN24) into the inner link which is next to the chain connecting pin to check that the inner link width is correct. Check that the connecting pin pro-trudes past the outer link by the same amount on both sides, and that the amount of protrusion is 0.2 mm or more.

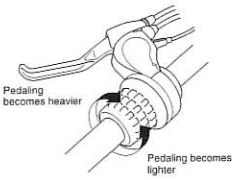


Mounting the shifting lever



Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

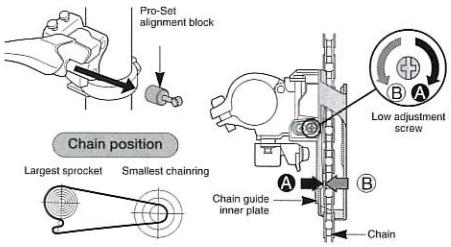
Gear shifting operation



SIS adjustment

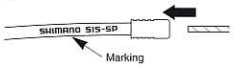
Be sure to follow the sequence described below.

1. Low adjustment
   First remove the Pro-Set alignment block .
   Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



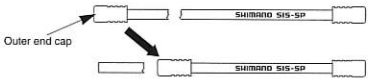
2. Securing the inner cable

   Inserting the inner cable
   Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

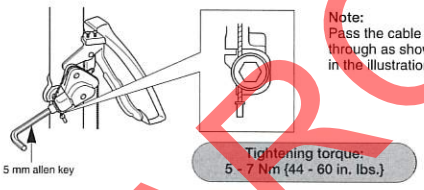


   Cutting the outer casing
   When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

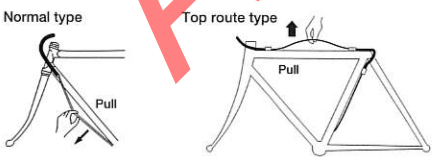
   Attach the same outer end cap to the cut end of the outer casing.



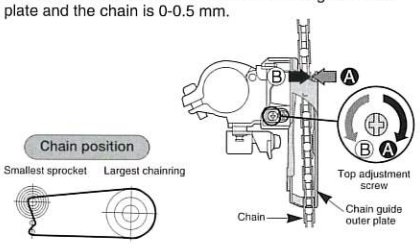
Cut off the excess length of inner cable and then install the inner end cap.



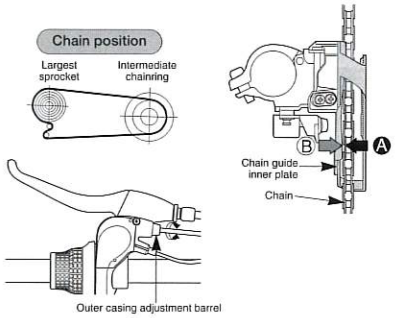
After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.



3. Top adjustment
   Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.



4. Adjustment of the intermediate chainring
   When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chainring. Adjust using the outer casing adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.

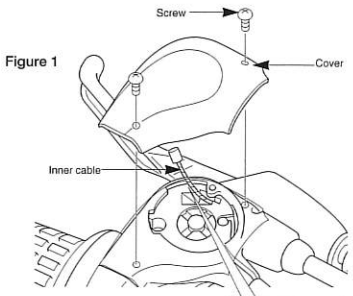


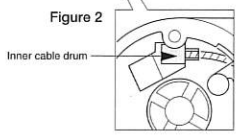
5. Troubleshooting chart
   After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side.	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring.	Loosen the low adjustment screw counterclockwise (about 1/4 turn).
If there is interference between the chain and the front derailleur inner plate at the largest chainring.	Tighten the top adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring.	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chainring position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/2 turn).

Replacing the inner cable

1. Remove the screw, and then remove the cover.
2. Pull out the inner cable as shown in Figure 1, and then install the new inner cable. At this time, check that the inner cable drum is in the position shown in Figure 2, and then replace the cover.





This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

SHIMANO

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SHIMANO INC.
77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-3243

Please note: specifications are subject to change for improvement without notice. (English)

⚠ WARNING

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-R800A

Rear Drive System

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Series		C050	C050
CI-DECK		ID-C050	ID-C050
Gears	Right	SIS 6-gears	SIS 7-gears
REVOSHIFT		SB-C050-6R, SB-C051-6R	SB-C050-7R, SB-C051-7R
Outer casing		SIS40	SIS40
Rear derailleur		RD-C050	RD-C050
Multiple freewheel		MF-ZH36	MF-ZH37
Chain		CN-UG50	CN-UG50
Bottom bracket cable guide		SM-SP18 / SM-BT18 SM-SP17 / SM-BT17	SM-SP18 / SM-BT18 SM-SP17 / SM-BT17

Specifications

Rear Derailleur

Model number	RD-C050
Total capacity	43T
Largest sprocket	34T
Smallest sprocket	11T
Front chainwheel tooth difference	20T

Freewheel tooth configurations

Type	Gears	Group name	Tooth combination
ZH	6	cx	13, 15, 18, 21, 24, 34T
ZH	7	cy	13, 15, 17, 19, 21, 24, 34T

CI-DECK

Model number	Shift lever	Rear derailleur	Use
ID-C050-6R	SB-C050-6R/SB-C051-6R	Rapid Rise	Rear 6-gears
ID-C050-7R	SB-C050-7R/SB-C051-7R		Rear 7-gears

Note

- Adjust the RD-C050 Rapid Rise rear derailleur (reverse spring type) from the low side.
- Because the high cable resistance of a frame with internal cable routing would impair the SIS function, this type of frame should not be used.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- Read these Service Instructions together with the Front Drive System Service Instructions.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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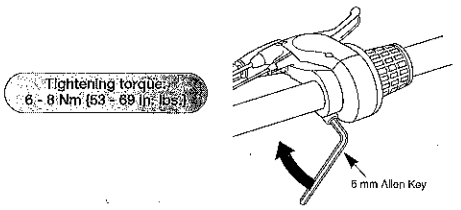
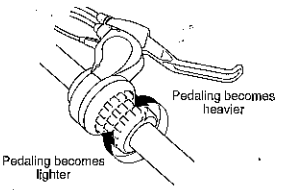
Mounting the shifting lever

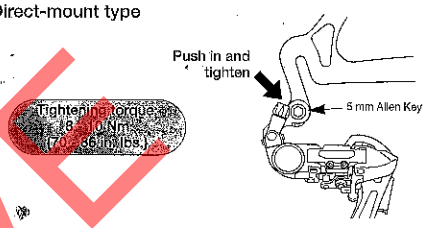


Gear shifting operation

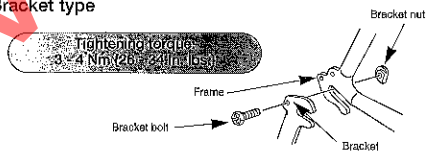


Installation of the rear derailleur

Direct-mount type

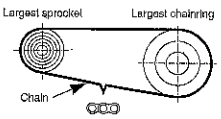


Bracket type



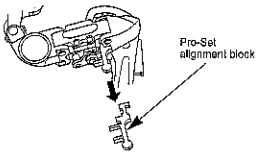
Chain length

Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Installation of the chain

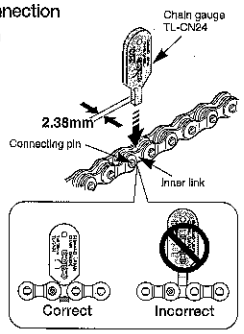
1. Install the chain with the Pro-Set alignment block still attached. After installing, remove the Pro-Set alignment block.

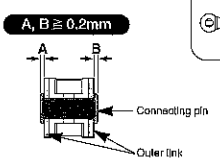


2. Turn the crank arm to set the derailleur to the low position.

Checking the chain connection

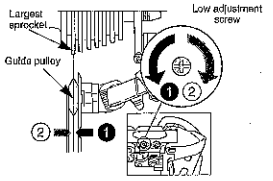
For chains, insert the chain gauge (TL-CN24) into the inner link which is next to the chain connecting pin to check that the inner link width is correct.
Check that the connecting pin pro-trudes past the outer link by the same amount on both sides, and that the amount of protrusion is 0.2 mm or more.



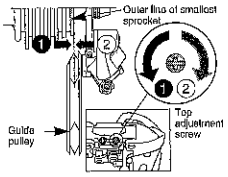


Adjustment

1. Low adjustment
Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.

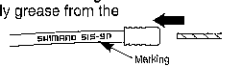


2. Top adjustment
Turn the crank arm while pulling the derailleur with your hand to move the derailleur to the top position, and then turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.
Turn the crank arm to set the derailleur to the low position.



3. Securing the outer cable and inner cable

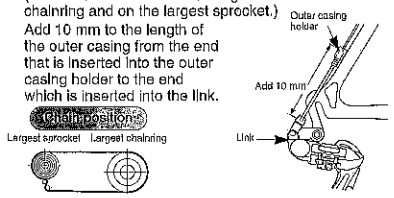
Inserting the inner cable
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



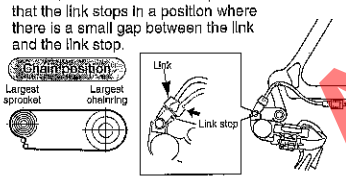
Place the outer casing so that it does not touch the basket and mudguard, otherwise it may cause a problem with the performance of the derailleur.

Set the outer casing so that its length is as follows.

•If routing the casing upward:
(The chain should be on the largest chainring and on the largest sprocket.)
Add 10 mm to the length of the outer casing from the end that is inserted into the outer casing holder to the end which is inserted into the link.

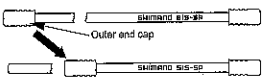


•If routing the casing downward:
(The chain should be on the largest chainring and on the largest sprocket.)
Set the length of the outer casing so that it describes a smooth arc, and so that the link stops in a position where there is a small gap between the link and the link stop.

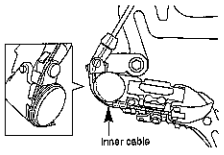


Cutting the outer casing
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

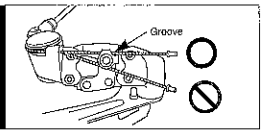
Attach the same outer end cap to the cut end of the outer casing.



Connect the inner cable to the derailleur as shown in the illustration.

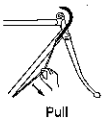


Note:
Be sure that the cable is securely in the groove.

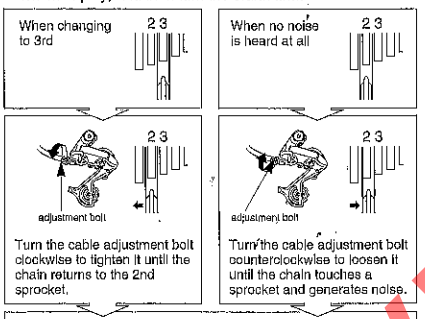


Connect the cable to the rear derailleur and, after taking up the initial slack in the cable, re-secure to the rear derailleur as shown in the illustration.

Tightening torque: 5 - 7 Nm (44 - 60 in. lbs.)



4. SIS adjustment
Operate the Revoshift while turning the crank arm to move the derailleur to the largest sprocket. Then operate the Revoshift once to move the derailleur to the 2nd-gear sprocket. After this, operate the Revoshift just as far as the extent of play, and then turn the crank arm.



Best setting
The best setting is when the cable adjustment bolt is tightened (turned clockwise) until noise occurs without the Revoshift being operated, and then loosened (turned counterclockwise) 90 - 180 degrees from that point.

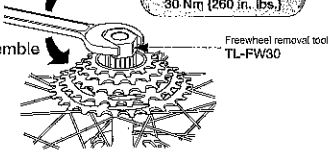
Operate the Revoshift to change gears, and check that no noise occurs in any of the gear positions.

For the best SIS performance, periodically lubricate all power-transmission parts.

Installation of the freewheel

To install
To disassemble

Tightening torque: 30 Nm (260 in. lbs.)



Replacing the inner cable

1. Remove the screw, and then remove the cover.
2. Pull out the inner cable as shown in Figure 1, and then install the new inner cable. At this time, check that the inner cable drum is in the position shown in Figure 2, and then replace the cover.

Figure 1

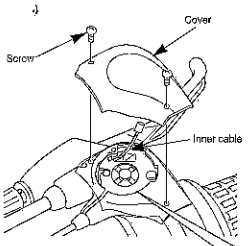
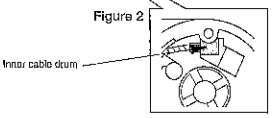


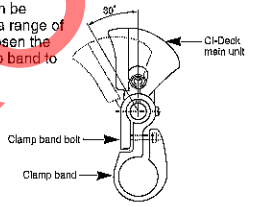
Figure 2



Installing the CI-Deck

1. Install to a handlebar with a diameter of 25 mm. (Use an adapter if the handlebar diameter is 22 mm.)

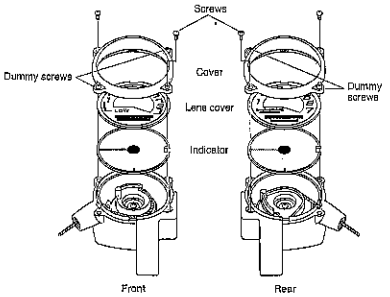
2. The CI-Deck can be adjusted within a range of 30 degrees. Loosen the bolt of the clamp band to adjust.



3. The length of the cable which connects the CI-Deck and the Revoshift unit will vary depending on the handlebars being used. If the cable is too long or too short, the indicator display will not be correct.

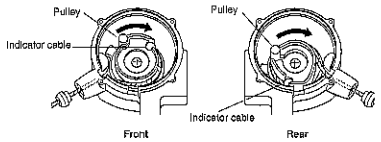
4. Replacement of the indicator cable

< At the CI-Deck side >
Remove the cover fixing screws and then remove the cover, lens cover and indicator as shown in the illustration.

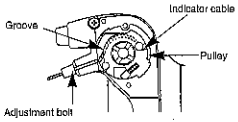


Tightening torque: 0.1 Nm (1 in. lbs.)

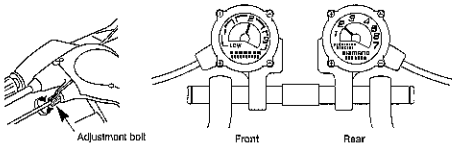
Turn the pulley and remove the cable as shown in the illustration.
Turn the pulley clockwise, and then insert the end of the new cable until it is in the position shown in the illustration.
Install the indicator, lens cover and cover in that order.



< At the Revoshift lever side >
Remove the cover fixing screws, and then remove the cover as shown in the illustration.
Turn the adjustment bolt to remove it, and then remove the cable from the Revoshift lever main unit.
Pull the end of the new cable until it is positioned in the pulley as shown in the illustration.
Check that the cable is securely in the groove at this time.
Tighten the adjustment bolt, install the cover and secure it with the screws.



5. Making fine adjustments to the indicator cable
The indicator cable is equipped with an adjustment bolt. Turn the adjustment bolt to adjust to the optimum setting so that the needle points to "2" (at both front and rear).

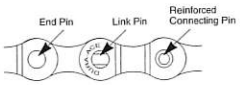


⚠ WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pin available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin		Chain tool
9-speed super narrow chain such as CN-7700 / CN-HG92		Silver	TL-CN31/TL-CN22
Chaîne étroite à 8/7/6 vitesses comme CN-HG50 / CN-IG51		Black	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-F870A

Front Drive System

Before use, read these instructions carefully, and follow them for correct use.

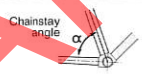
In order to realize the best performance, we recommend that the following combination be used.

Series	NEXAVE
Shifting lever	SL-C900-L
Outer casing	SP40
Front derailleur	FD-C900
Front chainwheel	FC-C900
Bottom bracket	BB-C900
Chain	CN-HG92

Specifications

Front Derailleur

Model number	FD-C900
Bottom bracket	BB-C900
Normal type	○
Top route type	○
Front chainwheel tooth difference	12T
Chainstay angle (α)	63° - 66° / 66° - 69°
Applicable chain line	52.5mm



Chainwheel

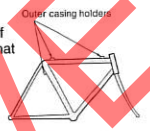
Model number	FC-C900
Chainwheel tooth combination	46T - 34T
Bolt circle diameter	112 mm
Crank arm length (mm)	170 mm,175 mm
Pedal thread dimensions	BC 9/16" X 20 T.P.I.

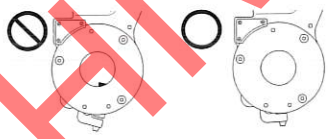
Bottom Bracket

Model number	BB-C900
Front derailleur	FD-C900
Spindle length	121 mm
Chain line	52.5 mm
Thread dimensions	BC1.37" X 24 T.P.I. (68 mm)

Note

- Apply grease to the bottom bracket before installing it.
- For smooth operation, use the specified SIS-SP outer casing.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- When installing the front chainwheel, check that the cam on the bracket of the front derailleur is not raised. If it is raised, press one of the buttons (L or H) to lower the cam.

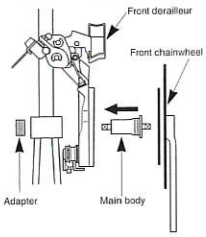




- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

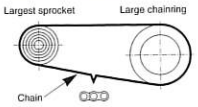
Install using the TL-UN74-S special tool. First install the main body, then the adapter. After this, use an 8 mm Allen key to install the front chainwheel.



Adapter / bottom bracket tightening torque: 50 - 70 Nm {435 - 608 in. lbs.}
Front chainwheel tightening torque: 35 - 50 Nm {305 - 435 in. lbs.}

Chain length

Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Installation of the lever

Use a handlebar grip with a maximum outer diameter of 32 mm.

Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

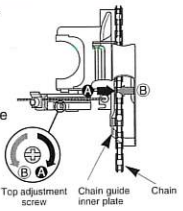
Allen key tightening torque: 5 Nm{44 in. lbs.}

SIS adjustment

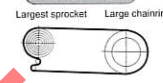
Be sure to follow the sequence described below.

1. Top adjustment

Set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.inner plate and the chain is 0-0.5 mm.



Chain position

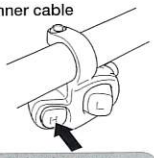


2. Connection and securing the inner cable

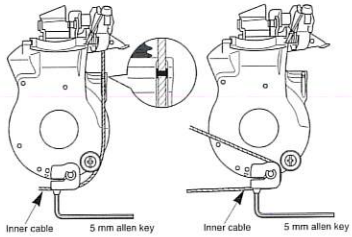
Press the H button to set the lever to the initial position.

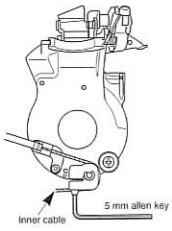
While pulling the inner cable, tighten the wire fixing bolt with a 5 mm allen key to secure the cable.

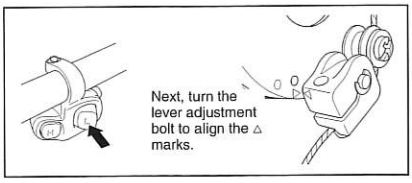
Pass the cable through as shown in the illustration.



Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}







Next, turn the lever adjustment bolt to align the △ marks.

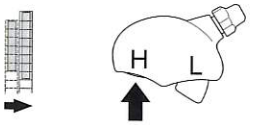
Gear shifting operation

When operating one of the buttons, always be sure to turn the crank arm at the same time.

To shift from a small chainring to a larger chainring

When button (H) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

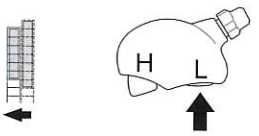
Example:
from small chainring to large chainring.



To shift from a large chainring to a smaller chainring

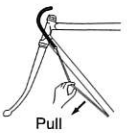
When button (L) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

Example:
from large chainring to small chainring.

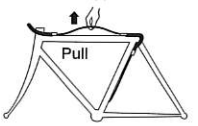


After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

Normal type

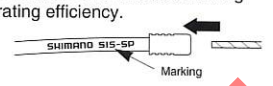


Top route type



Inserting the inner cable

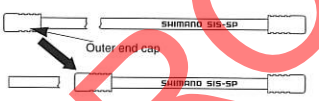
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

Attach the same outer end cap to the cut end of the outer casing.



3. Troubleshooting chart

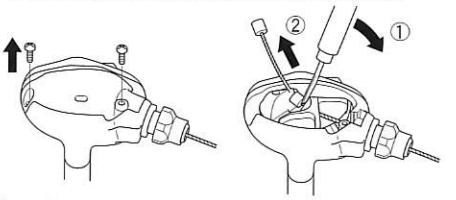
After completion of steps 1 - 2, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If shifting from the small chainring to the large chainring is difficult	Tighten the adjustment bolt by turning it about 1/2 a turn clockwise.
If shifting from the large chainring to the small chainring is difficult	Loosen the adjustment bolt by turning it about 1/2 a turn counterclockwise.
If the chain is on the large chainring and the front derailleur inner plate is obstructing the chain	Set the chain onto the large chainring and the largest sprocket, and then turn the adjustment bolt counterclockwise to adjust the clearance between the chain guide inner plate and the chain to 0--0.5 mm.
If the chain is on the large chainring and the front derailleur outer plate is obstructing the chain	Set the chain onto the large chainring and the smallest sprocket, and then turn the adjustment bolt clockwise to adjust the clearance between the chain guide inner plate and the chain to 0--0.5 mm.
If the chain guide does not move when shifting from the large chainring to the small chainring, or it moves to a position in between the chainrings	With the SL-C900 set to the Low position, turn the outer adjustment bolt on the SL-C900 counterclockwise so that the triangular marks on the bracket and the reel unit are aligned.
If the chain guide does not move when shifting from the small chainring to the large chainring, or it moves to a position in between the chainrings	With the SL-C900 set to the Low position, turn the outer adjustment bolt on the SL-C900 clockwise so that the triangular marks on the bracket and the reel unit are aligned.

Replacing the inner cable

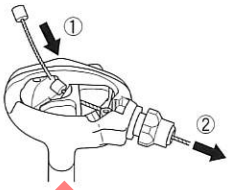
Taking out the inner cable

① Press button L fully to lift up the inner end.
② Press button H fully and pull out the inner cable.



Installing the inner cable

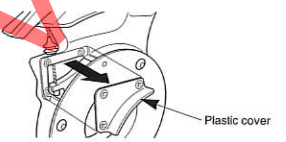
① Press button H fully and insert the inner cable part of the way in.
② Press button L fully and pass the end of the inner cable through the hole in the adjustment bolt and pull it out the other side.



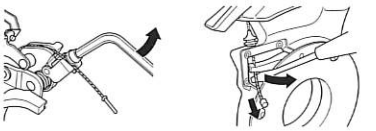
Replacement of the left link cable

1. Operate the shifting lever to set the front derailleur to the low position, and fully loosen the top adjusting bolt. Then remove the front chainwheel.

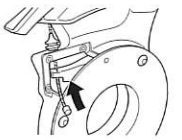
2. Remove the plastic cover from the front derailleur.



3. Loosen the cable fixing bolt on the left link, and then remove the cable.



4. Install the new cable, and provisionally secure it to the left link. (See illustration.)



5. Install the plastic cover, and then install the front chainwheel.

6. Operate the shifting levers to set the chain onto the largest chainring and the largest sprocket, and then adjust so that the gap between the chain guide inner plate and the chain is 0--0.5 mm.

7. Tighten the cable fixing bolt on the left link.

Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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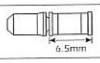
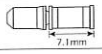
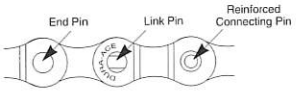
⚠ WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pin available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7700 / CN-HG92	 Silver	TL-CN31/TL-CN22
8-/7-/6-speed narrow chain such as CN-HG50 / CN-IG51	 Black	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTION SI-R870A

Rear Drive System

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Series	NEXAVE
Shifting lever	SL-C900
Outer casing	SP40 sealed
Rear derailleur	RD-C900
Type	MGS
Freehub	FH-C900 / FH-C901
Gears	9
Cassette sprocket	CS-HG70-9
Chain	CN-HG92

Specifications

Rear Derailleur

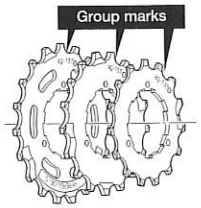
Model number	RD-C900
Gears	9
Total capacity	35 teeth or less
Largest sprocket	34T
Smallest sprocket	11T
Front chainwheel tooth difference	12T
Applicable front chainwheel (chainring tooth configuration)	FC-C900 (46T-34T)

Cassette sprocket tooth combination

Type	Gears	Group name	Tooth combination
HG	9	au	11, 13, 15, 17, 20, 23, 26, 30, 34T

Note

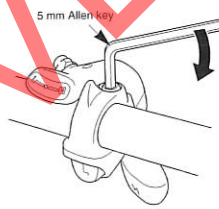
- Adjust the RD-C900 Rapid Rise rear derailleur (reverse spring type) from the low side.
- Always be sure to use the sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.



- Because the high cable resistance of a frame with internal cable routing would impair the SIS function, this type of frame should not be used.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- To avoid any interference between the inner cable and the shoe in the area near the chain stay, use the SM-CG90.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Installation of the lever

Use a handlebar grip with a maximum outer diameter of 32 mm.



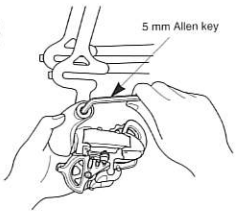
Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

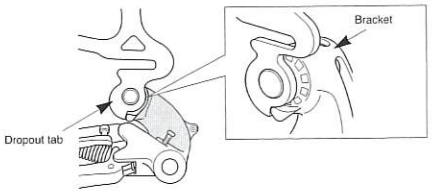
Installation of the rear derailleur

Secure so that the projection on the rear derailleur contacts the dropout tab.
Do not remove the Pro-Set alignment block at this time.

Tightening torque: 8 - 10 Nm {70 - 86 in. lbs.}

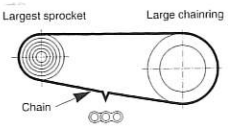


- Check that the dropout tab on the fork end and the projection on the rear derailleur are touching.
- Check that the bracket is securely fixed to the fork end and does not move.



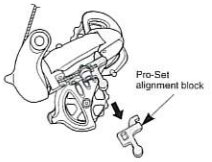
Chain length

Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Installation of the chain

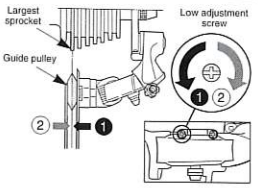
1. Install the chain with the Pro-Set alignment block still attached. After installing, remove the Pro-Set alignment block.



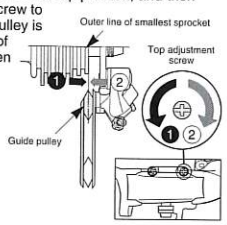
2. Turn the crank arm to set the derailleur to the low position.

Adjustment

1. Low adjustment
Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.



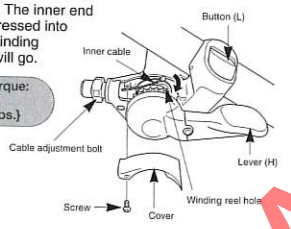
2. Top adjustment
Turn the crank arm while pulling the derailleur with your hand to move the derailleur to the top position, and then turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.
Turn the crank arm to set the derailleur to the low position.



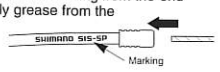
3. Installation and securing of the outer casing and inner cable
Press button (L) 8 or more times to set the lever to the lowest position, check on the indicator that the lowest position is correct, and then install and adjust the inner cable.

Loosen the screw, remove the cover and then pass the inner cable through the cable adjustment bolt as shown in the illustration. Run the cable along the slit in the winding reel and hook it into the hole in the winding reel. The inner end cap should be pressed into the hole in the winding reel as far as it will go.

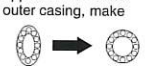
Tightening torque:
5 - 7 Nm
{44 - 60 in. lbs.}



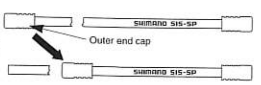
Inserting the inner cable
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



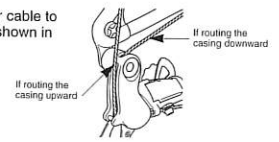
Cutting the outer casing
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.



Attach the same outer end cap to the cut end of the outer casing.

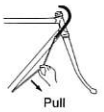


Connect the inner cable to the derailleur as shown in the illustration.

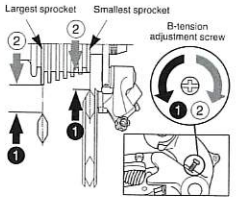


Connect the cable to the rear derailleur and, after taking up the initial slack in the cable, re-secure to the rear derailleur as shown in the illustration.

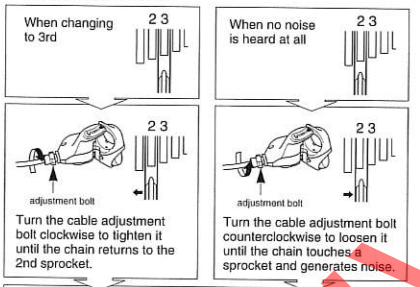
Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}



4. How to use the B-tension adjustment screw
Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm backward. Then turn the B-tension adjustment screw to adjust the guide pulley as close to the sprocket as possible but not so close that it touches. Next, set the chain to the smallest sprocket and repeat the above to make sure that the pulley does not touch the sprocket and that the chain tension is maintained.



5. SIS adjustment
Push button (L) while turning the crank arm to move the derailleur to the largest sprocket. Then operate lever (H) once to move the derailleur to the 2nd-gear sprocket. After this, operate lever (H) just as far as the extent of play, and then turn the crank arm.



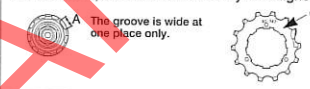
Best setting
The best setting is when the cable adjustment bolt is tightened (turned clockwise) until noise occurs without lever (H) being operated, and then loosened (turned counterclockwise) 90 - 180 degrees from that point.

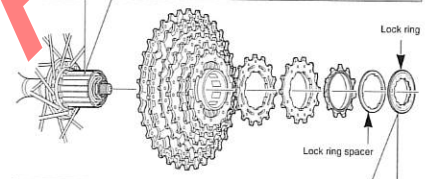
Operate lever (H) to change gears, and check that no noise occurs in any of the gear positions.

For the best SIS performance, periodically lubricate all power-transmission parts.

Installation of the sprockets

For each sprocket, the surface that has the group mark should face outward and be positioned so that the wider part of each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.

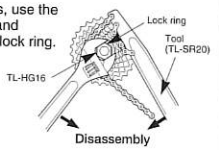




- For installation of the sprockets, use the special tool (TL-HG16) to tighten the lock ring.

Tightening torque:
30 - 50 Nm {261 - 434 in. lbs.}

- To replace the sprockets, use the special tool (TL-HG16) and TL-SR20 to remove the lock ring.

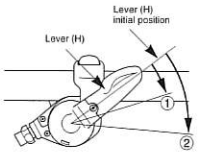


Gear shifting operation

Both lever (H) and button (L) return to the initial lever or button position when they are released after shifting. When operating lever (H) or button (L), always be sure to turn the crank arm at the same time.

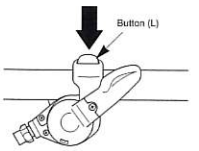
To shift from a larger sprocket to a smaller sprocket [Lever (H)]

To shift one step only, press lever (H) to the (1) position. To shift two steps at one time, press to the (2) position. A maximum two-step shift can be made in this manner.



To shift from a smaller sprocket to a larger sprocket [Button (L)]

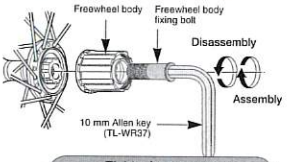
Press button (L) once and then release it to shift one step from a smaller to a larger sprocket.



Replacement of the freewheel body

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

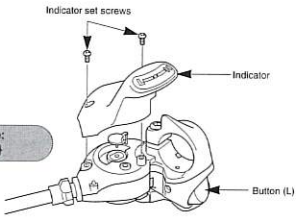
Note: Do not attempt to disassemble the freewheel body, because it may result in a malfunction.



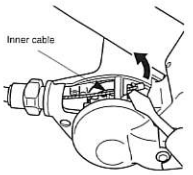
Tightening torque :
35 - 50 Nm {305 - 434 in. lbs.}

Replacing the indicator / Replacing the inner cable

Press button (L) to set the lever to the lowest position.



Tightening torque:
0.4 Nm {4 in. lbs.}



This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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⚠ WARNING

- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- ***Use the BR-C900 V-brake with V-brake-compatible brake levers such as the BL-C900 / ST-M510 / BL-M510 brake levers.***
- ***Do not use the BR-C900 V-brake with mode switching-type brake levers such as the ST-T400 / ST-T300 / BL-C101-L, as these brake levers are only for use with V-brakes with power modulator, cantilever brakes and roller brakes.***
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS **SI-B870A**

Multi-Condition Brake System

Before use, read these instructions carefully, and follow them for correct use.

Multi-Condition Brake System

By providing superior wet weather braking performance (control and modulation), braking performance will not vary in a multitude of conditions when using this brake system.

In order to realize the best performance, we recommend that the following combination be used.

Series	NEXAVE
Brake lever	BL-C900
V-brake	BR-C900
Brake cable	

NOTE:

- By using these parts as a set, the optimum efficiency of the Multi-Condition Brake System can be realized.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of handling or maintenance, please contact the place of purchase.

These service instructions explain how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

Please note: Specifications are subject to change for improvement without notice. (English)

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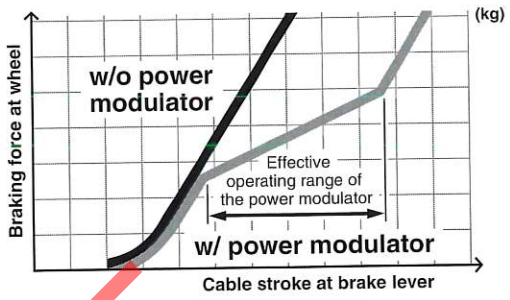
⚠ CAUTION

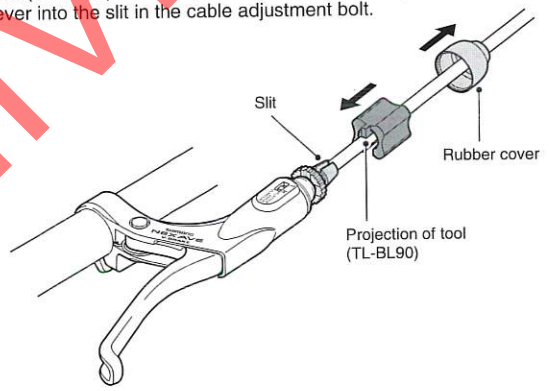
The power modulator is a device that makes it easier to control braking by increasing the cable stroke at the brake lever within a certain constant range of braking force.
If the effective operating range of the power modulator will be exceeded, the lever stroke and the brake will operate as a normal V-brake (sensitive and powerful). In that case, the brakes may operate more powerfully than intended and may cause the wheel to lock up. Therefore it is essential that you fully understand and test the performance of the power modulator before use.
The power modulator is not equipped with a function to prevent the wheel from locking up.

Braking Performance Comparison



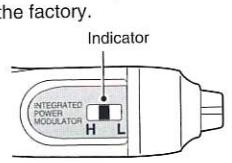
Adjustment of the power modulator

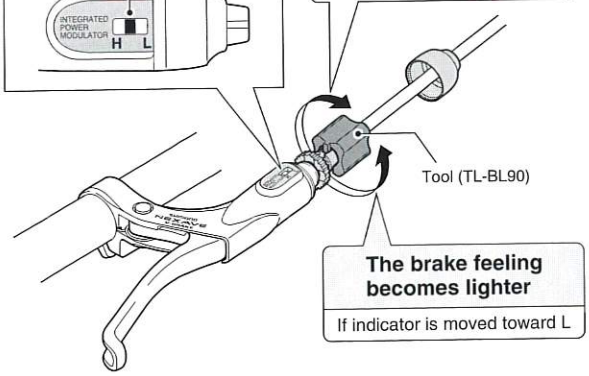
1. Pull the rubber cover to remove it. Then insert the projection of the tool (TL-BL90) which is provided as an accessory with the brake lever into the slit in the cable adjustment bolt.



2. Turn the tool (TL-BL90) to adjust the power modulator indicator to the optimum preferred position.

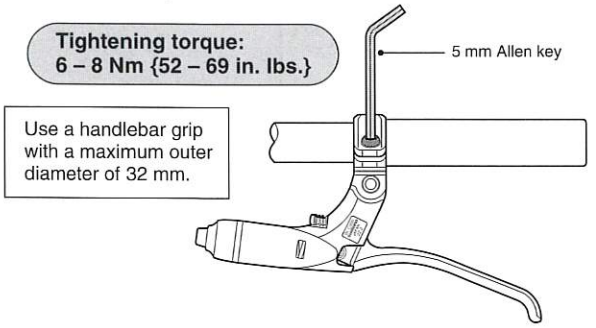
The power modulator indicator is set to the standard setting position shown in the illustration at the time of shipment from the factory.





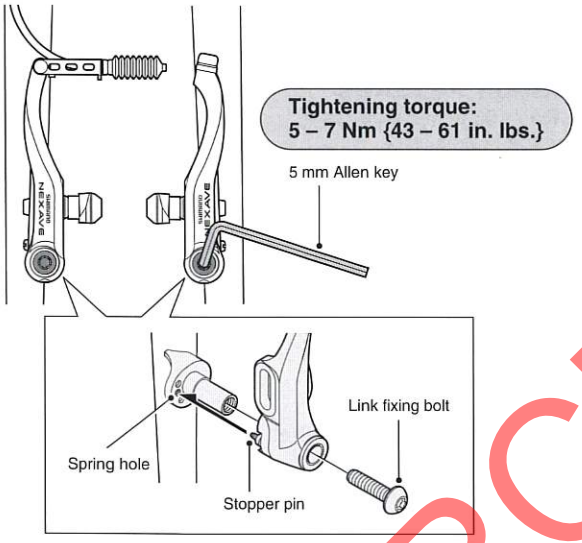
Installation of the brake lever

Use a 5 mm Allen key to install the brake lever.

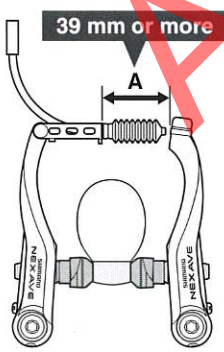


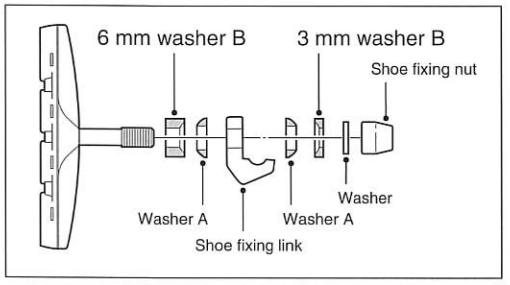
Installation of the V-brake

1. Insert the stopper pin of the brake body into the center spring hole in the frame mounting boss, and then secure the brake body to the frame with the link fixing bolt.

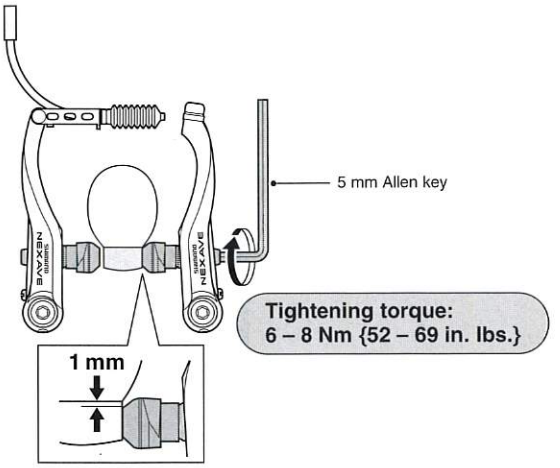


2. While holding the shoe against the rim, adjust the amount of shoe protrusion by changing over the washer B (6 mm or 3 mm) so that dimension A is kept at 39 mm or more.

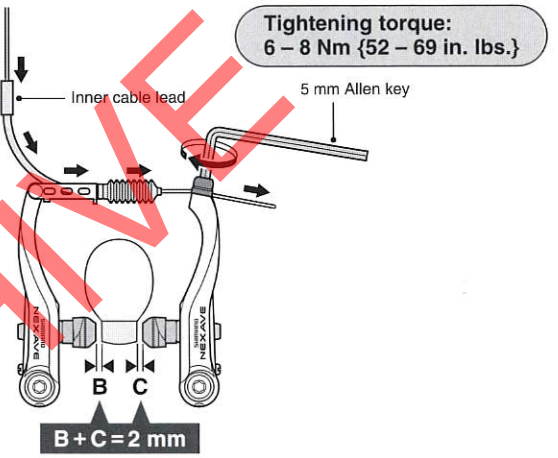




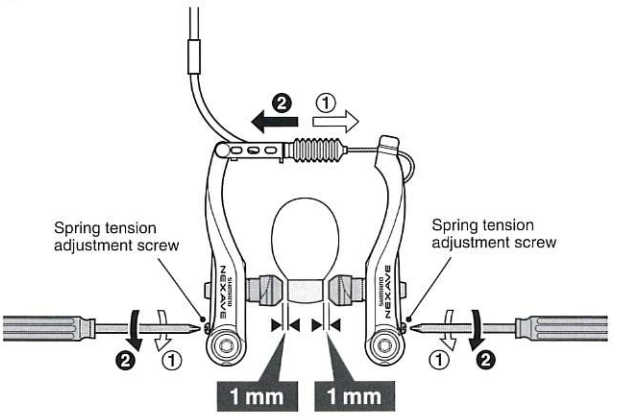
3. While holding the shoe against the rim, tighten the shoe fixing nut.



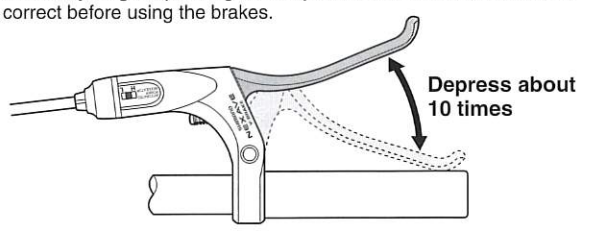
4. Pass the inner cable through the inner cable lead, and after setting so that the total of the clearances between the left and right shoes and the rim is 2 mm, tighten the cable fixing bolt.



5. Adjust the balance with the spring tension adjustment screws.



6. Depress the brake lever about 10 times as far as the grip and check that everything is operating correctly and that the shoe clearance is correct before using the brakes.



⚠ WARNING

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-6C80A

ST-6510 ST-5500-CA

Shimano Total Integration

Before use, read these instructions carefully, and follow them for correct use.

Shimano Total Integration Features

The Shimano Total Integration ULTEGRA / 105 series features a dual action control lever which actuates the brakes like a conventional brake lever, and shifts the gears when moved inward toward the center line of the bicycle. Gear shifting is now possible without ever taking your hands off the brake hoods or drops.

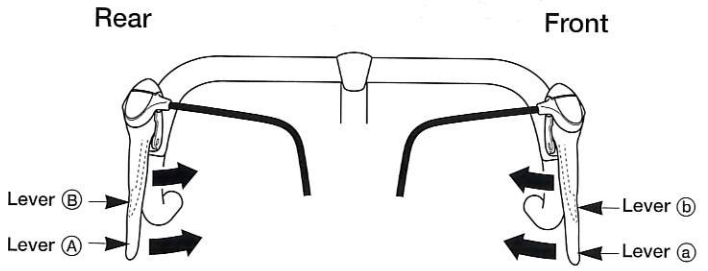
Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.

In order to realize the best performance, we recommend that the following combination be used.

Series	ULTEGRA	
Shifting lever	ST-6510	
Outer casing	SP40	
Gears	18	27
Front derailleur	FD-6500	FD-6503
Front chainwheel	FC-6500	FC-6503
Bottom bracket	BB-6500	
Rear derailleur	RD-6500	RD-6500GS
Freehub	FH-6500	
Cassette sprocket	CS-6500	
Chain	CN-HG92 / CN-7700	
Bottom bracket cable guide	SM-SP17	

Series	SHIMANO 105	
Shifting lever	ST-5500-CA	
Outer casing	SIS SP40	
Gears	18	27
Front derailleur	FD-5500	FD-5503
Front chainwheel	FC-5500	FC-5503
Bottom bracket	BB-5500	
Rear derailleur	RD-5500	RD-5500GS
Freehub	FH-5500	
Cassette sprocket	CS-HG70-9	
Chain	CN-HG72	
Bottom bracket cable guide	SM-SP17	

Operation

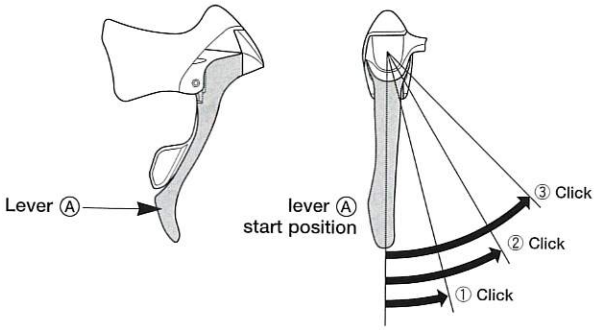


Lever Ⓐ : Shifts from smaller to larger rear sprocket.
Lever Ⓑ : Shifts from larger to smaller rear sprocket.
Lever ⓐ : Shifts from smaller to larger chainring.
Lever ⓑ : Shifts from larger to smaller chainring.

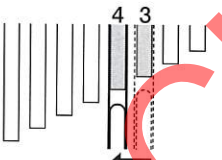
All levers return to the starting position when released.

Operation of rear derailleur lever

• Lever Ⓐ : Shifts from smaller to lager rear sprocket.
Lever Ⓐ has a click stop at positions ①, ②,and ③.

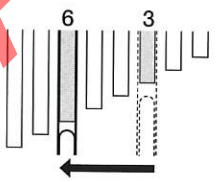


① : Shifts one sprocket
E.x. : from 3rd to 4th

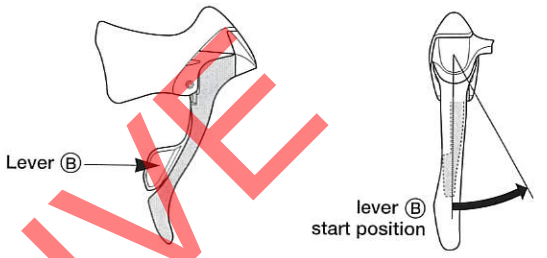


② : Quick-shifts two sprockets
E.x. : from 3rd to 5th

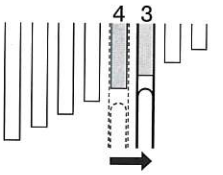
③ : Quick-shifts three sprockets
E.x. : from 3rd to 6th



• Lever Ⓑ : Shifts from larger to smaller rear sprocket.
Press lever Ⓑ once to shift from a larger to one smaller sprocket.



E.x. : from 4th to 3rd



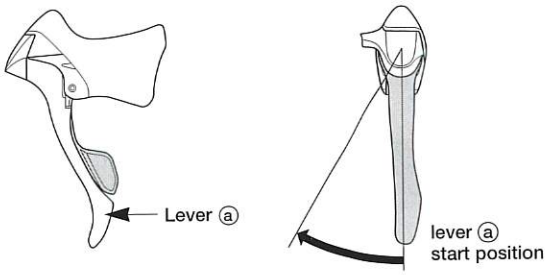
Caution on operation

Lever Ⓑ will also move when lever Ⓐ is operated, but be careful not to apply pressure to lever Ⓑ. Similarly be careful not to press lever Ⓐ when operating lever Ⓑ. Gears will not shift when both levers are pressed simultaneously.

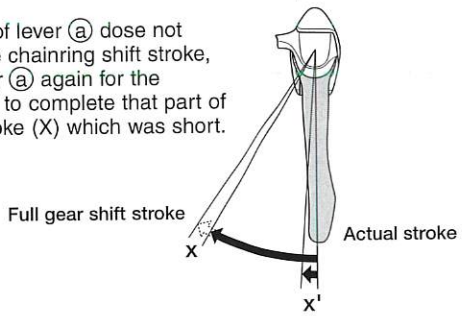
Be sure to read these service instructions in conjunction with the service instructions for the RD-6500 / RD-6500GS / RD-5500 / RD-5500GS before use.

Operation of front derailleur levers
(FD-6500 / FD-5500)

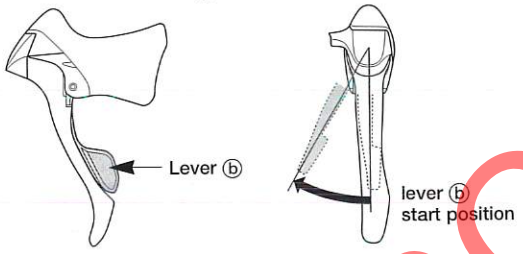
• Lever ⓐ : Shifts from smaller to larger front chainring.



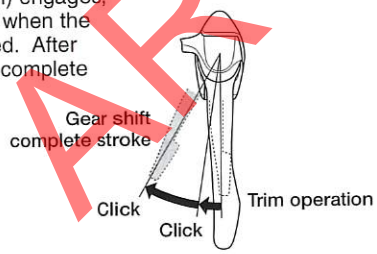
If operation of lever ⓐ dose not complete the chainring shift stroke, operate lever ⓐ again for the distance (X') to complete that part of the lever stroke (X) which was short.



• Lever ⓑ : Shifts from largest chainring to intermediate chainring.

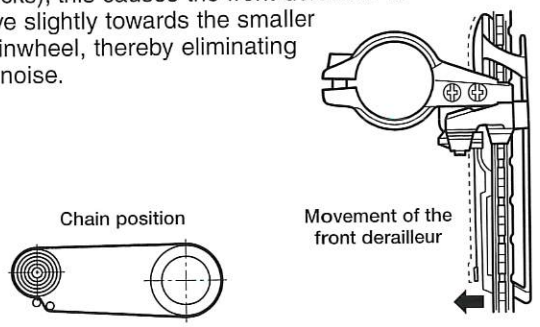


When lever ⓑ is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke to the smaller front chainring.



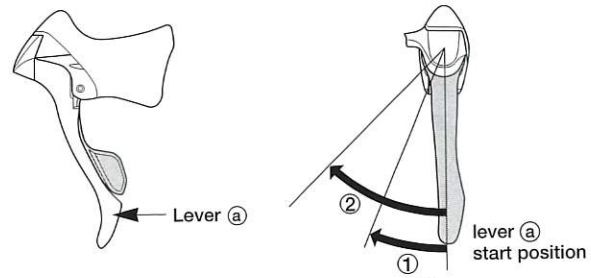
Trimming (noise prevention operation)

If the chain is on the large front chainwheel and the larger rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever ⓑ lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the smaller chainwheel, thereby eliminating the noise.

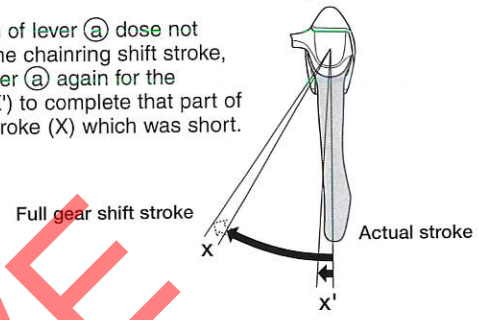


Operation of front derailleur levers
(FD-6503 / FD-5503)

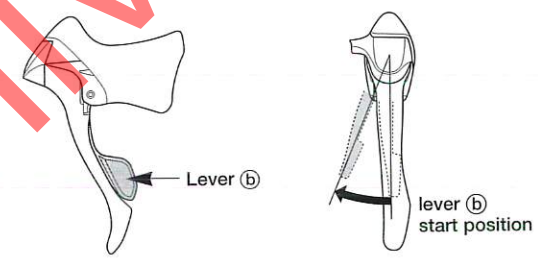
• Lever ⓐ : Shifts from smaller to larger front chainring.



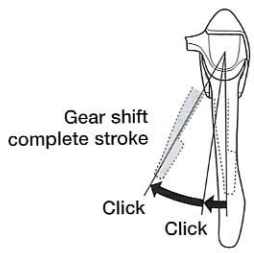
If operation of lever ⓐ dose not complete the chainring shift stroke, operate lever ⓐ again for the distance (X') to complete that part of the lever stroke (X) which was short.



• Lever ⓑ : Shifts from largest chainring to intermediate chainring.



• Lever ⓑ : Shifts from intermediate chainring to smallest chainring.



Caution on operation (FD-6500/FD-6503/FD-5500/FD-5503)

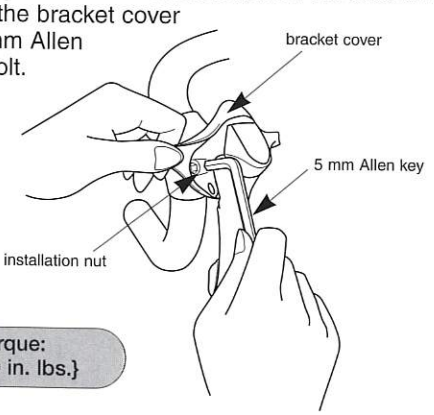
Lever ⓑ will also move when lever ⓐ is operated, but be careful not to apply pressure to lever ⓑ. Similarly be careful not to press lever ⓐ when operating lever ⓑ. Gears will not shift when both levers are pressed simultaneously.

Be sure to read these service instructions in conjunction with the service instructions for the FD-6500 / FD-6503 / FD-5500 / FD-5503 before use.

Installation

Installation to the handlebar

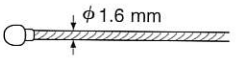
Secure the assembly with the installation nut on the outside of the bracket. Pull the bracket cover back and use a 5 mm Allen key to tighten the bolt.



Tightening torque:
6 - 8 Nm {50 - 70 in. lbs.}

Installation of the brake cable

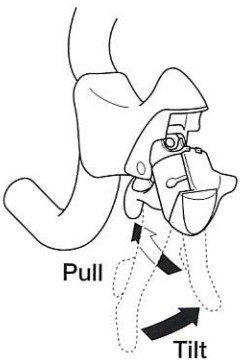
Cable used

- Inner cable (stainless steel) ..... 

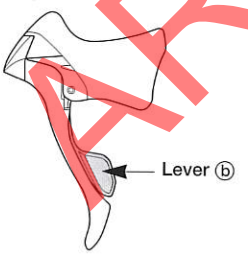
- SLR outer casing ..... 

Be sure to leave some excess cable, even if cutting it to the full length of the handlebars.

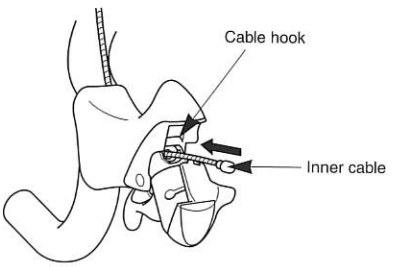
1. Tilt the lever in (as when shifting) to make it easier to pass the cable though the cable hook.



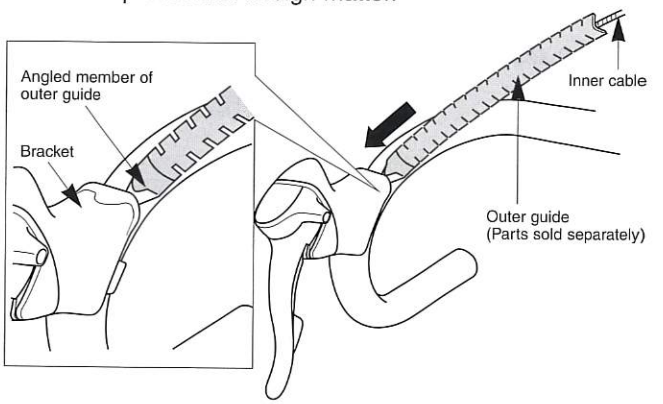
Note:
The front lever cannot be tilted to the inside until lever ⓑ is pushed once or twice.



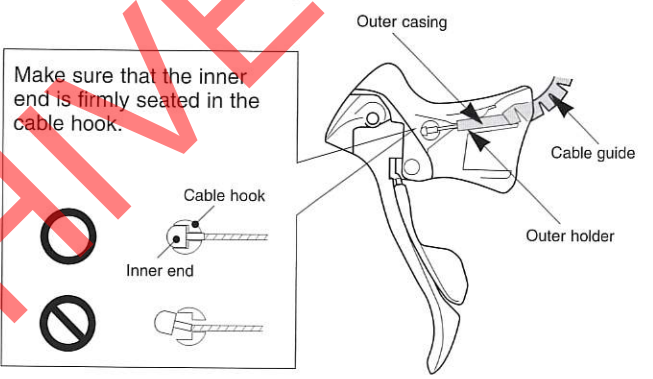
2. Pass the inner cable through.



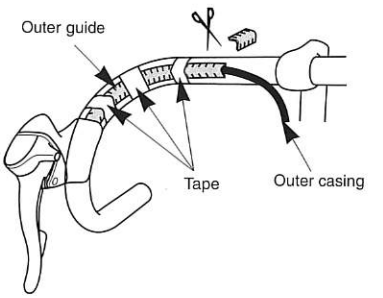
3. Fix the outer guide to the inner cable, and set the angled member in the bracket.
   Note: Do not wipe the grease on the inner cable off. Also, be careful that the inner cable does not pick up dust and foreign matter.



4. Set the outer casing on the inner cable, and in the bracket along the outer guide.



5. Bring the outer casing along the front of the handlbar and cover it with the outer guide. Now cut the outer guide to the length of the handlebar, and tape it temporarily in place.

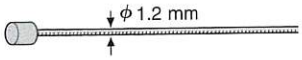


6. Finally, wrap the handlebar with finish tape.

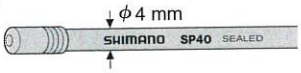
Installing the shifting cable

Cable used

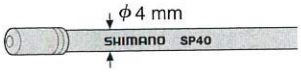
• Inner cable (stainless steel)

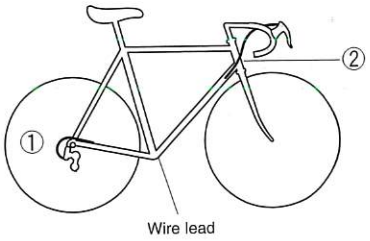


• SP40 sealed outer casing (①)



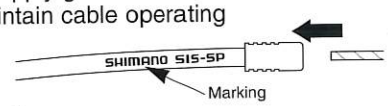
• SP40 outer casing (②)





Inserting the inner cable

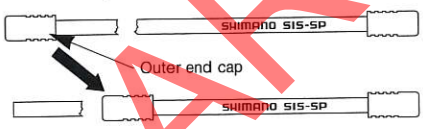
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



Cutting the outer casing

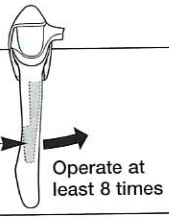
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

Attach the same outer end cap to the cut end of the outer casing.

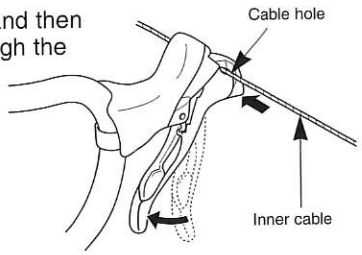


• Rear lever

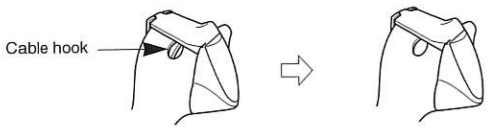
Push lever Ⓑ at least 8 times to make sure the mechanism is in top gear before installing.



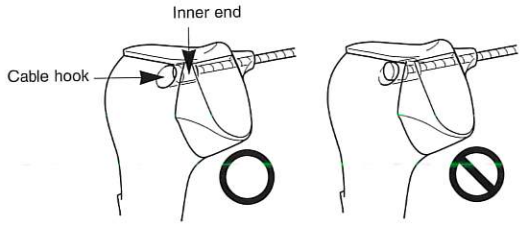
Depress the brake lever, and then pass the inner cable through the cable hole.



If the cable hook does not align with the shifting cable hole, press lever Ⓑ again until it does, and then install the cable.

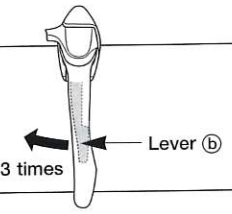


Make sure that the inner end is firmly seated in the cable hook.

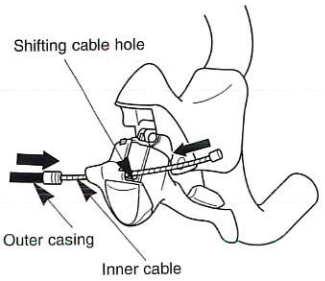


• Front lever

Push lever ⓑ at least two - three times before installing.

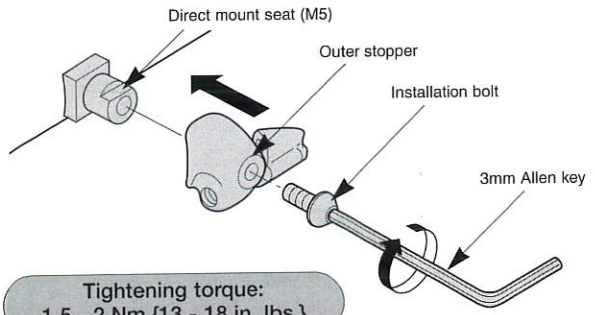


Pull the brake lever (as when braking) to pass the inner cable through the shifting cable hole, and set it in the outer casing.

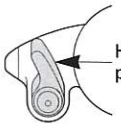


• Outer stopper

1. Install the outer stopper to the down tube.



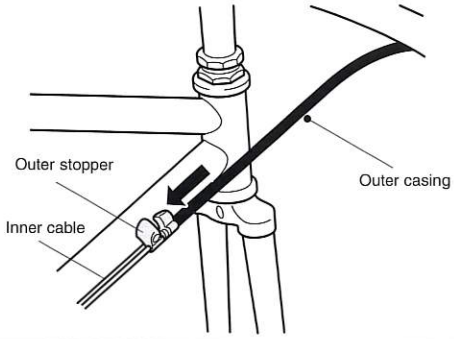
Tightening torque:
1.5 - 2 Nm {13 - 18 in. lbs.}



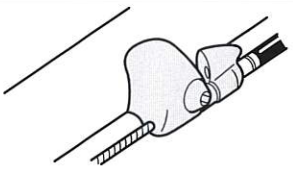
Install the outer stopper for the rear chainwheels with the handle in the default position.

2. Pass the inner cable through, and set the outer casing.

Be sure leave some excess in the outer casing, even if cutting it to the full length of the handlebars.



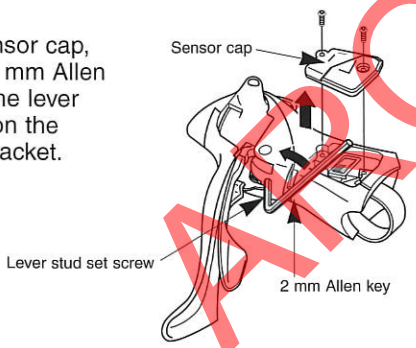
Confirm
Make sure the outer casing is firmly seated in the outer stopper.



Maintenance

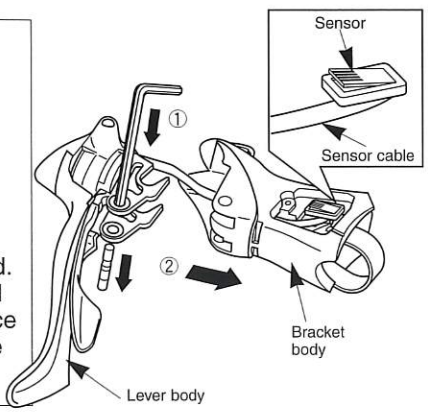
Bracket and lever disassembly

1. Remove the sensor cap, and the use a 2 mm Allen key to remove the lever stud set screw on the bottom of the bracket.



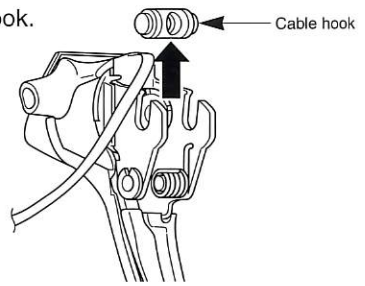
2. Insert a 2.5 mm Allen key or similar tool into the lever stud hole, and tap it gently with a plastic mallet to push out the lever stud. When the lever stud comes out, the bracket body and lever body can be disassembled. After this, pull the sensor cable out from the bracket body.

Note:
When removing the sensor cable, do not apply too much force when pulling the cable, otherwise the sensor may become damaged. Use a tool to hold the sensor in place and pull the cable out carefully.

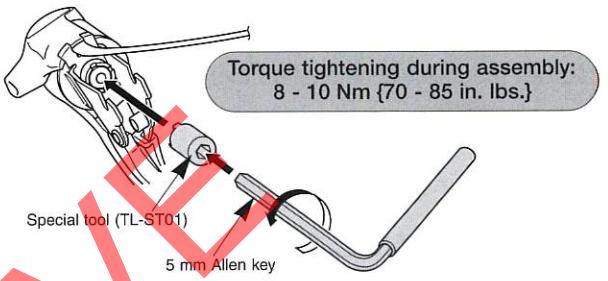


Lever and bearing assembly disassembly

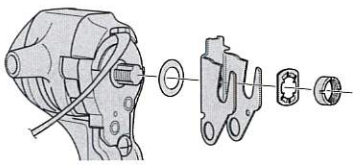
1. Remove the cable hook.



2. Disassemble using the special tool and a 5 mm Allen key.

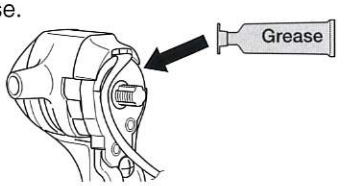


3. Disassemble as shown.



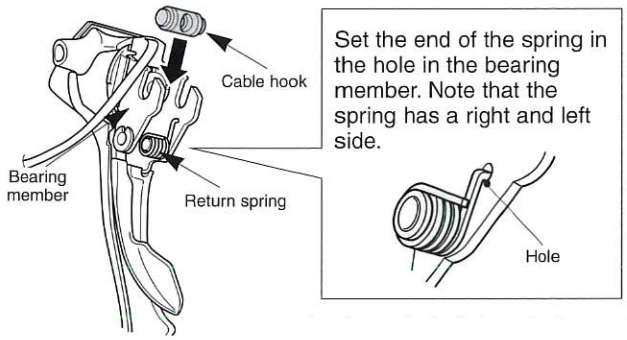
Do not disassemble any futher as reassembly may not be possible.

• Be sure to regrease.

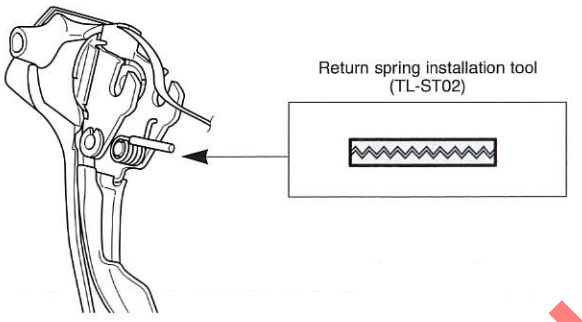


Assembling the bracket and lever

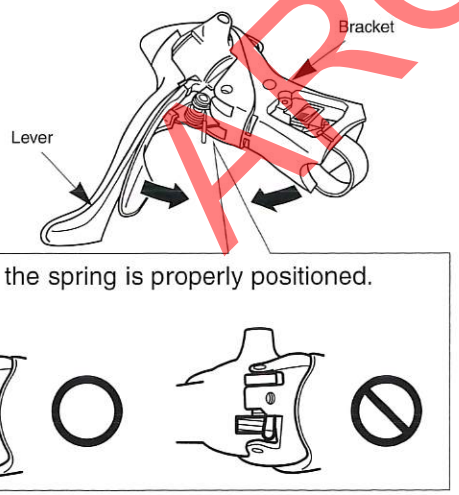
1. Put the cable hook in to the bearing member, and set the return spring.



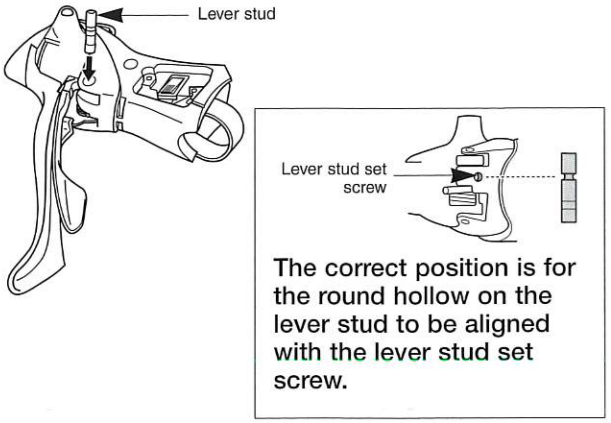
2. Set the special installation tool for the return spring.



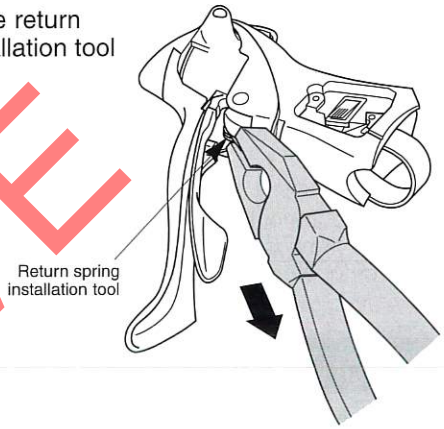
3. First insert the sensor cable into the bracket body, and then assemble the bracket body and lever body. Be careful that the end of the return spring does not protrude from the hole in the bearing member at this time.



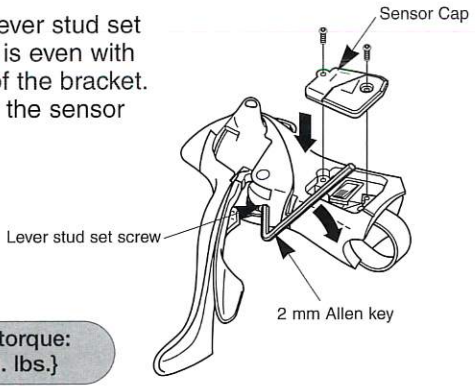
4. Align the stud holes, and then press-fit the lever stud.



5. Remove the return spring installation tool with pliers.

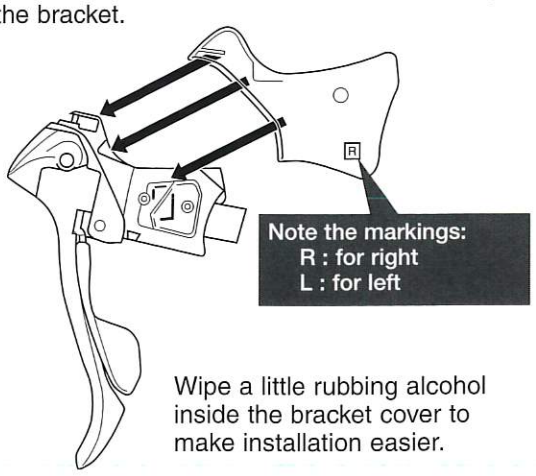


6. Tighten the lever stud set screw until it is even with the surface of the bracket. Lastly, install the sensor cap.



Replacing the bracket cover

The tabs on the bracket cover each fit to a matching slot on the bracket.



Wipe a little rubbing alcohol inside the bracket cover to make installation easier.

⚠ WARNING

Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
We strongly recommend that only genuine Shimano replacement parts be used.

⚠ CAUTION

The hub dynamo generates an extremely high voltage. Never touch the connection terminal of the hub dynamo directly while riding the bicycle or while the wheel is spinning. Touching the dynamo terminal may cause an electric shock.

SERVICE INSTRUCTIONS **SI-2ST0C**

HB-NX30
HB-NX50

Hub Dynamo

Before use, read these instructions carefully, and follow them for correct use.

When using the HB-NX50, carefully read the Front Inter-M Brake System Service Instructions for roller brakes in conjunction with these Service Instructions.

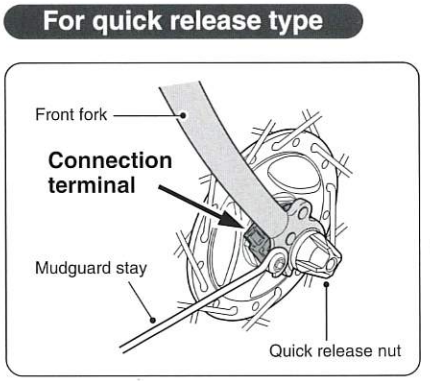
NOTE

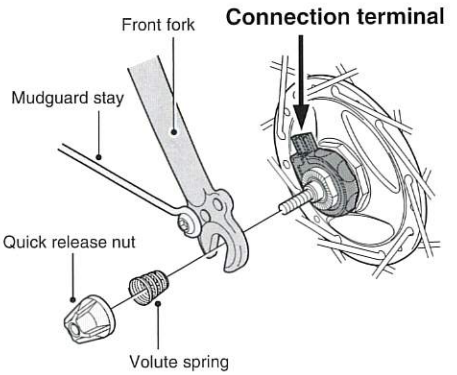
- Check the degree of parallel of the front fork end. If the front fork end is severely out of parallel, deformation of the hub axle may cause noise from an obstruction inside the hub dynamo to be generated.
- Install the hub dynamo to the front fork so that the side with the connection terminal is on the right when facing toward the front of the bicycle. If the side with the connection terminal is facing toward the left, the hub dynamo may not turn properly while riding.
- Check that the hub dynamo connection terminal is securely connected before using the hub dynamo.
- Use a 6 V/2.4 W bulb for the front light and a 6 V/0.6 W bulb for the taillight.
- Do not disassemble the internal hub mechanism.
- The hub dynamo will cause the turning of the wheel to become slightly heavier because of the magnet inside the hub.

Installation of the front wheel

Install the wheel so that the side with the hub dynamo connection terminal is on the right side when looking toward the front of the bicycle, and so that the hub connection terminal is aligned with the front fork or with the basket stay. Then install by following the procedure shown in the illustration below so that the connection terminal is facing upward. Do not force the connection terminal to turn after the quick release nut or the cap nut has been secured.

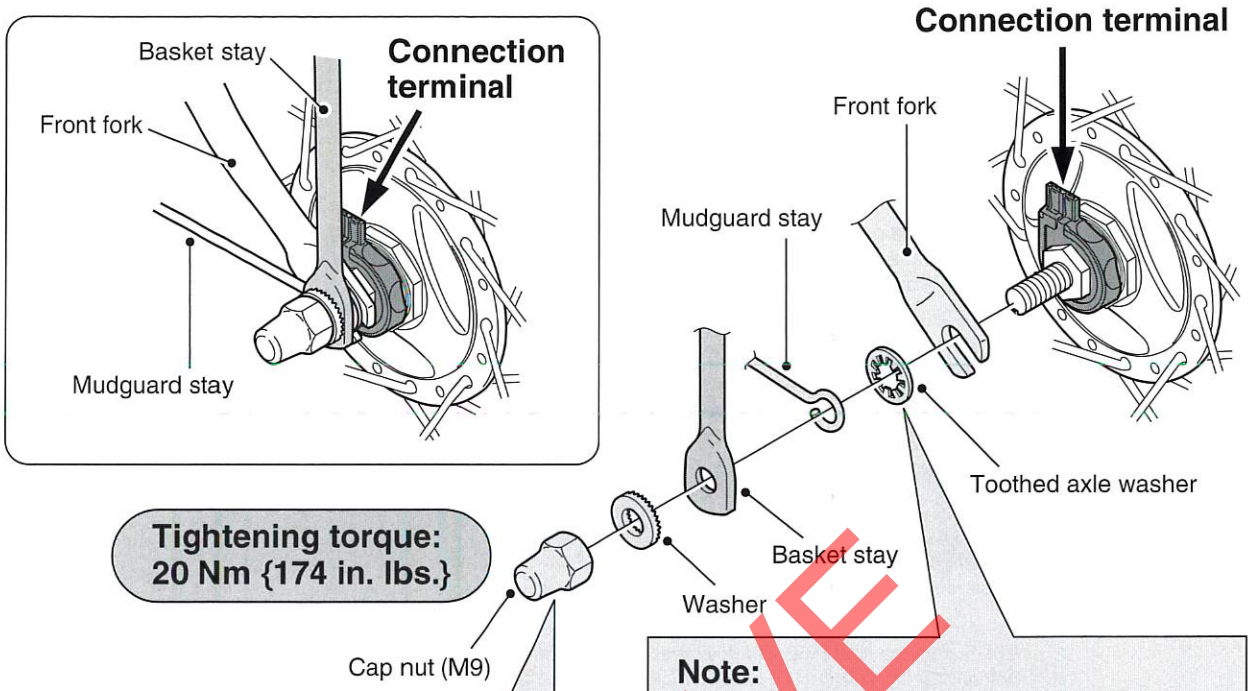
For quick release type





Note:
- Do not use the toothed axle washer with a quick release type.
- Connect the two wires to ensure that the current flows smoothly.

For nut type



Tightening torque:
20 Nm {174 in. lbs.}

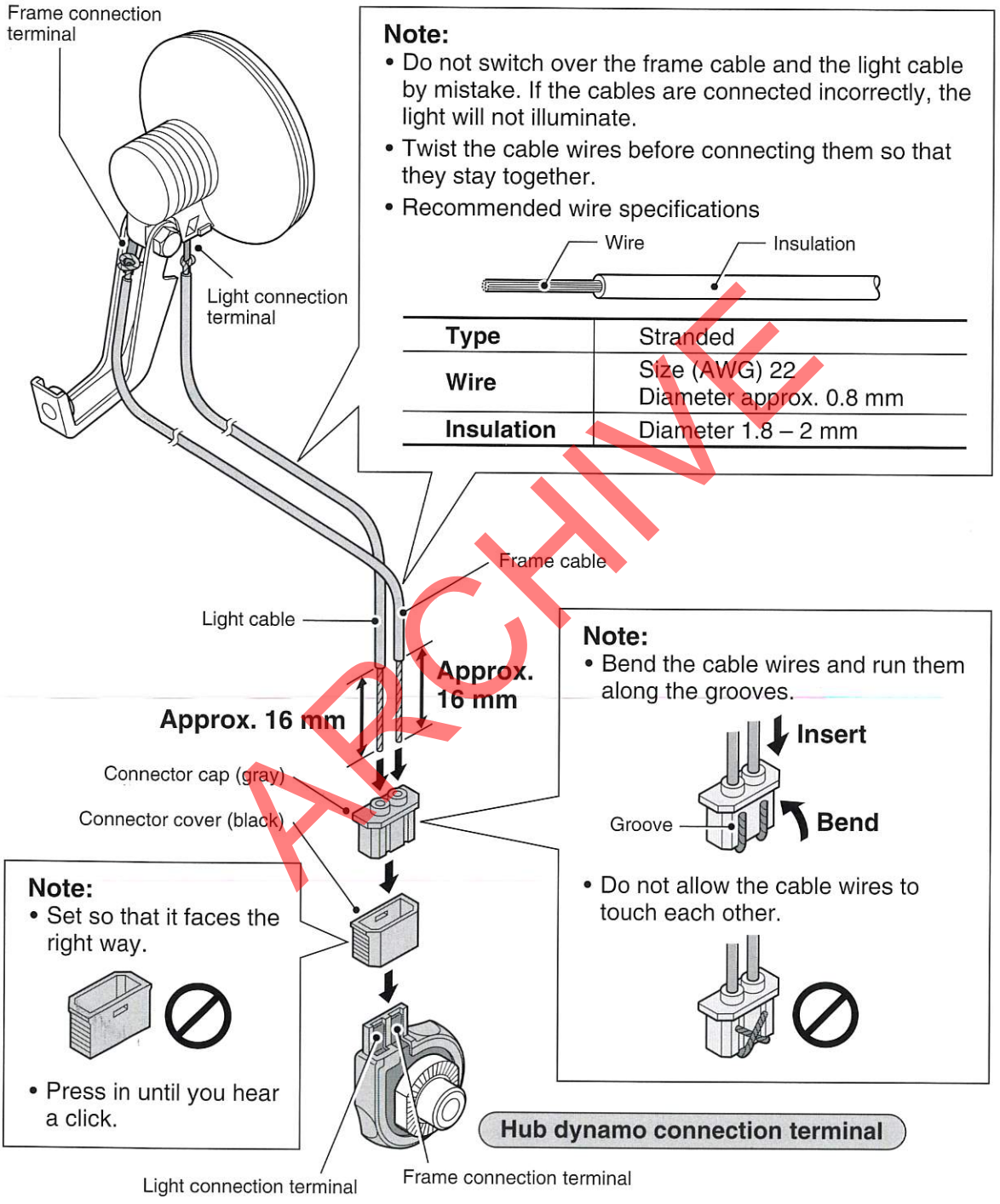
Note:
When tightening the cap nuts, be careful not to concentrate all of the effort for tightening and loosening the cap nut on one side of the wheel only, otherwise the hub axle may turn, which could excessively tighten or loosen the lock nuts.

Note:
- If the cable connected to the ground terminal is not properly grounded, check that the toothed axle washer perforates the paint surface of the front fork. If the toothed axle washer is not perforating the paint surface, the light will not illuminate properly, so scrape away a small amount of paint from the front fork.
- It is recommended that you connect the two wires to ensure that the current flows smoothly.

Connection of the cables

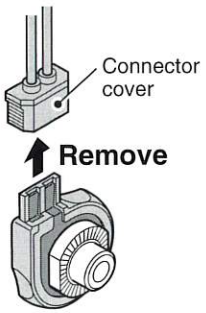
Connect the cables as shown in the illustration below.

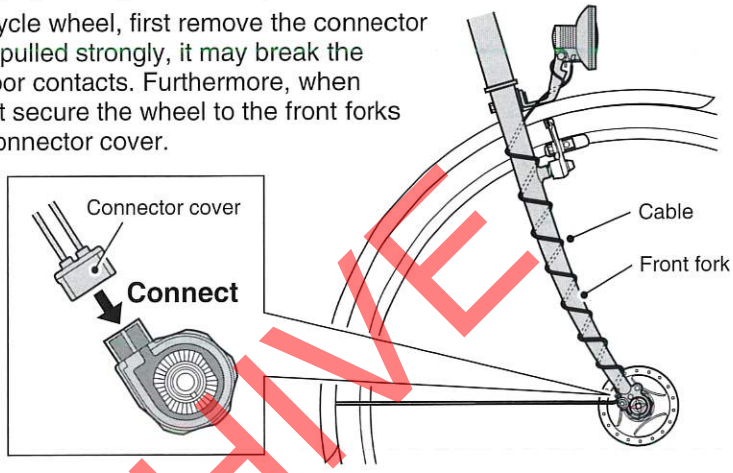
Note:
Scrape away the paint from the light's frame connection terminal and the light connection terminal when connecting the cables.



Note:

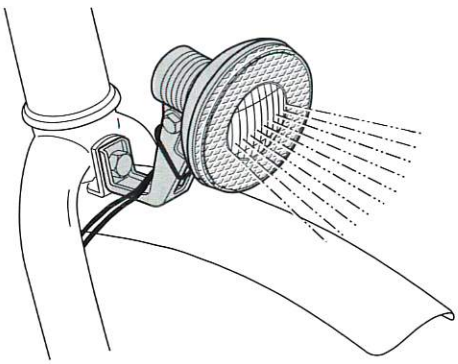
- Secure the cable to the front fork or the basket stay so that it will not get caught in the spokes or any other parts while riding. If the position of the hub dynamo may change with respect to the light while riding, for example when using a suspension fork, make sure that the cable is connected so that it will not be too loose or too tight at any point within the range of movement.
- Connect so that the current from the hub dynamo flows through the cable from the light connection terminal of the hub dynamo to the frame connection terminal.
- To disconnect the light from the hub dynamo, remove the connector cover.
- Do not ride the bicycle while the connector cover is removed, otherwise the cable might get caught in the bicycle wheel.
- When removing the bicycle wheel, first remove the connector cover. If the cables are pulled strongly, it may break the cable wires or cause poor contacts. Furthermore, when installing the wheel, first secure the wheel to the front forks and then connect the connector cover.





Checking the light illumination

Rotate the front wheel and check that the light illuminates.



These service instructions explain how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

Please note: Specifications are subject to change for improvement without notice. (English)

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SHIMANO EUROPA
Industrieweg 24 NL-8071 CT Nunspeet, Holland Phone 31-341-272222

SHIMANO INC.
3-77 Oimatsucho, Sakai, Osaka, Japan Phone 0722-23-3243

⚠ WARNING

- If the switch is operated while riding the bicycle, you may lose control of the bicycle, and a serious accident may result. Be sure to dismount from the bicycle before operating the switch.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS **SI-76X0A**

SW-NX30

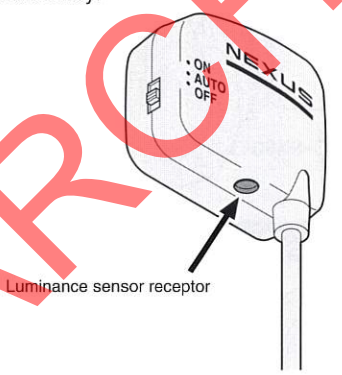
Hub Dynamo Switch

Before use, read these instructions carefully, and follow them for correct use.

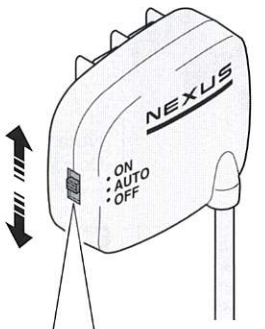
Be sure to read the Service Instructions for the HB-NX30 hub dynamo together with these instructions.

NOTE

Be sure to periodically clean the luminance sensor receptor on the bottom of the switch, because if mud or similar gets onto the sensor receptor, it may cause the sensor to operate incorrectly.



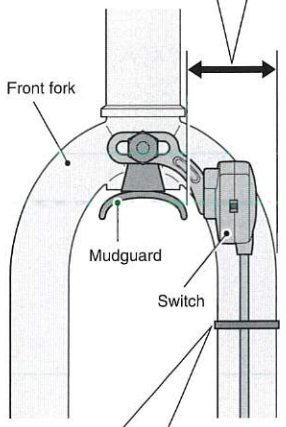
Operation of the switch



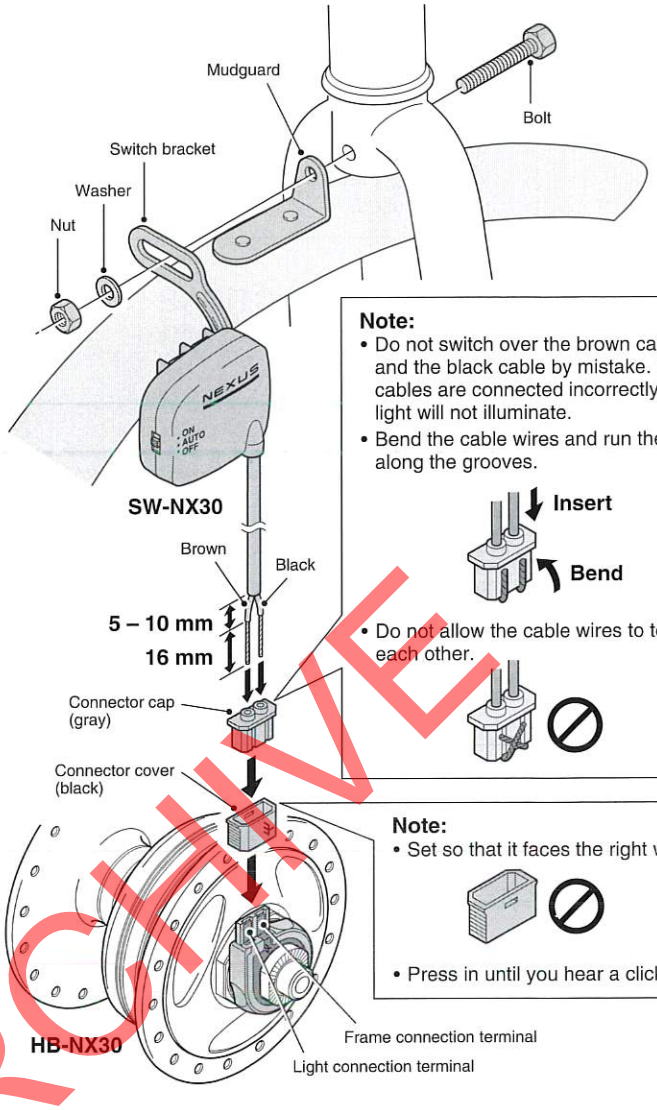
ON: The light is always turned on.
AUTO: The light will switch on automatically when it becomes dark.
OFF: The light is always turned off.

Installation of the switch and connection of the cables

Note:
Install the switch so that it does not protrude outside the line of the front fork, and so that it does not touch the mudguard.



Run the cable along the front fork and secure it in place with tape or a plastic tie.



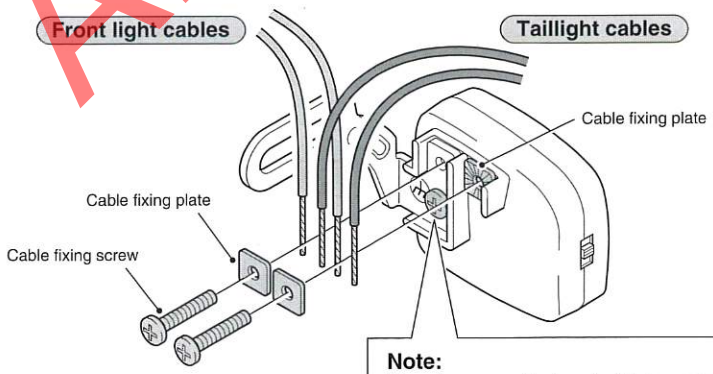
Note:
- Do not switch over the brown cable and the black cable by mistake. If the cables are connected incorrectly, the light will not illuminate.
- Bend the cable wires and run them along the grooves.

- Do not allow the cable wires to touch each other.

Note:
- Set so that it faces the right way.

- Press in until you hear a click.

Connection of cables to the switch



Note:
Do not remove the bracket fixing screw.

These service instructions explain how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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⚠ WARNING

- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- Securely tighten the caliper brake mounting nuts to the specified tightening torque.
  - Use lock nuts with nylon inserts (self-locking nuts) for nut-type brakes.
  - For sunken nut type brakes, use sunken nuts of the appropriate length which can be turned six times or more; when re-installing, apply sealant (locking adhesive) to the nut threads.

  If the nuts become loose and the brakes fall off, they may get caught up in the bicycle and the bicycle may fall over. Particularly if this happens with the front wheel, the bicycle may be thrown forward and serious injury could result.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS **SI-8BZ0A**

BR-3300 Caliper Brake

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Series	SORA
Brake lever	ST-3300 / BL-R400
Caliper Brake	BR-3300
Brake cable	

Please note: Specifications are subject to change for improvement without notice. (English)

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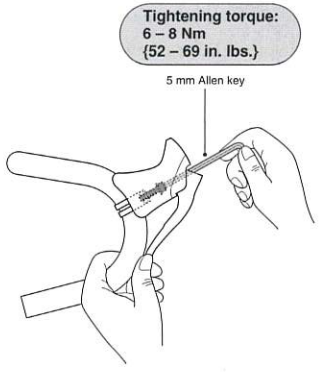
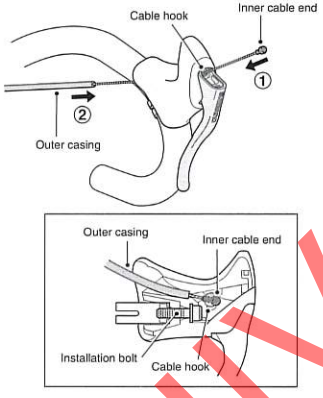
Installation of the brake lever

1.

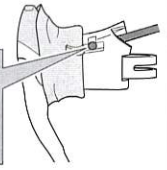


2.

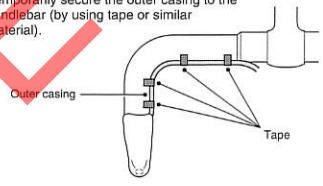


Checking the outer casing

Check to be sure that the outer casing has been completely and correctly inserted.



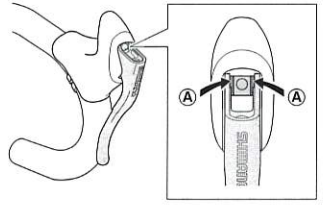
3. Temporarily secure the outer casing to the handlebar (by using tape or similar material).



4. Then wrap the handlebar with handlebar tape.

Note:

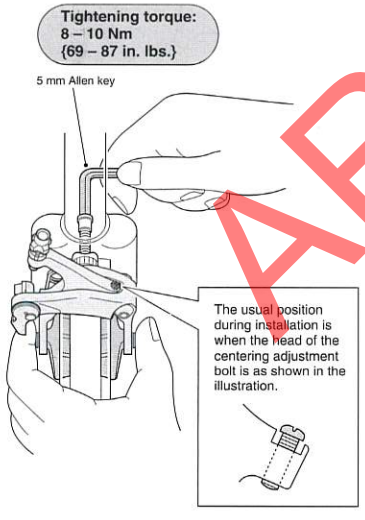
- Cut the cable at the length at which it is not pulled tight when the handlebar is turned all the way to the left and right.
- If a squeaking noise occurs after a long period of use, lubricate the Ⓐ parts.



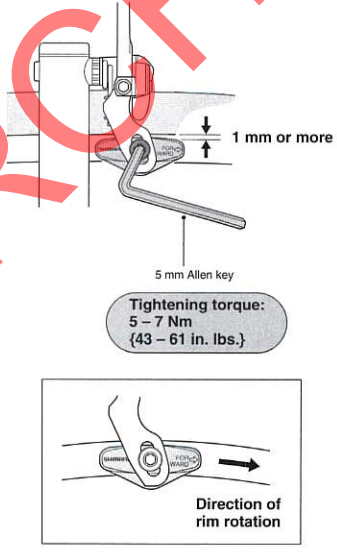
Installation of the brake

1. Installation of the brake itself

Compress the arch, and set while the shoe is in firm contact with the rim.



2. Brake shoe setting position



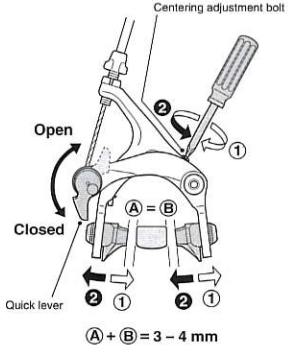
3. Cable connection

Set the quick lever to the closed position; then adjust the shoe clearance (as shown in the illustration below) and secure the cable.

Cable bolt tightening torque:
6 – 8 Nm {52 – 69 in. lbs.}

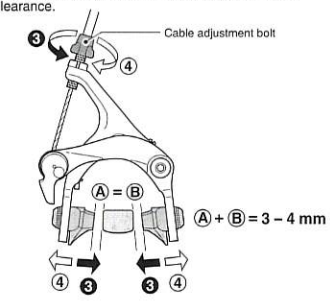
4. Centering of the brake shoe

Make a minor adjustment by using the centering adjustment bolt.



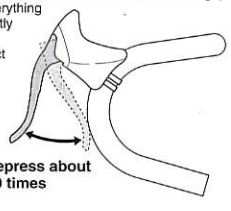
5. Readjustment of the shoe clearance

Turn the cable adjustment bolt to readjust the shoe clearance.



6. Check

Depress the brake lever about 10 times as far as the grip and check that everything is operating correctly and that the shoe clearance is correct before using the brakes.

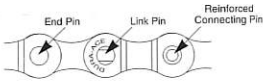


⚠ WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pin available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7700 / CN-HG92	Silver (6.5mm)	TL-CN31/TL-CN22
8-/7-/6-speed narrow chain such as CN-HG50 / CN-IG51	Black (7.1mm)	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



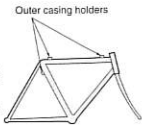
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

⚠ CAUTION

- **Use a front chainwheel which is compatible with 9-speed chains in conjunction with Shimano CN-7700, CN-HG92 and CN-HG72 chains. If a chainwheel for an 8-speed chain or less is used, front chainwheel gear shifting problems may occur, or the chain pins might fall out, causing the chain to break.**

Note

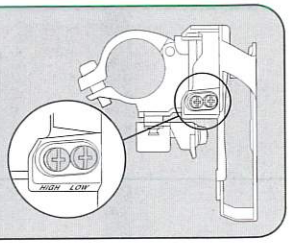
- Apply grease to the bottom bracket before installing it.
- For smooth operation, use the specified outer casing and the bottom bracket cable guide.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.



- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Use only the applicable chain and bottom bracket mentioned above.
- If using a chain case, use the FC-M510-K / BB-UN40-K combination.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- For any questions regarding methods of handling or maintenance, please contact the place of purchase.

FD-M510 Adjustment Bolts

Because of the different construction of the new link, the positions of the top and low adjustment bolts on the FD-M510 are reversed from the positions on previous front derailleurs.



SERVICE INSTRUCTIONS SI-F740C

Front Drive System

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Series	DEORE
Rapidfire M9	ST-M510, SL-M510
Outer casing	SP40 sealed
Front derailleur	FD-M510
Front chainwheel	FC-M510
Bottom bracket	BB-UN40
Chain	CN-HG72
Bottom bracket cable guide	SM-SP17 / SM-BT17

Specifications

Front Derailleur

Model number	FD-M510
Applicable to both normal type and top route type	○
Front chainwheel tooth difference	22T
Min. difference between top and intermediate	12T
Front derailleur installation band diameter	S, M, L
Chainstay angle (α)	63°-66°, 66°-69°
Applicable chain line	47.5mm, 50.0mm
Applicable Bottom Bracket	BB-UN40

Installation band diameters:
S [28,6 mm], M [31,8 mm], L [34,9 mm]
(Use the adapter for S and M sizes.)

Chainwheel

Model number	FC-M510	FC-M510-K
Chainwheel tooth combination	44-32-22T	
Bolt circle diameter	104 mm / 64 mm	
Crank arm length	170 mm, 175 mm	
Pedal thread dimensions	BC 9/16" x 20 T.P.I.	
Applicable Bottom Bracket	BB-UN40	BB-UN40-K

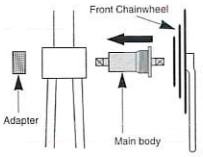
Bottom Bracket

Model number	BB-UN40		BB-UN40-K
Stamped marking	MM 110	LL 113	—
Spindle length	110 mm	113 mm	117.5 mm
Chain line	47.5 mm	50 mm	47.5 mm
Shell width	68, 70, 73 mm	68, 70, 73 mm	68 mm
Thread dimensions	BC1.37 (68, 73mm) M36 (70 mm)	BC1.37 (68, 73mm) M36 (70 mm)	BC1.37 (68 mm)

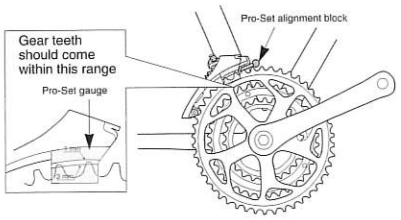
Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

Install using the special tool TL-UN74-S.
First install the main body, then the adapter.

Adapter / bottom bracket tightening torque: 50 - 70 Nm {435 - 608 in. lbs.}

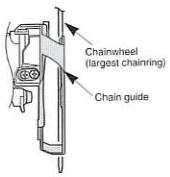


Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.



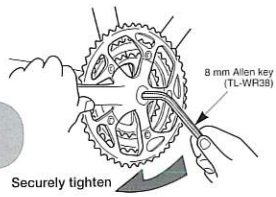
The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5 mm Allen key.

Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}



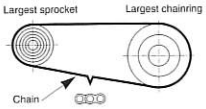
Use an 8 mm Allen key to install the front chainwheel.

Front chainwheel tightening torque: 35 - 50 Nm {305 - 435 in. lbs.}



Chain length

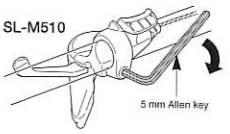
Add 2 links (with the chain on both the largest sprocket and the largest chainring)



Installation of the lever

Use a handlebar grip with a maximum outer diameter of 32 mm.

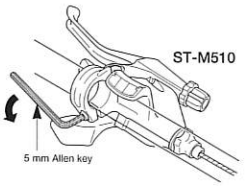
SL-M510



Tightening torque: 5 Nm {44 in. lbs.}

Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

ST-M510



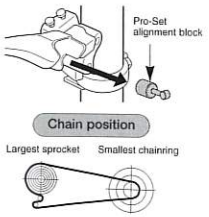
Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

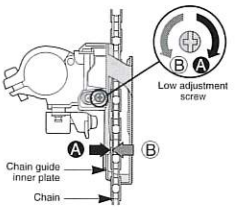
SIS adjustment

Be sure to follow the sequence described below.

1. Low adjustment

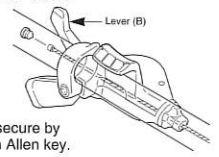
First remove the Pro-Set alignment block .
Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.





2. Connecting and securing the inner cable

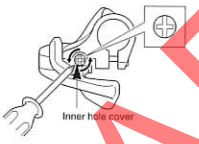
Operate lever (B) 2 or more times, check on the indicator that the low position is correct, and then secure the inner cable.



While firmly pulling the inner cable, secure by tightening the fixing bolt with a 5 mm Allen key.

Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

Install the inner hole cover by turning it as shown in the illustration until it stops.
Do not turn it any further than this, otherwise it may damage the screw thread.



Tightening torque: 0.3 - 0.4 Nm {3 - 4 in. lbs.}

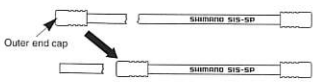
Inserting the inner cable

Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

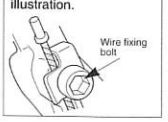
Attach the same outer end cap to the cut end of the outer casing.



Cut off the excess length of inner cable and then install the inner end cap.

Top route type

Note:
Pass the cable through as shown in the illustration.

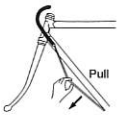


Normal type

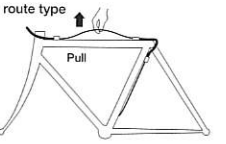
Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

Normal type



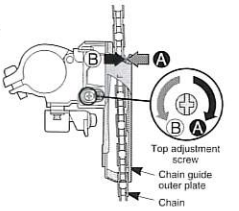
Top route type



3. Top adjustment

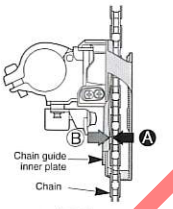
Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.

Chain position
Smallest sprocket Largest chainring

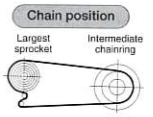


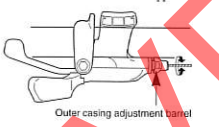
4. Adjustment of the intermediate chainring

When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chainring. Adjust using the outer casing adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.



Chain position
Largest sprocket Intermediate chainring





5. Troubleshooting chart

After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side.	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring.	Loosen the low adjustment screw counterclockwise (about 1/4 turn).
If there is interference between the chain and the front derailleur inner plate at the largest chainring.	Tighten the top adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring.	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chainring position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/2 turn).

Replacement of the indicator

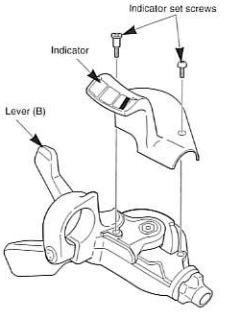
Disassembly and reassembly should only be carried out when replacing the indicator.

Removal of the indicator

1. Remove the two indicator set screws which are securing the indicator.

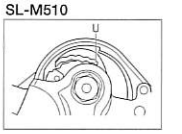
Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}

2. Remove the indicator unit as shown in the illustration.

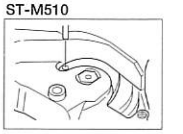


3. Operate lever (B) two times or more to set the lever to the lowest position.
4. After checking that the indicator needle is at the right edge, install the indicator from directly above.

SL-M510



ST-M510



5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator by while taking particular note of steps 3. and 4.

Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

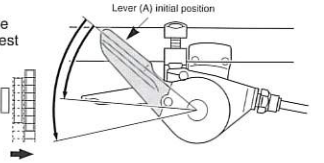
Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.
When operating one of the levers, always be sure to turn the crank arm at the same time.

To shift from a small chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

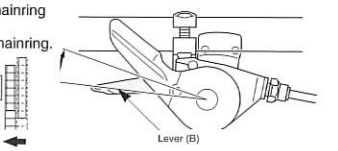
Example:
from intermediate chainring to largest chainring.



To shift from a large chainring to a smaller chainring

When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

Example:
from largest chainring to intermediate chainring.



This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

SHIMANO®
SHIMANO AMERICAN CORPORATION
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SHIMANO EUROPA
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SHIMANO INC.
77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-3243

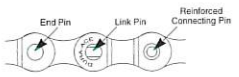
These service instructions are printed on recycled paper and can be recycled again
Please note: specifications are subject to change for improvement without notice. (English)

⚠ WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pin available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7700 / CN-HG92	Silver (5.5mm)	TL-CN31/TL-CN22
8-/7-/6-speed narrow chain such as CN-HG50 / CN-IG51	Black (7.1mm)	TL-CN31/TL-CN22 and TL-CN30/TL-CN21

- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.



- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-R740C

Rear Drive System

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Series	DEORE
Rapidfire M9	ST-M510, SL-M510
Outer casing	SP40 sealed
Rear derailleur	RD-M510
Type	SGS
Freehub	FH-M510
Gears	9
Cassette sprocket	CS-HG50-9
Chain	CN-HG72
Bottom bracket guide	SM-SP17 / SM-BT17

Specifications

Rear Derailleur

Model number	RD-M510
Type	SGS
Gears	9
Total capacity	43T
Largest sprocket	34T
Smallest sprocket	11T
Front chainwheel tooth difference	22T

Cassette sprocket tooth combination

Model number	Group name	Gears	Tooth combination
CS-HG50-9	ar	9	11, 12, 14, 16, 18, 21, 24, 28, 32T

Shifting lever

Model number	ST-M510, SL-M510
Gears	9

Freehub

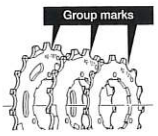
Model number	FH-M510
Gears	9
No. of spoke holes	36 / 32

⚠ CAUTION

- **Use a front chainwheel which is compatible with 9-speed chains in conjunction with Shimano CN-7700, CN-HG92 and CN-HG72 chains. If a chainwheel for an 8-speed chain or less is used, front chainwheel gear shifting problems may occur, or the chain pins might fall out, causing the chain to break.**

Note

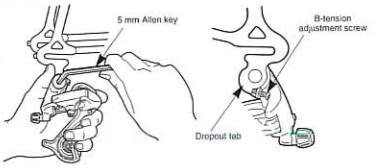
- Because the high cable resistance of a frame with internal cable routing would impair the SIS function, this type of frame should not be used.
- Always be sure to use the HG/IG sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- For smooth operation, use the specified outer casing and the bottom bracket cable guide.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.



Installation of the rear derailleur

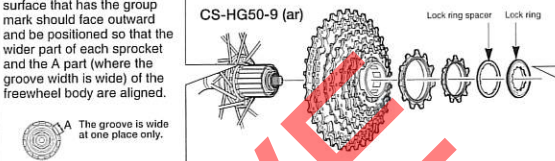
When installing, be careful that deformation is not caused by the B-tension adjustment screw coming into contact with the dropout tab.

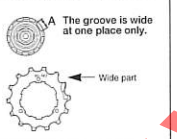
Bracket spindle Tightening torque : 8 - 10 Nm {70 - 86 in. lbs.}



Installation of the sprockets

For each sprocket, the surface that has the group mark should face outward and be positioned so that the wider part of each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.

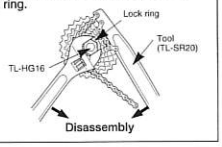




- For installation of sprockets, use the special tool (TL-HG16) to tighten the lock ring.

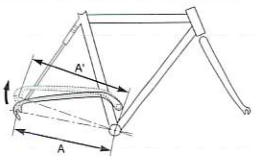
Tightening torque : 30 - 50 Nm {261 - 434 in. lbs.}

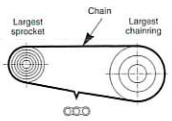
- To replace sprockets, use the special tool (TL-HG16) and TL-SR20 to remove the lock ring.



Chain length on bicycles with rear suspension

The length of A will vary depending on the movement of the rear suspension. Because of this, an excessive load may be placed on the drive system if the chain length is too short. Set the length of the chain by adding two links to the chain when the rear suspension is at a position where dimension "A" is longest and the chain is on the largest sprocket and the largest chainring. If the amount of movement of the rear suspension is large, the slack in the chain may not be taken up properly when the chain is on the smallest chainring and smallest sprocket.



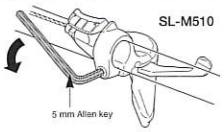


Add 2 links (with the chain on both the largest sprocket and the largest chainring)

Installation of the lever

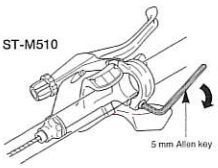
Use a handlebar grip with a maximum outer diameter of 32 mm.

Tightening torque: 5 Nm {44 in. lbs.}



Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

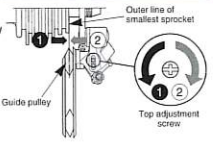
ST-M510



Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

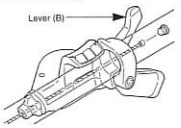
Adjustment

1. Top adjustment
   Turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.

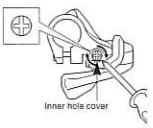


2. Connection and securing of the inner cable
   Operate lever (B) 8 or more times to set the lever to the highest position, check on the indicator that the highest position is correct, and then install and adjust the inner cable.

Tightening torque : 5 - 7 Nm {44 - 60 in. lbs.}



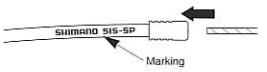
Install the inner hole cover by turning it as shown in the illustration until it stops.
Do not turn it any further than this, otherwise it may damage the screw thread.



Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}

Inserting the inner cable

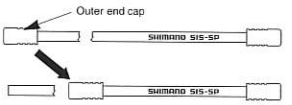
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.



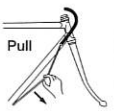
Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

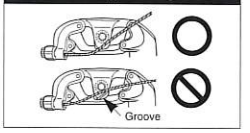
Attach the same outer end cap to the cut end of the outer casing.



Connect the cable to the rear derailleur and, after taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

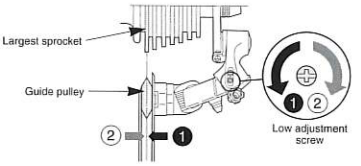


Note: Be sure that the cable is securely in the groove.



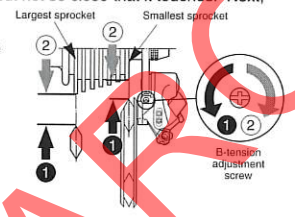
3. Low adjustment

Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.



4. How to use the B-tension adjustment screw

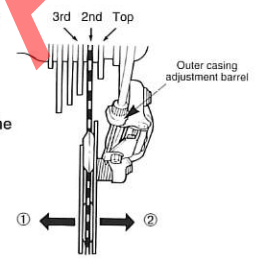
Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm backward. Then turn the B-tension adjustment screw to adjust the guide pulley as close to the sprocket as possible but not so close that it touches. Next, set the chain to the smallest sprocket and repeat the above to make sure that the pulley does not touch the sprocket.



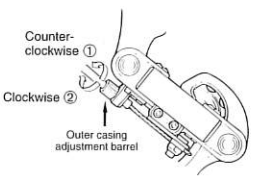
5. SIS Adjustment

(1) Operate the shifting lever to move the chain from the top gear to the 2nd gear.

* If the chain will not move to the 2nd gear, turn the outer casing adjustment barrel to increase the tension-----① (counter clockwise)
* If the chain moves past the 2nd gear, decrease the tension---② (clockwise)



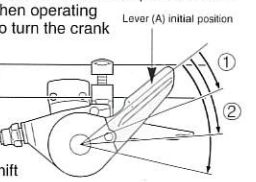
(2) Next with the chain on the 2nd gear, increase the inner cable tension ① while turning the crank arm forward. Stop turning the outer casing adjustment barrel just before the chain makes noise against the 3rd gear. This completes the adjustment.



For the best SIS performance, periodically lubricate all power-transmission parts.

Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting. When operating one of the levers, always be sure to turn the crank arm at the same time.

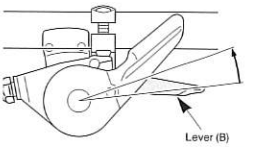


To shift from a small sprocket to a larger sprocket

To shift one step only, press lever (A) to the (1) position. To shift two steps at one time, press to the (2) position. A maximum three-step shift can be made in this manner.

To shift from a large sprocket to a smaller sprocket

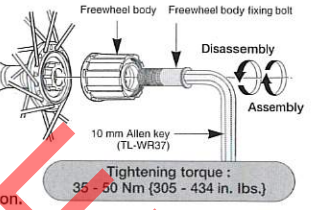
Press lever (B) once to shift one step from a larger to a smaller sprocket.



Replacement of the freewheel body

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

Note: Do not attempt to disassemble the freewheel body, because it may result in a malfunction.



Replacement of the indicator

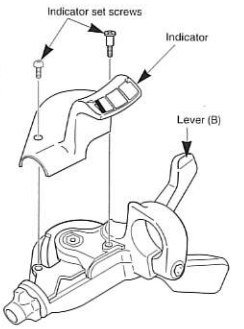
Disassembly and reassembly should only be carried out when replacing the indicator.

Removal of the indicator

1. Remove the two indicator set screws which are securing the indicator.

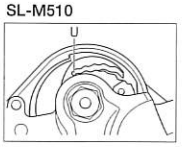
Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}

2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) at least eight times to set the lever to the highest position.

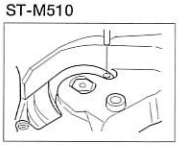


4. After checking that the indicator needle is at the left edge, install the indicator from directly above.

SL-M510



ST-M510



5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator while taking particular note of steps 3. to 4.

Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

SHIMANO®

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SHIMANO INC.
77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-3243

These service instructions are printed on recycled paper and can be recycled again

⚠ WARNING

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-6FH0A

SL-R440

Shifting lever

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Shifting lever	SL-R440	
Outer casing	SP40	
Gears	18	
Front derailleur	FD-R440	
Front chainwheel	FC-6500 / FC-5501	FC-4400
Bottom bracket	BB-6500 / BB-5500	BB-UN52
Rear derailleur	RD-6500 / RD-5500 / RD-4400	
Freehub	FH-6500 / FH-5500 / FH-4400	
Cassette sprocket	CS-6500 / CS-HG70-9 / CS-HG50-9	
Chain	CN-HG92 / CN-HG72	
Bottom bracket cable guide	SM-SP17	

Shifting lever	SL-R440	
Outer casing	SP40	
Gears	27	
Front derailleur	FD-R443	
Front chainwheel	FC-6503 / FC-5504	FC-4403
Bottom bracket	BB-6500 / BB-5500	BB-UN52
Rear derailleur	RD-6500 / RD-5500 / RD-4400	
Freehub	FH-6500 / FH-5500 / FH-4400	
Cassette sprocket	CS-6500 / CS-HG70-9 / CS-HG50-9	
Chain	CN-HG92 / CN-HG72	
Bottom bracket cable guide	SM-SP17	

Note

- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Because the high cable resistance of a frame with internal cable routing would impair the SIS function, this type of frame should not be used.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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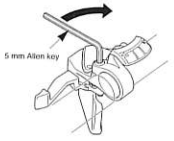
Mounting the shifting lever

Use a handlebar grip with a maximum outer diameter of 32 mm.

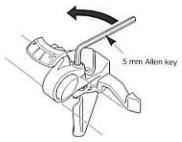
Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

Tightening torque : 5 Nm {44 in. lbs.}

< Front >



< Rear >



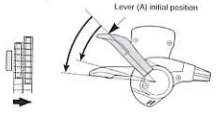
Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.
When operating one of the levers, always be sure to turn the crank arm at the same time.

< Front >

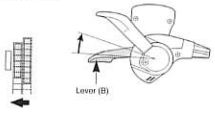
To shift from a small chainring to a larger chainring
When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

Example:
from intermediate chainring to largest chainring.

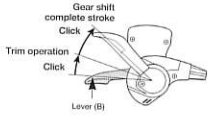


To shift from a large chainring to a smaller chainring
When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

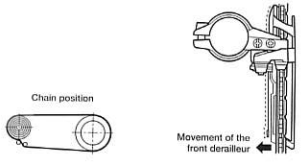
Example:
from largest chainring to intermediate chainring.



When lever (B) is operated, there is one click where trimming (the noise prevention mechanism) engages, and a second stronger click when the gear shift stroke is completed. After trimming, the next push will complete the gear shift stroke to the smaller front chainring.

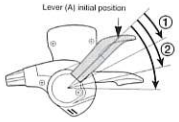


Trimming (noise prevention operation)
If the chain is on the large front chainwheel and the larger rear sprocket, the chain will rub in the front derailleur plate, producing a characteristic noise. When this happens, press lever (B) lightly (to the point where it clicks); this causes the front derailleur to move slightly towards the smaller chainwheel, thereby eliminating the noise.

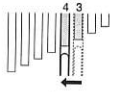


< Rear >

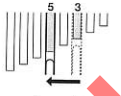
To shift from a small sprocket to a larger sprocket
To shift one step only, press lever (A) to the ① position.
To shift two steps at one time, press to the ② position.
A maximum three-step shift can be made in this manner.



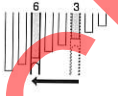
① : Shifts one sprocket
E.x. : from 3rd to 4th



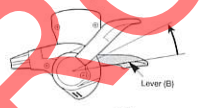
② : Quick-shifts two sprockets
E.x. : from 3rd to 5th



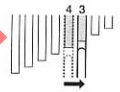
③ : Quick-shifts three sprockets
E.x. : from 3rd to 6th



To shift from a large sprocket to a smaller sprocket
Press lever (B) once to shift one step from a larger to a smaller sprocket.



E.x. : from 4th to 3rd



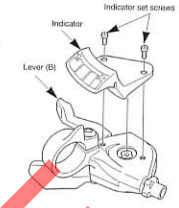
Replacement of the shifting lever unit and indicator

< Front >

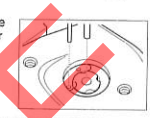
Removal of the indicator

Disassembly and reassembly should only be carried out when replacing the indicator.

1. Remove the two indicator set screws which are securing the indicator.
   Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}
2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) two times or more to set the lever to the lowest position.



4. After checking that the indicator needle is at the right edge, install the indicator as shown in the illustration.



5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator by while taking particular note of steps 3. and 4.

Replacement of the shifting lever unit

Disassembly and reassembly should only be carried out when replacing the shifting lever unit.

1. Loosen the cable fixing bolt (nut) of the front derailleur, and then pull the inner cable out of the shifting lever unit in the same way as when installing the inner cable.
2. Carry out steps 1 - 2 for replacement of the indicator.
3. Remove the three shifting lever mounting screws, and then remove the shifting lever unit as shown in the illustration.
   Tightening torque : 0.5 - 0.8 Nm {4 - 7 in. lbs.}

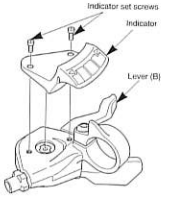
4. To assemble, align the shifting lever unit and the brake lever bracket and then secure the shifting lever mounting screws.
5. Carry out steps 3 - 4 for replacement of the indicator.

< Rear >

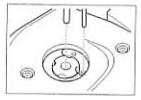
Removal of the indicator

Disassembly and reassembly should only be carried out when replacing the indicator.

1. Remove the two indicator set screws which are securing the indicator.
   Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}
2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) at least eight times to set the lever to the highest position.



4. After checking that the indicator needle is at the right edge, install the indicator as shown in the illustration.

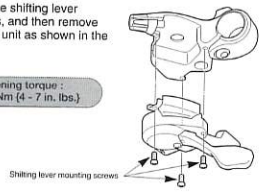


5. Check the operation of the indicator. If it does not operate correctly, re-install the indicator by while taking particular note of steps 3. and 4.

Replacement of the shifting lever unit

Disassembly and reassembly should only be carried out when replacing the shifting lever unit.

1. Loosen the cable fixing bolt (nut) of the rear derailleur, and then pull the inner cable out of the shifting lever unit in the same way as when installing the inner cable.
2. Carry out steps 1 - 2 for replacement of the indicator.
3. Remove the three shifting lever mounting screws, and then remove the shifting lever unit as shown in the illustration.
   Tightening torque : 0.5 - 0.8 Nm {4 - 7 in. lbs.}



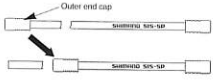
4. To assemble, align the shifting lever unit and the brake lever bracket and then secure the shifting lever mounting screws.
5. Carry out steps 3 - 4 for replacement of the indicator.

Installing the shifting cable

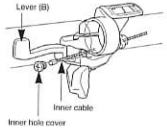
Inserting the inner cable
Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

Cutting the outer casing
When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

Attach the same outer end cap to the cut end of the outer casing.

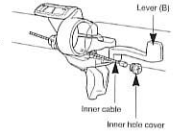


Installing the inner cable < Front >
Operate lever (B) two times or more, and check on the indicator that the lever is at the lowest position. Then remove the inner hole cover and connect the inner cable.
Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

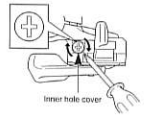


Install the inner hole cover by turning it as shown in the illustration until it stops. Do not turn it any further than this, otherwise it may damage the screw thread.
Tightening torque: 0.3 - 0.4 Nm {3 - 4 in. lbs.}

Installing the inner cable < Rear >
Operate lever (B) eight times or more, and check on the indicator that the lever is at the highest position. Then remove the inner hole cover and connect the inner cable.
Tightening torque : 5 - 7 Nm {44 - 60 in. lbs.}



Install the inner hole cover by turning it as shown in the illustration until it stops. Do not turn it any further than this, otherwise it may damage the screw thread.
Tightening torque : 0.3 - 0.5 Nm {3 - 4 in. lbs.}



⚠ WARNING

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-5E60A

FD-R440 Front derailleur

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Shifting lever	SL-R440		
Outer casing	SP40		
Gears	18		
Front derailleur	FD-R440		
Front chainwheel	FC-6500	FC-5501	FC-4400
Bottom bracket	BB-6500	BB-5500	BB-UN52
Rear derailleur	RD-6500 / RD-5500 / RD-4400		
Freehub	FH-6500 / FH-5500 / FH-4400		
Cassette sprocket	CS-6500 / CS-HG70-9 / CS-HG50-9		
Chain	CN-HG92 / CN-HG72		
Bottom bracket cable guide	SM-SP17		

Specifications

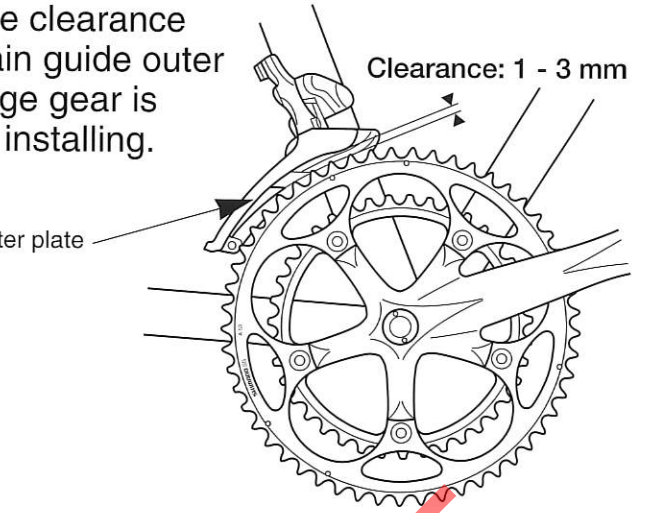
Type	Band type / Brazed on type
Front derailleur installation band diameter	S (28.6mm), M (31.8mm)
Chainstay angle ()	61° - 66°
Chain line	43.5mm

Note

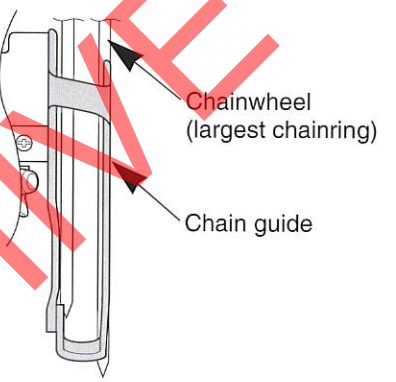
- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

Installation of the front derailleur

1. Adjust so that the clearance between the chain guide outer plate and the large gear is 1 - 3 mm before installing.



2. The level section of the chain guide outer plate should be directly above and parallel to the largest chainring.
3. Secure using a 5mm Allen key.



Tightening torque:
5 - 7 Nm
{44 - 60 in. lbs.}

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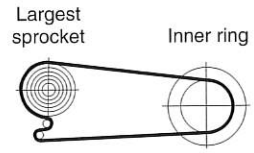
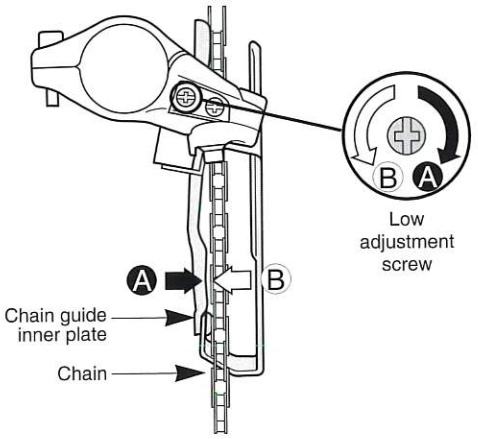
SIS adjustment

1. Low adjustment

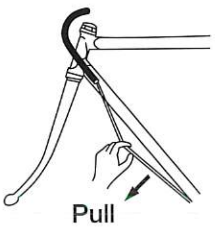
Set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.





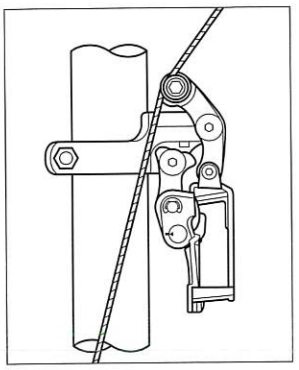
2. Connection and securing of cable

While pulling the inner cable, tighten the wirw fixing bolt with a 5 mm allen key to secure the cable.



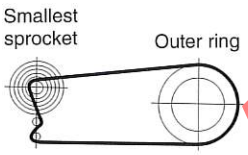
Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

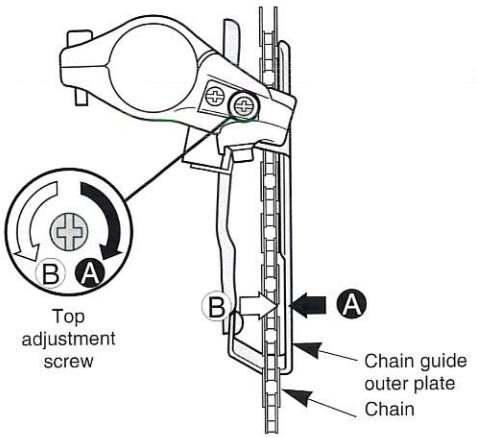
After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.



3. Top adjustment

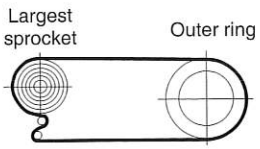
Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.





4. Adjustment of the cable tention

(1) Set the chain to the largest rear sprocket, and shift the front to top gear.



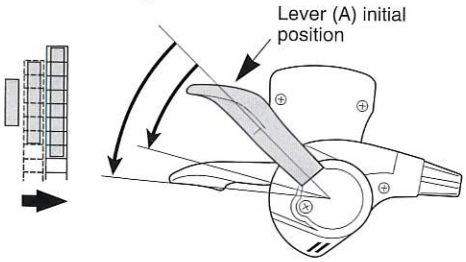
■ Front shifting (SL-R440)

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.When operating one of the levers, always be sure to turn the crank arm at the same time.

To shift from a small chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

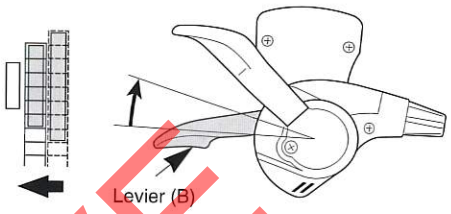
Example: from intermediate chainring to largest chainring.



To shift from a large chainring to a smaller chainring

When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

Example:
from largest chainring to intermediate chainring.

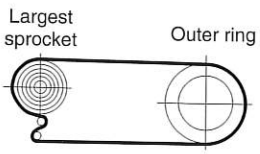


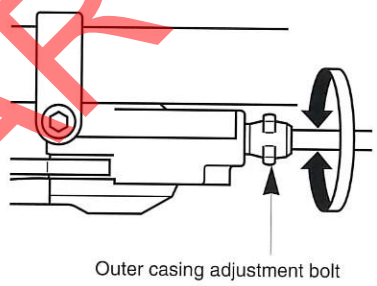
(2) Perform the trimming.

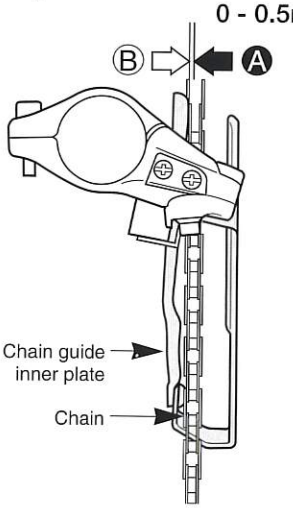
■ **Trimming (noise-prevention mechanism)**
Gently press the lever (B).(A "click" sound will be heard.)

(3) After trimming, adjust the clearance (by using the cable-adjustment bolt) of the chain and chaib guide yo the minimum (0-0.5mm).

Clearance:
0 - 0.5mm







⚠ WARNING

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-5E70A

FD-R443 Front derailleur

Before use, read these instructions carefully, and follow them for correct use.

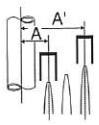
In order to realize the best performance, we recommend that the following combination be used.

Shifting lever	SL-R440		
Outer casing	SP40		
Gears	27		
Front derailleur	FD-R443		
Front chainwheel	FC-6503	FC-5504	FC-4403
Bottom bracket	BB-6500	BB-5500	BB-UN52
Rear derailleur	RD-6500/RD-5500/RD-4400		
Freehub	FH-6500/FH-5500/FH-4400		
Cassette sprocket	CS-6500/CS-HG70-9/CS-HG50-9		
Chain	CN-HG92/CN-HG72		
Bottom bracket cable guide	SM-SP17		

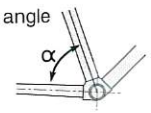
Specifications

Type	Band type / Brazed on type
Front chainwheel tooth difference	22 teeth or less
Min. difference between top and intermediate	10T
Front derailleur installation band diameter	S (28.6mm), M (31.8mm)
Chainstay angle (α)	63° - 66°
Chain line	45mm

Stroke



Chainstay angle

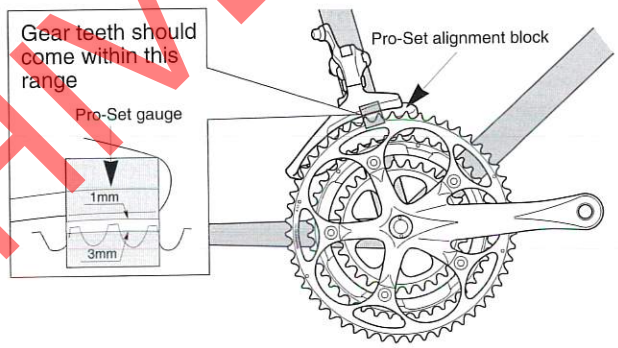


Note

- If attaching the FD-R443 (brazed-on type) to a seat tube with a thickness of more than 31.8 mm, the derailleur may come into contact with the seat tube and interfere with normal gear shifting performance.
- For smooth operation, use the specified outer casing and bottom bracket cable guide.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- For the chain, be sure to use only the Shimano narrow type chain. The wide type chain cannot be used.
- For maximum performance we highly recommend Shimano lubricants and maintenance products
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

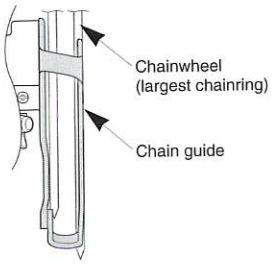
Installation of the front derailleur

Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.



The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5mm Allen key.

Tightening torque:
5 - 7 Nm
{44 - 60 in. lbs.}



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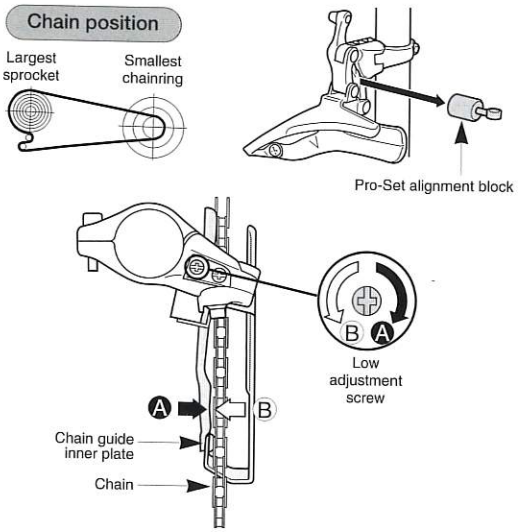
SIS adjustment

Be sure to follow the sequence described below.

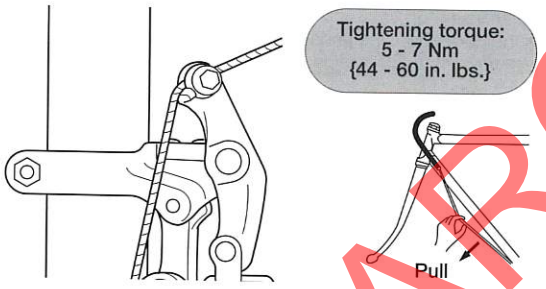
1. Low adjustment

First remove the Pro-Set alignment block .Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5mm.



2. Connection and securing of cable

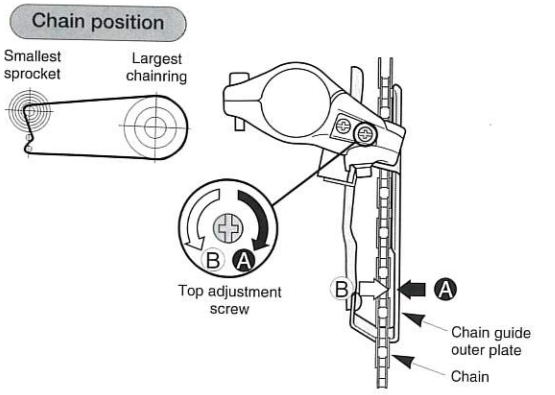
While pulling the inner cable, tighten the wirw fixing bolt with a 5 mm allen key to secure the cable.



After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

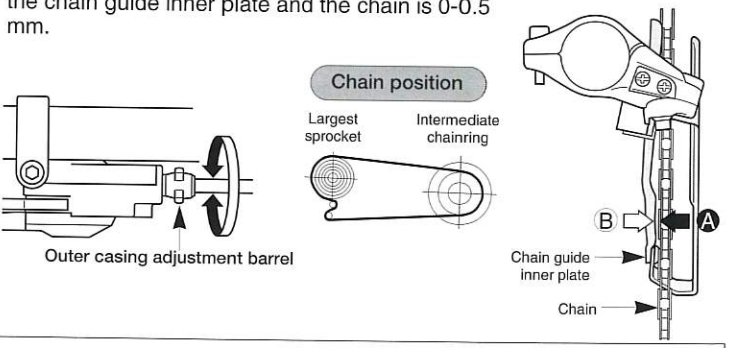
3. Top adjustment

Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.



4. Adjustment of the intermediate chainring

When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chainring. Adjust using the outer casing adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.

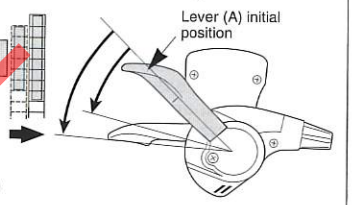


■ Front shifting (SL-R440)

Both lever (A) and lever (B) always return to the initial position when they are released after shifting.
When operating one of the levers, always be sure to turn the crank arm at the same time.

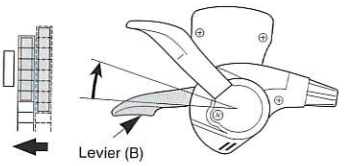
To shift from a small chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.
Example:
from intermediate chainring to largest chainring.



To shift from a small chainring to a larger chainring

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.
Example:
from intermediate chainring to largest chainring.



5. Troubleshooting chart

After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring	Loosen the low adjustment screw counterclockwise (about 1/4 turn).
If there is interference between the chain and the front derailleur inner plate at the largest chainring	Tighten the top adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chainring	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chainring position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/2 turn).

Be sure to read these service instructions in conjunction with the service instructions for the SL-R440 before use.

SERVICE INSTRUCTIONS SI-41N0B

PD-M324 SPD Pedals

Before use, read these instructions carefully, and follow them for correct use.

These pedals have an SPD-type face on one side and a standard face on the other side.

⚠ WARNING

- **Use only SPD shoes with this product. Other types of shoes may not release from the pedals, or may release unexpectedly.**
- **Use only Shimano cleats (SM-SH51 / SM-SH52 / SM-SH55) and tighten the mounting bolts securely to the shoes.**
- **Before attempting to ride with these pedals and shoes, make sure you understand the operation of the engagement / release mechanism for the pedals and cleats (shoes).**
- **Before you attempt to ride with these pedals and shoes, apply the brakes, then place one foot on the ground and practice engaging and releasing each shoe from its pedal until you can do so naturally and with minimal effort.**
- **Ride on level ground first until you become adept at engaging and releasing your shoes from the pedals.**
- **Before riding, adjust the spring tension of the pedals to your liking.**
- **When riding at low speed or when there is a possibility that you might need to stop riding, (for example, when doing a U-turn, nearing an intersection, riding uphill or turning a blind curb), release your shoes from the pedal beforehand so that you can quickly put your feet onto the ground at any time.**
- **Use a lighter spring tension for attaching the pedal cleats when riding in adverse conditions.**
- **Keep cleats and bindings clear of dirt and debris to ensure engagement and release.**
- **Remember to check the cleats periodically for wear. When the cleats are worn, replace them. Always check the spring tension after replacing the pedal cleats and before riding.**
- **Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.**
  We strongly recommend that only genuine Shimano replacement parts be used.
- **If you have any questions concerning your pedals, contact a professional dealer.**

⚠ CAUTION

These pedals can be fitted with toe clips, but the toe clips should be removed when using the pedals as SPD pedals.

Be sure to read and follow the above warnings carefully, otherwise your shoes may not release from the pedals, or they may release unexpectedly and slip from the pedals, causing a fall that could result in severe injury.

NOTE:

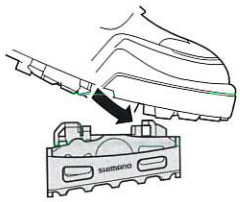
For maximum performance we highly recommend Shimano lubricants and maintenance products.

Cleat types and using the pedals

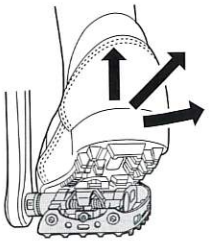
⚠ WARNING

Do not use the pedals and cleats in any way other than as described in these Service Instructions. The cleats are designed to engage and disengage from the pedals when the cleats and pedals are facing forward. See below for instructions on how to install the cleats.
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY.

- **Engaging the cleats with the pedals**
  Press the cleats into the pedals with a forward and downward motion.



- **Releasing the cleats from the pedals**
  The method of release varies according to the type of cleats you are using.
  (Check the model number and color of your cleats to determine the proper method of release.)

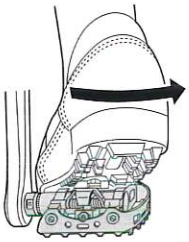


SM-SH55 (silver)

Multiple release mode
Release the cleats from the pedals by twisting your heels in any direction.

SM-SH51 / SM-SH52 (black)

Single release mode
(Optional accessory)
Release the cleats from the pedals by twisting your heels to the outside.

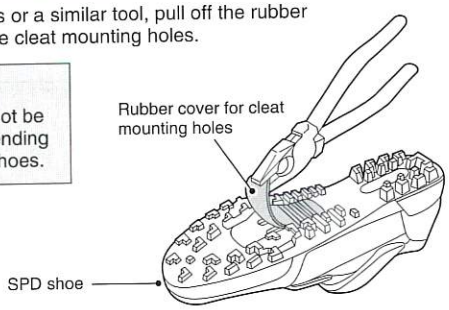


Note:
In multiple release mode, it is necessary to practice releasing until you become accustomed to the technique. Releasing by lifting your heel requires particular practice.

Attaching the cleats

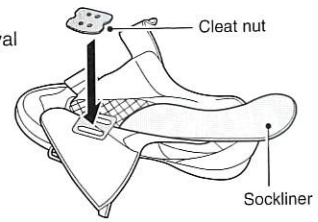
1. With a pair of pliers or a similar tool, pull off the rubber cover to expose the cleat mounting holes.

Note:
This step may not be necessary depending on the type of shoes.



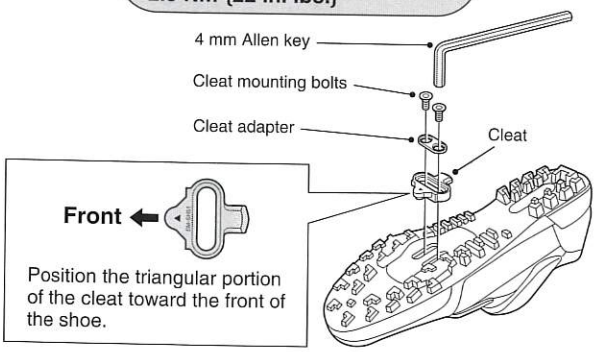
2. Remove the sockliner and position a cleat nut over the oval holes.

Note:
This step may not be necessary depending on the type of shoes.



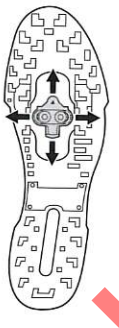
3. From the bottom of the shoe, position a cleat and then a cleat adapter over the cleat holes. The cleats are compatible with both left and right pedals. Provisionally tighten the cleat mounting bolts.

Provisional tightening torque for cleat mounting bolts: 2.5 Nm {22 in. lbs.}



Adjusting the cleat position

1. The cleat has an adjustment range of 20 mm front to back and 5 mm right to left. After provisionally tightening the cleat, practice engaging and releasing, one shoe at a time. Readjust to determine the best cleat position.



2. After you have determined the best cleat position, firmly tighten the cleat mounting bolts with a 4 mm Allen key.

Tightening torque: 5 – 6 Nm {43 – 52 in. lbs.}

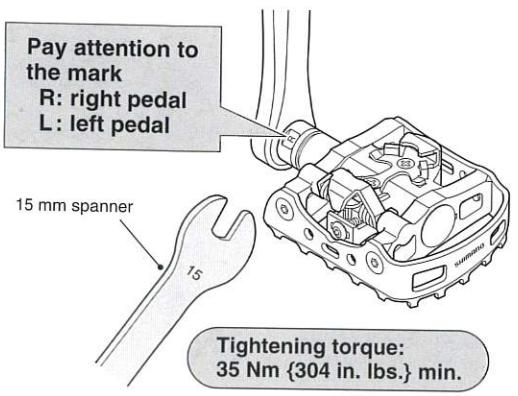
Waterproof seal

Remove the sockliner and attach the waterproof seal.

Note:
The waterproof seal is supplied with Shimano shoes which require this step to be carried out.

Mounting the pedals on the crank arms

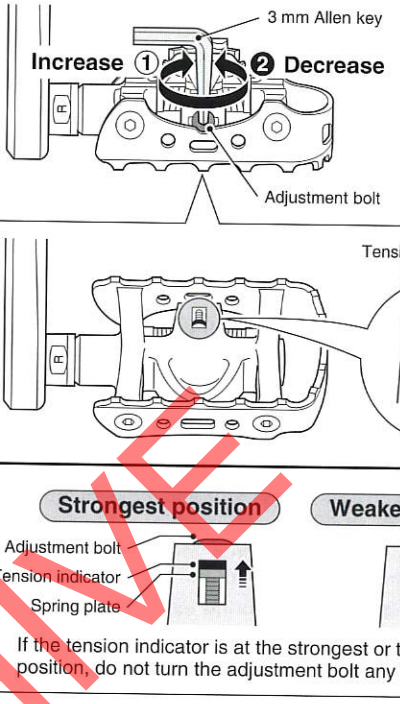
Use a 15 mm spanner to mount the pedals on the crank arms. The right pedal has a right-hand thread; the left pedal has a left-hand thread.



Tightening torque: 35 Nm {304 in. lbs.} min.

Adjusting the spring force of the binding

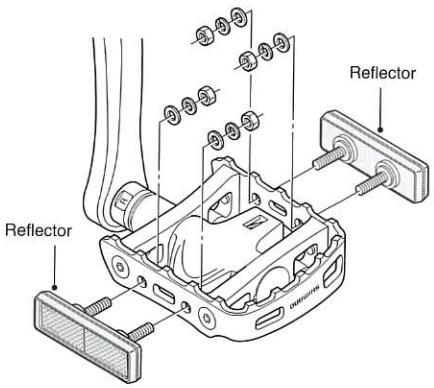
The spring force is adjusted by means of adjustment bolts. The adjustment bolts are located behind each of the bindings, and there is one adjustment bolt on each pedal. Equalize the spring tensions by referring to the tension indicators and by counting the number of turns of the adjustment bolts. The spring tension can be adjusted in three steps for each turn of the adjustment bolt.



If the tension indicator is at the strongest or the weakest position, do not turn the adjustment bolt any further.

Note:
- If the spring tensions are unequal, a differen amount of effort will be required to engage and release the cleats from the right and left pedals. As a result, unexpected difficulty may arise because of the unfamiliar effort required for engagement and release.
- If the adjustment bolt is completely withdrawn from the spring plate, disassembly and reassembly will be required. If this occurs, ask a professional dealer for assistance.

Mounting the reflectors (optional)



Please note: Specifications are subject to change for improvement without notice. (English)

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SERVICE INSTRUCTIONS SI-41P0A

PD-M536 SPD Pedals

Before use, read these instructions carefully, and follow them for correct use.

⚠ WARNING

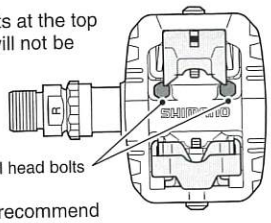
- **Use only SPD shoes with this product. Other types of shoes may not release from the pedals, or may release unexpectedly.**
- **Use only Shimano cleats (SM-SH51 / SM-SH52 / SM-SH55) and tighten the mounting bolts securely to the shoes.**
- **Before attempting to ride with these pedals and shoes, make sure you understand the operation of the engagement / release mechanism for the pedals and cleats (shoes).**
- **Before you attempt to ride with these pedals and shoes, apply the brakes, then place one foot on the ground and practice engaging and releasing each shoe from its pedal until you can do so naturally and with minimal effort.**
- **Ride on level ground first until you become adept at engaging and releasing your shoes from the pedals.**
- **Before riding, adjust the spring tension of the pedals to your liking.**
- **When riding at low speed or when there is a possibility that you might need to stop riding, (for example, when doing a U-turn, nearing an intersection, riding uphill or turning a blind curb), release your shoes from the pedal beforehand so that you can quickly put your feet onto the ground at any time.**
- **Use a lighter spring tension for attaching the pedal cleats when riding in adverse conditions.**
- **Keep cleats and bindings clear of dirt and debris to ensure engagement and release.**
- **Remember to check the cleats periodically for wear. When the cleats are worn, replace them. Always check the spring tension after replacing the pedal cleats and before riding.**
- **Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.**
- **If you have any questions concerning your pedals, contact a professional dealer.**

Be sure to read and follow the above warnings carefully, otherwise your shoes may not release from the pedals, or they may release unexpectedly and slip from the pedals, causing a fall that could result in severe injury.

An optional reflector set (SM-PD57) is available. Please contact a professional dealer for details.

NOTE:

- Do not loosen the hexagonal head bolts at the top of the pedals. If they are loosened, it will not be possible to install the cleats.

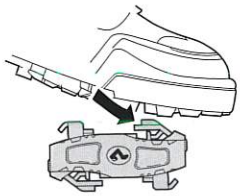


- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Cleat types and using the pedals

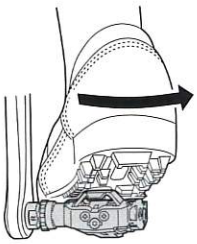
- **Engaging the cleats with the pedals**

Press the cleats into the pedals with a forward and downward motion.



- **Releasing the cleats from the pedals**

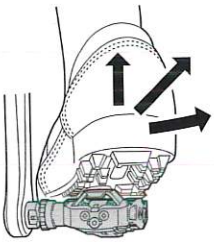
The method of release varies according to the type of cleats you are using. (Check the model number and color of your cleats to determine the proper method of release.)



SM-SH51 / SM-SH52 (black)

Single release mode

Release the cleats from the pedals by twisting your heels to the outside.



SM-SH55 (silver)

Multiple release mode

(Optional accessory)

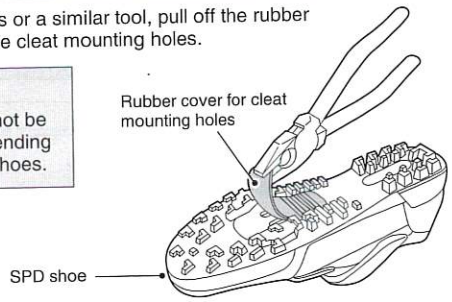
Release the cleats from the pedals by twisting your heels in any direction.

Note:
In multiple release mode, it is necessary to practice releasing until you become accustomed to the technique. Releasing by lifting your heel requires particular practice.

Attaching the cleats

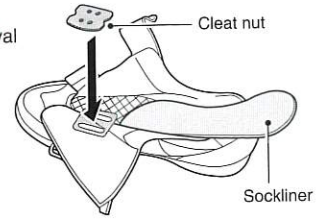
1. With a pair of pliers or a similar tool, pull off the rubber cover to expose the cleat mounting holes.

Note:
This step may not be necessary depending on the type of shoes.



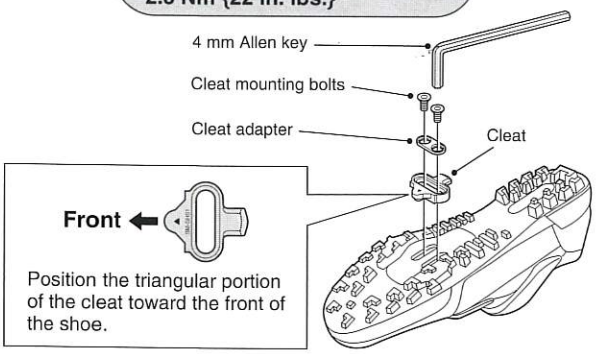
2. Remove the sockliner and position a cleat nut over the oval holes.

Note:
This step may not be necessary depending on the type of shoes.



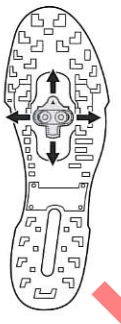
3. From the bottom of the shoe, position a cleat and then a cleat adapter over the cleat holes. The cleats are compatible with both left and right pedals. Provisionally tighten the cleat mounting bolts.

Provisional tightening torque for cleat mounting bolts: 2.5 Nm {22 in. lbs.}



Adjusting the cleat position

1. The cleat has an adjustment range of 20 mm front to back and 5 mm right to left. After provisionally tightening the cleat, practice engaging and releasing, one shoe at a time. Readjust to determine the best cleat position.



2. After you have determined the best cleat position, firmly tighten the cleat mounting bolts with a 4 mm Allen key.

Tightening torque: 5 – 6 Nm {43 – 52 in. lbs.}

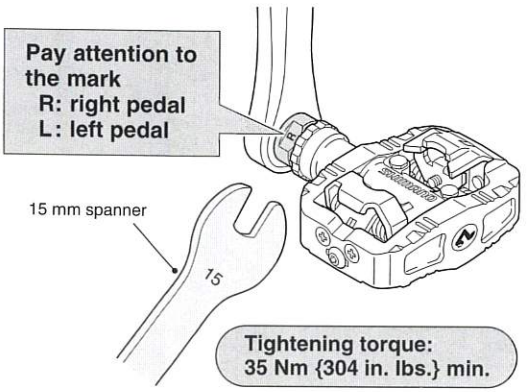
Waterproof seal

Remove the sockliner and attach the waterproof seal.

Note:
The waterproof seal is supplied with Shimano shoes which require this step to be carried out.

Mounting the pedals on the crank arms

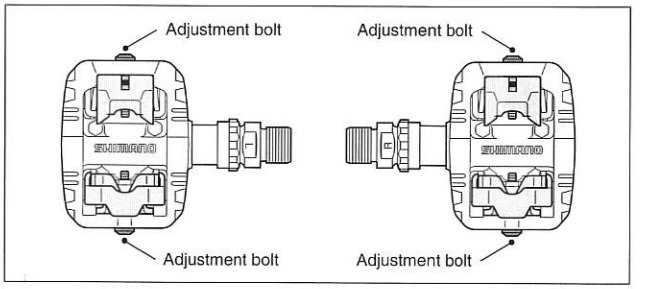
Use a 15 mm spanner to mount the pedals on the crank arms. The right pedal has a right-hand thread; the left pedal has a left-hand thread.



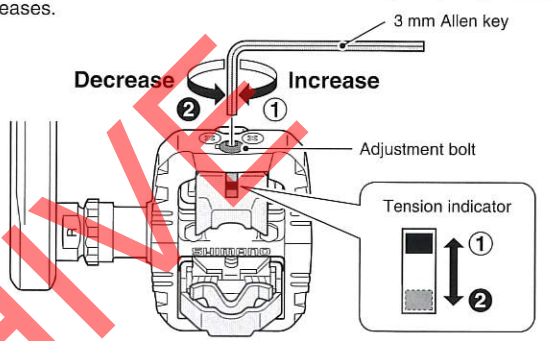
Tightening torque: 35 Nm {304 in. lbs.} min.

Adjusting the spring force of the binding

The spring force is adjusted by means of adjustment bolts. The adjustment bolts are located behind each of the bindings, and there are two adjustment bolts on each pedal. Equalize the tensions by referring to the tension indicators and by counting the number of turns of the adjustment bolts. The spring tension can be adjusted in three steps for each turn of the adjustment bolt.



When the adjustment bolt is turned clockwise, the spring tension increases, and when it is turned counterclockwise, the spring tension decreases.



Note:
- If the tension indicator is at the strongest or weakest indication, do not turn the adjustment bolts any further. The adjustment bolts may fall out if they are turned too far, particularly if they are being turned in the weaker setting direction.
- If the spring tensions are unequal, a differen amount of effort will be required to engage and release the cleats from the right and left pedals, and from both sides of the pedal. As a result, unexpected difficulty will arise because of the unfamiliar effort required for engagement and release.
- If the adjustment bolt is completely withdrawn from the spring plate, disassembly and reassembly will be required. If this occurs, ask a professional dealer for assistance.

Cleat replacement

Cleats wear out over time and must be replaced. Replace your cleats when you find it difficult to engage or release.

If you do not maintain your shoes and cleats in good condition, your shoes may not properly release from the pedals, resulting in a fall or other mishap.

Maintenance of the axle units

If you experience any trouble with the rotating parts of the pedal, the pedal may require adjustment. Obtain advice from a professional dealer.

Please note: Specifications are subject to change for improvement without notice. (English)

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SERVICE INSTRUCTIONS SI-42E0A

PD-R535 SPD-R Pedals

Before use, read these instructions carefully, and follow them for correct use.

⚠ WARNING

- Use only SPD-R shoes with this product. Other types of shoes may not release from the pedals, or may release unexpectedly.
- Use only Shimano cleats (SM-SH90/SH91/SH92) and tighten the mounting bolts securely to the shoes.
- Before attempting to ride with these pedals and shoes, make sure you understand the operation of the engagement/release mechanism for the pedals and cleats (shoes).
- Before you attempt to ride with these pedals and shoes, apply the brakes, then place one foot on the ground and practice engaging and releasing each shoe from its pedal until you can do so naturally and with minimal effort.
- Ride on level ground first until you become adept at engaging and releasing your shoes from the pedals.
- Before riding, adjust the spring tension of the pedals to your liking.
- When riding at low speed or when there is a possibility that you might need to stop riding, (for example, when doing a U-turn, nearing an intersection, riding uphill or turning a blind curb), release your shoes from the pedal beforehand so that you can quickly put your feet onto the ground at any time.
- Use a lighter spring tension for attaching the pedal cleats when riding in adverse conditions.
- Keep cleats and bindings clear of dirt and debris to ensure engagement and release.
- Remember to check the cleats periodically for wear. When the cleats are worn, replace them. Always check the spring tension after replacing the pedal cleats and before riding.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.
- If you have any questions concerning your pedals, contact a professional dealer.

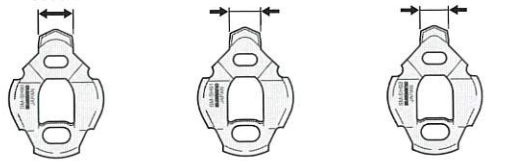
Be sure to read and follow the above warnings carefully, otherwise your shoes may not release from the pedals, or they may release unexpectedly and slip from the pedals, causing a fall that could result in severe injury.

An optional reflector set (SM-PD56) is available. Please contact a professional dealer for details.

Cleat types

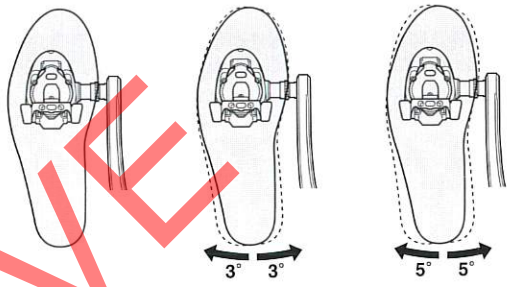
The cleats below (SM-SH90/SH91/SH92) for SPD-R racing shoes should be used together with the pontoon (cleat rubbers) as a set.

SM-SH90 (Option)	SM-SH91	SM-SH92 (Option)
Wide	Standard	Narrow



Fixed mode
There is no play when the shoes are firmly engaged with the pedals.

Self-aligning mode
There is some sideways play when the shoes are firmly engaged with the pedals.

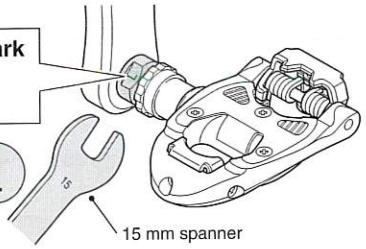


Mounting the pedals on the crank arms

Use a 15 mm spanner to mount the pedals on the crank arms. The right pedal has a right-hand thread; the left pedal has a left-hand thread.

Pay attention to the mark
R: right pedal
L: left pedal

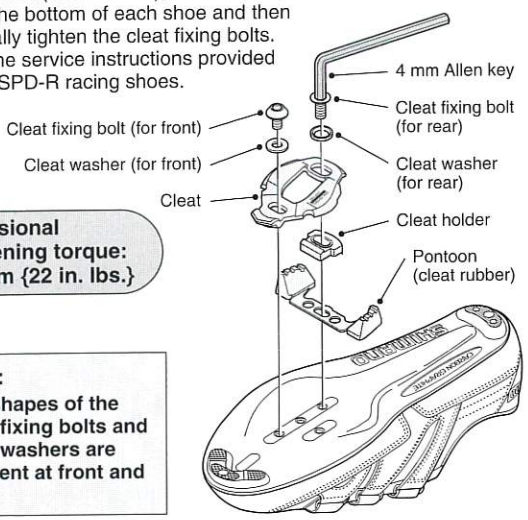
Tightening torque: 35 Nm {304 in. lbs.} min.



Attaching the cleats

Set a pontoon (cleat rubber), cleat holder, cleat and cleat washer in order on the bottom of each shoe and then provisionally tighten the cleat fixing bolts. Refer to the service instructions provided with your SPD-R racing shoes.

Provisional tightening torque: 2.5 Nm {22 in. lbs.}



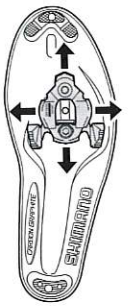
Note:
The shapes of the cleat fixing bolts and cleat washers are different at front and rear.

Adjusting the cleat position

1. The cleat has an adjustment range of 15 mm front to back and 5 mm right to left. After provisionally tightening the cleat, adjust it until the optimum cleat position is obtained. Adjustment can also be carried out with the shoes already attached to the pedals.

2. After you have determined the best cleat position, firmly tighten the cleat fixing bolts with a 4 mm Allen key.

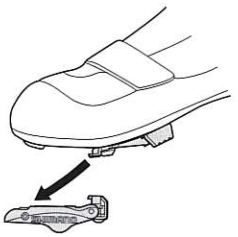
Tightening torque:
5 – 6 Nm {43 – 52 in. lbs.}



Using the pedals

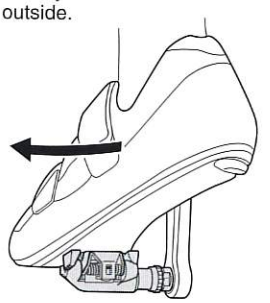
■ To engage

Press the cleat into the pedal.



■ To release

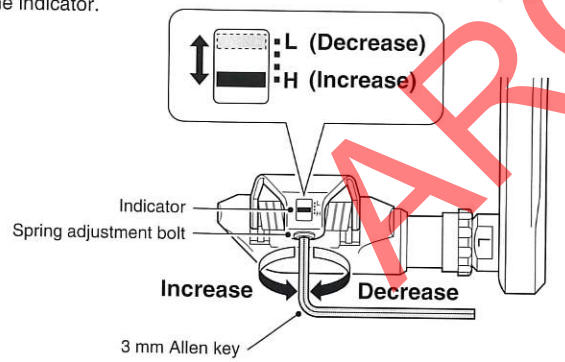
Twist your feet to the outside.



* Place one foot on the ground, apply the brakes, and practice engaging and releasing the cleat from the pedal several times to determine the spring tension you prefer.

Adjusting the spring tension

Adjust the spring tension with the spring adjustment bolt located on the underside of the pedal. Move the cleat in the release direction when carrying out this adjustment. The spring tension will be displayed on the indicator.

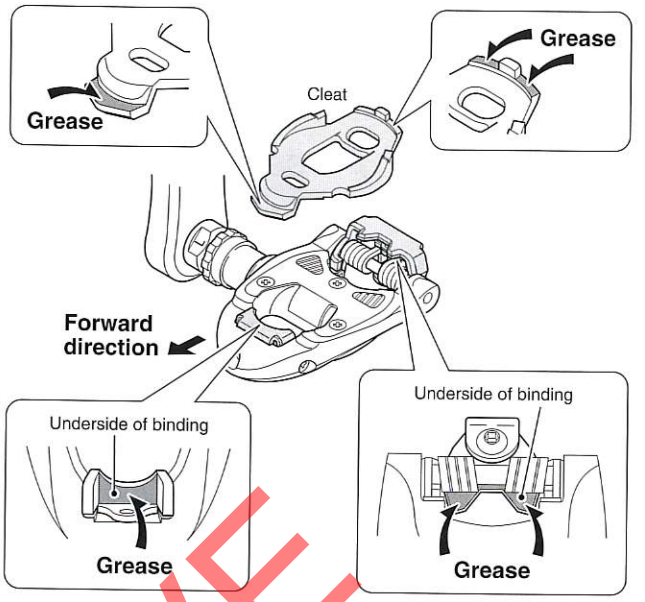


Note:

- **A click stop at each 90° turn of the bolt marks an incremental change in the spring tension. The bolt can be turned up to three complete revolutions. Do not turn the bolt past the point at which the indicator shows the maximum or minimum tension. If the bolt is turned too far in the direction of minimum tension, it will slip out.**
- **If the spring adjustment bolt is completely withdrawn from the spring plate, disassembly and reassembly will be required. If this occurs, ask a professional dealer for assistance.**
- **If the spring tensions are unequal, a different amount of effort will be required to engage and release the cleats from the right and left pedals, and from both sides of the pedal. As a result, unexpected difficulty will arise because of the unfamiliar effort required for engagement and release.**

Preventing noise

If noise can be heard, apply grease to the points shown in the illustration.



Cleat replacement

Cleats wear out over time and must be replaced. Replace your cleats when you find it difficult to engage or release.

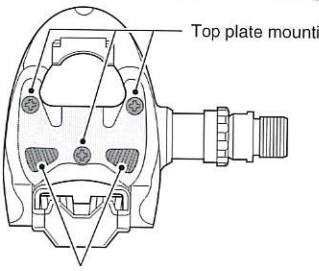
If you do not maintain your shoes and cleats in good condition, your shoes may not properly release from the pedals, resulting in a fall or other mishap.

Maintenance of the axle units

If you experience any trouble with the rotating parts of the pedal, the pedal may require adjustment. Obtain advice from a professional dealer.

NOTE:

The friction rubbers on the top of the pedal cannot be replaced. Therefore, do not loosen the top plate mounting screws.



Please note: Specifications are subject to change for improvement without notice. (English)

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⚠ WARNING

Obtain, and carefully read service instructions when installing parts. A loose, worn, or damaged part may cause injury to the rider.
We strongly recommend that only genuine Shimano replacement parts be used.

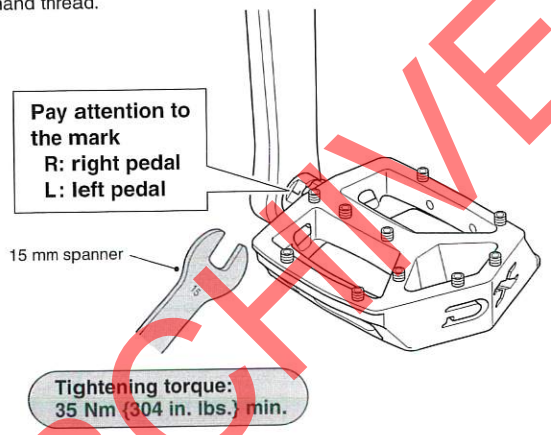
SERVICE INSTRUCTIONS **SI-MX30A**

PD-MX30 Pedals

Before use, read these instructions carefully, and follow them for correct use.

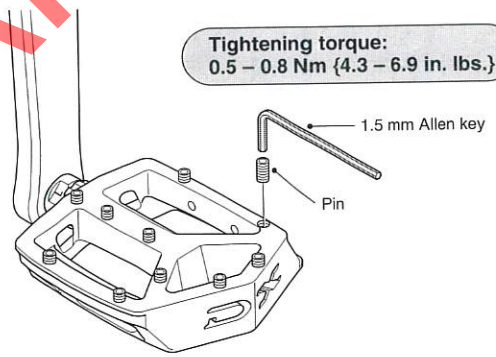
Mounting the pedals on the crank arms

Use a 15 mm wrench or a 6 mm Allen key to mount the pedals on the crank arms. The right pedal has a right-hand thread; the left pedal has a left-hand thread.



Pin maintenance

If the pins become worn or damaged, replace them with new pins.



Maintenance of the axle units

If you experience any trouble with the rotating parts of the pedal, the pedal may require adjustment. Obtain advice from a professional dealer.

An optional reflector set is available. Please contact a professional dealer for details.

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SHIMANO

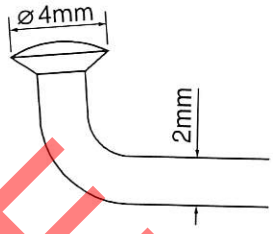
SERVICE INSTRUCTIONS SI-24T0A

Directional Design Hub Assembly Guide

Before use, read these instructions carefully, and follow them for correct use.

Note

- Use a straight or butted #14gauge spokes.

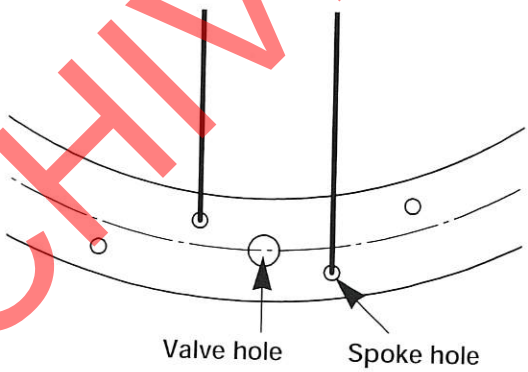


- Use French Type rim (F2) which have the first spoke hole on the right side of the valve staggered down.

<French Type rim>

■ F 2

As seen from wheel center

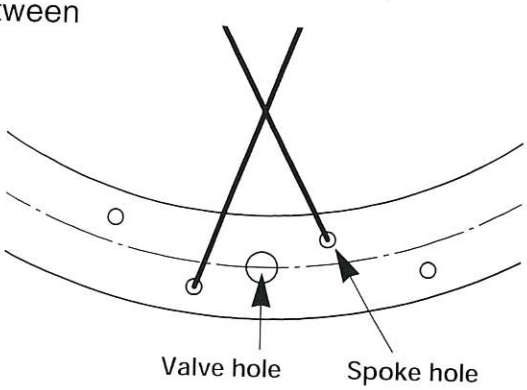


- If you use European Type rim as shown in illustration, the valve hole will be in between the crossed spokes.

<European Type rim>

■ F 1

As seen from wheel center



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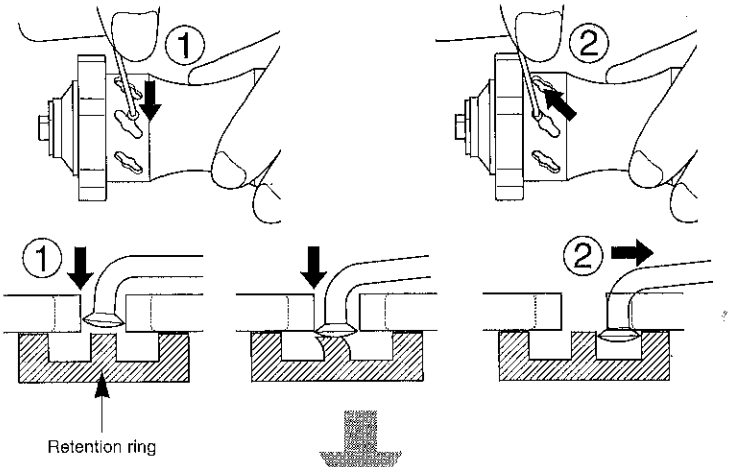
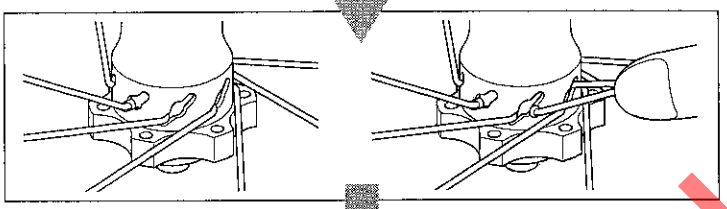
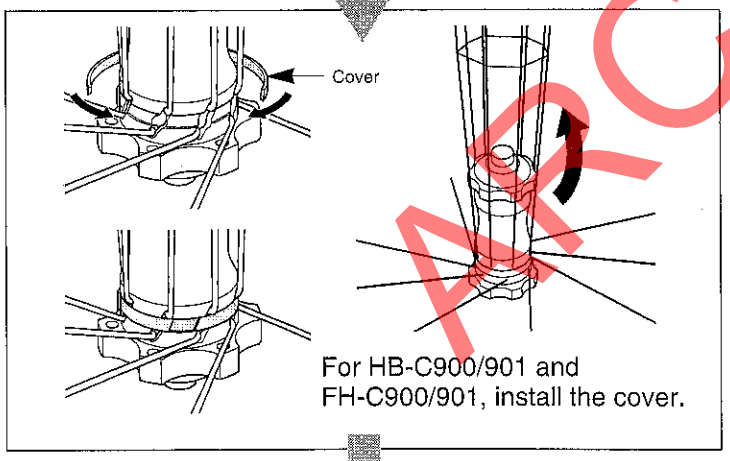
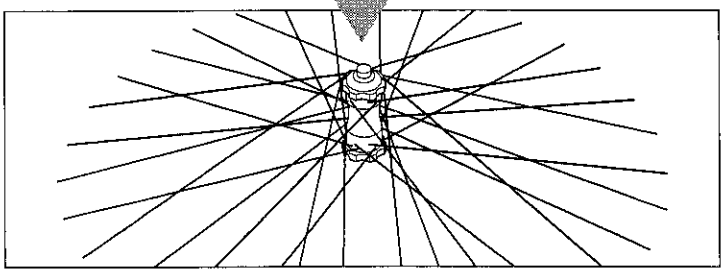
Spoke lacing

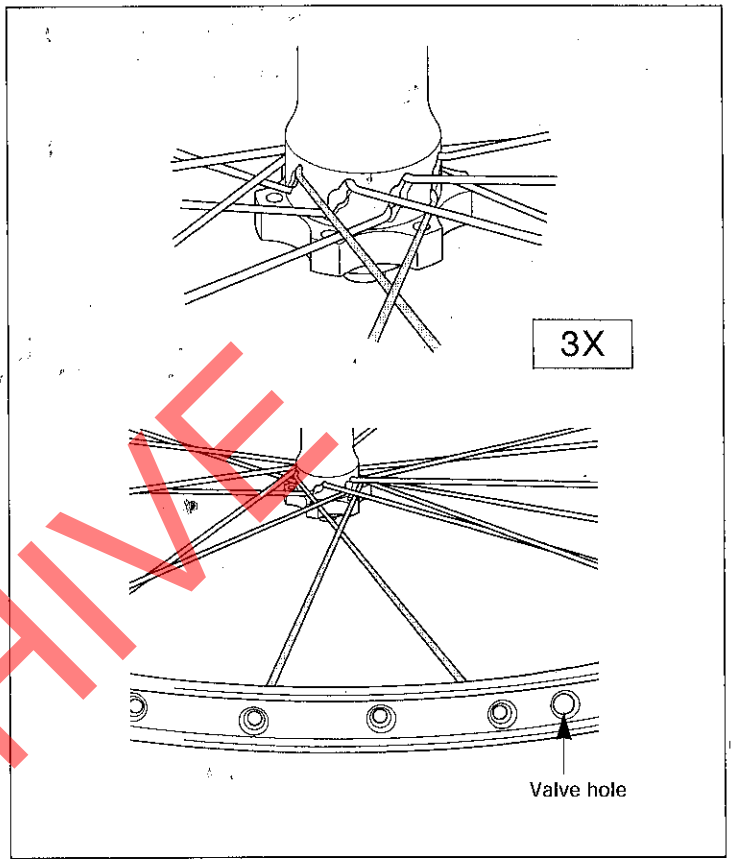


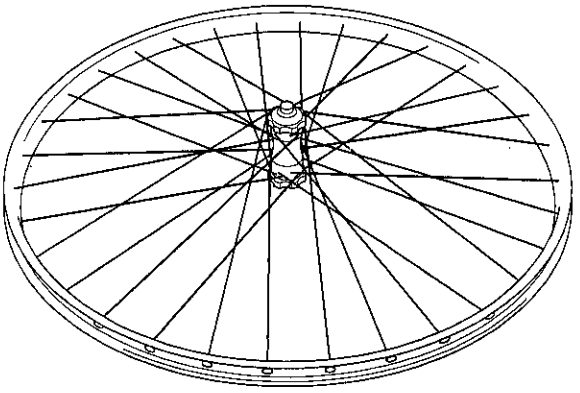






Wheel building





⚠ WARNING

- This wheel is equipped with a quick release hub to facilitate installation and removal. Failure to properly install this quick release hub (wheel) onto your bicycle may cause the wheel to become detached from the bicycle while you are riding and result in serious bodily injury.
- Use a front fork which is equipped with a wheel retention mechanism.
- BEFORE USE, CAREFULLY READ THE QUICK RELEASE SERVICE INSTRUCTIONS IN YOUR OWNER'S MANUAL. IF YOU HAVE ANY QUESTIONS, ASK YOUR DEALER. IMPROPER HUB INSTALLATION CAN RESULT IN SERIOUS BODILY INJURY.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.
- If the HB-M755/M555/C901/WH-M959-disc/M575-disc quick release lever is installed to the left side of the front fork, this may result in not enough clearance between the rotor and the quick release lever as shown in Figure 1.
  Accordingly, install the quick release lever to the right side of the front fork as shown in Figure 2. If the quick release lever is on the same side as the rotor, check that it does not interfere with the rotor. Furthermore, make sure that the front fork does not obstruct the operation of the quick release lever. If the front fork obstructs the quick release lever so that the wheel cannot be secured properly, the wheel may fall off the bicycle during riding, and serious injury may occur as a result.

Figure 1

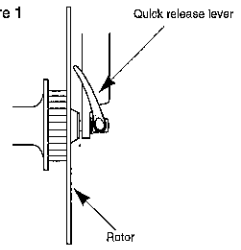
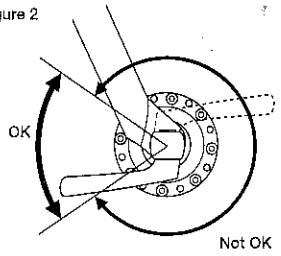


Figure 2



SERVICE INSTRUCTIONS SI-24N0C

Quick Release

Before use, read these instructions carefully, and follow them for correct use.

⚠ CAUTION

- Be sure to operate the quick release lever by hand only. Never use any other tool such as a hammer to tighten the quick release lever, as this could cause damage to the lever.

Specifications

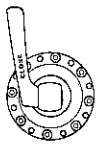
Front hub	HB-M755 / HB-M555 / HB-C901
Freehub	FH-M755 / FH-M555 / FH-C901
Front wheel	WH-M959-disc / WH-M575-disc
Rear wheel	WH-M959-disc / WH-M575-disc

What is a Quick Release?

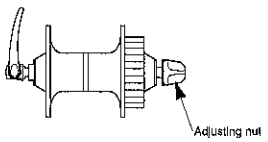
It is a mechanism that uses a single quick release lever operation on the hub to enable the wheel to be easily installed and removed.

Quick Release function

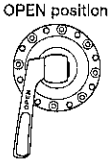
When the quick release lever is brought to the closed position, the lever nut moves inward. The force of this clamps the wheel to the frame and holds the wheel securely in place.

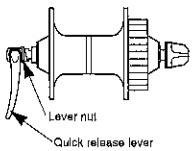


CLOSE position

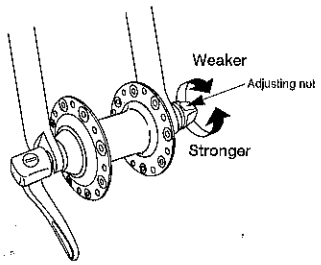


OPEN position





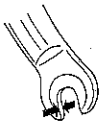
The clamping strength is adjusted by turning the adjusting nut. When the nut is turned in a clockwise direction, the clamping strength increases, and when the nut is turned in a counter-clockwise direction, the clamping strength decreases.



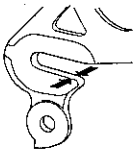
Suitable dimensions of the fork end

Be sure to use only fork widths with suitable dimensions.

Front ...
cannot use fork thicknesses less than 4 mm.



Rear ...
cannot use fork thicknesses less than 5 mm.

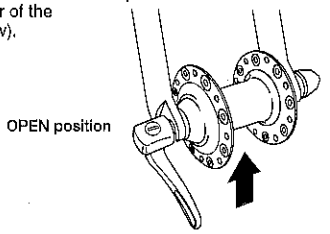


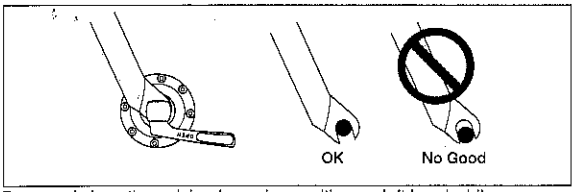
Operation method

The front axle is explained as an example. The rear axle works in the same way.

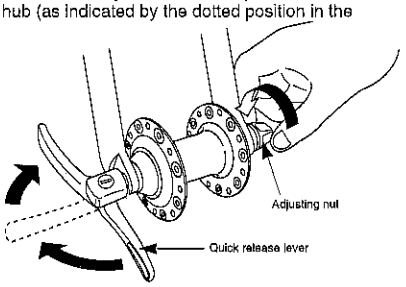
How to fasten this quick release hub

1. Move the quick release lever to the OPEN position and set the wheel so it firmly touches the interior of the fork end (See sketch below).



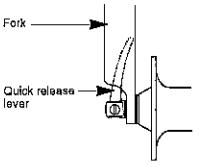


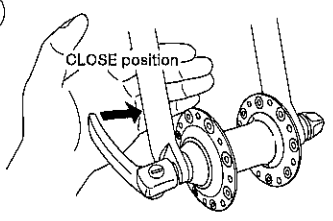
2. Open and close the quick release lever with your left hand while gradually tightening the adjusting nut (located on the opposite side of the hub) with your right hand in the clockwise direction. Continue tightening the nut until you feel resistance with your hand at the point when the lever is parallel to the hub (as indicated by the dotted position in the diagram on the right).



3. Grip the fork with your fingers and use the palm of your hand to close the quick release lever with as much strength as possible. When closed, the quick release lever must be in the "CLOSE" position shown below in the diagram on the right. The side of the lever with the inscription "CLOSE" must be facing away from the wheel, and the lever should be parallel to the fork as shown below in the diagram on the left.

Tightening torque:
5 -7.5 Nm {43 -65 in. lbs.}



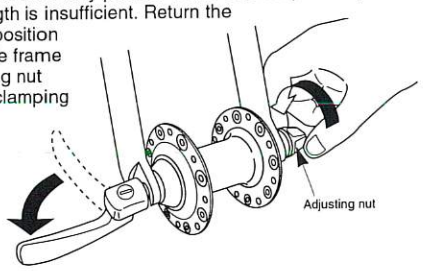


⚠ CAUTION

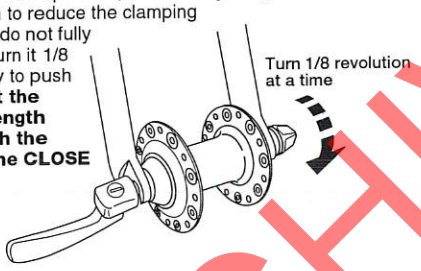
Never fasten a wheel to a frame by rotating the quick release lever as shown in the diagram on the right.
Simply rotating the lever in a circular motion will not fasten the wheel to the frame.
Detachment of the wheel as a result of improper hub installation can result in serious bodily injury.

Notes

If the quick release lever can be easily pushed to the CLOSE position, this means the clamping strength is insufficient. Return the quick release lever to the position perpendicular to the bicycle frame and again turn the adjusting nut clockwise to increase the clamping strength. Push the quick release lever back to the CLOSE position.



If the clamping strength is adjusted too strong and the quick release lever cannot be pushed to the CLOSE position, turn the adjusting nut in a counter-clockwise direction to reduce the clamping strength. When doing this, do not fully release the adjuster nut. Turn it 1/8 of a revolution, and then try to push the lever to CLOSE, **to set the maximum clamping strength with which you can push the quick release lever to the CLOSE position.**

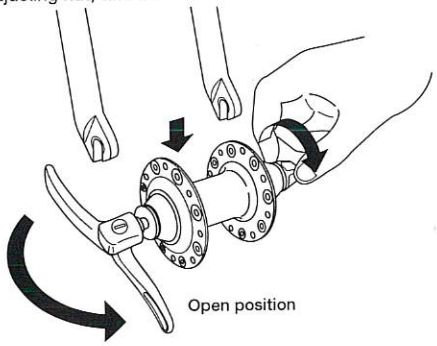


Positioning of the quick release lever

For safety, the quick release lever should be along the bicycle frame when in the CLOSE position.

Removing the wheel

Move the quick release lever from the CLOSE position to the OPEN position. Loosen the adjusting nut, and then remove the wheel.



Spoke lacing method HB-M755/FH-M755

1. Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the roter is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.

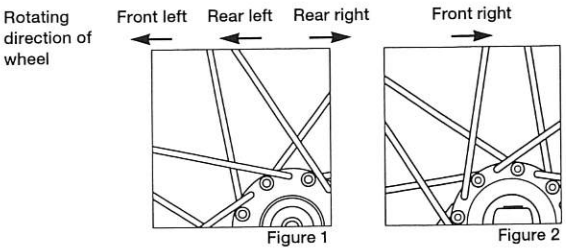


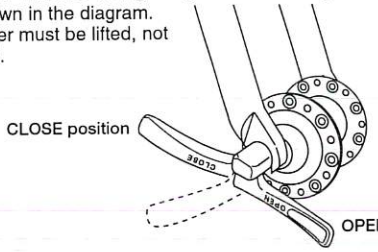
Figure 1 Figure 2

2. Use a 6-spoke (three cross) or 8-spoke (four cross) assembly when lacing the spokes. A radial assembly cannot be used.

⚠ WARNING

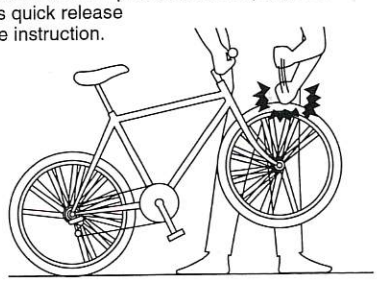
THINGS TO CHECK BEFORE RIDING

1. Always check your quick release hubs before riding to make sure that the wheels are correctly installed on the bicycle frame. This is especially important after you park your bicycle in a public place.
2. Make sure that the quick release levers are pushed fully to the CLOSE position (the side of the lever with the inscription "CLOSE" must be facing away from the wheel). As shown in the diagram, the lever must be lifted, not rotated.



QUICK CHECK

Lift up the bicycle so that the wheel is off the ground, and give the top of the tire a few sharp downward blows as shown in the diagram. The wheel should not be loose or come off. **This check does not guarantee that the quick release lever has received adequate tightening torque.**
If you are uncertain as to whether the quick release is tightened correctly, repeat the installation procedure as explained in "How to fasten this quick release hub" of this service instruction.



If the quick release will not adjust properly, please contact a professional dealer for advice.

- For maximum performance we highly recommend Shimano lubricants and maintenance products.

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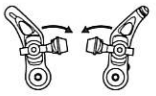
Please note: specifications are subject to change for improvement without notice. (English)

⚠ WARNING

- Before use, check the wheels to make sure that there are no bent or loose spokes, dents, scratches or cracks on the rim surface. Do not use the wheel if any of these problems are found.
- Check that the recommended brake shoe holders have been installed, and that adjustment is correct. If the brake shoes are adjusted incorrectly, the brake shoe holder may contact the spokes when the brake is applied, causing noise.
- Do not use in combination with brakes types such as cantilever brakes in which the brake shoes move in an arc pattern, as the brake shoes may gradually move closer to the spokes and touch them as the brake shoes wear.



- Do not use in combination with bottom link-type suspension forks. With these types of forks, the clearance between the hub axle and the brake shoes can change due to the operation of the suspension, so that when the brakes are applied, the brake shoes may touch the spokes.
- If the quick release mechanism is not used correctly, the wheel may come off the bicycle and serious injury could result. Read the Service Instructions for the quick release mechanism thoroughly before use.
- Use rim cement to securely affix tubular tires to the rims. If the tires are not fully secure, they may come off the rims, and serious accidents and injury may result.
- The bicycle wheels are designed for competitive riding on sealed roads. If the wheels are used on unsealed roads or roads with rough surfaces, they may become bent or damaged, and accidents may occur as a result.

⚠ CAUTION

- When the brake shoes become worn, the brake shoe holders may interfere with the spokes and cause frictional noise when the brakes are applied or brake performance may drop, even if the brake shoes have been installed correctly. If this occurs, replace the brake shoes as soon as possible.
- The tires should be inflated to a suitable pressure before use.
- Carbon fiber rims become worn due to friction from the brake shoes, and there may be a "run-in" period before the full performance of the rims can be obtained. As the run-in period progresses, the braking force will become stronger. You should take note of the increase in braking force during this time to ensure proper safety.

CAUTION

- Use R55C carbon fiber rim brake shoes with the WH-7700-Carbon. If brake shoes such as the R55C standard shoes or R55C high-performance shoes are used, the braking force provided by the brakes may be insufficient, or the brake shoes may become abnormally worn.
- Use of genuine Shimano spokes, nipples and washers is strongly recommended. If non-Shimano parts are used, the area where the nipple seats into the hub flange may become damaged.
- Before use, check that there are no pieces of metal or other foreign objects sticking to the brake pads. If any such items are present, they may cause damage to the hub when the brakes are applied.
- The nipples have large diameters and are easy to rotate in order to make it easier to increase the spoke tension.However, be careful not to overtighten the nipples when adjusting the spoke tensions. If the nipples are overtightened, damage to the rim may result. (We recommended that you ask authorized bicycle dealers to make the adjustments.)

SERVICE INSTRUCTIONS SI-4AG0A

WH-7700-Carbon

Wheel

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Wheel	WH-7700-Carbon
Chain	CN-7700/CN-HG92/CN-HG72
Cassette sprocket	CS-7700/CS-6500/CS-HG70-9
Applicable brake shoe holder	BR-7700/BR-6500
Applicable brake shoes	For R55C carbon fiber rims
Applicable tire size	Tubular tire
	700C(19-25C)

Specifications

Model number		WH-7700-Carbon
Speeds		9
Rim size		700C
Applicable tires	Clincher	—
	Tubular	○
Applicable spoke length	For front	294mm
	For rear	291mm
Rim width		18.8mm

Applicable tire size

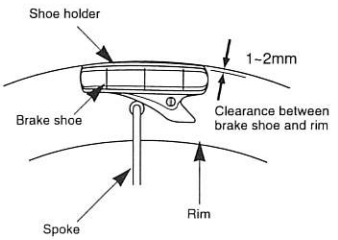
Tubular tire	700C(19-25C)

Note:

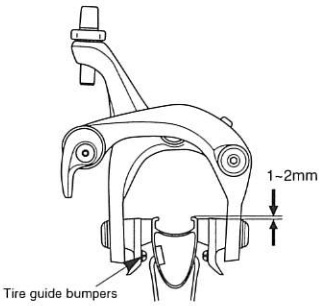
- Use tire tubes with valve lengths of 50 mm or more.
- Special spoke wrenches are available as optional accessories.
- We recommend that you ask authorized bicycle dealers to adjust the spoke tensions if there is any initial play in the spokes and after the first 1,000 km of riding.
- A reflector (SM-RF77) and spoke protector (CP-WH77) are also sold separately. Please ask your bicycle dealer for details.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Brake shoe setting position

Make sure that the brake shoes and brake shoe holders do not touch the spokes.

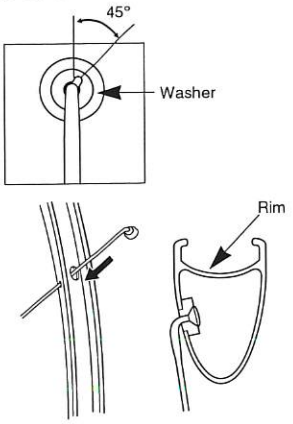


Remove the tire guide bumpers before riding.



Replacing the spokes

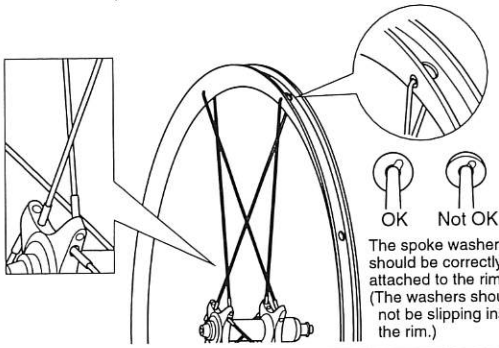
Check that the washer is in the position shown in the illustration, and then hook it onto the side of the rim.



Use only spokes with washers which are specially designed for carbon fiber rims.

Spoke lacing

Lace the spokes as shown in the illustration.



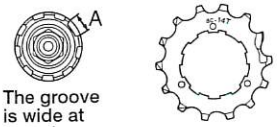
The spoke washers should be correctly attached to the rim. (The washers should not be slipping inside the rim.)

Spoke tension value		
For front	For rear	
	Right (sprocket) side	Left side
980-1180N (86-103 in.lbsf)	1050-1280N (92-118 in.lbsf)	980-1180N (86-103 in.lbsf)

*These values should be used as a guide only.

Installation of the HG sprockets

For each sprocket, the surface that has the group mark should face outward and be positioned so that the wide parts of the gear projections on each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.

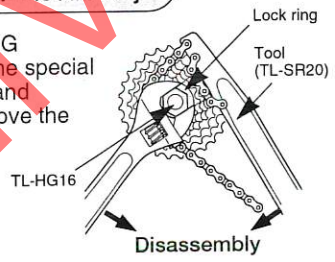


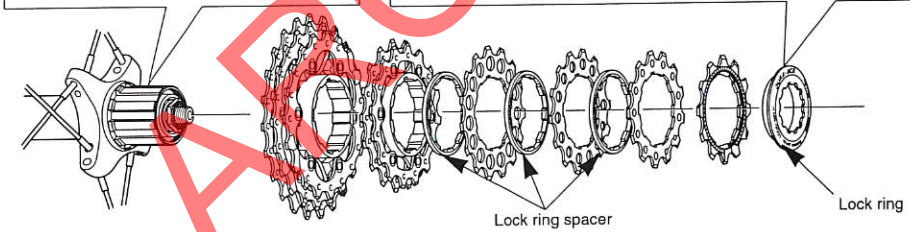
The groove is wide at one place only.

- For installation of the HG sprockets, use the special tool (TL-HG16) to tighten the lock ring.

Tightening torque: 30 - 50 Nm {261 - 434 in. lbs.}

- To replace the HG sprockets, use the special tool (TL-HG16) and TL-SR20 to remove the lock ring.



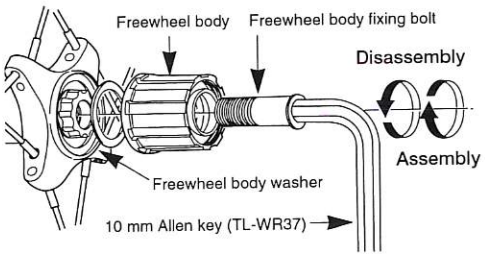


Replacement of the freewheel body

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

Note:
Do not attempt to disassemble the freewheel body, because it may result in a malfunction.

Tightening torque: 35 - 50 Nm {305 - 434 in. lbs.}



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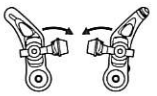
⚠ WARNING

- Before use, check the wheels to make sure that there are no bent or loose spokes, dents, scratches or cracks on the rim surface. Do not use the wheel if any of these problems are found.
- Check that the recommended brake shoe holders have been installed, and that adjustment is correct. If the brake shoes are adjusted incorrectly, the brake shoe holder may contact the spokes when the brake is applied, causing noise.
- Do not use in combination with brakes types such as cantilever brakes in which the brake shoes move in an arc pattern, as the brake shoes may gradually move closer to the spokes and touch them as the brake shoes wear.



- Do not use in combination with bottom link-type suspension forks. With these types of forks, the clearance between the hub axle and the brake shoes can change due to the operation of the suspension, so that when the brakes are applied, the brake shoes may touch the spokes.
- If the quick release mechanism is not used correctly, the wheel may come off the bicycle and serious injury could result. Read the Service Instructions for the quick release mechanism thoroughly before use.
- Use rim cement to securely affix tubular tires to the rims. If the tires are not fully secure, they may come off the rims, and serious accidents and injury may result.
- These wheels are designed for riding on paved surfaces. If the wheels are used on unpaved surfaces, the wheels may become bent or damaged, and accidents may result.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

⚠ CAUTION

- When the brake shoes become worn, the brake shoe holders may interfere with the spokes and cause frictional noise when the brakes are applied or brake performance may drop, even if the brake shoes have been installed correctly. If this occurs, replace the brake shoes as soon as possible.
- Two types of rim are available for use with either tubular tires or clincher tires. Use whichever type of rim is suitable for the type of tires used, and make sure that the tires are inflated to the correct pressure.
- If using the rim with clincher tires, use rim tape which can withstand high pressures, otherwise the tires may suddenly puncture and come off, and severe injury may result.

CAUTION

- The Shimano R55HC (high performance) brake shoes use an aggressive compound designed with an emphasis an maximum performance in wet conditions, however they will cause accelerated rim wear. Shimano accepts no responsibility for reduced rim life which might occur from using R55HC brake shoes with WH7700/6500 wheels.
- Use of genuine Shimano spokes, nipples and washers is strongly recommended. If non-Shimano parts are used, the area where the nipple seats into the hub flange may become damaged.
- Before use, check that there are no pieces of metal or other foreign objects sticking to the brake pads. If any such items are present, they may cause damage to the hub when the brakes are applied.
- The nipples have large diameters and are easy to rotate in order to make it easier to increase the spoke tension.However, be careful not to overtighten the nipples when adjusting the spoke tensions. If the nipples are overtightened, damage to the rim may result. (We recommended that you ask authorized bicycle dealers to make the adjustments.)

SERVICE INSTRUCTIONS SI-4A00E

WH-7700 WH-6500 WH-R535

Wheel

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Applicable tire size		Clincher tire		Tubular tire
		700C	650C	700C
Wheel		WH-7700 WH-6500 WH-R535	WH-7700	WH-7700
Chain	9-speed	CN-7700 / CN-HG92 / CN-HG72		
	8-speed	CN-HG50		
Cassette sprocket	9-speed	CS-7700 / CS-6500 / CS-HG70-9		
	8-speed	CS-HG50-8		
Applicable brake shoe holder		BR-7700 / BR-6500 / BR-5500		

Specifications

Model number		WH-7700		WH-6500	WH-R535
Speeds		9			
Rim size		700C	650C	700C	700C
Applicable tires	Clincher	○	○	○	○
	Tubular	○	—	—	—
Applicable spoke length	For front	294mm	268mm	294mm	286mm
	For rear	291mm	265mm	291mm	280mm
Rim width		18.8mm		18.8mm	19.2mm

Applicable tire size

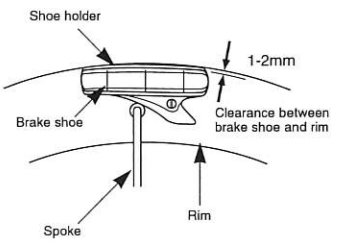
Clincher tire	Tubular tire
700C(19-28C),650C(19-28C)	700C(19-25C)

Note:

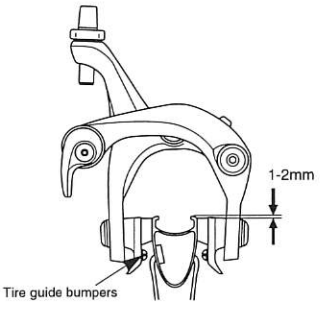
- Use tire tubes with valve lengths of 50 mm or more.
- Special spoke wrenches are available as optional accessories.
- We recommend that you ask authorized bicycle dealers to adjust the spoke tensions if there is any initial play in the spokes and after the first 1,000 km of riding.
- A reflector (SM-RF77) and spoke protector (CP-WH53) are also sold separately. Please ask your bicycle dealer for details.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Brake shoe setting position

Make sure that the brake shoes and brake shoe holders do not touch the spokes.

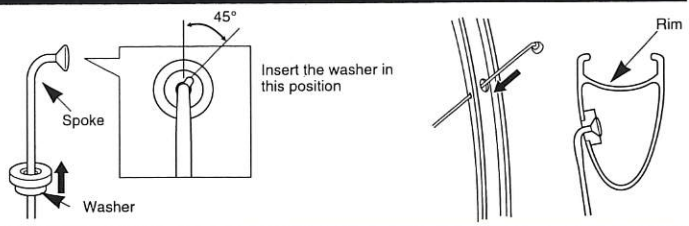


Remove the tire guide bumpers before riding.



Replacing the spokes

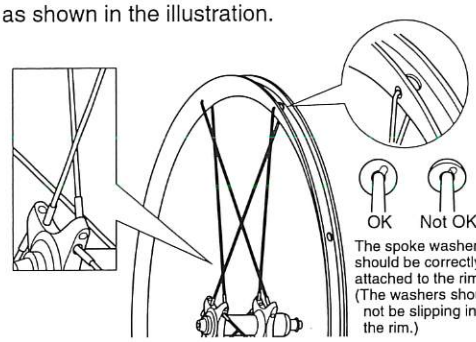
Place a washer onto the spoke as shown in the illustration, and then hook the spoke through the rim.



Spoke lacing

Lace the spokes as shown in the illustration.

WH-7700/6500



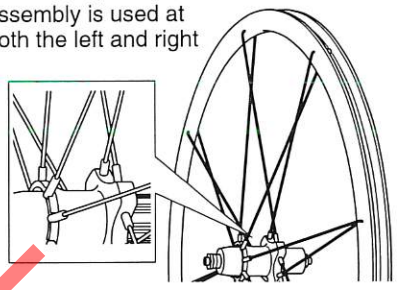
The spoke washers should be correctly attached to the rim. (The washers should not be slipping inside the rim.)

Spoke tension value		
For front	For rear	
	Right (sprocket) side	Left side
980-1180N (86-103 in.lbsf)	1050-1280N (92-118 in.lbsf)	980-1180N (86-103 in.lbsf)

*These values should be used as a guide only.

WH-R535(For rear)

At the front, a radial assembly is used at both the left and right



Installation of the HG sprockets

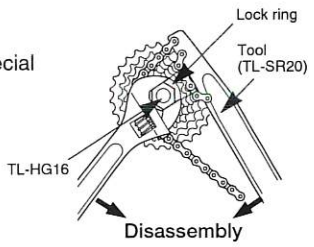
For each sprocket, the surface that has the group mark should face outward and be positioned so that the wide parts of the gear projections on each sprocket and the A part (where the groove width is wide) of the freewheel body are aligned.

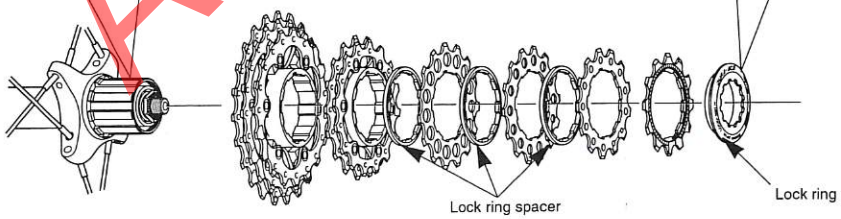
The groove is wide at one place only.

- For installation of the HG sprockets, use the special tool (TL-HG16) to tighten the lock ring.

Tightening torque: 30 - 50 Nm {261 - 434 in. lbs.}

- To replace the HG sprockets, use the special tool (TL-HG16) and TL-SR20 to remove the lock ring.



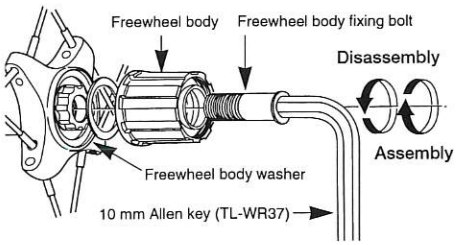


Replacement of the freewheel body

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

Note:
Do not attempt to disassemble the freewheel body, because it may result in a malfunction.

Tightening torque: 35 - 50 Nm {305 - 434 in. lbs.}



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SERVICE INSTRUCTIONS **SI-RT75B**

SM-RT75 Rotor

■ Specifications

Model number	SM-RT75
Size	160mm,170mm

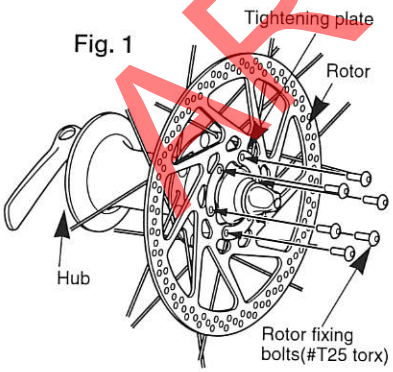
Note:

- If using the post type of Shimano adapter with the BR-M755 front calipers, use a 170 mm rotor.
  If any other kind of rotor is used, it may cause a drop in braking performance.

■ Installation of the rotor (SM-RT75)

Install the rotor and the tightening plate, and then provisionally tighten the rotor fixing bolts as shown in Fig. 1.

Fig. 1



While wearing gloves, apply a force to the rotor to turn it in a clockwise direction as shown in Fig. 2. While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

Tightening torque: 2 - 4 Nm {18 - 35 in. lbs.}

Use a flat-tipped screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts as shown in Fig. 3.

Fig. 2

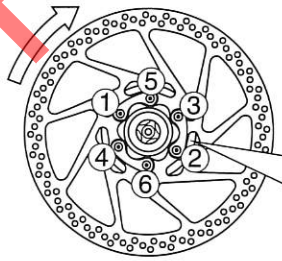
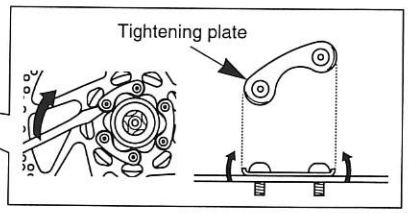


Fig. 3



Be sure to read these Service Instructions together with the Service Instructions for the M755 disc brake system.

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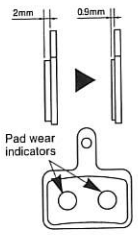
⚠ WARNING

- The calipers and rotor will become hot when the brakes are operated, so do not touch them while riding or immediately after dismounting from the bicycle, otherwise you may get burned. Check that the brake components have cooled down sufficiently before attempting to adjust the brakes.
- Before riding the bicycle, be sure to depress the brake levers to check that the brakes are working normally.
- Before riding the bicycle, check that the pad thicknesses are 0.9 mm or more.
- If noise occurs when the brakes are operated, it may indicate that the brake pads have worn down to their usage limit. After checking that the brake system has cooled down sufficiently, check the brake pad thicknesses.
  Replace the brake pads if the pad wear indicators are visible.



- Check that the quick release lever is on the right side (the opposite side to the rotor). If the quick release lever is on the same side as the rotor, there is the danger that it may interfere with the rotor, so check that it does not interfere.
- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- The M515 disc brakes are designed for optimum performance when used in combination with the BR-M515 (calipers), BL-M510/ST-M510 (brake lever), SM-RT60 (rotor) and Shimano pad unit. The brake lever used should be a two-finger lever for V-brakes, such as the BL-M510/ST-M510. If using in combination with 4-finger levers such as the BL-T400/ST-T400, the braking force will be higher. Accordingly, under some conditions such as certain riding positions or overall weight, the bicycle may fall over and injury may result if proper care is not taken.
- Be sure to use in combination with the power modulator (SM-PM40), otherwise the stroke will be too short, and this will result in a lower braking force.
- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-8B60B

Disc Brake System
(For Cross-Country)

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Caliper	BR-M515
Brake Lever	BL-M510/ST-M510
Rotor	SM-RT60
Brake cable	

⚠ CAUTION

- Disc brakes have a burn-in period, and the braking force will gradually increase as the burn-in period progresses. Make sure that you are aware of any such increases in braking force when using the brakes during the burn-in period. The same thing will happen when the brake pads or rotor are replaced.

Note

- For maximum performance we highly recommend Shimano lubricants and maintenance products.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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Installation

■ Wheel spoke lacing

Check that the spokes have been laced as shown in the illustration.
A radial assembly cannot be used.

Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the roter is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.

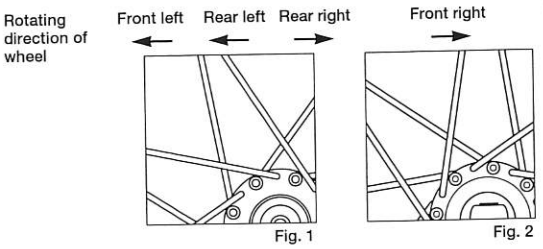
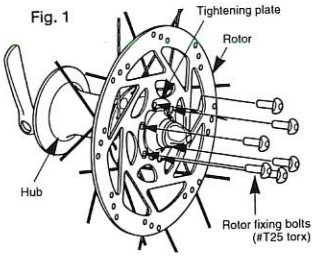


Fig. 1 Fig. 2

■ Installation of the rotor (SM-RT60)

Install the rotor and the rotor tightening plate to the hub, and then install and tighten the bolts as shown in Fig. 1.

Fig. 1



While wearing gloves, apply a force to the rotor to turn it in a clockwise direction as shown in Fig. 2. While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

Tightening torque: 2 - 4 Nm {18 - 35 in. lbs.}

Use a flat-tipped screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts as shown in Fig. 3.

Fig. 2

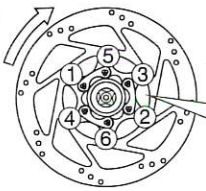
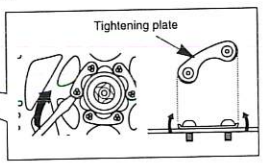


Fig. 3

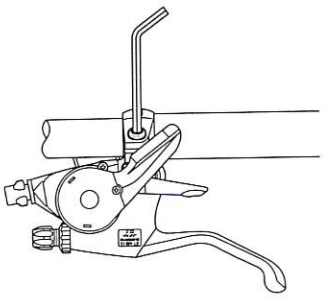


■ Installation of the brake lever

Use a 5 mm Allen key to install.

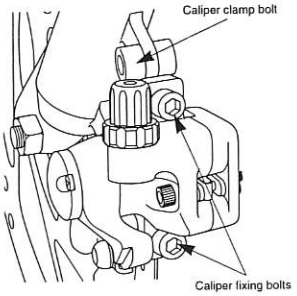
Use a handlebar grip with a maximum outer diameter of 32 mm.

Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}

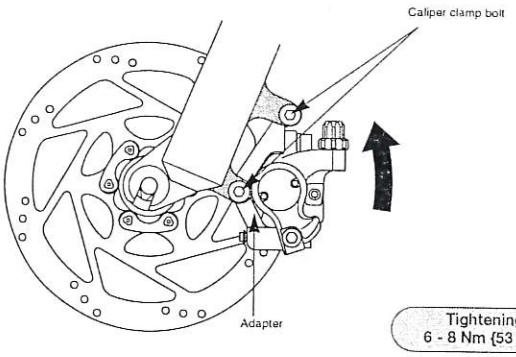


■ Installing the calipers

1. Install the bicycle wheel. Loosen the caliper fixing bolts, and then install the calipers to the frame so that the calipers work at the left and right.



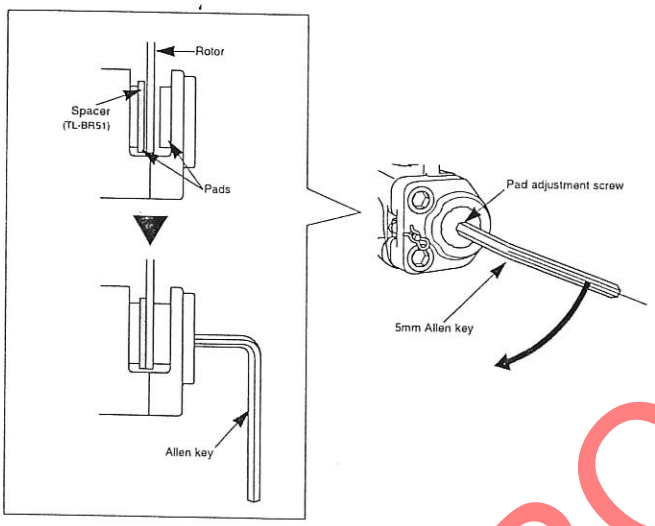
2. While wearing protective gloves, apply pressure to the adapter in the counterclockwise direction while tightening the caliper clamp bolt.



Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

3. Place the spacer (TL-BR51 T=0.2mm) in the position shown in the illustration, and then tighten the pad adjustment screw (turn clockwise) until the rotor touches the spacer.

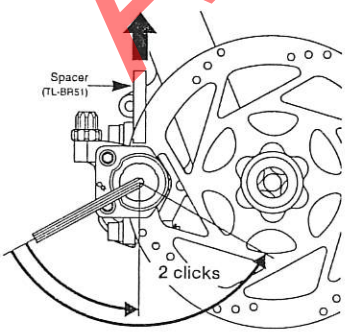
Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}



4. Secure the caliper with the caliper fixing bolt.

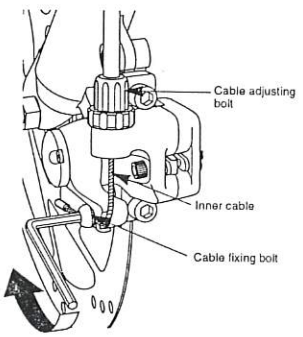
Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

5. Loosen the pad adjustment screw by two clicks, and then remove the spacer.



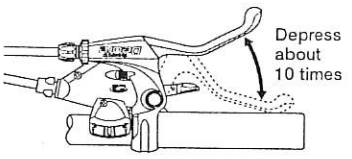
6. Securing the cable

Pass the inner cable through the cable adjusting bolt, and then tighten the cable fixing bolt.

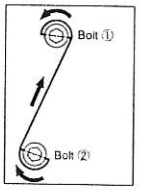


Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

7. Depress the brake lever about 10 times until it touches the grip, and check that there are no problems with any components, and also that the rotors and the pads do not interfere with each other when the wheel is rotated.

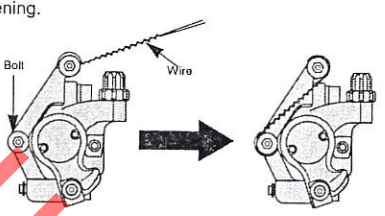


8. Turn the cable adjustment barrel to take up any slack in the cable.



If bolt ① tries to loosen (turn in the counterclockwise direction), force is applied via the wire to turn bolt ② in the tightening direction (clockwise). However, bolt ② cannot turn any further in the tightening direction.
Accordingly, this prevents bolt ① from turning in the loosening direction because it is also connected via the wire.
If either one of the bolts tries to loosen, this causes a force to be applied to the other bolt to turn it in the tightening direction. In other words, this system prevents the bolts from loosening.

Secure the two bolts with a length of wire as shown in the illustration in order to prevent the bolts from coming loose.



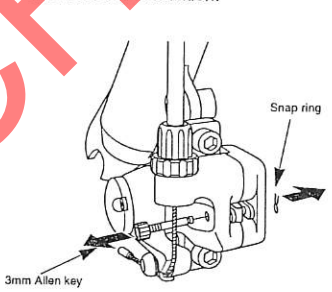
■ Adjusting when the pads are worn

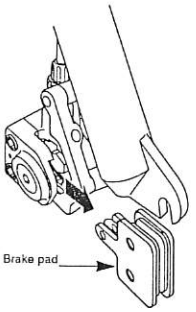
Use the cable adjusting bolts at the brake lever and the caliper body and also the pad adjusting screws to adjust the clearance for pads which are worn. The pads can still be used as long as the thickness of the pad lining is 0.9 mm or more.

Replacing the brake pads

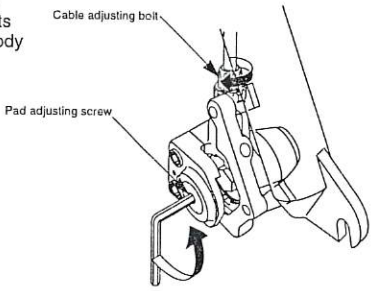
If the brake pads are worn down to a thickness of 0.9 mm, replace the brake pads.

1. Remove the bicycle wheel from the frame, and then remove the brake pads as shown in the illustration.





2. Loosen the pad adjusting screw and turn the cable adjusting bolts at the brake lever and caliper body clockwise to loosen them.



3. Install the new brake pads. Be careful not to forget to install the snap ring at this time. Tighten the pad adjusting screw so that the clearance between the brake pad and the rotor is 0.2--0.4 mm.

Tightening torque:
2 - 4 Nm {18 - 35 in. lbs.}

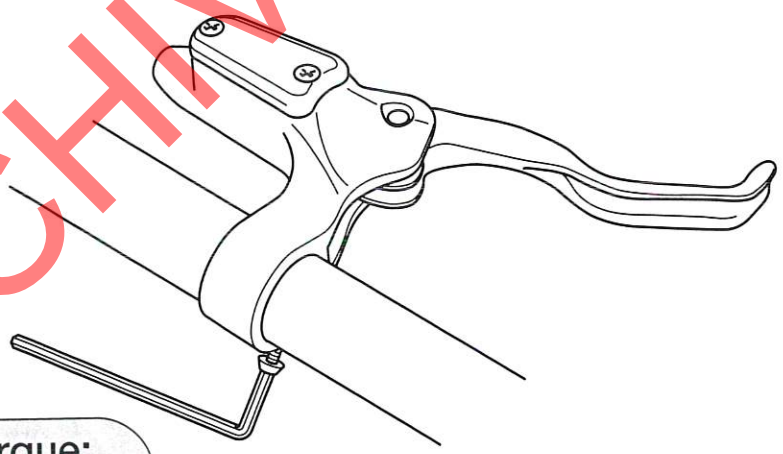
4. After checking that the brake pad and the rotor are not touching each other, check that there are no problems when the brake lever is depressed.

SERVICE INSTRUCTIONS SI-8SZ0A

BL-M555	Brake Lever

Installation of the brake lever (BL-M555)

Secure the brake lever as shown in the illustration. (Check that the shifting lever does not interfere with operation of the brake lever. Refer to the Service Instructions for the shifting lever also. Some types might require the shifting lever to be installed first, due to the position of the shifting lever fixing bolts.)



Brake lever Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

Be sure to read these Service Instructions together with the Service Instructions for the M555 disc brake system.

SHIMANO®

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These service instructions are printed on recycled paper and can be recycled again

⚠ WARNING

- The calipers and rotor will become hot when the brakes are operated, so do not touch them while riding or immediately after dismounting from the bicycle, otherwise you may get burned. Check that the brake components have cooled down sufficiently before attempting to adjust the brakes.
- Use only genuine Shimano mineral oil. If other types of oil are used, it may cause problems with brake operation, and cause the system to be unuseable.
- Be sure to use only oil from a freshly-opened container, and do not re-use oil which has been drained from the bleed nipple. Old oil or already-used oil may contain water which could cause vapor lock in the brake system.
- Be careful not to let water or air bubbles to get into the brake system, otherwise vapor lock may occur. Be particularly careful when removing the cover of the reservoir tank.
- Vapor lock may occur if the brakes are applied continuously. To relieve this condition, momentarily release the lever.

  Vapor lock is a phenomenon in which the oil inside the brake system becomes heated, which causes any water or air bubbles inside the brake system to expand. This can then result in a sudden increase in the brake lever stroke.

- Check that the quick release lever is on the right side (the opposite side to the rotor). If the quick release lever is on the same side as the rotor, there is the danger that it may interfere with the rotor, so check that it does not interfere.
- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- The M555 disc brakes are designed to function best when used in combination with the BR-M555 (calipers), BL-M555 (brake lever), SM-RT60 (rotor), SM-BH60 (brake hose) and the MO1 Shimano pad unit. If used with any other combination of products, The C01 pad unit which is used with the BR-C901 has a lower friction coefficient than the M01 pad unit, and so the braking force will be lower.

M01 pad unit for BR-M555

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider.
  We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-8B50B

Disc Brake System (For Cross-Country)

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Caliper	BR-M555
Brake Lever	BL-M555
Rotor	SM-RT60
Hose	SM-BH60
Brake pad unit	MO1
Mineral Oil	SM-DB-OIL

⚠ CAUTION

■ Handling the mineral oil

- Use safety glasses when handling, and avoid contact with eyes. Contact with eyes may result in irritation.
- Use gloves when handling. Contact with skin may cause a rash and discomfort.
- Inhalation of oil mist or vapors may cause nausea. Cover nose and mouth with a respirator type mask and use in a well ventilated area.
- Do not drink. May cause vomiting or diarrhea.
- Keep out of reach of children.
- Do not cut, heat, weld or pressurize the oil container, as this may cause explosion or fire.

■ Emergency Care

- In the event of eye contact, flush with fresh water and seek medical assistance immediately.
- In the event of skin contact, wash well with soap and water.
- If mist or vapor is inhaled, go immediately to an area with fresh air. Cover up with a blanket. Stay warm and stable and seek professional medical advice.

■ Disposal of Used Oil

- Follow local county and/or state codes for disposal. Use care when preparing oil for disposal.

■ Directions

- Keep the container closed, and store it in a cool, dark area away from direct sunlight or heat.

■ Precaution when turning the bicycle upside down

- The brake system may have some air bubbles inside the reservoir tank which are still there when the reservoir tank cover is replaced, or which accumulate in various parts of the brake system when it is used for long periods. The M555 disc brake system is not designed to be turned upside down, so if the bicycle is turned upside down, the air bubbles inside the reservoir tank may move in the direction of the calipers. If the bicycle is ridden in this condition, there is the danger that the brakes may not operate.
  If the bicycle has been turned upside down, be sure to operate the brake lever a few times to check that the brakes operate normally before riding the bicycle. If the brakes do not operate normally, adjust them by the following procedure.

< If brake operation is sluggish when the lever is depressed >

Set the brake lever so that it is parallel to the ground, and then gently depress the brake lever several times and wait for the bubbles to return to the reservoir tank. It is recommended that you then remove the reservoir tank cover and fill the reservoir tank with brake fluid until no bubbles remain.

If the brakes still operate sluggishly, bleed the air from the brake system. (Refer to "Adding the brake fluid and bleeding air".)

- Disc brakes have a burn-in period, and the braking force will gradually increase as the burn-in period progresses. Make sure that you are aware of any such increases in braking force when using the brakes during the burn-in period. The same thing will happen when the brake pads or rotor are replaced.
- If disassembling the caliper body to clean the internal parts using a compressor, note that moisture from the compressed air may remain on the caliper components. Let the caliper components dry sufficiently before reassembling the calipers.

Note

- When the bicycle wheel has been removed, it is recommended that pad spacers should be installed. The pad spacers will prevent the piston from coming out if the brake lever is depressed while the wheel is removed.
- If the brake lever is depressed without the pad spacers installed, the pistons will protrude further than is normal. Use a flat-tipped screwdriver or similar tool to push back the brake pads, while being careful not to damage the surfaces of the brake pads. (If the brake pads are not installed, push the pistons straight back in, while being careful not to damage them.)
  If it is difficult to push the brake pads or pistons back, remove the reservoir tank cover and then try again. (Note that some oil may overflow from the reservoir tank at this time.)
- Use isopropyl alcohol, soapy water or a dry cloth when carrying out cleaning and maintenance of the brake system. Do not use commercially-available brake cleansers or silencing agents, as they can cause damage to parts such as seals.
- Do not remove the pistons when disassembling the calipers.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Installation

■ Wheel spoke lacing

Check that the spokes have been laced as shown in the illustration.
A radial assembly cannot be used.

Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the roter is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.

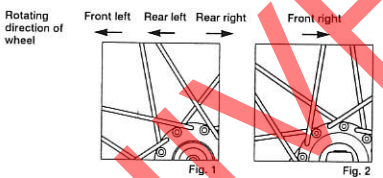


Fig. 1 Fig. 2

■ Installation of the rotor (SM-RT60)

Install the rotor and the rotor tightening plate to the hub, and then install and tighten the bolts as shown in Fig. 1.

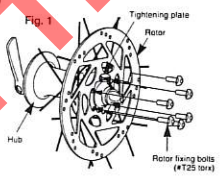


Fig. 1

While wearing gloves, apply a force to the rotor to turn it in a clockwise direction as shown in Fig. 2. While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

Tightening torque: 2 - 4 Nm {18 - 35 in. lbs.}

Use a flat-tipped screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts as shown in Fig. 3.

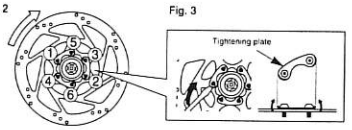
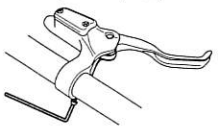


Fig. 2 Fig. 3

■ Installation of the brake lever (BL-M555)

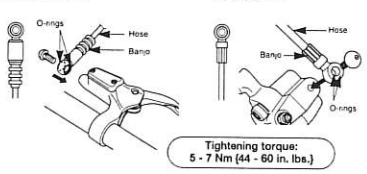
Secure the brake lever as shown in the illustration. (Check that the brake lever does not interfere with the shifting lever during operation. Refer to the Service Instructions for the shifting lever also. Some types might require the shifting lever to be installed first, due to the position of the shifting lever fixing bolts.)

Brake lever Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}



■ Installation of the hose

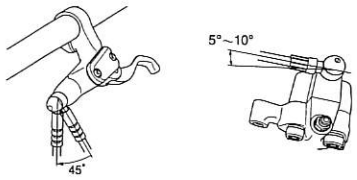
Check that the O-rings are positioned in the grooves at both the top and bottom of the banjo, and then secure the banjo to the brake lever and calipers as shown in the illustration. Make sure that the O-rings do not protrude from the grooves at this time.



Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

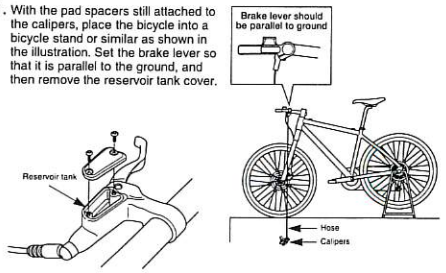
The O-ring has grease applied.

Check that the hose is positioned as shown in the illustration.

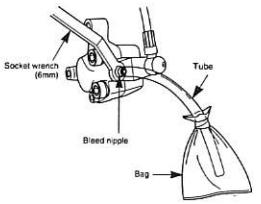


Adding brake fluid and bleeding air

1. With the pad spacers still attached to the calipers, place the bicycle into a bicycle stand or similar as shown in the illustration. Set the brake lever so that it is parallel to the ground, and then remove the reservoir tank cover.

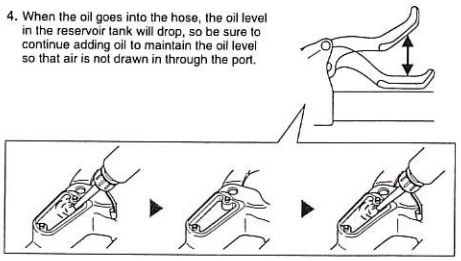


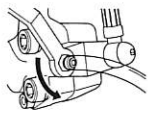
2. Set a 6mm socket wrench in place, attach a bag to the tube, and then place the tube onto the bleed nipple as shown in the illustration.



3. Loosen the bleed nipple by 1/8th of a turn to open it, and then pour oil into the reservoir tank. Gently operate the brake lever while doing this to help prime the system with the oil.

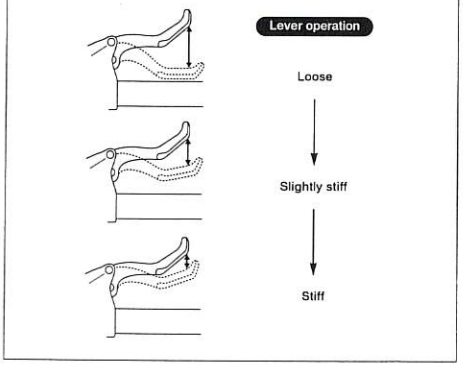
4. When the oil goes into the hose, the oil level in the reservoir tank will drop, so be sure to continue adding oil to maintain the oil level so that air is not drawn in through the port.



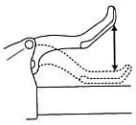


If oil periodically comes out from the bleed nipple, tighten the bleed nipple for a while.

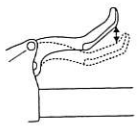
If the brake lever is then operated, air bubbles in the system will rise up through the port into the reservoir tank. Once the bubbles stop appearing, depress the brake lever as far as it will go. The normal condition is for the lever to be stiff at this point.



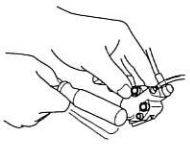
If the lever isn't stiff, adjust by the following procedure.



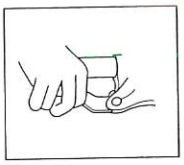
When the lever is depressed once more, bubbles will rise up and be released into the reservoir tank. It can be useful to shake the hose gently or shift the position of the calipers at this time.

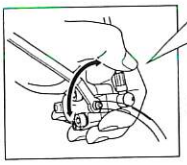


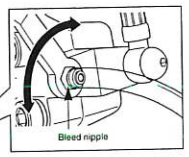
Becomes stiff



5. With the brake lever depressed, open and close the bleed nipple in rapid succession (for approximately 0.5 seconds each time) to release any air bubbles which may be in the calipers. Repeat this procedure about 2 to 3 times. Then tighten the bleed nipple again.



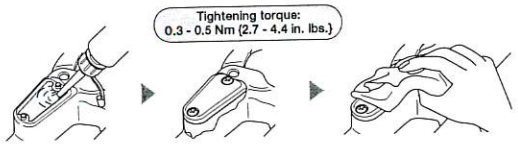




Tightening torque:
4 - 6 Nm {35 - 53 in. lbs.}

6. Fill the reservoir tank with oil and then replace the reservoir tank cover. Fill the reservoir tank to overflowing with oil while replacing the cover to ensure that no air bubbles remain inside the reservoir tank. In addition, be careful not to get any oil on parts such as the rotor and brake pads.

Tightening torque:
0.3 - 0.5 Nm {2.7 - 4.4 in. lbs.}

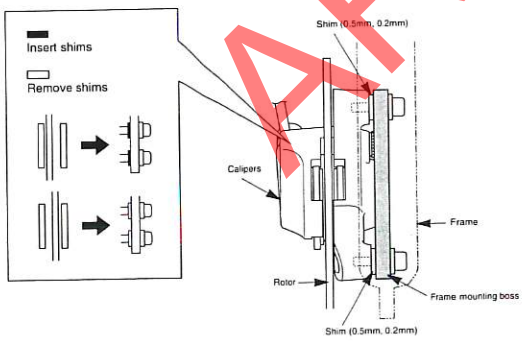


7. Return the brake lever to its original position.

Note:
Do not use brake fluid fillers, as they can cause small bubbles of air to form, and such bubbles can cause severe drops in braking performance.

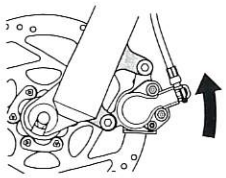
■ Installation of the calipers (BR-M555) and securing the hose

First remove the pad spacers. Then start with two 0.5 mm thick shims, and use the 0.2 mm shims for fine tuning. Tighten the calipers and check that the calipers and the rotor do not interfere with each other.

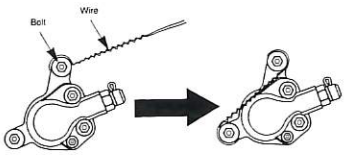


While wearing protective gloves, apply a force to the calipers to turn them in a clockwise direction. While doing this, tighten the fixing bolts.

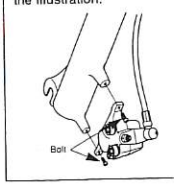
Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

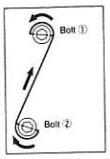


Secure the two bolts with a length of wire as shown in the illustration in order to prevent the bolts from coming loose.



For post type
Install as shown in the illustration.

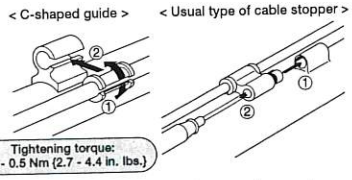




If bolt ① tries to loosen (turn in the counterclockwise direction), force is applied via the wire to turn bolt ② in the tightening direction (clockwise). However, bolt ② cannot turn any further in the tightening direction. Accordingly, this prevents bolt ① from turning in the loosening direction because it is also connected via the wire.
If either one of the bolts tries to loosen, this causes a force to be applied to the other bolt to turn it in the tightening direction. In other words, this system prevents the bolts from loosening.

< C-shaped guide > < Usual type of cable stopper >

For C-shaped guides and the usual type of cable stoppers, use the special Shimano cable supporter (sold separately) to secure as shown in the illustration.



Tightening torque:
0.3 - 0.5 Nm {2.7 - 4.4 in. lbs.}

Operate the brake lever several times and check whether the brakes operate normally or not. Also check that there are no oil leaks visible.

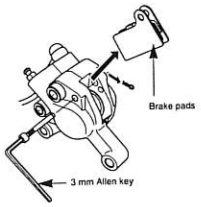
Maintenance

■ Brake pad replacement

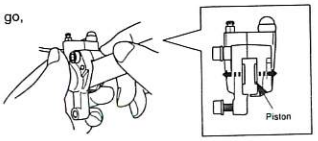
Note:
The M555 brake system is designed so that as the brake pads become worn, the pistons gradually move outward to automatically adjust the clearance between the rotor and the brake pads. Therefore, you need to push the pistons back to their original positions when replacing the brake pads.

If oil adheres to the brake pads after oil is added, or if the brake pads are worn down to a thickness of 0.5 mm, or if the brake pad presser springs are interfering with the rotor, replace the brake pads.

1. Remove the wheel from the frame, and remove the brake pads as shown in the illustration.

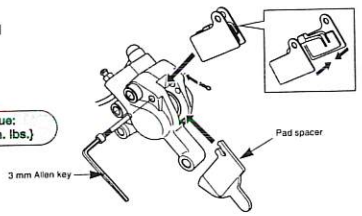


2. Clean the pistons and surrounding area.
3. Set the brake lever so that it is parallel to the ground, and then remove the reservoir tank cover.
4. Push the piston back in as far as it will go, while being careful not to twist it. (Note that some oil may overflow from the reservoir tank at this time.)



5. Install the new brake pads, and then install the pad spacers.

Tightening torque:
2 - 4 Nm {18 - 35 in. lbs.}



6. Depress the brake lever several times to check that the operation becomes stiff.
7. Check that the rotor and the brake pads do not touch each other, and then check the oil level (adding more oil if required). After doing this, replace the reservoir tank cover.

■ Adjustment when the pistons are not operating correctly

The caliper mechanism includes two pistons. If these pistons do not operate properly or if they protrude unevenly, or if the brake pads remain in contact with the rotor, adjust the pistons by the following procedure.

1. Remove the wheel and the brake pads. Clean the pistons and surrounding area, set the brake lever so that it is parallel to the ground, and remove the reservoir tank cover.
2. Push the piston back in straight, without bending it. Note that some oil may overflow from the reservoir tank at this time.
3. Install the brake pads and the pad spacers.
4. Depress the brake lever as far as it will go, and then operate it several more times so that the two pistons all move to their initial positions.
5. Remove the pad spacers, install the wheel, and then check that there is no interference between rotor and the calipers. If they are touching, adjust using shims.
6. After checking the oil level, replace the reservoir tank cover.
7. Return the brake lever to its original position.

■ Brake fluid replacement

It is recommended that you replace the oil inside the reservoir tank if it becomes severely discolored.

Attach a tube with a bag to the bleed nipple, and then open the bleed nipple and drain out the oil. You can operate the brake lever at this time to help the oil to drain out. After draining the fluid, pour in fresh brake fluid while referring to "Adding the brake fluid and bleeding air".
Use only genuine Shimano mineral oil as the brake fluid.
Dispose of the waste oil according to proper country and/or state disposal regulations.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

SHIMANO®

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SHIMANO INC.
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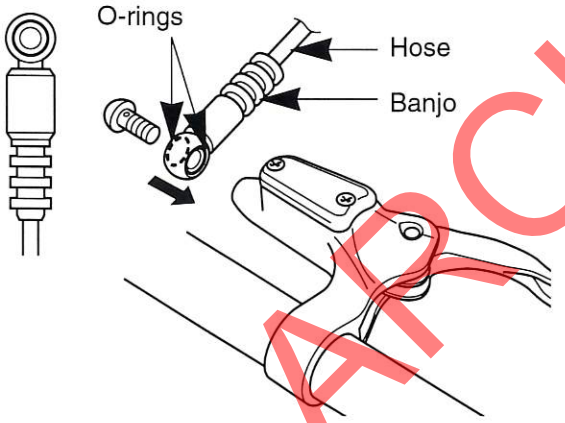
SM-BH60 Hose

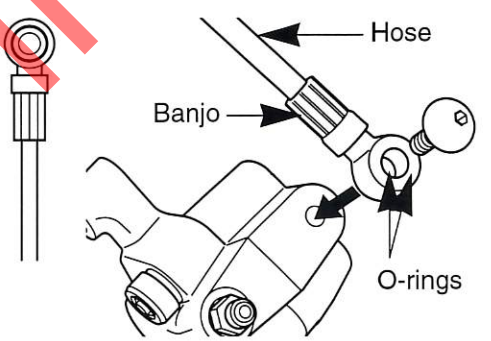
■ Installation of the hose

Check that the O-rings are positioned in the grooves at both the top and bottom of the banjo, and then secure the banjo to the brake lever and calipers as shown in the illustration. Make sure that the O-rings do not protrude from the grooves at this time.

At brake lever end



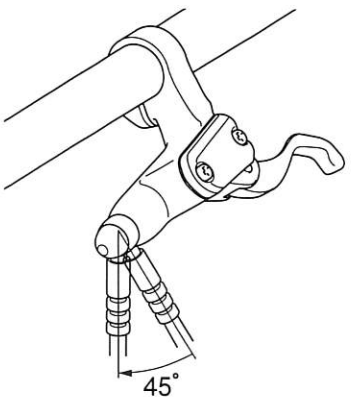
At caliper end

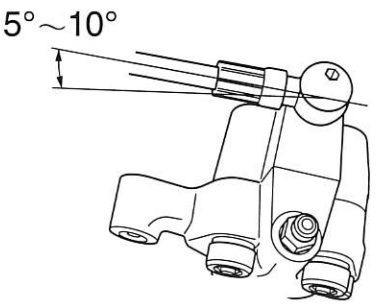


Tightening torque:
5 - 7 Nm {44 - 60 in. lbs.}

The O-ring has grease applied.

Check that the hose is positioned as shown in the illustration.





Be sure to read these Service Instructions together with the Service Instructions for the M555 disc brake system.

⚠ WARNING

- The calipers and rotor will become hot when the brakes are operated, so do not touch them while riding or immediately after dismounting from the bicycle, otherwise you may get burned. Check that the brake components have cooled down sufficiently before attempting to adjust the brakes.
- Use only genuine Shimano mineral oil. If other types of oil are used, it may cause problems with brake operation, and cause the system to be unuseable.
- Be sure to use only oil from a freshly-opened container, and do not re-use oil which has been drained from the bleed nipple. Old oil or already-used oil may contain water which could cause vapor lock in the brake system.
- Be careful not to let water or air bubbles to get into the brake system, otherwise vapor lock may occur. Be particularly careful when removing the cover of the reservoir tank.
- Vapor lock may occur if the brakes are applied continuously. To relieve this condition, momentarily release the lever.

  Vapor lock is a phenomenon in which the oil inside the brake system becomes heated, which causes any water or air bubbles inside the brake system to expand. This can then result in a sudden increase in the brake lever stroke.

- Check that the quick release lever is on the right side (the opposite side to the rotor). If the quick release lever is on the same side as the rotor, there is the danger that it may interfere with the rotor, so check that it does not interfere.
- It is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury. Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and the bicycle's owners manual, and by practicing your riding and braking technique.
- The C901 disc brakes are designed to function best when used in combination with the BR-C901 (calipers), BL-C901 (brake lever), SM-RT60 (rotor), SM-BH60 (brake hose) and the C01 Shimano pad unit. If used with any other combination of products, The M01 pad unit which is used with the BR-M555 has a higher friction coefficient than the C01 pad, and so the braking force will be higher. Accordingly, under some conditions such as certain riding positions or overall weight, the bicycle may fall over and injury may result if proper care is not taken.

- Obtain, read and carefully service instructions when installing parts. A loose, worn, or damaged parts may cause injury to the rider. We strongly recommend that only genuine Shimano replacement parts be used.

SERVICE INSTRUCTIONS SI-8C20B

Disc Brake System (Trekking Bicycle)

Before use, read these instructions carefully, and follow them for correct use.

In order to realize the best performance, we recommend that the following combination be used.

Caliper	BR-C901
Brake Lever	BL-C901
Rotor	SM-RT60
Hose	SM-BH60
Brake pad unit	C01
Mineral Oil	SM-DB-OIL

⚠ CAUTION

■ Handling the mineral oil

- Use safety glasses when handling, and avoid contact with eyes. Contact with eyes may result in irritation.
- Use gloves when handling. Contact with skin may cause a rash and discomfort.
- Inhalation of oil mist or vapors may cause nausea. Cover nose and mouth with a respirator type mask and use in a well ventilated area.
- Do not drink. May cause vomiting or diarrhea.
- Keep out of reach of children.
- Do not cut, heat, weld or pressurize the oil container, as this may cause explosion or fire.

■ Emergency Care

- In the event of eye contact, flush with fresh water and seek medical assistance immediately.
- In the event of skin contact, wash well with soap and water.
- If mist or vapor is inhaled, go immediately to an area with fresh air. Cover up with a blanket. Stay warm and stable and seek professional medical advice.

■ Disposal of Used Oil

- Follow local county and/or state codes for disposal. Use care when preparing oil for disposal.

■ Directions

- Keep the container closed, and store it in a cool, dark area away from direct sunlight or heat.

■ Precaution when turning the bicycle upside down

- The brake system may have some air bubbles inside the reservoir tank which are still there when the reservoir tank cover is replaced, or which accumulate in various parts of the brake system when it is used for long periods. The C901 disc brake system is not designed to be turned upside down, so if the bicycle is turned upside down, the air bubbles inside the reservoir tank may move in the direction of the calipers. If the bicycle is ridden in this condition, there is the danger that the brakes may not operate. If the bicycle has been turned upside down, be sure to operate the brake lever a few times to check that the brakes operate normally before riding the bicycle. If the brakes do not operate normally, adjust them by the following procedure.

< If brake operation is sluggish when the lever is depressed >

Set the brake lever so that it is parallel to the ground, and then gently depress the brake lever several times and wait for the bubbles to return to the reservoir tank. It is recommended that you then remove the reservoir tank cover and fill the reservoir tank with brake fluid until no bubbles remain.

If the brakes still operate sluggishly, bleed the air from the brake system. (Refer to "Adding the brake fluid and bleeding air".)

- Disc brakes have a burn-in period, and the braking force will gradually increase as the burn-in period progresses. Make sure that you are aware of any such increases in braking force when using the brakes during the burn-in period. The same thing will happen when the brake pads or rotor are replaced.
- If disassembling the caliper body to clean the internal parts using a compressor, note that moisture from the compressed air may remain on the caliper components. Let the caliper components dry sufficiently before reassembling the calipers.

Note

- When the bicycle wheel has been removed, it is recommended that pad spacers should be installed. The pad spacers will prevent the piston from coming out if the brake lever is depressed while the wheel is removed.
- If the brake lever is depressed without the pad spacers installed, the pistons will protrude further than is normal. Use a flat-tipped screwdriver or similar tool to push back the brake pads, while being careful not to damage the surfaces of the brake pads. (If the brake pads are not installed, push the pistons straight back in, while being careful not to damage them.) If it is difficult to push the brake pads or pistons back, remove the reservoir tank cover and then try again. (Note that some oil may overflow from the reservoir tank at this time.)
- Use isopropyl alcohol, soapy water or a dry cloth when carrying out cleaning and maintenance of the brake system. Do not uso commercially-available brake cleansers or silencing agents, as they can cause damage to parts such as seals.
- Do not remove the pistons when disassembling the calipers.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.

Installation

■ Wheel spoke lacing

Check that the spokes have been laced as shown in the illustration. A radial assembly cannot be used.

Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the roter is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.

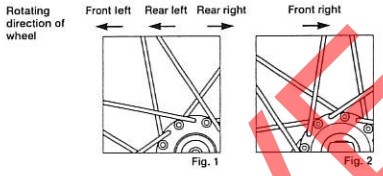


Fig. 1 Fig. 2

■ Installation of the rotor (SM-RT60)

Install the rotor and the rotor tightening plate to the hub, and then install and tighten the bolts as shown in Fig. 1.

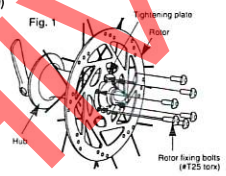


Fig. 1

While wearing gloves, apply a force to the rotor to turn it in a clockwise direction as shown in Fig. 2. While doing this, tighten the rotor fixing bolts in the order shown in the illustration.

Tightening torque: 2 - 4 Nm {18 - 35 in. lbs.}

Use a flat-tipped screwdriver or similar tool to bend the edges of the tightening plate over the heads of the bolts as shown in Fig. 3.

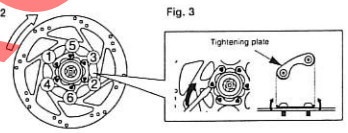
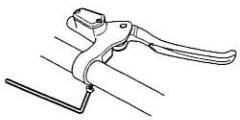


Fig. 2 Fig. 3

■ Installation of the brake lever (BL-C901)

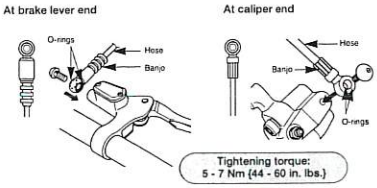
Secure the brake lever as shown in the illustration. (Check that the brake lever does not interfere with the shifting lever during operation. Refer to the Service Instructions for the shifting lever also. Some types might require the shifting lever to be installed first, due to the position of the shifting lever fixing bolts.)

Brake lever Tightening torque: 6 - 8 Nm {53 - 69 in. lbs.}



■ Installation of the hose

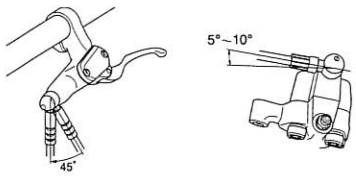
Check that the O-rings are positioned in the grooves at both the top and bottom of the banjo, and then secure the banjo to the brake lever and calipers as shown in the illustration. Make sure that the O-rings do not protrude from the grooves at this time.



Tightening torque: 5 - 7 Nm {44 - 60 in. lbs.}

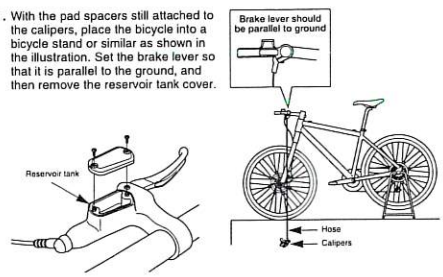
The O-ring has grease applied.

Check that the hose is positioned as shown in the illustration.

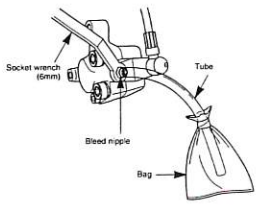


Adding brake fluid and bleeding air

1. With the pad spacers still attached to the calipers, place the bicycle into a bicycle stand or similar as shown in the illustration. Set the brake lever so that it is parallel to the ground, and then remove the reservoir tank cover.

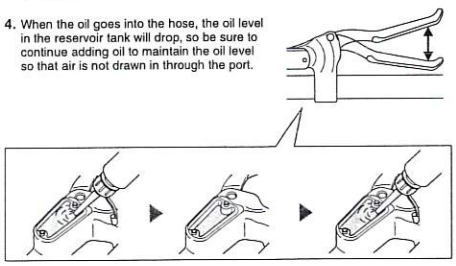


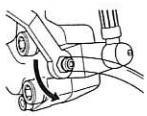
2. Set a 6mm socket wrench in place, attach a bag to the tube, and then place the tube onto the bleed nipple as shown in the illustration.



3. Loosen the bleed nipple by 1/8th of a turn to open it, and then pour oil into the reservoir tank. Gently operate the brake lever while doing this to help prime the system with the oil.

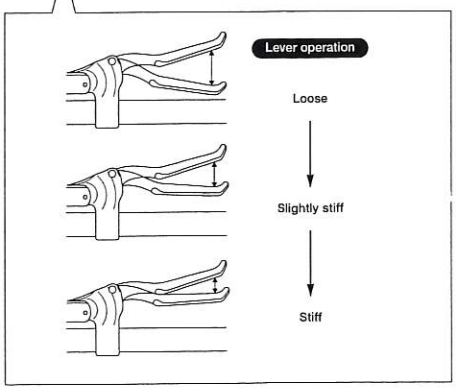
4. When the oil goes into the hose, the oil level in the reservoir tank will drop, so be sure to continue adding oil to maintain the oil level so that air is not drawn in through the port.



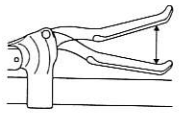


If oil periodically comes out from the bleed nipple, tighten the bleed nipple for a while.

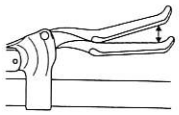
If the brake lever is then operated, air bubbles in the system will rise up through the port into the reservoir tank. Once the bubbles stop appearing, depress the brake lever as far as it will go. The normal condition is for the lever to be stiff at this point.



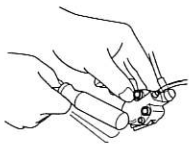
If the lever isn't stiff, adjust by the following procedure.



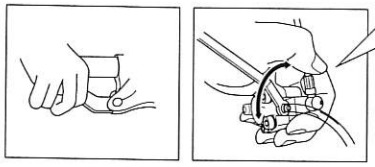
When the lever is depressed once more, bubbles will rise up and be released into the reservoir tank. It can be useful to shake the hose gently or shift the position of the calipers at this time.

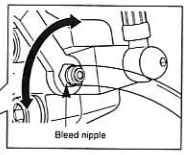


Becomes stiff



5. With the brake lever depressed, open and close the bleed nipple in rapid succession (for approximately 0.5 seconds each time) to release any air bubbles which may be in the calipers. Repeat this procedure about 2 to 3 times. Then tighten the bleed nipple again.

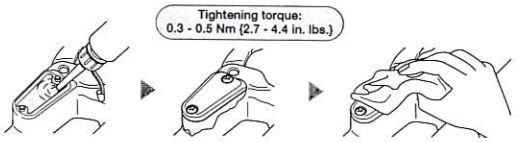




Tightening torque:
4 - 6 Nm {35 - 53 in. lbs.}

6. Fill the reservoir tank with oil and then replace the reservoir tank cover. Fill the reservoir tank to overflowing with oil while replacing the cover to ensure that no air bubbles remain inside the reservoir tank. In addition, be careful not to get any oil on parts such as the rotor and brake pads.

Tightening torque:
0.3 - 0.5 Nm {2.7 - 4.4 in. lbs.}

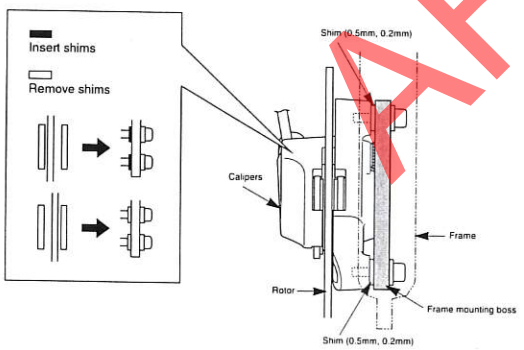


7. Return the brake lever to its original position.

Note:
Do not use brake fluid fillers, as they can cause small bubbles of air to form, and such bubbles can cause severe drops in braking performance.

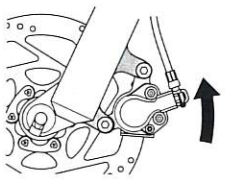
■ Installation of the calipers (BR-C901) and securing the hose

First remove the pad spacers. Then start with two 0.5 mm thick shims, and use the 0.2 mm shims for fine tuning. Tighten the calipers and check that the calipers and the rotor do not interfere with each other.

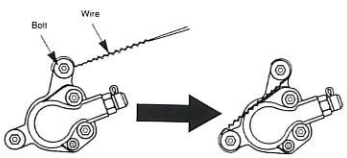


While wearing protective gloves, apply a force to the calipers to turn them in a clockwise direction. While doing this, tighten the fixing bolts.

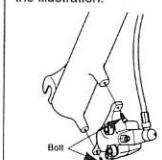
Tightening torque:
6 - 8 Nm {53 - 69 in. lbs.}

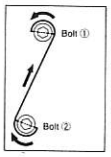


Secure the two bolts with a length of wire as shown in the illustration in order to prevent the bolts from coming loose.



For post type
Install as shown in the illustration.

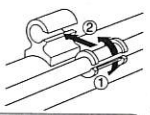




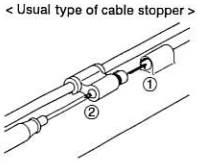
If bolt ① tries to loosen (turn in the counterclockwise direction), force is applied via the wire to turn bolt ② in the tightening direction (clockwise). However, bolt ② cannot turn any further in the tightening direction. Accordingly, this prevents bolt ① from turning in the loosening direction because it is also connected via the wire.
If either one of the bolts tries to loosen, this causes a force to be applied to the other bolt to turn it in the tightening direction. In other words, this system prevents the bolts from loosening.

For C-shaped guides and the usual type of cable stoppers, use the special Shimano cable supporter (sold separately) to secure as shown in the illustration.

< C-shaped guide >



< Usual type of cable stopper >



Tightening torque:
0.3 - 0.5 Nm {2.7 - 4.4 in. lbs.}

Operate the brake lever several times and check whether the brakes operate normally or not. Also check that there are no oil leaks visible.

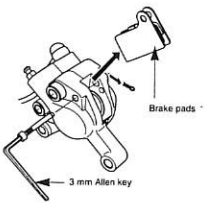
Maintenance

■ Brake pad replacement

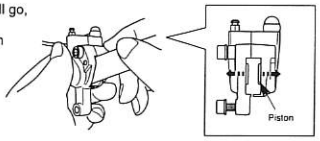
Note:
The C901 brake system is designed so that as the brake pads become worn, the pistons gradually move outward to automatically adjust the clearance between the rotor and the brake pads. Therefore, you need to push the pistons back to their original positions when replacing the brake pads.

If oil adheres to the brake pads after oil is added, or if the brake pads are worn down to a thickness of 0.5 mm, or if the brake pad presser springs are interfering with the rotor, replace the brake pads.

1. Remove the wheel from the frame, and remove the brake pads as shown in the illustration.

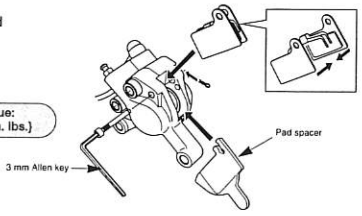


2. Clean the pistons and surrounding area.
3. Set the brake lever so that it is parallel to the ground, and then remove the reservoir tank cover.
4. Push the piston back in as far as it will go, while being careful not to twist it. (Note that some oil may overflow from the reservoir tank at this time.)



5. Install the new brake pads, and then install the pad spacers.

Tightening torque:
2 - 4 Nm {18 - 35 in. lbs.}



6. Depress the brake lever several times to check that the operation becomes stiff.
7. Check that the rotor and the brake pads do not touch each other, and then check the oil level (adding more oil if required). After doing this, replace the reservoir tank cover.

■ Adjustment when the pistons are not operating correctly

The caliper mechanism includes two pistons. If these pistons do not operate properly or if they protrude unevenly, or if the brake pads remain in contact with the rotor, adjust the pistons by the following procedure.

1. Remove the wheel and the brake pads. Clean the pistons and surrounding area, set the brake lever so that it is parallel to the ground, and remove the reservoir tank cover.
2. Push the piston back in straight, without bending it. Note that some oil may overflow from the reservoir tank at this time.
3. Install the brake pads and the pad spacers.
4. Depress the brake lever as far as it will go, and then operate it several more times so that the two pistons all move to their initial positions.
5. Remove the pad spacers, install the wheel, and then check that there is no interference between rotor and the calipers. If they are touching, adjust using shims.
6. After checking the oil level, replace the reservoir tank cover.
7. Return the brake lever to its original position.

■ Brake fluid replacement

It is recommended that you replace the oil inside the reservoir tank if it becomes severely discolored.

Attach a tube with a bag to the bleed nipple, and then open the bleed nipple and drain out the oil. You can operate the brake lever at this time to help the oil to drain out. After draining the fluid, pour in fresh brake fluid while referring to "Adding the brake fluid and bleeding air". Use only genuine Shimano mineral oil as the brake fluid.
Dispose of the waste oil according to proper country and/or state disposal regulations.

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle.
For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

SHIMANO®

SHIMANO AMERICAN CORPORATION
One Holland Irvine CA 92618 U.S.A. Phone 949-951-5003

SHIMANO EUROPA
Industrieweg 24 NL-8071 CT Nunspeet Holland Phone 31-341-272222

SHIMANO INC.
77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 0722-23-3243

These service instructions are printed on recycled paper and can be recycled again

SHIMANO DIRECT™ 2001 Dealer Pedal Order Form

Ship to Information
Cust Number:
Cust Name:
Cust Address:

Phone:
Purchaser:

Bill to Information
Cust Number:
Cust Name:

P.O. #
Purchaser:

Shipping Information
Order Date:
Ship Date:
UPS: 1 Day 3 Day
2 Day Ground

Pedals

Description	Item #	Price	SRP	Order Qty	Ext
IMPROVED FOR 2001 "MUD FREE" DESIGN	IPDM858	$90.00	$160.00		
LIGHTWEIGHT W/POP UP DESIGN	IPDM646	$63.00	$115.00		
POP UP DESIGN W/ALLOY CAGE	IPDM545	$55.00	$100.00		
DUAL SIDED CLIPLESS	IPDM536	$40.00	$80.00		
DUAL SIDED CLIPLESS	TPDM515	$25.00	$55.00		
POP UP DESIGN W/RESIN CAGE	TPDM424	$30.00	$60.00		
CLIPLESS W/STANDARD CAGE	IPDM324	$35.00	$70.00		

PLATFORM STYLE	Item #	Price	SRP	Order Qty	Ext
"DX" STANDARD STYLE	IPDMX30	$60.00	$110.00		

SPD-R	Item #	Price	SRP	Order Qty	Ext
DURA ACE CLIPLESS	IPD7700	$128.00	$215.00		
ULTEGRA CLIPLESS	IPD6600	$84.00	$150.00		
105 CLIPLESS DESIGN	IPD5500	$59.00	$110.00		
NEW CLIPLESS DESIGN	IPDR535	$42.00	$85.00		
DUAL SIDED ROAD PEDAL	IPDA515	$30.00	$60.00		

Cleats SPD/SPD-R	Item #	Price	SRP	Order Qty	Ext
SPD CLEAT SM-SH51 (Not PD-M858 compatable)	Y42498200	$9.00	$15.00		
SPD CLEAT SM-SH55 (Not PD-M858 compatable)	Y42498300	$9.00	$15.00		
SPD CLEAT SM-SH52	Y41M98020	$9.00	$18.00		
SPD-R CLEAT SM-SH90 (FIXED)	Y43Y98010	$15.00	$25.00		
SPD-R CLEAT SM-SH91 (3 DEGREE)	Y43Y98020	$15.00	$25.00		
SPD-R CLEAT SM-SH92 (5 DEGREE)	Y43Y98030	$15.00	$25.00		
SMN DESIGNED "LOOK" CLEAT	Y40B98110	$7.75	$14.00		
MTB SPIKES (SH-M320/SH-M220)	PM210SPIKE	$5.00	$10.00		
SPD ROAD SM-SH70	Y42698040	$12.50	$25.00		
SPD ROAD SM-SH71	Y42698050	$12.50	$25.00		
SPD Look Adapter	Y42698070	$11.75	$20.00		

SHIMANO AMERICAN CORPORATION
FAX: 1-800-206-0010
PLEASE NOTE: PRICING SUBJECT TO CHANGE

Freight is not included

TOTAL _____

Aug-00

SHIMANO DIRECT™ 2001 Dealer Pedal Order Form

Ship to Information
Cust Number:
Cust Name:
Cust Address:
Phone:
Purchaser:

Bill to Information
Cust Number:
Cust Name:
P.O. #
Purchaser:

Shipping Information
Order Date:
Ship Date:
UPS: 1 Day 3 Day 2 Day Ground

Pedals

Description	Item #	Price	SRP	Order Qty	Ext
IMPROVED FOR 2001 "MUD FREE" DESIGN	IPDM858	$90.00	$160.00		
LIGHTWEIGHT W/POP UP DESIGN	IPDM646	$63.00	$115.00		
POP UP DESIGN W/ALLOY CAGE	IPDM545	$55.00	$100.00		
DUAL SIDED CLIPLESS	IPDM536	$40.00	$80.00		
DUAL SIDED CLIPLESS	TPDM515	$25.00	$55.00		
POP UP DESIGN W/RESIN CAGE	TPDM424	$30.00	$60.00		
CLIPLESS W/STANDARD CAGE	IPDM324	$35.00	$70.00		

PLATFORM STYLE	Item #	Price	SRP	Order Qty	Ext
"DX" STANDARD STYLE	IPDMX30	$60.00	$110.00		

SPD-R	Item #	Price	SRP	Order Qty	Ext
DURA ACE CLIPLESS	IPD7700	$128.00	$215.00		
ULTEGRA CLIPLESS	IPD6600	$84.00	$150.00		
105 CLIPLESS DESIGN	IPD5500	$59.00	$110.00		
NEW CLIPLESS DESIGN	IPDR535	$42.00	$85.00		
DUAL SIDED ROAD PEDAL	IPDA515	$30.00	$60.00		

Cleats SPD/SPD-R	Item #	Price	SRP	Order Qty	Ext
SPD CLEAT SM-SH51 (Not PD-M858 compatable)	Y42498200	$9.00	$15.00		
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SPD CLEAT SM-SH52	Y41M98020	$9.00	$18.00		
SPD-R CLEAT SM-SH90 (FIXED)	Y43Y98010	$15.00	$25.00		
SPD-R CLEAT SM-SH91 (3 DEGREE)	Y43Y98020	$15.00	$25.00		
SPD-R CLEAT SM-SH92 (5 DEGREE)	Y43Y98030	$15.00	$25.00		
SMN DESIGNED "LOOK" CLEAT	Y40B98110	$7.75	$14.00		
MTB SPIKES (SH-M320/SH-M220)	PM210SPIKE	$5.00	$10.00		
SPD ROAD SM-SH70	Y42698040	$12.50	$25.00		
SPD ROAD SM-SH71	Y42698050	$12.50	$25.00		
SPD Look Adapter	Y42698070	$11.75	$20.00		

SHIMANO AMERICAN CORPORATION
FAX: 1-800-206-0010
PLEASE NOTE: PRICING SUBJECT TO CHANGE

Freight is not included

Aug-00

TOTAL _____

SHIMANO® DIRECT™ 2001 Dealer Pedal Order Form

Ship to Information
Cust Number:
Cust Name:
Cust Address:
Phone:
Purchaser:

Bill to Information
Cust Number:
Cust Name:
P.O. #
Purchaser:

Shipping Information
Order Date:
Ship Date:
UPS: 1 Day 3 Day
2 Day Ground

Pedals

Description	Item #	Price	SRP	Order Qty	Ext
IMPROVED FOR 2001 "MUD FREE" DESIGN	IPDM858	$90.00	$160.00		
LIGHTWEIGHT W/POP UP DESIGN	IPDM646	$63.00	$115.00		
POP UP DESIGN W/ALLOY CAGE	IPDM545	$55.00	$100.00		
DUAL SIDED CLIPLESS	IPDM536	$40.00	$80.00		
DUAL SIDED CLIPLESS	TPDM515	$25.00	$55.00		
POP UP DESIGN W/RESIN CAGE	TPDM424	$30.00	$60.00		
CLIPLESS W/STANDARD CAGE	IPDM324	$35.00	$70.00		

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SPD-R	Item #	Price	SRP	Order Qty	Ext
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ULTEGRA CLIPLESS	IPD6600	$84.00	$150.00		
105 CLIPLESS DESIGN	IPD5500	$59.00	$110.00		
NEW CLIPLESS DESIGN	IPDR535	$42.00	$85.00		
DUAL SIDED ROAD PEDAL	IPDA515	$30.00	$60.00		

Cleats SPD/SPD-R	Item #	Price	SRP	Order Qty	Ext
SPD CLEAT SM-SH51 (Not PD-M858 compatable)	Y42498200	$9.00	$15.00		
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SPD ROAD SM-SH71	Y42698050	$12.50	$25.00		
SPD Look Adapter	Y42698070	$11.75	$20.00		

SHIMANO AMERICAN CORPORATION
FAX: 1-800-206-0010

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Freight is not included

TOTAL _____

Aug-00

SHIMANO® DIRECT™

2001 Dealer Maintenance Order Form

Ship to Information

Cust Number:

Cust Name:

Cust Address:

City, State, Zip:

P.O. #:

Purchaser:

Shipping Information

Order Date:

Ship Date:

UPS: 1 Day 3 Day
2 Day Ground

Maintenance Products

Description - Individual		Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"		22 oz.	DASPINBB	$10.50	$21.00		
GREASE "*SPIN DOCTOR*"		4 oz.	DASPINB	$3.75	$7.50		
GREASE "*SPIN DOCTOR*"		2 oz.	DASPINS	$2.50	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"		10.5 oz.	SWEAT	$4.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"		4 oz.	SLIPPSPIT	$2.75	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 12	SPITTREF	$18.00	$3.00		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 24	SPITTPOP	$36.00	$3.00		
HANDCLEANER "*GRITT SPITT*"		1 gal.	GRITTB	$19.50	$39.00		
HANDCLEANER "*GRITT SPITT*"		8 oz.	GRITTS	$3.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"		7 oz.	CREAM	$2.50	$5.00		
DEGREASER "*SLUDGE OFF*"		11 oz.	SLUDGE	$3.50	$7.00		
PENETRATING OIL "*GET-A-GRIP*"		16 oz.	GETAGRIP	$4.00	$8.00		
BIKE POLISH "*SHINE*"		15 oz.	SHINE	$3.00	$6.00		
ANTI SEIZE "LOK-NOT"		16 oz.	LOKNOT	$6.00	$12.00		
WORKSHOP MAINTENANCE KIT w/ DISPLAY			WORKSHOPKIT2	$180.00			

INCLUDES: -12 No Sweat Slide Dry Lube -12 Hypospitt Lube -12 Sludge Off Degreaser
-8 Spin Doctor Grease -6 Shine Bike Polish -15 Slippery Spitt Wet Lube

CASE QUANTITIES	Case Qty	Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"	12	22 oz.	DASPINBBCS	$126.00	$21.00		
GREASE "*SPIN DOCTOR*"	24	4 oz.	DASPINBCS	$90.00	$7.50		
GREASE "*SPIN DOCTOR*"	30	2 oz.	DASPINSCS	$75.00	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"	12	10.5 oz.	SWEATCS	$48.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"	16	4 oz.	SLIPPSPITCS	$44.00	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"	12	.25 oz. X 12	SPITTREF	$18.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	4	1 gal.	GRITTBCS	$78.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	15	8 oz.	GRITTSCS	$40.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"	12	7 oz.	CREAMCS	$36.00	$5.00		
DEGREASER "*SLUDGE OFF*"	12	11 oz.	SLUDGECS	$42.00	$7.00		
PENETRATING OIL "*GET-A-GRIP*"	12	16 oz.	GETAGRIPCS	$48.00	$8.00		
BIKE POLISH "*SHINE*"	12	15 oz.	SHINECS	$36.00	$6.00		
ANTI SEIZE "*LOK-NOT*"	12	16 oz.	LOKNOTCS	$72.00	$6.00		

Shimano American Corporation, One Holland Drive, Irvine, CA 92718

Please note: Pricing Subject to change

Fax # 1-800-206-0010

Freight Not Included

Order Total

SHIMANO® DIRECT™

2001 Dealer Maintenance Order Form

Ship to Information

Cust Number:

Cust Name:

Cust Address:

City, State, Zip:

P.O. #:

Purchaser:

Shipping Information

Order Date:

Ship Date:

UPS: 1 Day 3 Day
2 Day Ground

Maintenance Products

Description - Individual		Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"		22 oz.	DASPINBB	$10.50	$21.00		
GREASE "*SPIN DOCTOR*"		4 oz.	DASPINB	$3.75	$7.50		
GREASE "*SPIN DOCTOR*"		2 oz.	DASPINS	$2.50	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"		10.5 oz.	SWEAT	$4.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"		4 oz.	SLIPPSPIT	$2.75	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 12	SPITTREF	$18.00	$3.00		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"		.25 oz. X 24	SPITTPOP	$38.00	$3.00		
HANDCLEANER "*GRITT SPITT*"		1 gal.	GRITTB	$19.50	$39.00		
HANDCLEANER "*GRITT SPITT*"		8 oz.	GRITTS	$3.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"		7 oz.	CREAM	$2.50	$5.00		
DEGREASER "*SLUDGE OFF*"		11 oz.	SLUDGE	$3.50	$7.00		
PENETRATING OIL "*GET-A-GRIP*"		16 oz.	GETAGRIP	$4.00	$8.00		
BIKE POLISH "*SHINE*"		15 oz.	SHINE	$3.00	$6.00		
ANTI SEIZE "LOK-NOT"		16 oz.	LOKNOT	$6.00	$12.00		

WORKSHOP MAINTENANCE KIT w/ DISPLAY			WORKSHOPKIT2	$180.00			
INCLUDES: -12 No Sweat Slide Dry Lube	-12 Hypospitt Lube	-12 Sludge Off Degreaser					
-8 Spin Doctor Grease	-6 Shine Bike Polish	-15 Slippery Spitt Wet Lube					

CASE QUANTITIES

	Case Qty	Size	Item #	Price	SRP	Order Qty	Ext
GREASE "*SPIN DOCTOR*"	12	22 oz.	DASPINBBCS	$126.00	$21.00		
GREASE "*SPIN DOCTOR*"	24	4 oz.	DASPINBCS	$90.00	$7.50		
GREASE "*SPIN DOCTOR*"	30	2 oz.	DASPINSCS	$75.00	$5.00		
DRY CHAIN LUBE "*NO SWEAT SLIDE*"	12	10.5 oz.	SWEATCS	$48.00	$8.00		
WET LUBE "*SLIPPERY SPITT*"	16	4 oz.	SLIPPSPITCS	$44.00	$5.50		
WET LUBE IN SQUEEZE TUBE "*HYPOSPITT*"	12	.25 oz. X 12	SPITTREF	$18.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	4	1 gal.	GRITTBCS	$78.00	$3.00		
HANDCLEANER "*GRITT SPITT*"	15	8 oz.	GRITTSCS	$40.00	$6.00		
WATERLESS HANDCLEANER "*CREAM CHEEZ*"	12	7 oz.	CREAMCS	$36.00	$5.00		
DEGREASER "*SLUDGE OFF*"	12	11 oz.	SLUDGECS	$42.00	$7.00		
PENETRATING OIL "*GET-A-GRIP*"	12	16 oz.	GETAGRIPCS	$48.00	$8.00		
BIKE POLISH "*SHINE*"	12	15 oz.	SHINECS	$36.00	$6.00		
ANTI SEIZE "*LOK-NOT*"	12	16 oz.	LOKNOTCS	$72.00	$6.00		

Shimano American Corporation, One Holland Drive, Irvine, CA 92718

Please note: Pricing Subject to change

Fax # 1-800-206-0010

Freight Not Included

Order Total

SHIMANO DIRECT™ 2001 Clothing Dealer Order Form

Ship to Information

Cust Number: _____

Cust Name: _____

Address: _____

City, State, Zip: _____

Phone/Fax: _____

Bill to Information

Cust Number: _____

Cust Name: _____

P.O.#: _____

Purchaser: _____

Shipping Information

Order Date: _____

Ship Date: _____

UPS: 1 Day 2 Day 3 DAY GROUND

CLOTHING	MD	LG	XL	XXL	EA	EXT
XTR JERSEY					25.00	
XTR T SHIRT					$12.00	
SHIMANO T - BLACK					$10.00	
XTR BAGGY SHORTS					$30.00	
ROAD SHORT 8 PANNEL					$30.00	
MECHANIC SHIRT					$25.00	
SHOP APRON	"ONE SIZE FITS ALL"				$19.00	

SOCKS	MD	LG	XL	EA	EXT
XTR BLACK				$5.00	
XTR SILVER				$5.00	
SHIMANO WHITE				$5.00	
SHIMANO BLACK				$5.00	
SPD BLACK				$5.00	
SPD-R WHITE				$5.00	
DURA ACE SILVER				$5.00	

HATS/ACCESSORIES	SM/MD	LG/XL	ONE SIZE	EA	EXT
XTR "FIT" CAP "BLACK"				$10.00	
XTR "MOTO" HAT	"ONE SIZE FITS ALL"			$10.00	
XTR BEANIE "GREY"	"ONE SIZE FITS ALL"			$7.00	
XTR "BUCKET" HAT "GREY"	"ONE SIZE FITS ALL"			$10.00	
DURA ACE CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
SHIMANO CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
12 PK SHIMANO WATERBOTTLES	28 OZ. W/SCREW TOP			$33.00	
XTR R. DER KEY CHAIN	"ONE SIZE FITS ALL"			$5.50	

Shimano American Corporation, One Holland, Irvine, CA 92718
Please note: pricing subject to change

Phone: 800-423-2420 Fax: 800-206-0010

Aug-00

ORDER TOTAL _____

FREIGHT NOT INCLUDED

SHIMANO DIRECT™ 2001 Clothing Dealer Order Form

Ship to Information

Cust Number: _____

Cust Name: _____

Address: _____

City, State, Zip: _____

Phone/Fax: _____

Bill to Information

Cust Number: _____

Cust Name: _____

P.O.#: _____

Purchaser: _____

Shipping Information

Order Date: _____

Ship Date: _____

UPS: 1 Day 2 Day 3 DAY GROUND

CLOTHING	MD	LG	XL	XXL	EA	EXT
XTR JERSEY					25.00	
XTR T SHIRT					$12.00	
SHIMANO T - BLACK					$10.00	
XTR BAGGY SHORTS					$30.00	
ROAD SHORT 8 PANNEL					$30.00	
MECHANIC SHIRT					$25.00	
SHOP APRON	"ONE SIZE FITS ALL"				$19.00	

SOCKS	MD	LG	XL	EA	EXT
XTR BLACK				$5.00	
XTR SILVER				$5.00	
SHIMANO WHITE				$5.00	
SHIMANO BLACK				$5.00	
SPD BLACK				$5.00	
SPD-R WHITE				$5.00	
DURA ACE SILVER				$5.00	

HATS/ACCESSORIES	SM/MD	LG/XL	ONE SIZE	EA	EXT
XTR "FIT" CAP "BLACK"				$10.00	
XTR "MOTO" HAT	"ONE SIZE FITS ALL"			$10.00	
XTR BEANIE "GREY"	"ONE SIZE FITS ALL"			$7.00	
XTR "BUCKET" HAT "GREY"	"ONE SIZE FITS ALL"			$10.00	
DURA ACE CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
SHIMANO CAP "BLUE"	"ONE SIZE FITS ALL"			$10.00	
12 PK SHIMANO WATERBOTTLES	28 OZ. W/SCREW TOP			$33.00	
XTR R. DER KEY CHAIN	"ONE SIZE FITS ALL"			$5.50	

Shimano American Corporation, One Holland, Irvine, CA 92718
Please note: pricing subject to change

Phone: 800-423-2420 Fax: 800-206-0010

Aug-00

ORDER TOTAL _____

FREIGHT NOT INCLUDED

SHIMANO DIRECT™ 2001 DEALER WHEEL ORDER FORM

Ship to Information

CUSTOMER NAME
CUSTOMER NUMBER
CUST ADDRESS
CITY, STATE, ZIP:
P.O. #:
Purchaser:

Shipping Information

Order Date
Ship Date
UPS: 1 DAY 2 DAY 3 DAY GROUND
CREDIT CARD (VISA OR MASTER CARD)
CC# EXP DT
CARD HOLDER'S NAME

ROAD WHEELS PAIRS (700C) & (650C)	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 DURA ACE EQUIPPED/CARBON TUBULAR W/CRBN BRK PADS	IWH7700CFRT	$800.00	$1,299.00		
WH-7700 DURA ACE EQUIPPED/CLINCHER	IWH7700FRC	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/TUBULAR	IWH7700FRT	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/650C CLINCHER	IWH7700650CFRC	$450.00	$750.00		
WH-6500 ULTEGRA EQUIPPED/CLINCHER	IWH6500FRC	$350.00	$575.00		
WH-R535 /CLINCHER	IWHR535FRC	$179.00	$299.00		

INDIVIDUAL ROAD WHEELS	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 (700C) CLINCHER FRONT	IWH7700FA	$200.00	$350.00		
WH-7700 (700C) CLINCHER REAR	IWH7700RA	$250.00	$400.00		
WH-7700 (770C) TUBULAR FRONT	IWH7700FTA	$200.00	$350.00		
WH-7700 (770C) TUBULAR REAR	IWH7700RTA	$250.00	$400.00		
WH-6500 (700C) CLINCHER FRONT	IWH6500FA	$150.00	$225.00		
WH-6500 (700C) CLINCHER REAR	IWH6500RA	$200.00	$275.00		
WH-R535 (700C) CLINCHER FRONT	IWHR535FA	$75.00	$125.00		
WH-R535 (700C) CLINCHER REAR	IWHR535RA	$105.00	$175.00		

MOUNTAIN BIKE WHEELS *PAIRS* DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - DISC ONLY	IWHM959FRC	$450.00	$750.00		
WH-M575 - DISC/RIM BRAKE	IWHM575FRC	$270.00	$450.00		
WH-M535 - RIM BRAKE ONLY	IWHM535FRC	$179.00	$299.00		

INDIVIDUAL MOUNTAIN BIKE WHEELS DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - *FRONT* WHEEL DISC ONLY	IWHM959FDBB	$205.00	$345.00		
WH-M959 - *REAR* WHEEL DISC ONLY	IWHM959RDBB	$245.00	$405.00		
WH-M575 - *FRONT* DISC/RIM BRAKE	IWHM575FDBX	$120.00	$200.00		
WH-M575 - *REAR* DISC/RIM BRAKE	IWHM575RDBX	$150.00	$250.00		
WH-M535 - *FRONT* RIM BRAKE ONLY	IWHM535FBX	$75.00	$125.00		
WH-M535 - *REAR* RIM BRAKE ONLY	IWHM535RBX	$105.00	$175.00		

TOOLS/ACCESSORIES	ITEM #	PRICE	SRP	QTY	EXT
TL-WH77 MECHANIC'S NIPPLE WRENCH	Y4A014000	$9.69	$20.00		
ALLOY CONSUMER NIPPLE WRENCH	Y4A008000	$2.91	$6.00		
VALVE EXTENSION AND O-RING	Y4A098040	$4.45	$9.00		
MAGNET SENSOR	Y4A098030	$5.82	$11.00		
SPOKE SPACERS (10 PIECES)	Y4A098070	$0.78	$1.50		

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92718
PLEASE NOTE: PRICING SUBJECT TO CHANGE
FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL _____

SHIMANO DIRECT™ 2001 DEALER WHEEL ORDER FORM

Ship to Information

CUSTOMER NAME
CUSTOMER NUMBER
CUST ADDRESS
CITY, STATE, ZIP:
P.O. #:
Purchaser:

Shipping Information

Order Date
Ship Date
UPS: 1 DAY 2 DAY 3 DAY GROUND
CREDIT CARD (VISA OR MASTER CARD)
CC# EXP DT
CARD HOLDER'S NAME

ROAD WHEELS PAIRS (700C) & (650C)

	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 DURA ACE EQUIPPED/CARBON TUBULAR W/CRBN BRK PADS	IWH7700CFRT	$800.00	$1,299.00		
WH-7700 DURA ACE EQUIPPED/CLINCHER	IWH7700FRC	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/TUBULAR	IWH7700FRT	$450.00	$750.00		
WH-7700 DURA ACE EQUIPPED/650C CLINCHER	IWH7700650CFRC	$450.00	$750.00		
WH-6500 ULTEGRA EQUIPPED/CLINCHER	IWH6500FRC	$350.00	$575.00		
WH-R535 /CLINCHER	IWHR535FRC	$179.00	$299.00		

***INDIVIDUAL* ROAD WHEELS**

	ITEM #	PRICE	SRP	QTY	EXT
WH-7700 (700C) CLINCHER FRONT	IWH7700FA	$200.00	$350.00		
WH-7700 (700C) CLINCHER REAR	IWH7700RA	$250.00	$400.00		
WH-7700 (770C) TUBULAR FRONT	IWH7700FTA	$200.00	$350.00		
WH-7700 (770C) TUBULAR REAR	IWH7700RTA	$250.00	$400.00		
WH-6500 (700C) CLINCHER FRONT	IWH6500FA	$150.00	$225.00		
WH-6500 (700C) CLINCHER REAR	IWH6500RA	$200.00	$275.00		
WH-R535 (700C) CLINCHER FRONT	IWHR535FA	$75.00	$125.00		
WH-R535 (700C) CLINCHER REAR	IWHR535RA	$105.00	$175.00		

MOUNTAIN BIKE WHEELS *PAIRS*

DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - DISC ONLY	IWHM959FRC	$450.00	$750.00		
WH-M575 - DISC/RIM BRAKE	IWHM575FRC	$270.00	$450.00		
WH-M535 - RIM BRAKE ONLY	IWHM535FRC	$179.00	$299.00		

***INDIVIDUAL* MOUNTAIN BIKE WHEELS**

DESCRIPTION	ITEM #	PRICE	SRP	QTY	EXT
WH-M959 - *FRONT* WHEEL DISC ONLY	IWHM959FDBB	$205.00	$345.00		
WH-M959 - *REAR* WHEEL DISC ONLY	IWHM959RDBB	$245.00	$405.00		
WH-M575 - *FRONT* DISC/RIM BRAKE	IWHM575FDBX	$120.00	$200.00		
WH-M575 - *REAR* DISC/RIM BRAKE	IWHM575RDBX	$150.00	$250.00		
WH-M535 - *FRONT* RIM BRAKE ONLY	IWHM535FBX	$75.00	$125.00		
WH-M535 - *REAR* RIM BRAKE ONLY	IWHM535RBX	$105.00	$175.00		

TOOLS/ACCESSORIES

	ITEM #	PRICE	SRP	QTY	EXT
TL-WH77 MECHANIC'S NIPPLE WRENCH	Y4A014000	$9.69	$20.00		
ALLOY CONSUMER NIPPLE WRENCH	Y4A008000	$2.91	$6.00		
VALVE EXTENSION AND O-RING	Y4A098040	$4.45	$9.00		
MAGNET SENSOR	Y4A098030	$5.82	$11.00		
SPOKE SPACERS (10 PIECES)	Y4A098070	$0.78	$1.50		

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92718
PLEASE NOTE: PRICING SUBJECT TO CHANGE
FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL _____

SHIMANO® DIRECT™

2001 DEALER FLIGHTDECK ORDER FORM

Ship to Information

CUSTOMER NAME:

CUSTOMER NUMBER:

CUST ADDRESS:

CITY, STATE, ZIP:

P.O. #:

PURCHASER:

Shipping Information

ORDER DATE

REQUESTED SHIP DATE:

SHIP VIA UPS GROUND 1 DAY 2 DAY 3 DAY

FLIGHT DECK HARNESS KIT

DESCRIPTION	TYPE	ITEM #	PRICE	QTY	EXT
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRELESS	ISM6501	$45.00		
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRED	ISM6500RS	$20.00		
FITS ST-6501 (ULTEGRA 9SP) ST-5500-C (105 9SP)	WIRED	ISM6500	$18.00		
FITS ST-M952 (XTR 9SP) ST-M750 (XT 9SP) ST-M570 (LX 9SP)	WIRELESS	ISM6501M	$53.00		
FITS ST-M510/SL-M510 (DEORE 9SP)	WIRELESS	ISM6501MD	$53.00		
FITS ST-M950/ST-M951 (XTR 8SP)	WIRED	ISM6500MX	$34.00		

FLIGHT DECK DISPLAY HEAD

DESCRIPTION	ITEM #	PRICE	QTY	EXT
"NEW SC-6501 FOR 2001" *CAN PROGRAM FOUR DIFFERENT WHEEL SIZES*	ISC6501	$25.00		
SC-6500 DISPLAY HEAD	ISC6500DSPLY	$21.00		

ADDITIONAL ITEMS

DESCRIPTION	ITEM #	PRICE	QTY	EXT
BRAKE LEVER HOODS FOR ST-7700	Y6BD98170	$4.66		
BRAKE LEVER HOODS FOR ST-6500/ST-5500	Y6BZ98090	$2.56		
BRAKE LEVER HOODS FOR ST-7400	Y88B98012	$4.66		
BRAKE LEVER HOODS FOR ST-1055/ST-A550/ST-A410/ST-A416	Y85Z98070	$4.66		
BRAKE LEVER HOODS FOR ST-6400	Y87G98011	$4.66		

NOTE: ADDITIONAL TECHNICAL INFORMATION ON "FLIGHTDECK" IS ON PAGE 18/19 OF THE 2001 DEALER PRODUCT CATALOGUE

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92618

PLEASE NOTE: PRICING SUBJECT TO CHANGE

FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL

SHIMANO® DIRECT™

2001 DEALER FLIGHTDECK ORDER FORM

Ship to Information

CUSTOMER NAME:

CUSTOMER NUMBER:

CUST ADDRESS:

CITY, STATE, ZIP:

P.O. #:

PURCHASER:

Shipping Information

ORDER DATE

REQUESTED SHIP DATE:

SHIP VIA UPS GROUND 1 DAY 2 DAY 3 DAY

FLIGHT DECK HARNESS KIT

DESCRIPTION	TYPE	ITEM #	PRICE	QTY	EXT
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRELESS	ISM6501	$45.00		
FITS ST-7700-C (DURA ACE 9SP) ST-6510 (ULTEGRA 9SP) ST-5500-CA (105 9SP) ST-4400 (TIAGRA) ST-3300 (SORA)	WIRED	ISM6500RS	$20.00		
FITS ST-6501 (ULTEGRA 9SP) ST-5500-C (105 9SP)	WIRED	ISM6500	$18.00		
FITS ST-M952 (XTR 9SP) ST-M750 (XT 9SP) ST-M570 (LX 9SP)	WIRELESS	ISM6501M	$53.00		
FITS ST-M510/SL-M510 (DEORE 9SP)	WIRELESS	ISM6501MD	$53.00		
FITS ST-M950/ST-M951 (XTR 8SP)	WIRED	ISM6500MX	$34.00		

FLIGHT DECK DISPLAY HEAD

DESCRIPTION	ITEM #	PRICE	QTY	EXT
"NEW SC-6501 FOR 2001" *CAN PROGRAM FOUR DIFFERENT WHEEL SIZES*	ISC6501	$25.00		
SC-6500 DISPLAY HEAD	ISC6500DSPLY	$21.00		

ADDITIONAL ITEMS

DESCRIPTION	ITEM #	PRICE	QTY	EXT
BRAKE LEVER HOODS FOR ST-7700	Y6BD98170	$4.66		
BRAKE LEVER HOODS FOR ST-6500/ST-5500	Y6BZ98090	$2.56		
BRAKE LEVER HOODS FOR ST-7400	Y88B98012	$4.66		
BRAKE LEVER HOODS FOR ST-1055/ST-A550/ST-A410/ST-A416	Y85Z98070	$4.66		
BRAKE LEVER HOODS FOR ST-6400	Y87G98011	$4.66		

NOTE: ADDITIONAL TECHNICAL INFORMATION ON "FLIGHTDECK" IS ON PAGE 18/19 OF THE 2001 DEALER PRODUCT CATALOGUE

SHIMANO AMERICAN CORPORATION, ONE HOLLAND DRIVE, IRVINE CA. 92618

PLEASE NOTE: PRICING SUBJECT TO CHANGE

FAX # 1-800-206-0010

FREIGHT NOT INCLUDED

Sep-00

TOTAL

SHIMANO® DIRECT™ PROMOTIONAL ITEMS ORDER FORM

SHIP TO CUSTOMER #:_____ PURCHASER NAME: _____
SHOP NAME:_____
SHOP ADDRESS_____
BILL TO CUSTOMER #:_____

ORDER DATE:_____
PAYMENT TERMS:_____
Credit Card # MC/V_____
P.O. NUMBER:_____

Item	Size	Part #	Qty	Price	Qty	Extension
PRODUCT MANUALS, TECH INFO AND CONSUMER CATALOGS						
2001 TRADE SALES & SUPPORT PRODUCT MANUAL		DLRCAT01	EACH	FREE		
2001 SPANISH TRADE SALES & SUPPORT PRODUCT MANUAL		DLRCATSP01	EACH	FREE		
2001 STI (SHIMANO TOTAL INFORMATION) DEALER MANUAL		STIMANUAL01	EACH	FREE		
2001 CONSUMER PRODUCT CATALOG		CONSCAT01	EACH	FREE		
2001 SHOE, PEDAL, MAINTENANCE & CLOTHING CATALOG		SPDCONCAT01	EACH	FREE		
SHIMANO WHEEL SYSTEMS BROCHURE		WHEELCAT01	EACH	FREE		
2000 TRADE SALES & SUPPORT PRODUCT MANUAL		DLRCAT00	EACH	FREE		
2000 SPANISH TRADE SALES & SUPPORT PRODUCT MANUAL		DLRCATSP00	EACH	FREE		
2000 STI (SHIMANO TOTAL INFORMATION) DEALER MANUAL		STIMANUAL00	EACH	FREE		
BR-M755 DISC BRAKE FLYER		DISCBRKFLYER00	EACH	FREE		
NEXUS AUTO-D SALES & TECHNICAL MANUAL		AUTODMANUAL	EACH	FREE		
NEXUS AUTO-D SALES FLYER		AUTODFLYER	EACH	FREE		
DURA-ACE 7700 CONSUMER CATALOG		DA97CONSCAT	EACH	FREE		
ULTEGRA 6500 CONSUMER CATALOG		ULT98CONSCAT	EACH	FREE		
ULTEGRA 6500 DEALER SALES MANUAL		ULT98DLRCAT	EACH	FREE		
1999/2000 SMALL PARTS MANUAL		PARTSCAT00	EACH	FREE		
98 SMALL PARTS UPDATE		W7124980	EACH	FREE		
97 SMALL PARTS UPDATE		W7124970	EACH	FREE		
SHIMANO DECALS						
SHIMANO X-SMALL WHITE	5/8" x 4 1/2"	W2101011	PK. OF 10	$3.00		
SHIMANO X-SMALL BLACK	5/8" x 4 1/2"	W2101021	PK. OF 10	$3.00		
SHIMANO X-SMALL BLUE	5/8" x 4 1/2"	W2101031	PK. OF 10	$3.00		
SHIMANO SMALL BLACK	1" x 6"	W2101022	PK. OF 10	$5.95		
SHIMANO SMALL BLUE	1" x 6"	W2101032	PK. OF 10	$5.95		
SHIMANO SMALL WHITE	1" x 6"	W2101012	PK. OF 10	$5.95		
SHIMANO SMALL RED	1" x 6"	W2101042	PK. OF 10	$5.95		
SHIMANO MEDIUM BLUE	1 1/2" x 12"	W2101033	EACH	$1.50		
SHIMANO MEDIUM WHITE	1 1/2" x 12"	W2101013	EACH	$1.50		
SHIMANO LARGE WHITE	3" x 27"	W2101014	EACH	$3.00		
SHIMANO LARGE BLUE	3" x 27"	W2101034	EACH	$3.00		
DURA-ACE WHITE	1" x 6"	W2102021	PK. OF 10	$5.95		
DURA-ACE BLACK	1" x 6"	W2102022	PK. OF 10	$5.95		
DURA-ACE BLUE	1" x 6"	W2102023	PK. OF 10	$5.95		
XTR WHITE	1 1/2" x 5"	W2131022	EACH	$0.75		
XTR BLACK	1 1/2" x 5"	W2131021	EACH	$0.75		
XTR MOSAIC ('70'S RAINBOW HIPNESS)	1 1/2" x 5"	W2131024	EACH	$0.75		
XTR GREY	1 1/2" x 5"	W2131023	EACH	$0.75		
SHIMANO BANNERS & P.O.P'S						
PURE SHIMANO GUTS BLUE/GRN/BLK	3' x 8'	GUTSBANNER1999	EACH	$26.35		
PURE SHIMANO GUTS LOGO RED	3' x 8'	GUTSBANNERRED	EACH	$26.35		
MEGA9 "SCIENCE FAIR" AD POSTER		M9POSTER	EACH	FREE		
SC-6500 FLIGHT DECK COUNTER TOP P.O.P		DLRCOMPDISPLAY	EACH	$110.00*		
FLOOR WHEEL DISPLAY STAND (FOR 6 WHEELS)	SILVER/BLACK	WHEELSTAND	EACH	$210.00*		
SLATWALL WHEEL DISPLAY (FOR 2 WHEELS)	SILVER/BLACK	WHEELSLATWALL	EACH	$65.00*		
SPD SHOE P.O.P. KIT	BLACK/YELLOW	SHOEPOPKIT00	KIT	$100.00**		
SHOE & PEDAL METAL DISPLAY STAND	BLACK	SHPDSTAND	EACH	FREE		
SPD SLAT WALL SHOE SHELFS	WHITE	W2701901	PAIR	$9.00		
SHIMANO DEALER SHOPPING BAGS						
SMALL	5" x 8"	W2601102	BAG OF 500	$11.00		
LANCE ARMSTRONG TDF SHOPPING BAG	16" x 16"	LANCEBAG	BAG OF 250	$8.00		
					Order Total	

* THESE ITEMS MAY OBTAINED FOR FREE WITH MINIMUN PRODUCT PURCHASE. CALL SHIMANO OR YOUR SHIMANO DIRECT REP. FOR DETAILS.
**SPD P.O.P. KIT MUST BE ORDERED THRU SHIMANO DIRECT REP.

SHIMANO AMERICAN CORPORATION
ONE HOLLAND DRIVE, IRVINE, CA 92718
FAX: (800)206-0010

SHIMANO

www.shimano.com

SHIMANO

U.S.A

By Phone: Dealer (800) 423-2420 7:00a.m. to 5:00p.m. p.s.t.
Consumer (949) 951-5003 8:00a.m. to 5:00p.m. p.s.t.
By Fax: (800) 206-0010 24hrs.
By Mail: Shimano American Corporation
1 Holland, Irvine, CA 92618
www.shimano.com

Canada

By Phone: (705) 745-3232, (800) 361-6215
By Fax: (705) 745-1949, (800) 619-9067
By Mail: Shimano Canada LTD.
685 The Queensway, Peterborough, Ont. K9J7J6

Australia

By Phone: (02) 9526 7799
By Fax: (02) 9526 7622
By Mail: Shimano Australia PTY LTD.
6/30 Endeavour Road, Caringbah, NSW 2229
P.O. Box 2810, Taren Point NSW 2229