

DIA-COMPE

CANTILEVER BRAKES XCT

取扱説明書

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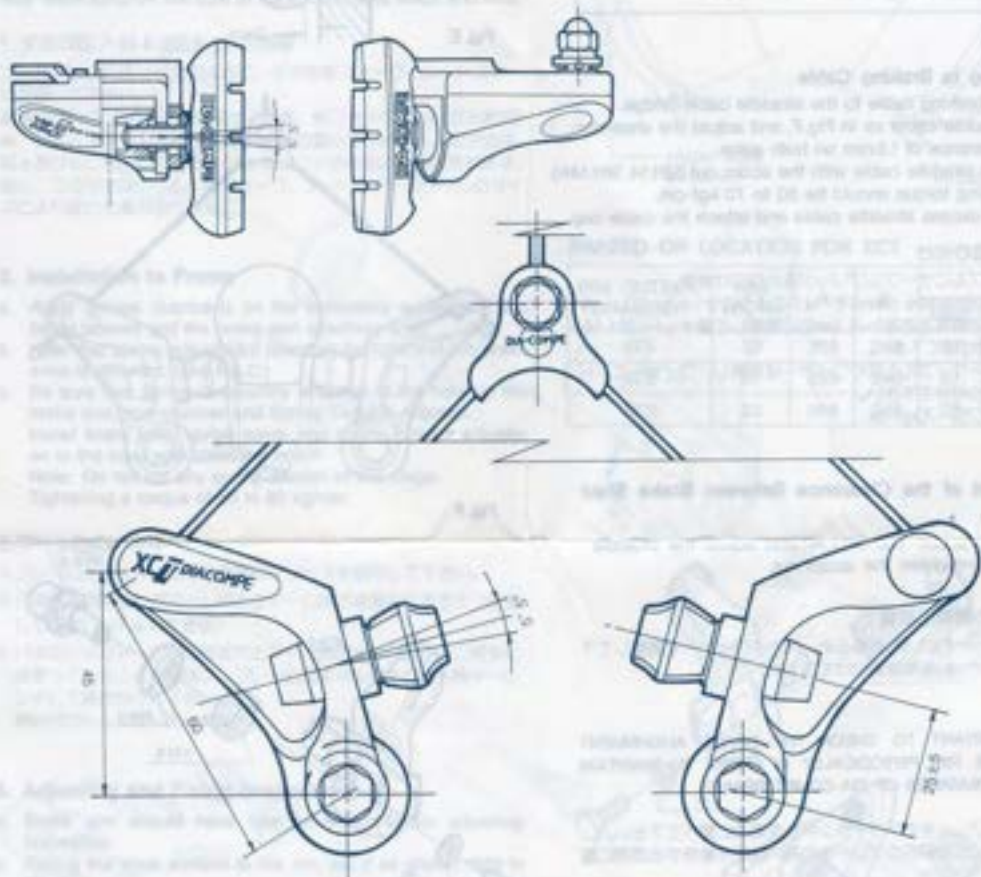
吉貝機械金屋株式会社

本社及工場 大阪府東大阪市若江浜町1丁目1番15号 7y11

T E L 06(721)7051 代表

T E L E X 5277760 COMPE J

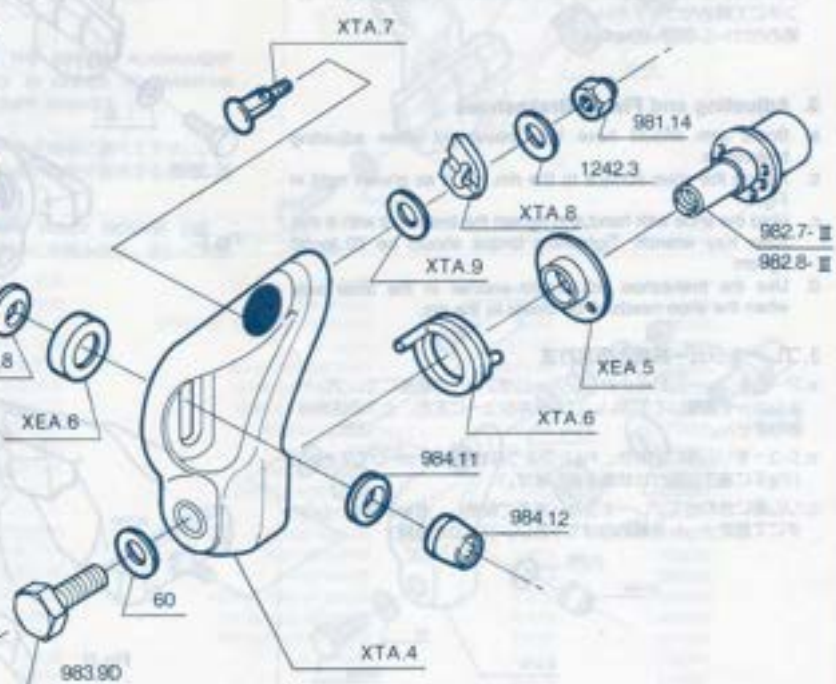
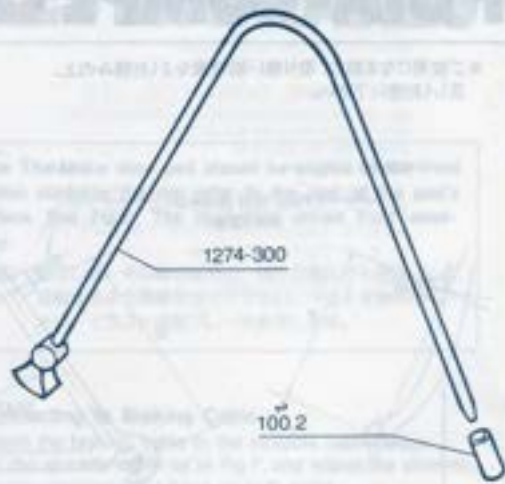
F A X 06(724)2062



Code No.	Catalog No.	Description	品名
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160224	60	Washer	垫金
150406	70.2	Acorn nut	袋ナット
240309	100.2	Aluminum end cap for cable	アルミインナーキャップ
050429	981.14	Acorn nut	袋ナット
230641	982.7-III	Pivot for front stirrup	前用台座
230643	982.8-III	Pivot for rear stirrup	後用台座
030538	983.90	Bolt for stirrup pivot	アーチ取付ボルト
050619	984.11	Washer convex	角度調整垫金
150237	984.12	Nut	角ゴム用取付ナット
050615	984.8	Washer convex	角度調整垫金
060527	OPC25	Brake shoe (17mm)	角ゴム付
160826	XEA.5	Spring cover	バネカバー
050621	XEA.6	Washer concave	角度調整垫金
025825	XTA.3	Stirrup for right	XCT用アーチ本体右
025826	XTA.4	Stirrup for left	XCT用アーチ本体左
040453	XTA.5	Spring for stirrup, right	右用バネ
040454	XTA.6	Spring for stirrup, left	左用バネ
120112	XTA.7	Cable anchor bolt only	ワイヤー止ボルト
160627	XTA.8	Washer	垫金
160271	XTA.9	Washer	垫金
090217	1242.1	Straddle cable bridge main body	吊金具本体のみ
120203	1242.2	Cable clamp bolt	インナー止ボルト
160305	1242.3	Cable clamp	垫金
119937	1274-300	Straddle cable 300mm	アーチワイヤー 300mm

INSTALLATION ORBITAL COMPASS



WHERE TO GET IT

DISTRIBUTORS

EAST

ALABAMA Troy, AL 334-333-1111	ALABAMA Troy, AL 334-333-1111	ALABAMA Troy, AL 334-333-1111	ALABAMA Troy, AL 334-333-1111	ALABAMA Troy, AL 334-333-1111	ALABAMA Troy, AL 334-333-1111
ARIZONA Phoenix, AZ 602-955-1111	ARIZONA Phoenix, AZ 602-955-1111	ARIZONA Phoenix, AZ 602-955-1111	ARIZONA Phoenix, AZ 602-955-1111	ARIZONA Phoenix, AZ 602-955-1111	ARIZONA Phoenix, AZ 602-955-1111
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Welcome to the 1993 season. We are excited to present our new line of SR SUNTOUR products. The majority of these products will be available through our distributors by Oct. 1st. For your convenience, we have included a distributor list.

In October, we'll be sending out a mailing to all bike shops. Included will be a 20 page Guide to SR SUNTOUR and a technical bulletin. Please be sure to leave us your business card or mail us one after the show, so that we have your current address.

SOUTHEAST

MIDWEST

NORTHWEST

CALIFORNIA

SOUTHWEST

SR SUNTOUR

DISTRIBUTORS

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ALLIED CYCLE
50 Sun Street
Waltham, MA
1-800-462-3363

BIKE RACK, INC.
11 Constance Court
Hauppauge, NY
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Medford, MA
1-800-777-2835

DENCO
388 Canal Place
Bronx, NY
1-212-665-6000

DISTRICT CYCLE SUPPLY
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Beltsville, MD
1-800-327-2453

DOWNEAST BICYCLE SPECIALISTS
RFD 2, BOX 768
Auburn, ME
1-800-242-1043

GIANT BICYCLES EAST
11 Campus Dr.
Burlington, NY
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LAWEE, INC.
3030 Walnut Ave.
Mansfield, MA
1-800-776-3529

PERFORMANCE CYCLE PRODUCTS
22 S. 6th Ave.
Mount Vernon, NY
1-914-699-1668

RITEWAY PRODUCTS, EAST
25 Dewberry Lane
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1-800-257-5073

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J & B IMPORTERS, INC.
P.O. Box 161859
Miami, FL
1-800-666-5000

MIAMI BICYCLE & SUPPLY
P.O. Box 440066
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MORE CYCLE CO., INC.
8050 NW 58 St.
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ORLEANS CYCLE SUPPLY
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SCHWINN MIDWEST
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TREK COMPONENTS CO.
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WISCONSIN CYCLE SUPPLY
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Sheboygan, WI
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DERBY CYCLE CORPORATION
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1-800-488-0192

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Hayward, CA
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1-800-635-7917

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615 South Farmer
Tempe, AZ
1-800-645-8062

CKR, INC.
4129 S. Sheridan Rd.
Tulsa, OK
1-800-257-2435

HANS JOHNSEN COMPANY
8901 Chancellor Row
Dallas, TX
1-800-678-1560

J & B IMPORTERS WEST
P.O. Box 1248
Englewood, CO
1-800-999-9228

SINCLAIR IMPORTS
2705 Hwy 40, POB 707
Verdi, NV
1-800-257-2453

I.P.C

Shift Lever Installation Instruction



Brazed-On Mounting:

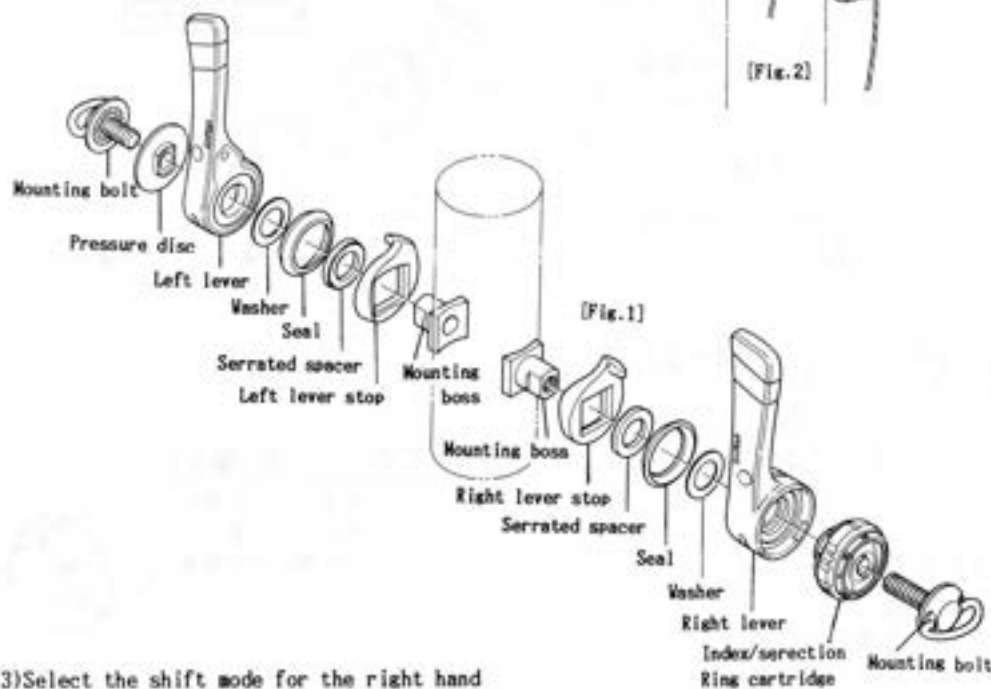
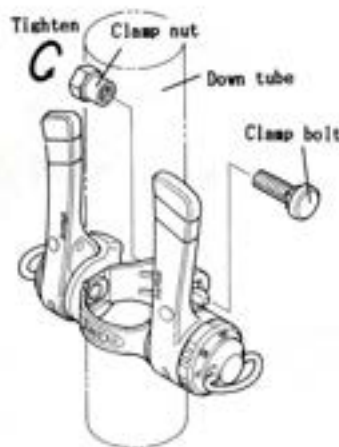
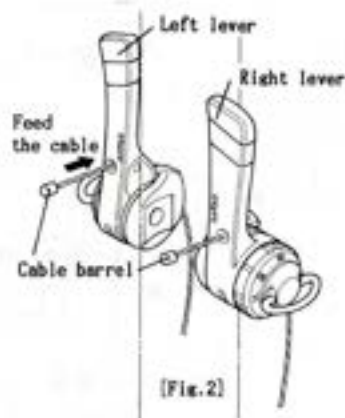
(1) Familiarize yourself with the parts of the Index Power Control levers by referring to figure 1.

WARNING: A) Do not try to remove the ratchet from the shift levers, or try to disassemble it.

B) Do not disassemble the index mechanism and selection ring cartridge. Disassembly of any unit mentioned in this warning voids the warranty.

(2) Install the levers on to the mounting bosses with the parts in the sequence shown in figure 1. Note that the serrations on the brass spacer face the downtube, and the dished plastic seal has its wide face toward the lever. The mounting bolts should be just tight enough for the levers to fit snugly against the face of the lever stop. Feed the cables as shown in figure 2, making sure that the cable barrels are fully seated in the cable barrel ports.

Clamp Mounting: Install the clamp in position on the downtube, and tighten the clamp nut to a torque of 50 - 60 kgf·cm.



(3) Select the shift mode for the right hand lever. The SunTour Index Power Control gives you three shifting options, which you select by turning the selector ring so that the white line lines up with your choice of shifting mode:

RE is for indexed shifting with a standard spaced SunTour Winner System freewheel.

UL is for indexed shifting with an ultra(narrow) spaced SunTour Winner System freewheel.

P is for non-indexed power shifting with any freewheel, regardless of sprocket spacing.

If the selector ring is hard to turn, loosen the mounting bolt one or two turns; then, after selecting the appropriate shifting mode, retighten it.

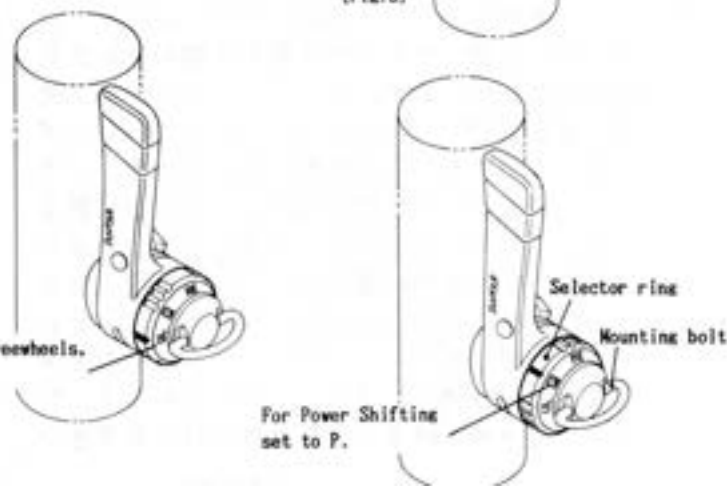
(4) After you have clamped the shift cables into the front and rear derailleur cable clamps, adjust the mounting bolts to the minimum tension which keeps the derailleur in gear.

For Standard Freewheels, set to RE.

[Fig. 3]

For Ultra Freewheels, set to UL.

For Power Shifting set to P.



SUNTOUR FRONT DERAILLEUR

Model:FD-3040-GX, Code No.29699931 (Band type)

Model:FD-AT10-GX, Code No.29739901 (Band type)

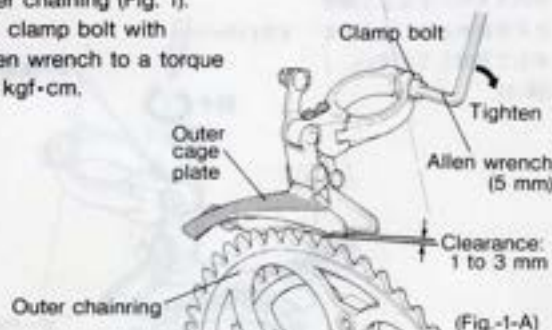
Model:FD-XM34-GXH, Code No.29689937 (Band type)

Model:FD-2000-GXH, Code No.29789941 (Band type)

INSTRUCTION MANUAL



- 1** Position the derailleur so that the outer cage plate clears the outermost chainring by 1 to 3 mm and is parallel to the outer chainring (Fig. 1). Tighten the clamp bolt with a 5 mm Allen wrench to a torque of 50 to 60 kgf-cm.

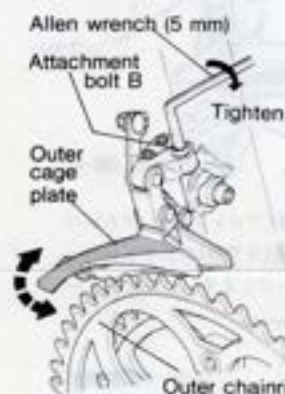


2 Braze-on Mounting

First, temporarily tighten the attachment bolt B onto the shifter body, and then install the shifter body onto the braze-on boss.

Position the derailleur so that the outer cage plate clears the outermost chainring by 1 to 3 mm. Tighten bolt A to a torque of between 60 to 100 kgf-cm.

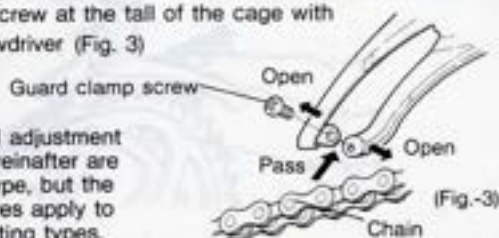
The up/down adjustment is now complete. (Adjustment: 10mm).



Next, loosen the attachment bolt B which had been temporarily tightened, adjust the angle so that the outer cage () is parallel to the outer chainring. (Fig. 2-B).

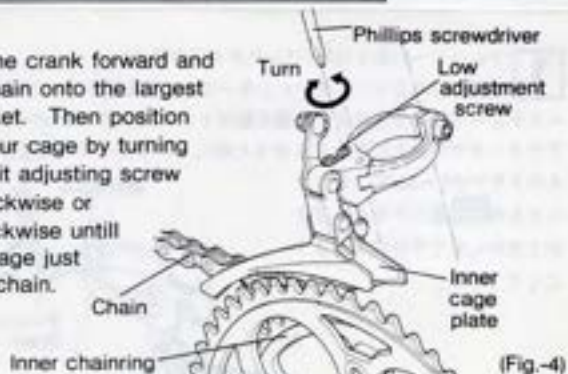
The angle adjustment is now complete. (adjustment range: 10°). Tighten the attachment bolt B.

- 3** Put the chain through the derailleur cage and on to the inner chainwheel. If the chain is not connected, connect it. If it is already connected, you can open the cage by removing the screw at the tail of the cage with a Phillips screwdriver (Fig. 3)

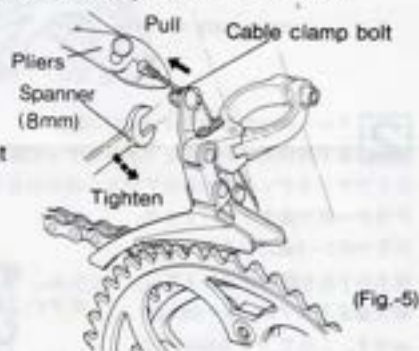


Installation and adjustment illustrations hereinafter are for clamp-on type, but the same procedures apply to braze-on mounting types.

- 4** Turn the crank forward and shift the chain onto the largest rear sprocket. Then position the derailleur cage by turning the low limit adjusting screw (Fig. 3) clockwise or counterclockwise until the inner cage just clears the chain.



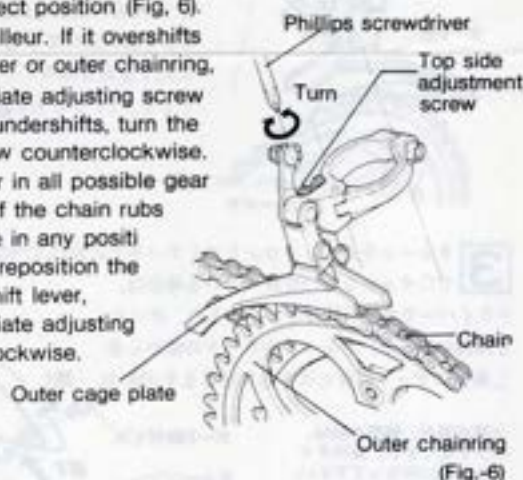
- 5** Push the left shift lever all the way forward. Lead the left shift control cable through the cable guides into the cable anchor clamp of the derailleur. Pull the cable tight and tighten the cable fixing nut with a 8mm spanner to a torque of 50 to 60kgf-cm(Fig.4)



- 6** Turn the cranks forward slowly and shift the chain onto the large chainwheel by pulling the left shift lever back, and on to the smallest rear sprocket by pushing the right lever forward.

Using the left shift lever, position the derailleur cage so that the inside of the outer cage plate just clears the chain. Then gently turn the outer limit adjusting screw clockwise until you see the cage begin to move inward. If the shift lever cannot move the cage out far enough to shift the chain on to the outer chainring, turn the adjusting screw counterclockwise until the cage is the correct position (Fig. 6).

Shift the derailleur. If it overshifts on either the inner or outer chainring, turn the appropriate adjusting screw clockwise. If it undershifts, turn the appropriate screw counterclockwise. Try the derailleur in all possible gear combinations. If the chain rubs against the cage in any position and you cannot reposition the cage with the shift lever, turn the appropriate adjusting screw counterclockwise.



SUNTOUR REAR DERAILLEUR

Model : RD-ED00-SSB (Code No. 23449921)

Model : RD-BE00-SSB (Code No. 23549921)

Model : RD-XE00-GXB (Code No. 23499921)

Model : RD-XM00-GXB (Code No. 23599921)

INSTRUCTIONS FOR SUNTOUR EDGE, BLAZE, XCE, XCM REAR DERAILLEURS



Notes: This rear derailleur should be used under the following conditions:

- 1 For use in INDEX mode, compatible SUNTOUR shift levers, freewheels and chain must be used.
- 2 SUNTOUR sealed cable casing and 1.2 mm derailleur cables must be used.
- 3 Internal cable routing will decrease shifting efficiency and indexing accuracy.
- 4 Since frame and dropout alignment is critical to indexing performance, make sure the frame and rear dropouts are properly aligned before you install this rear derailleur.
- 5 The largest freewheel cog useable with the SS cage is 28T, the largest cog useable with the GX cage is 30T. The chainring differential should be less than 12T.
- 6 Failure to meet the above conditions will result in decreased performance.
- 7 When the shift lever is not used in INDEX mode, any freewheel can be used.
- 8 Prior to assembly, grease all cables and bolt threads.

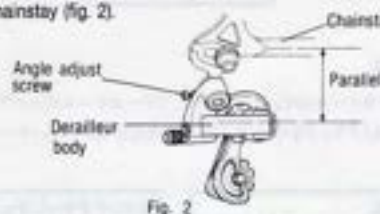
1 Attaching the derailleur to the frame

Insert a 5 mm Allen wrench into the hexagonal socket of the mounting bolt. Then, turn it clockwise (fig. 1-A) to a torque of 80-100 kgf cm. Make sure that the derailleur's spring retainer tab contacts the dropout's derailleur stop tab (fig. 1-B).



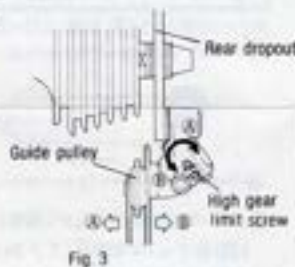
2 Derailleur angle adjustment

Turn the derailleur's angle adjusting bolt until the derailleur's body is parallel with the frame's chainstay (fig. 2).



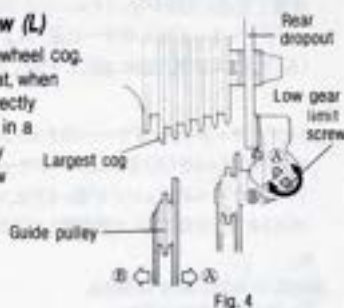
3 Adjusting the high gear limit screw (H)

Turn the high gear limit screw (H) so that, when viewed from the rear, the guide pulley is directly beneath the smallest freewheel cog. Turning the screw clockwise moves the guide pulley towards the largest freewheel cog; turning the screw counter-clockwise moves the guide pulley towards the rear dropout (fig. 3).



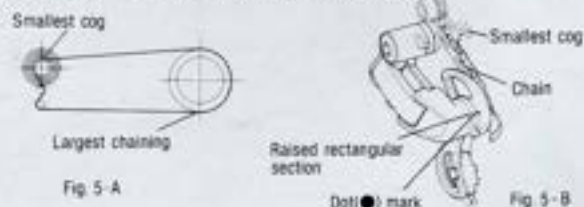
4 Adjusting the low gear limit screw (L)

Push the derailleur towards the largest freewheel cog. Then adjust the low gear limit screw so that, when viewed from the rear, the guide pulley is directly beneath the largest cog. Turning the screw in a clockwise direction moves the guide pulley towards the smallest cog; turning the screw counter-clockwise moves the guide pulley towards the spokes (fig. 4).



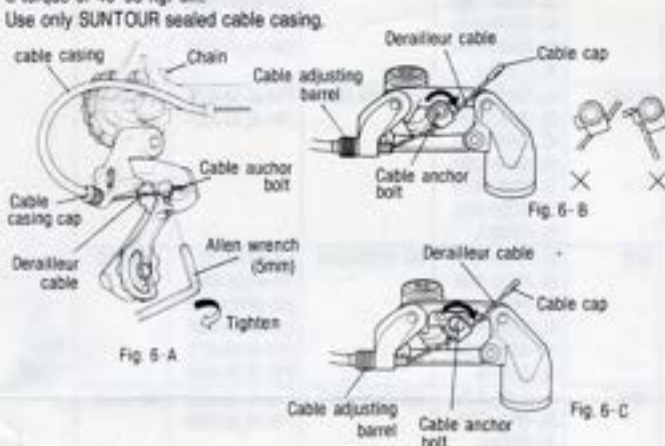
5 Installing the chain

Install the chain on the outer chainring and the smallest freewheel cog (fig. 5-A). The length of the chain is correct when the dot (●) mark on the outer cage plate aligns with the raised rectangular section on the derailleur body (fig. 5-B).



6 Connecting the rear derailleur cable

Return the shift lever to its high gear position (see the shift lever's instructions for details). Connect the rear derailleur cable as shown in figs. 6-A, 6-B and 6-C. (NOTE: Be sure the cable is clamped to the INBOARD side of the cable anchor bolt, as shown. Clamping the cable on the outboard side will make friction shifting difficult and indexed shifting impossible). Be sure the cable casings are well seated in the cable casing stops on the frame, and in the cable adjusting barrels. Tighten the cable anchor bolt to a torque of 40-50 kgf cm. Use only SUNTOUR sealed cable casing.



7 Indexed shifting adjustment

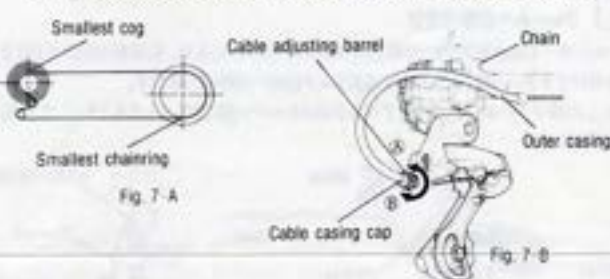
A) Put the chain on the inner chainring and the smallest freewheel cog (fig. 7-A). Make sure that the freewheel is fully tightened on the hub. Slowly turn the crank, shift the lever and remove your hand. If the chain does not smoothly shift to the second cog, or if noise occurs, make the following adjustment:

After shifting to the second cog, the chain touches the third cog, causing noise.

Turn the cable adjusting barrel 1/2 to 2 turns clockwise (fig. 7-B).

The chain does not shift to the second freewheel cog.

Turn the cable adjusting barrel 1/2 to 2 turns counter-clockwise (fig. 7-B).



B) Turning the crank forward, shift the lever step by step to check each gear change. Shift the chain to the largest freewheel cog, and turn the derailleur angle adjusting screw until there is the least amount of space without rubbing between the guide pulley and large cog (fig. 7-C).

C) When the shift to a larger cog is not smooth, make a fine adjustment by turning the cable adjusting barrel counter-clockwise; when the shift to a smaller cog is not smooth, the cable adjusting barrel clockwise (fig. 7-B).

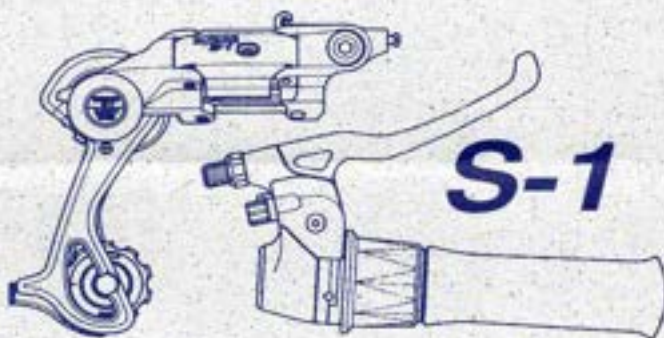


If re-adjustment becomes necessary, simply repeat steps A-C above.

SUNTOUR U.S.A. *STC*

(tek'ni kæl)

TECHNICAL INFORMATION
AND OTHER STUFF



A new and better way to shift, S-1

S-1 is the first major innovation in rear derailleurs since the inception of indexing. This SUNTOUR derailleur offers 4 major advantages over conventionally mounted derailleurs:

- 1) It requires virtually no derailleur adjustments after initial set up.
- 2) It places the derailleur in an impact protected position.
- 3) It improves shifting due to the elimination of rear cable housing and increased chain wrap.
- 4) Easy to understand twist shifting, both sides shift up and down the same direction.

This is the second year that S-1 is being offered on production bicycles. It has initially been targeted at non-competitive riders due to its simplicity and minimal maintenance requirements. Combined with Twist Shifters it is the most user friendly system available.

- 1) Because the indexing cam is integral with the derailleur, absolute proper cable tension is not as important as with conventional derailleurs. Newer riders are frequently unfamiliar with cable adjustments and this need is now eliminated.
- 2) Newer riders often "tip over". We are not referring to a full blown "crash", but with the unfamiliarity with their bike, a confusing toe clip, or confusing shift levers, (not to mention the surprising absence of a kickstand!) they drop the bike at a slow speed. With the inboard derailleur, protected by the pedal and QR lever nut, the likelihood of a bent derailleur is minimized.

3) Placing the derailleur in a forward position also increases the amount of chain wrap on the cogs and shortens the cable length. Ultimately, this makes for a more precise shift. The shifting action itself, has a much lighter feel due to the shorter cable.

4) Last, but not least, Twist Shifter eliminates confusion of which button to push what way when approaching a hill. Simply twist forward to "upshift" and twist toward you to "downshift". Twist Shifter levers allow the rider to use any handlebar grip and cable replacement is simple.

When you send a customer out on a bike equipped with S-1 and Twist Shifter, it should be an easy sell, due to the simplicity and minimal maintenance requirement. We are looking forward to a successful season as a result of innovation, increased performance and durability.

Free magazine subscription

That's right your customers can get a free one year subscription to MOUNTAIN BIKING. From September 1, 1992 until December 31, 1992 SR SUNTOUR and MOUNTAIN BIKING

magazine are offering a free subscription with the purchase of any SUNTOUR equipped mountain bike. All they have to do is fill out the subscription card for this promotion and send it along with a copy of their receipt. You'll find a tear out card in the current issues of MOUNTAIN BIKING magazine. You might want to inform your customers of this promotion and point it out in the magazine if they haven't seen it already.



SR SUNTOUR *SR*

(tek'ni kəl)

SR Duo-Track Suspension Fork, what it is, who it's for and how it works

The SR DUO TRACK FORK has been constructed to be a durable, affordable suspension system designed to meet the needs of the recreational rider as well as the moderate off road enthusiast. You'll find the following features combined with a low price make this fork a great value.

- Coil spring suspension with poly-elastomer bumpers for damping.
- 1.5" of travel.
- 3 threaded steerer tube lengths and 1 non-threaded length.
(150mm, 180mm, & 210mm) (255mm)
- 2 steerer tube diameters (1" & 1 1/8").
- ACCURAD® 0% tolerance press fit steerer, crown, and stanchions.
- Aluminum lower legs and a total weight of 3.1 pounds.

This is an easy way to turn a recreational rider onto suspension. You'll find the benefits of selling the SR DUO TRACK FORK include:

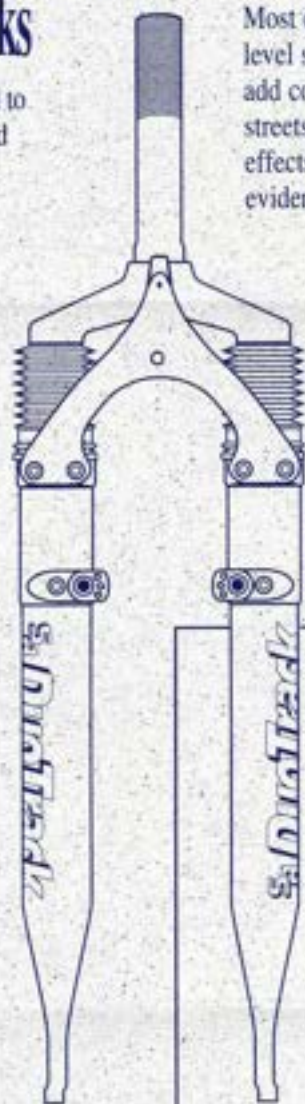
- It is a simply designed, value oriented, maintenance free OEM or aftermarket fork.
- Price pointed to attract consumers into the suspension market.
- Available repair kits (for non-warrantable repairs) will be offered exclusively to dealers. These kits will not be made available for consumers' use, resulting in maintenance profits for your repair shop.

The SR DUO TRACK FORK is manufactured in Japan using our patented Accurad Forging technique, Litage Thermal Bonding and Pressure Fit Processes. This allows us to produce a quality product at a price that also makes it an exceptional value. You can sell this fork with confidence knowing it has been engineered and built using state of the art manufacturing methods. You are also backed with support from our technical and warranty staff. If you call our hotline with any questions regarding the fork you

will be helped by our professional staff who are highly trained and experienced with all of our SR SUNTOUR products.

Most of your customers who are interested in entry level suspension are looking for something that will add comfort to urban potholes, railroad tracks, beat streets and possibly moderate off road riding. The effects of this high vibration damping fork will be evident on their first test ride.

Send a rider out on a test ride with a bike equipped with the Duo Track suspension fork and tell them to ride off of the first curb they see. They will come back to you with a smile on their face exclaiming how well the fork performs without any custom adjustments. It's an easy sale at this point, as your customer instantly experiences the benefits of suspension for her or his needs.



Manuals and Break-in

Our first shipment of SPK 200 suspension forks did not include instructions or warranty information. We apologize for this oversight and any inconvenience that it may have caused you. Please call us at 800-782-9253 and we will promptly send them to you.

It is important to inform your customers that there is a break-in period for this fork. During this period it is normal for the tolerances between the stanchions and lower-legs to open up by a small amount. Recommend to your customers, approximately 60 miles or 5 hours of road or light off-road riding before engaging in more aggressive off-road terrain. The afore mentioned break-in procedure will ensure the intended performance and durability of the suspension. If you have any questions in regard to tolerances, warranty policy or break-in parameters, please contact our technical hot line, 800-782-9253.

SR SUNTOUR *FTV*
(tek'ni kəl)

Finish Line grease becomes GREASE GUARD® approved



Along with SR SUNTOUR and WTB Goose Grease, FINISH LINE grease has now been certified for use with the GREASE GUARD® system. This synthetic Teflon grease contains micron-sized Teflon particles that coat the ball bearings and races, preventing wear and distortion. The bright white color lets you see the contaminants in the old grease as it is purged out. It is easy to tell when you have flushed out all of the old grease.

Other synthetic greases will cause the seals to harden and shrink from a chemical reaction. Using any other grease will void the SR SUNTOUR warranty. You'll find the GREASE GUARD® logo on certified grease products. These greases are available from many cycling accessory distributors.

FINISH LINE has also redesigned their grease gun so that it has a long enough nozzle to reach all of the grease ports in GREASE GUARD® components. Its the ideal tool to use when cleaning and lubricating GREASE GUARD® components.

Power Flo, new cogs and freewheels for all shift systems

POWER FLO is a cog design that utilizes specially cut teeth and ramps enhancing chain movement, allowing a more positive shift under load. POWER FLO also increases the life of the chain by spreading lateral stress loads. Ned Overend and the Specialized off-road team experienced only one broken chain while using POWER FLO, during all of their miles of training and racing this 1992 season.

POWER FLO now is available with conventional spin on type freewheels or as SUNTOUR freehub compatible cassettes (freewheels are evenly spaced 3.0 mm between cogs and will fit all current indexed systems).

A change in our manufacturing process has allowed us to produce beveled and ramped cogs that are resistant to structural failure and wear that threatens shifting performance.

- Available in 7 speed freewheels: 13-28 and 13-30

- Available in 7 speed cassettes: 11-24 Micro Drive, 12-28 and 12-30 (silver or black)
- Available in 8 speed cassettes: 11-28 Micro Drive and 12-21 (road).

Service note:

Disassembly of the cogs requires no special tools and is quite easy, however the cogs are each marked with a small triangle. All of these triangles must be lined up when re-assembled for proper shifting performance.

8 Speed made easy

It is easy to upgrade 7 speed SUNTOUR Micro Drive system to 8 speed. Riders will achieve a wider gear ratio while still maintaining the low profile and weight saving advantages of SUNTOUR Micro Drive.

The 1993 SUNTOUR 8 speed upgrade kit consists of a right side thumb shifter, an 8 speed freehub body, an 11-28 cassette cluster, and an axle set with the appropriate left side spacers.

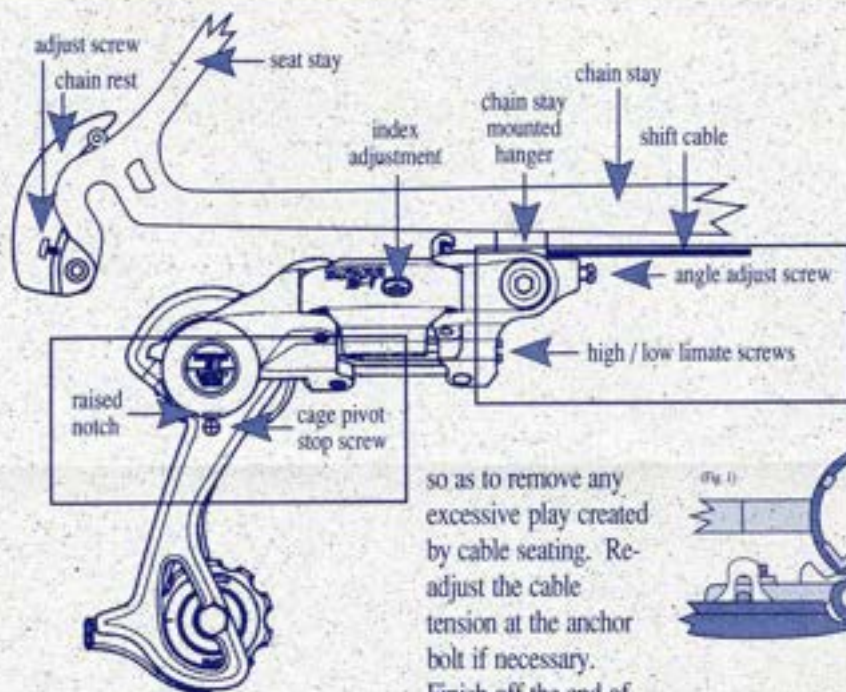
For the maximum shifting performance we recommend installing an 8 speed SUNTOUR MicroDrive rear derailleur which has been redesigned to shift even more smoothly and precisely throughout the expanded range of gears. You'll want to be sure that the rider has a mid (GTB) or long (GXB) cage rear derailleur if they are going to run an 11-28T 8 speed cassette with an inner chainring less than 24 T, such as a SUNTOUR Micro Drive crankset.

To make the conversion all you need to do is swap the right shift lever, freehub body, cassette cluster and axle set. The right side cone and lock nut will be preassembled on the axle. Re-dishing the wheel is the final step.

MD cassette update

We have remedied the breakage problem of the first generation of 7 speed Power Flo MicroDrive cassette cogs. These cogs came from the initial production run of over a year ago. All of the replacement cassettes that we have received have performed flawlessly. If for any reason you have received defective replacement cogs from sources other than directly from our warranty department, it is likely that they are first generation.

In the event that you encounter broken cogs on a 7 speed Micro Drive cassette please call our hotline directly, 1-800-782-9253, and we will immediately ship you a replacement.

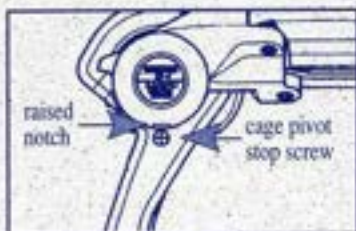


S-1

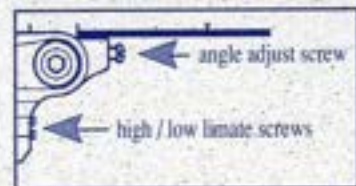
Installation and set-up

This rear derailleur installs to the frame with a chain stay mounted hanger. Thread the derailleur into this hanger at the forward pivot mounting bolt.

Install the chain with the setting in the small cog and large chain ring. Check the cage pivot stop screw. This screw should line up with a raised notch on the bottom of the plastic cover at the cage pivot. When these two indicators line up it tells you that the chain length is correct!



Make sure high and low limit screws are set before attaching cable to derailleur. (These are located on the front of the main body). Set the angle adjustment screw so the derailleur is parallel to the chain stay (this screw is located at the leading edge of the derailleur).

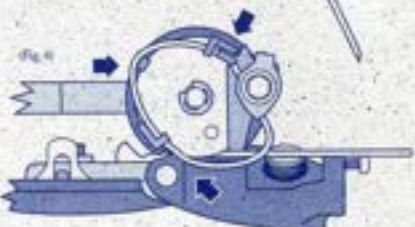
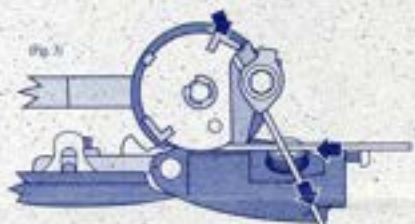
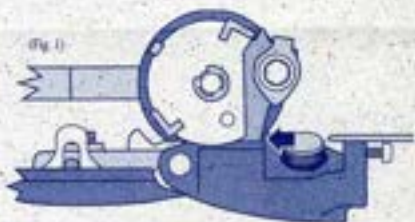


Route the rear cable in a normal fashion from the twist shifter to the rear derailleur (Fig. 1). Route cable into the groove on the pulley just behind the cable anchor bolt (Fig. 2). Wrap the cable around the pulley and secure the cable to the anchor fixing bolt between the pulley and the fixing bolt (Fig. 3). Cut off approximately 65mm of cable. Stress the cable before finishing the end

so as to remove any excessive play created by cable seating. Re-adjust the cable tension at the anchor bolt if necessary. Finish off the end of the cable in your normal fashion. Wrap the excess cable around the upright tangs on top of the cable pulley alternating in, out, in, around these tangs. (Fig. 4)

Viola! You have completed the installation procedure.

Shift the derailleur into the 2nd position from the highest gear (smallest cog). As you pedal the crank around, listen for the proper chain mesh in this gear. It should not sputter and clank or sound as though it wants to shift to the next cog. At this time you can customize the setting of the derailleur by using the 'Index Adjusting Screw' located in the side plate of the derailleur. It is located next to the 'S-1' model name. Once this is set, the shifting will be clean and precise. You can always go back to this step again if you need to improve the shifting performance after a few shifts up and down.



Dear Bicycle Dealer,



In the last year we have visited almost 200 bike shops, and from all of these visits one problem has become consistently apparent: bike shops do not know about SUNTOUR.

Mechanics are not aware of the newest SUNTOUR developments, adjustment procedures, and compatibility requirements. As a result performance suffers, and SUNTOUR components can get an undeserved bad reputation.

We have also discovered that sales personnel do not understand the selling features of our products, or even the line-up of the groups. The lack of information has made it difficult for you to sell bikes with our components. As a result, shop employees have to work harder to sell the bike.

This letter is the first in a series of Tech bulletins that will make your life easier. Mechanics will be aware of the newest components and how to work on them; sales people will be better informed and will have an easier time selling bikes equipped with our componentry.

This first bulletin is about chains; what to use, what not to use, and why.

Expect to see a lot more of these bulletins from us on a regular basis. The days of saying, "I'm not sure about this, it's SUNTOUR" are over.



Chains

Through our many visits to bike shops and countless hours of wrenching bikes at races, when we hear the complaint about slow shifting or hang-ups in the up shift, we look at the chain first. Usually the chain is a non-SUNTOUR chain.

We're sure some of you mechanics are saying that you have used other chains without problems, and we are not about to dispute this fact. If a bike is set up perfectly, with all of the right equipment, all the adjustments right, and all of the frame geometry correct, a single non-spec. item like a chain probably will not severely compromise index performance.

The perfect case scenario is rare. Even if the equipment and set up is correct, there is a chance that the frame could be imperfect (BB cable guide, derailleur hangar length, etc.). In these cases, not running a SUNTOUR chain will end up being the figurative "straw that breaks the camel's back" and proper indexing will suffer.

The SUNTOUR system uses a traditional freewheel/chain relationship, where the shift is accomplished as much by the derailleur pushing the chain sideways as by the special gate cuts and profiles of the cog teeth pulling the chain into place.

Due to nature of our indexing system, a laterally rigid chain is required. The SUNTOUR drivetrain is dependant on the chain following the movement of the guide pulley on the rear derailleur. When you shift from the 26 to the 30 tooth sprocket, the derailleurs guide pulley

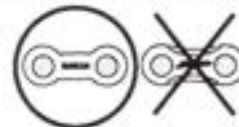
(the top pulley) will align itself and the chain with the gear that you are shifting into (the 30t). A non-SUNTOUR chain that has less lateral stiffness will hesitate to shift up in most situations because the chain will flex and not immediately follow the the guide pulley.

While other manufactures chain's are of high quality and are long lasting, they inherently contain a lot of lateral flex, and do not perform well on SUNTOUR indexing systems. However any time a bike is having indexing problems, the first step in trouble shooting, should be to make sure that the chain is a SUNTOUR AP chain.

SUNTOUR tech letter**Micro Drive: Common Questions**

Q: *Does MicroDrive need a special chain ?*

A: Yes, for proper indexing a SUNTOUR chain must be used. Suntour chains required for use with PowerFlo cogs are the CH-AP01, CH-AP11 or CH-AP15.



Q: *What is the gearing ?*

A: The Crank is 20/32/42 and the cassette is 11/24.

Q: *Is the High gear lower than normal ?*

A: No, the 42 X 11 combination gives you almost exactly the same high gear as the current standard 46 X 12. (99.3 vs. 99.7).

Q: *How low is the low gear ?*

A: The 20 X 24 combination yields a 21.7 inch low gear, lower than the 22.3 inch gear from a standard 24 X 28 set up.

Q: *Will there be other gearing available ?*

A: We will have a 44 T Chainring that will push the gearing out to 104 inches, the same as a 48 X 12.

Q: *Will the 11 tooth cog wear out too fast ?*

A: No, we have done a special hardening on the 11 tooth, raising its hardness level to Vickers 700 (by comparison, our competitors' cogs are hardened to Vickers 450). We have been working on 11 tooth cog technology for 6 years now. The biggest problem with 11T cogs is jumping, i.e. the chain skipping forward across the teeth due to lack of sufficient wrap and/or cog wear. We have an exclusive "Wave Cut" on the 11 that eliminates skipping, even when the cog does start to wear.

Q: *What about the wear on the 20 T chainring ?*

A: This ring is stainless steel, so wear is not a problem.

Q: *What is PowerFlo ?*

A: PowerFlo is the name for a new cassette cog and chain system that ensures positive, quiet shifts even under load. All SUNTOUR cassette cogs will feature PowerFlo, XCE through XC-Pro, including the MicroDrive 11/24 cassette.

Freehubs

The SUNTOUR freehub has gone through some dramatic changes in its short life, all of them good.

First, let's talk about why you should want to use freehubs.

Freehubs: Why you should want them**Freehub axles are stronger**

1) A freehub places the right side axle support bearings 9mm (that's less than 3/8 inch) from the right dropout face. This means that when the wheel is getting thrashed about, there is less chance of the axle bending than there is in the traditional hub where the axle bearings are 44mm (that's 1-3/4") from the dropout face. Standard hubs are fine, but;

SUNTOUR Freehub Pawls are stronger

2) A Freehub body (the part the cogs actually sit on) is not short like a freewheel's (our Winner FWs can be built as 5, 6 or 7 speeds, so the body is short) so we have a lot more room inside the body. This, coupled with our special internal design allowed us to put in pawls that are 25% wider than Winner FW pawls, and are in fact the widest freehub pawl out there, so

SUNTOUR Freehub Cogs are simple

3) The Freehub has a single stage spline on the body with the end cog (or end two cogs in the case of the new MicroDrive Freehub) threading on. If you're familiar with the old "U series, L series, T series, C series, B series, R series, A series, and I'm confused about this mess" cog system for freewheels, you will appreciate that all we use are splined 14T through 32T and



threaded 11,12,13 and 14T cogs) for cassettes.

SUNTOUR Freehubs are repairable

4) SUNTOUR freehubs have a body that is removeable and held in place with a threaded steel bolt. If the body does wear, replacement is as easy as with a freewheel.

SUNTOUR Freehubs Shift Better

5) There are arguments that Freewheels allow the use of hubs other than SUNTOUR; this is true. We will always continue to build freewheels to allow the specialist builder the option of using a high tech hub. However, we have noticed that odd-brand hubs often do not have the correct right side hub spacing, causing indexing to suffer (even with a SUNTOUR freewheel installed).

SR SUNTOUR

Technical Tips

Vol.2 No. 1

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SR SUNTOUR

to provide products and services that are better than ever before.

After years of cooperating to provide complete drivetrains, SR and SUNTOUR are linked together under the wing of Mory, a large Japanese steel and materials company.

With the consolidation and streamlining of R&D, materials acquisition, production, sales, shipping, etc. we will be able

You will be seeing innovative, competitive products, without sacrificing the SR SUNTOUR philosophy of good design, cross compatibility, and a minimum of obsolescence. You'll be seeing more of us, as we support you 100%. Best of all, you'll be working on the easiest to adjust, most trouble free line of products ever.

THE "WAVE"

We continually receive questions about the wear of MicroDrive cogs. Riders and mechanics alike are concerned about this issue, so we feel some facts need to be brought to light.

Mathematics tells us that an 11 tooth cog will wear 8% faster than a 12 tooth. While not a huge amount, this is still

significant, and did concern the engineering department.

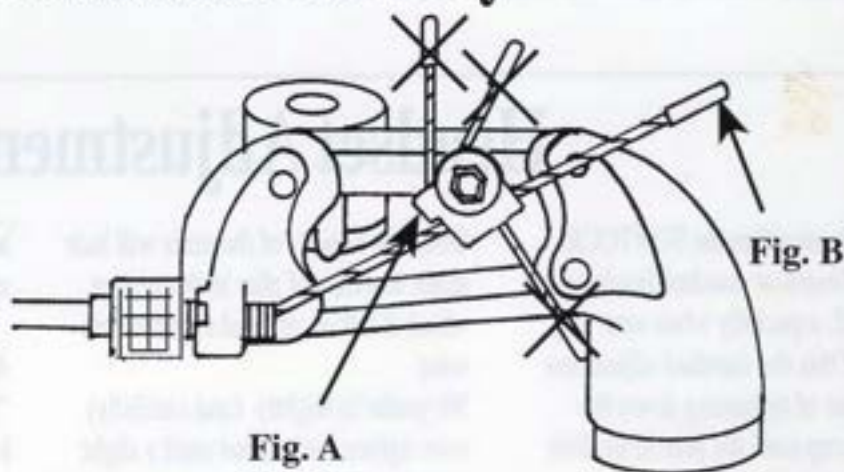
We have designed a cog profile called "Wave Cut" that inhibits skipping of the chain as the cogs wear. Any mechanic will admit that cog wear is not an issue by itself, chain skip is the problem. The Wave Cut prevents chain skip well past the point a traditional cog becomes useless from wear.

Technical Advisory

We have seen a rash of incorrectly installed rear derailleur cables on a variety of new bikes. Although it seems to be minor, changing the exact attachment point of the cable will affect index performance.

For the best shifting, be sure the clamp plate tab (Fig A.) is facing rearward.

The cable should clamp along the spoke side of the cable attachment bolt (Fig. B).



Cantilever Adjustment

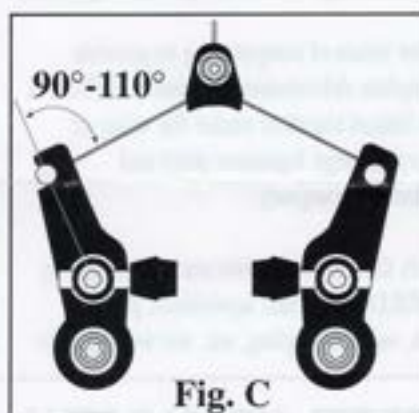
Transverse Cable

All of the cantilever brakes made by SUNTOUR are the Low Profile design. Included in this line-up are the XC-Pro, XC-Comp and the XC-Ltd.

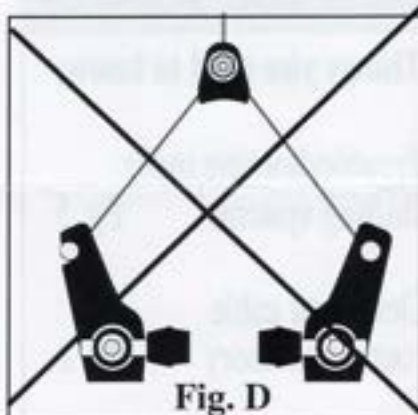
These brakes are characterized by arms that run more upright than earlier design cantilevers.

The advantages to these brakes are many; good power and modulation, excellent clearance for the rider's feet/ legs and yet they are easy to adjust. However, common misconceptions about transverse cable adjustment exists.

Set the transverse cable so it leaves the cantilever arm at approximately a 90° angle. When the adjustment is complete, the cable should look like Fig. C.



Running the transverse cable long will change the mechanical advantage of the brake, resulting in a very weak feel. See Fig. D.



Brake Centering

We are often asked about the centering adjustment of our brakes. The static side is adjustable by setting the spring into one of two holes inside the brake arm, and possibly through the multiple holes in the frame, if available. This sets the overall range of pressure, or lever feel. It is possible to "fine-tune" the lever pressure to suit the individual rider.

The balancing is then achieved by rotating the spring adjusting nut on the other brake arm. It is essential that this nut not be turned when the attachment bolt is tight. It is easier to get an accurate setting by "clicking" the brake lever, momentarily pulling and releasing it, while turning the adjustment nut.

When the brake consistently returns to

a centered position, tighten the attachment bolt.

The adjustment nut requires a 19mm thin walled cone wrench. SUNTOUR makes this (TA-190), and it is in stock here in Kent. Contact your local distributor for a drop shipment.

Headset Adjustment

The seals on either the SUNTOUR Grease Guard or standard headsets are very stiff, especially when new. Because of this the standard adjustment procedure of tightening down the headset cup until the play in the fork disappears is not ideal.

Often the rigidity of the seals will hide slight amounts of play in the system, which if left in can lead to premature wear.

We prefer to slightly (and carefully) over-tighten the headset until a slight rumbling is felt, and then back the

adjusting cup off until the headset just starts to feel smooth, but not loose.

A few days of riding will usually "break-in" the seals, and the headset will loosen up.

Rear Derailleur Adjustment Tips

Derailleur Angle

The first step to adjusting any SUNTOUR derailleur is the proper setting of the "Angle Set Screw" shown in Fig E. In many cases, failing to properly set this adjustment will adversely affect index performance, possibly to the point of total index failure. Before you make any adjustments, set the Angle Adjustment Screw so the body of the derailleur parallels the chainstay. If the bike has elevated

chainstays, use an imaginary line between the center of the bottom bracket and the rear axle. After making all the other index settings, you can fine tune the shifting by setting the angle adjustment screw so the body angles up slightly. Usually 10-15 degrees is the maximum, and exceeding this setting may cause problems.

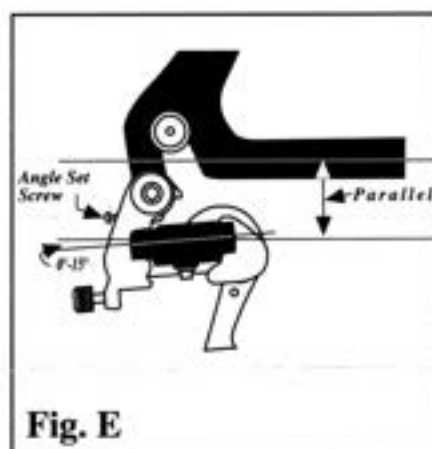


Fig. E

Index Adjustment

If you are having shifting problems, try running through the following steps in this order.

Step One: Make sure the derailleur cable is correctly attached to the derailleur. (See the Technical Alert on page one)

Step Two: Set the derailleur angle correctly. (Fig. E, above right)

Step Three: Make sure the chain is the correct length. It is essential that this be checked with the derailleur angle already set (FIG. E). Shift the chain into the largest chainring and the smallest cog (top gear) and then make sure the bump on the derailleur body (Fig. F) is alongside the dot mark on the side of the chain cage (Fig. F). If these two marks do not line up, then add or remove chain links until they do. Do not turn the angle set screw to line up the marks ! After the final index adjustment is achieved, and if the derailleur is "fine

tuned" with the angle set screw, do not be concerned if the marks fall out of alignment.

Step Four: Set the small cog stop limit screw very accurately. The screw should be set so that with no cable tension pulling the derailleur, the upper jockey pulley sits directly under the smallest cog (Fig. G) This is the starting point for the indexing, so accuracy is crucial ! Setting the large cog stop limit screw is important to prevent overshifting into the spokes, but does not affect index performance.

Step Five: Set the cable adjustment barrel. Usually the best results are achieved when the barrel is turned in small (1/8 turn) increments while continually shifting from the smallest cog to the next. When this shift is clean, check the shifting through the rest of the range and fine tune the barrel if needed.

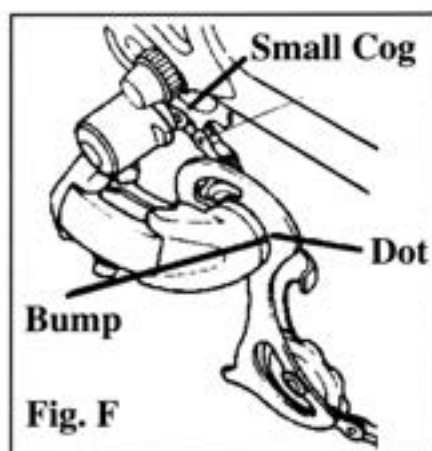


Fig. F

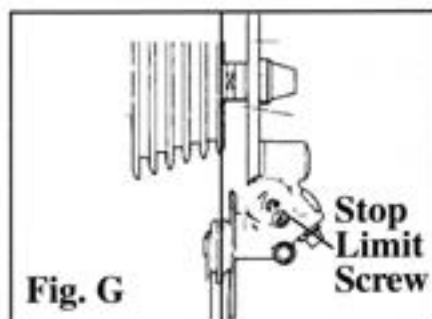


Fig. G

Technical Support Line

The SUNTOUR technical support line is here to help you. Restructured as a part of Support Services, the tech line has a whole new set of goals.

Mike Scott is our primary answer man, and considering his qualifications you should have no problem getting any of your problems resolved.

He started working in bike shops when he was 14, and has spent the last 9 years in retail sales and service positions. He has honed his ability to "think on his feet" through extensive race support, including such prestigious events as the Tour of Texas, Or-Ida, Junior and Senior Nationals and Superweek.

"My extensive retail and race support experience helps me work through technical questions"- Mike Scott, Technical Assistance

The Support Services Division of SR SUNTOUR is supervised by Estelle Gray. An experienced cyclist, Estelle's love of tandem riding has lead her to log over 30,000 tandem miles, and she is the current holder of the Women's Transcontinental Tandem Record. 12 years at R+E cycles in Seattle has

given Estelle the experience needed to set up a cohesive program for supporting your shop. Already we have plans implemented for a series of shop seminars, coming this summer.

"This is the start of a whole new season. Look for our shop seminar series, and the continuing series of Technical Tips" - Estelle Gray, Support Services Supervisor

The technical support line (1-800-782-9253) can help you with troubleshooting, questions about compatibility and set up, or just about anything you need to keep your SR SUNTOUR equipment on-line. We do have a machine that picks up during off hours (we are available from 9-4 Pacific Time) and when the line is in use. If you get the machine during our open hours, please leave a message and we will try to get back to you within the day.

The technical support line is not an order desk. If you want to buy an item that your distributor does not have in stock, then our Drop Shipment program can help you.

If your distributor does not have an item you need, please feel free to ask them to arrange a drop shipment. They can place the order with us through our normal channels, and we will ship the item directly to your door.

In the event you or your distributor are unsure about the availability of an item for a drop shipment, please call us for a stock check. Just dial our sales line (1-800-237-2523) and tell the salesperson that you would like to check stock on an item. We will confirm stock status, give you our exact part number, and even estimate your cost if you like.

Armed with this information, you should have no problems arranging the drop shipment with your distributor.

"Our goal is for every shop in the country to feel that they can depend on us and on our equipment"

SR SUNTOUR Staff

Please remember, we simply do not have the billing system to sell direct, or accept billing authorization from shops. The Drop Ship order must come to us from the distributor.

SR SUNTOUR TECH LINE

1-800-782-9253

Index Troubleshooting

Cables and Casing

For a derailleur to properly index across a range of gears, it is essential that it moves in precise increments. The sole source of control for these movements is the shift lever, often mounted 1500-2000 mm away. It is obvious that the accuracy with which the movements of the shift lever can be transmitted to the derailleur is of paramount importance to the quality of the indexing. The responsibility for this high fidelity transmission falls entirely on the cable/casing set. A very large percentage of indexing problems can be pinned on some type of failure of the cable/casing set.

"A simple test for determining if troublesome indexing is caused or made worse by a cable or casing problem is..."

A common symptom of a cable/casing related problem is when the derailleur is properly adjusted to shift between the smaller cogs, it will overshift across the larger cogs. If the index adjustment is re-set to shift properly on the large cogs, the derailleur misses on the small cog section of the range. The common misconception when faced with this symptom is that the cluster is incorrectly spaced. However, this is seldom the case. A cable/casing problem is usually hindering the perfect control of the derailleur movements by the shift lever. A simple test for determining if troublesome indexing is caused or made worse by a cable/casing problem is this: With the derailleur sitting in the second cog

position (second from smallest), move the shift lever back and forth slightly. Do not move the lever enough to get it to shift into the next index position, just move it about 1/4" to 1/2" (measured at the end of the lever) back and forth. With the lever moving in this small arc, watch the rear derailleur closely. It should very accurately mimic the movements of the shift lever. If it does not move, or only moves very slightly, then you definitely have some kind of cable/casing related problem, and you should check the following items:

Proper Equipment.

The low-compression casing used on all index systems is a very integral part of good shifting, and no substitutes should be made. SUNTOUR low-compression casing is identified by the word "AccuShift" printed on the casing itself. The use of standard casing will severely jeopardize proper index performance.

SUNTOUR index cables are as important as the low compression casing. Our index cables are 1.2mm in diameter, and are re-drawn after initial winding for low-drag operation. They are also coated with a special anti-corrosive, low friction preparation. Do not substitute any other brand of cable, or index performance can be compromised.

Proper Installation. All low-compression casing must be capped for use. The end caps keep the casing from splitting,

and also provide a tight non-flexing fit into the frame stops.

"The common misconception when faced with this symptom is that the cluster is incorrectly spaced. However, this is seldom the case."

The casings are usually correctly sized at the factory, but if not, they must be re-trimmed. The best rule of thumb for length on a mountain bike is to make sure the casing runs from the shift lever to the frame in as short a length as is possible, in gentle curves, and allowing for full turning operation of the handlebars without binding or pulling. When you trim the casing it is a good idea to use an awl or sharpened spoke to open up the end of the inner liner (usually crushed by the cutting operation). Always re-cap the casing. If you do not have extras, the cap on the cut off piece can be re-used. Clamp the discarded piece of casing in a vise with the end cap about 1/2" above the jaws of the vise. Slide the jaws of a pair of pliers or small adjustable wrench under the edge of the cap, and levering against the vise jaws, pry the cap off. Press it onto the casing you intend to use with your fingers. When the casing and cable are re-assembled onto the bike, firmly pull the shift lever a few times to seat the cap completely, and then reset the cable tension.

Component Tips

Freehub Removal

Freehub shells on 1990 and later SUNTOUR cassette freehubs can be removed in the following manner.

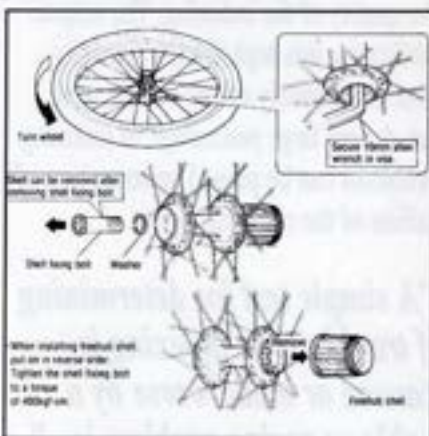
First, remove the axle assembly. Since the spacing on the right side is critical, we suggest that you work only on the left side. Spin the locknut, spacer and cone off the axle completely. On XC-Pro and Superbe Pro freehubs, the left bearing is a cartridge style, so the cone is actually a sleeve nut. With the hardware removed, slide the axle out the right side of the hub, being careful not to drop the loose bearings sitting at the end of the freehub.

With the axle removed, slide the long end of a 10mm Allen wrench into the left side of the hub. Engage the wrench

into the bolt inside the freehub shell, and then turn the wrench counter-clockwise to loosen the bolt. Usually the easiest way to do this is to affix the protruding end of the Allen wrench in a vise, and then turn the rim counter-clockwise. Turn the wrench until the bolt is completely loose, and then drop the bolt out of the body. Be careful not to lose the washer that is under the head of the bolt.

With the bolt removed, gently rock the shell back and forth slightly to loosen it from its seat, and pull it straight off. If you find it impossible to pull off the shell with the bolt removed, thread the bolt back into the body a turn or two, and then gently tap on the end of the Allen wrench to push the shell off.

When re-installing the shell, lubricate the splines on the hub body and the threads on the bolt, and carefully engage the bolt threads into the shell. Ensure that the splines on the hub line up with the splines on the shell, and then carefully tighten the bolt, pulling the shell into place.



Cluster Removal

The cogs on a freehub are removed using a pair of chain whips (SUNTOUR part TA-131). Set the chain portion of one whip onto the largest cog, with the chain wrapped to the left (when facing the cogs). Mount another whip onto the end threaded cog with the chain wrapped to the right. Leverage one whip handle against the other to spin the threaded cog off the body in a counter-clockwise direction. The remainder of the cogs are splined together and will slide off.

Freehub cassette splined cogs are pinned together for convenience, but the cluster can be broken apart by gently prying the

smallest splined cog free. Note that all standard 6 and 7 speed freehubs have a single threaded cog, the smallest one.

NOTE:

All *MicroDrive Freehub* cassettes are held in place by the second position cog (the 12 tooth), so save your strength and spin off the 12 tooth to remove the rest

of the cogs. The 11 and 12 can be separated from each other with the chain whips.

When reinstalling, be sure to lubricate the threads on the end of the body, and tighten the threaded cog securely. Install the cogs in their original orientation.

