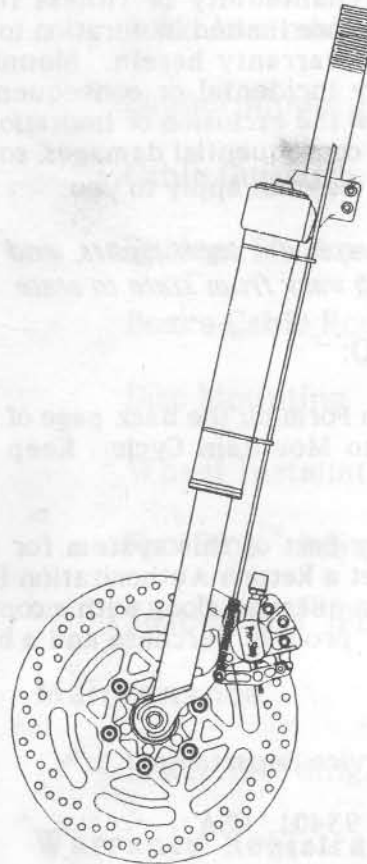


SUSPENDERSTM

System II

with **Pro-StopTM**
Hydraulic Disc Brake

REFERENCE GUIDE



Fold along line

From:

Place
Stamp
Here

MOUNTAIN CYCLE
2494 VICTORIA AVE.
SAN LUIS OBISPO, CA, USA 93401



1 YEAR LIMITED WARRANTY

Any **SUSPENDERS™** or **Pro-Stop™** disc brake found by the factory to be defective in materials and/or workmanship within 1 Year from date of purchase will be repaired or replaced at the option of the manufacturer, free of charge, when received at the factory, freight prepaid. This warranty does not cover damage that may result from abuse or misuse.

Any modification made by the user will render the warranty null and void.

This warranty is expressly in lieu of all other warranties, and any implied warranties of merchantability or fitness for a particular purpose created hereby, are limited in duration to the same duration as the expressed warranty herein. **Mountain Cycle** shall not be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of implied warranties, incidental or consequential damages, so the above limitations and exclusions may not apply to you.

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

WHAT YOU NEED TO DO:

Fill out the Warranty Registration Form on the back page of this guide, and mail a photo copy to Mountain Cycle. Keep the original for your records.

If the need arises to return any part of this system for any reason, call Mountain Cycle to get a Return Authorization (RA) number. Send the part or parts in question along with a copy of the Warranty Registration Form, proof of purchase and a brief explanation of the problem to:

Mountain Cycle
Attn. Customer Service Department.
2494 Victoria Ave.
San Luis Obispo, Ca 93401, USA

Please do not return any product without an RA #.

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Introduction

Congratulations! You have purchased the most sophisticated suspension and braking system ever designed for bicycles - **SUSPENDERS™ System II**. We are confident that your **Mountain Cycle** products will greatly enhance your riding pleasure and performance.

The introduction of new technology may at times require consumers to broaden their mechanical skills. The tips on installation, operation and maintenance contained in this manual will ease this process so please, take the time to read it thoroughly.

Included in the **Installation** section are step by step instructions for setting up the **SUSPENDERS™** fork and **Pro-Stop™** disc brake on your bike.

Additionally, a sub-section on **Fine Tuning** the **SUSPENDERS™** fork gives tips on how to custom configure the fork response for individual rider preference while another describes the **Adjustment** and **Break-in** procedure for the **Pro-Stop™** Hydraulic Disc Brake.

Lastly, the **Maintenance** section includes all the information needed to keep your **SUSPENDERS™** fork and **Pro-Stop™** disc brake operating at their *peak performance* levels.

We at **Mountain Cycle** are dedicated to improving our products so we encourage input from our friends and customers. If you find a problem or a technique not addressed in this document feel free to call, write or fax us. We would love to hear from you.

Mountain Cycle
2494 Victoria Ave.
San Luis Obispo, Ca USA 93401

Phone: (805) 545-8004
Fax: (805) 545-9790

Please fill out your **Warranty Registration** and return it *immediately*. We use this information to improve our product line and update our customers about changes or possible modifications to our products. Thank you.

Installation

The following tools will be required:

3/16" allen wrench
Hacksaw
Loctite (# 242, 262, 271 or 277)
Rubber or composite mallet
Standard hammer
Torque Wrench

SUSPENDERS™ System II should include:

Reference Guide (this document)
Cable
Disc (9.00")
Fork Assembly
Steerer Tube w/adaptor (1.00" & 1.125" only)
Bleed Kit
Box - O - Parts including:

Caliper Assembly
Disc Web
Extra Elastomers (2)
Cable Guides (2)
Bag - O - Parts including:

Cable Ferrule
Cable Mount Bracket
Return Spring
6mm Cap Screws (2)
4mm Buttonhead Cap Screws (6)
Web Bushings (6)
Web Washers (6)
1/16" Allen Wrench

To insure maximum safety and performance from your **SUSPENDERS™ System II** thoroughly read and follow these directions. If, after doing so, you have any problems or questions about the installation, use, adjustment or overall performance of this system please call us for assistance.

Technical Support Line

(805) 545-8067

Wheel Assembly

Remove hub from fork assembly using a 3/16" Allen. Lace the hub to a 32 spoke rim, (36 for Tandem applications), using #14 butted 15 gage spokes. The rim should be centered between the outside of the spacers, not the hub.

NOTE: *Since the rim is not centered about the hub, a spoke length difference of 3mm can be expected between the left and right sides of the hub.*

Steerer Tube Assembly

Insert the steerer tube into the Triple Clamp from the bottom, (Figure 2: Fork Assembly, Pages 5 & 6). When installing a 1.00" or 1.125" steerer use the adapter provided and carefully align the slot with that on the Triple Clamp.

Seat the retaining ring on the steerer into the Triple Clamp, (or into the adapter and the adapter into the Triple Clamp), using a rubber mallet.

Tighten the 5mm Triple Clamp pinch bolts to 8 N•m.

Bearing Race Flange

Install the Bearing Race Flange over the top of the Steerer Tube. To insure a rigid interface between the Flange and Steerer Tube wipe the Steerer free of any oil and apply Loctite, (# 242, 262, 271 or 277), around the flange as you slide it into place.

Clean off any excess Loctite and seat your bearing race against the Triple Clamp over the Flange.

Note: Late 92' Forks may include the Bearing Race Flange on the Steerer Tube. If that is the case, disregard this section.

Note: *The slight interference between the race and flange serves to further tighten the flange on the tube. Be sure this assembly is tight else the headset may loosen during abusive riding.*

Fork Assembly

Install the fork assembly into a completed head-set on the bike. Set the washer and jam nut in place and accurately mark the cut length on the Steerer Tube. The tab on the lock washer will need to be filed off.

Remove the fork assembly and thread the jam nut past the cut point on the Steerer. Cut the Steerer to length. Deburr and chamfer the end with a file. Carefully remove the jam nut and again file any external or internal burrs on the end of the tube. (**Hint:** *For a square cut, wrap a piece of paper around the tube as a guide.*)

Mount the fork assembly, again using a small amount of Loctite on the jam nut.

Caliper Mounting

Position the Pro-Stop™ Caliper on the inboard side of the left dropout as shown in Figure 1.

Install the lower mounting bolt to hold the caliper in place and insert the top bolt through the Cable Mount Bracket as shown.

Tighten each 6mm mounting bolt to 11 N•m.

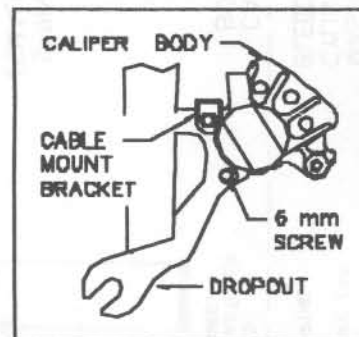


Figure 1: Brake Mounting

Cable Guides

Position the two cable guides on the left fork tube as shown in Figure 2. Place the head of the guide on the left side of the tube, wrap the tie clockwise and thread the end through the "inside" slot in the head. Pull the tie tight around the tube and thread the end back through the remaining slot, leaving a large loop for the cable to pass through.

Warning: *"Cinching" these cable guides tightly around the brake cable can cause inadvertent brake actuation!*

Suspenders™ System II - Assembly Drawing

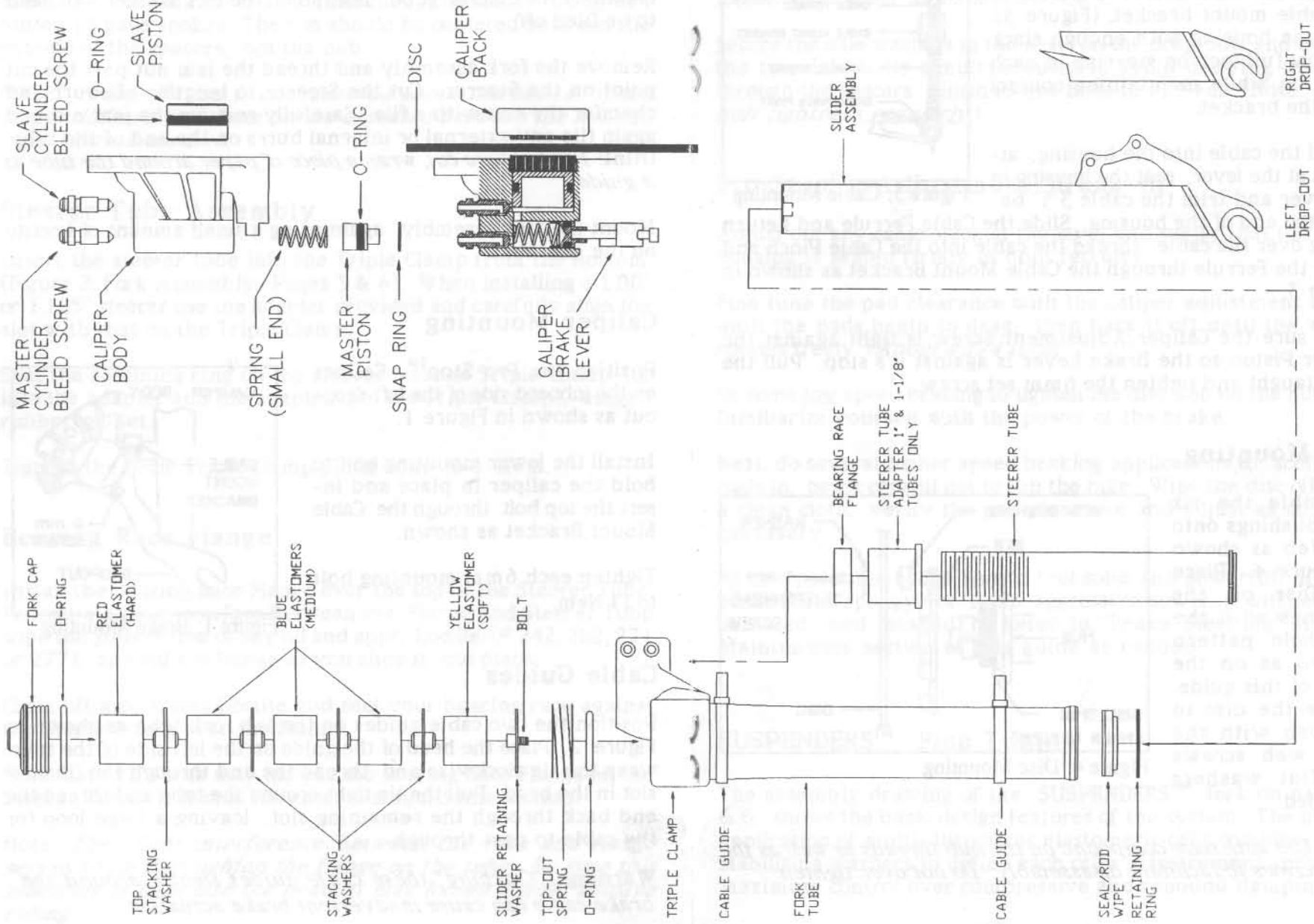


Figure 2: System II Assembly

Brake Cable

Seat the cable housing firmly into the lever ferrule and route the housing through the cable guides to the top of the cable mount bracket, (Figure 3). Trim the housing with enough slack to allow full lock on steering in each direction while maintaining contact with the bracket.

Install the cable into the housing, attach it at the lever, seat the housing in the lever and trim the cable 3.5" beyond the end of the housing. Slide the Cable Ferrule and Return Spring over the cable, thread the cable into the Cable Pinch and insert the Ferrule through the Cable Mount Bracket as shown in Figure 3.

Make sure the Caliper Adjustment Screw is tight against the Master Piston so the Brake Lever is against its stop. Pull the cable taught and tighten the 6mm set screw.

Disc Mounting

Assemble the six Web Bushings onto the Web as shown in Figure 4. Place the Disc on the bushings with the Disc hole pattern aligned as on the cover of this guide. Secure the disc to the web with the 4mm web screws and flat washers provided.

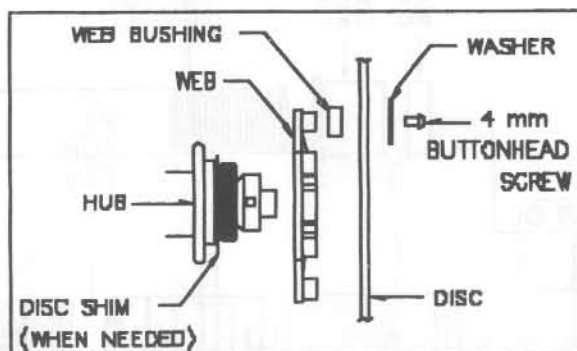


Figure 4: Disc Mounting

Note: Use anti-seize compound on the hub threads as well as the web screws to facilitate disassembly. Do not over tighten.

Wheel Installation

Align the disc between the pads in the caliper and slide the axle into the drop-outs. (Note: *If pad gap is too tight on the disc, loosen the Caliper adjustment screw.*)

Secure the axle washers in the nests on the drop-outs and tighten the two axle bolts simultaneously to avoid drawing the axle through the spacers. Finish torque bolts to 11 N•m. (Note: *Check bolt tightness regularly.*)

Pro-Stop™ Adjustment/Break-in

Adjust out any cable slack at the lever and verify that the cable housing is seated firmly in both ferrules.

Fine tune the pad clearance with the caliper adjustment screw until the pads begin to drag, then back it off until the wheel rotates freely. (*About a 1/4 turn*)

Do some low speed braking to tighten the disc web on the hub and familiarize yourself with the power of the brake.

Next, do several higher speed braking applications to "scuff" the pads in, being careful not to flip the bike. Wipe the disc off with a clean cloth, verify the pad clearance and adjust as above if necessary.

At this point the brake should feel solid and powerful. If your brake feels "spongy" or lacks aggressive power it will need to be "bled" and "staged". Refer to "Brake Bleeding" in the Maintenance section of this guide as needed.

SUSPENDERS™ Fine Tuning

The assembly drawing of the SUSPENDERS™ fork on pages 5 & 6, shows the basic design features of the system. The unique application of multi-durometer elastomeric cells combined with stabilizing washers to define each cell's displacement, provides maximum control over compressive and rebound damping.

SUSPENDERS™ Fine Tuning - Continued

Your SUSPENDERS™ fork is set-up at the factory for a 160 lb. averagely aggressive rider. We suggest you ride the fork "as is" to get a feel for this standard setting, then adjust the fork to your preference.

The two additional, medium density (Blue), elastomers supplied with the system will provide most riders with ample variation in fork response. However, certain applications, (ie 200+lb rider, Tandem's, etc.), may require additional adjustability and to this end, accessory Elastomer kits are available through your dealer.

Referring again to the assembly drawing on pages 5 & 6, the standard Elastomeric stack includes 1 Yellow (soft), 2 Blue (medium) and 1 Red (hard) elastomer.

To change the elastomers, remove the Fork cap using a 6 mm hex wrench. To stiffen the fork response, replace the yellow elastomer with the blue one. To soften it, replace the red with the blue.

Reassemble the fork taking careful note to orient the Elastomers, the three(3) Stacking Washers and the Top Stacking Washer, (labeled "TOP"), as shown in the diagram. Match the second fork's elastomer stack exactly to the first and tighten the Fork Caps. That's it!

Maintenance

SUSPENDERS™ require minimal maintenance. Once they are set to your preference just check the fasteners for tightness as you would on all your components.

If the fork action ever becomes "sticky" the Slider Bearings and Seal can be lubricated with Tri-Flo or a similar light oil. Simply remove the Elastomers and spray a small amount of lubricant on the sliders and around the inside wall of the Fork Tubes. Work the sliders back and forth in the tubes and reassemble.

Warning: Do not attempt to remove the Fork Tubes from the Triple Clamp or the bearings from the Fork Tubes. Damage will result and your Warranty will be voided.

The Pro-Stop™ Brake System does require, as do all brakes, occasional maintenance. The advantages of the system are that the pad/disc geometry is defined and are not a function of the rim straightness. Brake function will be consistently great provided the web bushings are clean and the caliper is properly "bled" and "staged".

To clean the Web Bushings simply spray or wipe them off to remove any debris. The disc needs to be free to "float" on the bushings or it will drag against the pads.

Brake Bleeding

Occasional *Bleeding* and *Staging* of the Pro-Stop™ Brake is required to maintain optimal performance. Generally, once the process is understood, it can be done easily in 5 minutes and should only be required on a monthly or semi-monthly basis.

Bleeding refers to the process of eliminating any air that has been trapped inside the caliper. *Staging* refers to filling the caliper with the proper amount of fluid so the pads can be in close proximity to the disc and still allow for slight adjustments.

To guarantee seal compatibility and brake function use only **Mountain Cycle** Brake fluid. This fluid is supplied in your bleed kit and can be purchased through your dealer or from **Mountain Cycle**.

Bleed/Stage Instructions (Refer to Figure 5)

- Step 1: Draw 3/4" of **Mountain Cycle** Brake Fluid into each of the two syringes.
- Step 2: Stage the master piston depth by rotating the caliper adjustment screw in until the edge of the piston is even with the caliper.
- Step 3: Remove the bleed valve dust caps and attach the syringes to the bleed valves.

- Step 4: Open bleed valves with a 1/4" wrench one turn.
- Step 5: Hold syringes in each hand and gradually push the fluid from one syringe through the caliper into the other and back again.(Figure 5A)
- Step 6: Actuate the lever by hand and repeat Step 5 until all of the air is chased out of the caliper.
- Step 7: Tighten the inboard bleed valve and remove the inboard syringe. (Syringe closest to disc)
- Step 8: Depress the outboard syringe, forcing fluid into the brake to push the pad up against the disc, hold pressure and close the bleed valve.(Figure 5B)
- Step 9: Remove the syringe, wipe any oil from the caliper, tighten the bleed valves and replace the dust caps.
- Step 10: Loosen the Caliper Adjustment Screw until the wheel can spin freely.(Figure 5C)

Note: Once bled and staged the brake should feel solid and powerful. If your brake feels "spongy" or lacks aggressive power repeat the above procedure.

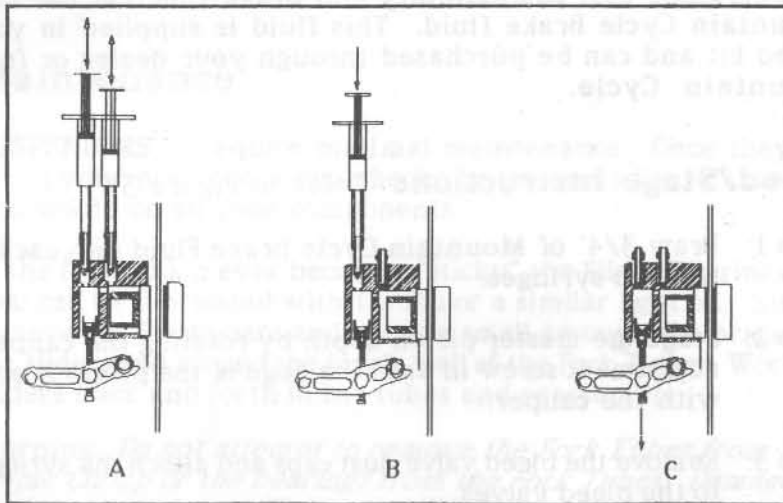


Figure 5: Brake Bleeding and Staging

WARRANTY REGISTRATION

Customer Name _____

Address _____

Phone _____ Fax _____

Dealer Name _____

Address _____

How did you here about Mountain Cycle products?

Dealer Magazine _____ Other _____

Purchase Price (US\$) _____

Bike Type: Mountain Road Tandem Other _____

What Magazines do you read regularly?

Bicycle Guide Mountain & City Southwest Cycling

Bicycling Mountain Bike Action Velo News

Bicycle Dealer Norba News Other _____

What new products would you like to see?

Comments on our products:
